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Does a competent leader make a good friend?
Conflict, ideology and the psychologies of friendship and followership

Lasse Laustsen & Michael Bang Petersen
ll@ps.au.dk/michael@ps.au.dk
(+45) 87165587/(+45) 87165729

Department of Political Science & Government,
Aarhus University, Denmark
Bartholins Allé 7
8000 Aarhus C, Denmark

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Abstract

Research demonstrates that the physical traits of leaders and political candidates influence election outcomes and that subjects favor functionally different physical traits in leaders when their social groups face problems related to war and peace, respectively. Previous research has interpreted these effects as evidence of a problem-sensitive and distinct psychology of followership. In two studies, we extend this research by demonstrating that preferences for physical traits in leaders' faces arise from an integration of both contextual and individual differences related to perceptions of social conflict and that these effects relate only to leader choices. Theoretically, we argue that increased preferences for facial dominance in leaders reflect increased needs for enforced coordinated action when one's group is seen to face threats from other coordinated groups rather than from random natural events. Empirically, we show that preferences for dominant-looking leaders are a function of (1) contextual primes of group-based threats rather than nature-based threats and (2) political ideology (a core measure of perceptions of group-based conflict) such that, across contexts, conservatives prefer dominant-looking leaders more than liberals. For the first time, we demonstrate that the effects of these contextual and individual differences are non-existent when subjects are asked to choose a friend instead of a leader: irrespective of ideology and context, people strongly prefer non-dominant friends. This finding adds significantly to the results of past research and provides evidence of the existence of a distinct psychology of followership that produces leader preferences that are independent of preferences for other social partners.

1. Introduction

Preferences for facial traits in leaders and political candidates have been shown to vary as systematic responses to the context under which the choices of leaders are made. Across a series of studies, subjects show greater preferences for a dominant-looking, masculine leader when primed with scenarios involving between-group conflict and war than when primed with scenarios of between-group cooperation and peace (Hall, Goren, Chaiken, & Todorov, 2009; Little, Burriss, Jones, & Roberts, 2007; Spisak, Homan, Grabo, & van Vugt, 2012; Spisak, Dekker, Krüger, & van Vugt, 2012). Consistent with this, anthropological records show how Native American tribes had different chiefs in times of war and peace, respectively (Hoebel, 1954; Price & van Vugt, 2015).

These findings have been argued to reflect how humans are equipped with a distinct psychological system of followership that processes all of the relevant cues that have correlated with contextual leadership competence over human evolutionary history (for a related perspective, see also Lord, Foti, & De Vader, 1984). Among these cues are the physical features of leaders, including their facial traits. When facing conflict, people prefer a leader capable of the punitive enforcement of collective action: the masculine and dominant-looking leader (see, e.g., von Rueden, Gurven, Kaplan, & Stieglitz, 2014). However, the benefits of having a dominant leader must be traded off against the associated costs: the increased likelihood that a dominant leader will engage in within-group exploitation (Boehm, 2000). When peace relaxes the need for collective action, the ratio between the benefits of punitive enforcement and the costs of exploitation changes and individuals come to prefer a less dominant-looking leader.

In this paper, we provide the first detailed evidence of the psychological trade-offs involved in decisions to follow dominant leaders. First, we replicate the existing findings and demonstrate a contextual effect on the preferences for the facial cues of dominance in leaders. Second, we extend previous research by demonstrating how preferences for facial cues of dominance in leaders reflect

the integration of both external contextual information and internal information related to perceptions of conflict. Specifically, we investigate the role of a key individual difference related to perceptions of the level of social conflict: political ideology. Third, and most importantly, we predict and demonstrate that the effects of both context and ideology on preferences for dominance are unique for leadership preferences and do not generalize to other social relationships, such as preferences for dominance in friends. People have no general preferences for dominant-looking individuals; specifically, it is dominant *leaders* they want, and only so when contextual information and/or individual predisposition suggests the existence of high levels of between-group conflict. We argue that this set of findings provides evidence for a dedicated psychology of adaptive followership that is designed to trade the benefits of having a dominant leader capable of punitively enforcing collective action in conflicts for the costs of having a dominant leader that is relatively likely to engage in within-group exploitation.

1.1. Trade-offs in followership decisions

Leaders hold important positions in social hierarchies and are able to harvest a wide range of resources (Buss, 2009a; de Waal, 1996; Price & van Vugt, 2015). In return for holding these elevated positions, leaders function as the focal point within the groups and potentially orchestrate solutions to collective problems (Price & van Vugt, 2015; van Vugt & Kurzban, 2007). Leaders have therefore most likely been important for the successful navigation of problems related to group living over human evolutionary history (e.g., Price & van Vugt, 2015; van Vugt, 2006; van Vugt and Ahuja, 2010; van Vugt, Hogan, & Kaiser, 2008). Consequently, we should expect natural selection to have selected for a suite of mechanisms constituting a system of adaptive followership psychology regulating leader preferences (van Vugt & Kurzban, 2007). But how should we more specifically expect such computational machinery to be functionally organized?

Myriads of problems have of course faced human social groups repeatedly over evolutionary history. At a general conceptual level, it is possible to differentiate between two overarching types of problems—or "games"—that humans confront: "games against nature" and "games against people" (Kurzban, 2012). To survive and reproduce, all individuals need to deal with problems such as acquiring food, protection from pathogens, building shelter, and protection from natural disasters, including floods and drought (Kaplan & Gurven, 2005; Sugiyama, 2003). Many of these problems require cooperation and collective action—e.g., hunting large game and building shelter—that is facilitated by coordination and enforcement from a leader. In addition to "games against nature," individuals confront people who seek to free-ride, impose their interests or in other ways are motivated by exploitation (Bowles, 2009; Cosmides & Tooby, 1992; Lopez, McDermott, & Petersen, 2011; Wrangham & Peterson, 1997). Navigating these social conflicts—or "games against people"—also requires collective action and, in particular, conflicts often involve collective action in the form of coalitions of individuals that compete against other coalitions (Tooby & Cosmides, 2010). Again, leaders would have served an important function over human evolutionary history in facilitating such behavior.

The existence of these conceptually distinct problems is important from a followership perspective because they put different demands on leader competences. While both "games against nature" and "games against people" require collective action, there is a key difference in the level of collective action required by the two types of games. In terms of level of coordination and invested effort, collective action against nature needs to meet the absolute threshold at which the game is won and the problem solved. Collective action against other groups is different because the required level of coordination and effort is always relative to the opposing group. Whether collective coalitional action is sufficient is a moving target, and group conflict is essentially an arms race between the groups about being the best-coordinated and most-investing group (Bowles, 2009;

Fessler & Holbrook, 2014). In other words: All else equal, coalitional conflict places greater demands on the investments and coordination of group members than many other types of collective action. Accordingly, human followership psychology should be designed to put a premium on abilities to enforce collective action in the face of social conflict.

To ensure contributions to coalitional action (and other types of collective action), one of the most effective tools at the disposal of leaders is punishment (Fehr & Gächter, 2000; Tooby, Cosmides, & Price, 2006; von Rueden, Gurven, Kaplan, & Stieglitz, 2014). Consequently, when making followership decisions in social conflict contexts, human followership psychology should be designed to scan for cues for whether potential leaders are motivated and capable of punishing non-contributors. In this regard, a relevant set of cues relates to the physical traits of leader candidates and, in particular, their physical strength and dominance. Previous research finds that physically stronger individuals are more likely to find utility in aggression (Sell, Tooby, & Cosmides, 2009); that larger individuals are viewed as more likely to win contests than smaller individuals, even among preverbal infants (Thomsen, Frankenhuis, Ingold-Smith, & Carey, 2011); and that people are more likely to withdraw from contests against physically stronger relative to physically weaker opponents (Nguyen, Petersen, Nafziger, & Koch, 2014). Cues of physical strength are also reliably available in the human face in the form of masculinity or facial dominance: a squarer jaw, smaller eyes, thicker, lowered and "bushier" eyebrows, thinner lips, and a larger facial width-to-height ratio (Carre, McCormick, & Mondloch, 2009; Keating, 1985; Keating & Bai, 1986; Sell, Tooby, & Cosmides, 2009; Zilioli et al., 2014). Consistent with the link between facial dominance and strength, some of these facial metrics have been shown to predict an individual's level of aggressiveness and combat skills (Carre & McCormick, 2008; Trebický et al., 2013; Zilioli et al., 2014). Furthermore, facial dominance is well recognized by adults and 3-year-old children alike (Cogsdill, Todorov, Spelke, & Banaji, 2014), suggesting that humans evolved to

be attentive towards facial cues to dominant behavior. Given these reliable effects of physical dominance-related traits on cost-infliction ability and motivation, adaptive followership psychology is likely predisposed towards motivating preferences for physically and facially dominant individuals in contexts of conflict that require extensive coalitional action.

If dominance-related traits exclusively influenced a leader's competence with respect to securing collective action, dominant leaders should be universally preferred. Importantly, however, having a dominant leader is also associated with a specific range of costs and, accordingly, followers must carefully trade these costs against the benefits of the better enforcement of collective action. One key source of costs comes from an association between physical dominance-related traits and selfishness: Physically stronger individuals are more self-interested (Petersen, Sznycer, Sell, Cosmides, & Tooby, 2013), more supportive of inequality and oppression (Price, Kang, Dunn, & Hopkins, 2011), and people tend to view dominance-related physical traits as indicative of dishonesty and untrustworthiness (Buckingham et al., 2006; Jensen & Petersen, 2011; Perrett et al., 1998). While dominant leaders might be better able to "extract" aggressive collective action from group members, they might also be more inclined to use their position as a means to exploit the collective for their own benefit (see also von Rueden, Gurven, Kaplan, & Stieglitz, 2014). This exploitation problem has been acute over human evolutionary history, and people display intense disregard for selfish leaders (Boehm, 2000; Hibbing & Alford, 2004). Accordingly, followers are expected to down-regulate their preferences for dominant leaders in non-conflict contexts (i.e., situations with a less acute need for collective action). In such situations, the benefits of enforcing contributions in between-group conflict from a dominant leader can be outweighed by the costs of within-group exploitation by the same leader. Additionally, a non-dominant leader might be better able to facilitate socially harmonious relations within the group when the threat of conflict is absent.

Consistent with the existence of this trade-off, a range of studies have all found an enhanced

preference for masculine and dominant-looking leaders and political candidates in times of threat from outgroups or war (Hall, Goren, Chaiken, & Todorov, 2009; Little, Burriss, Jones, & Roberts, 2007; Little, Roberts, Jones, & DeBruine 2012; Spisak, Dekker, Krüger, & van Vugt, 2012; Spisak, Homan, Grabo, & van Vugt, 2012). In such coalitional "games against people," collective action is vital. In times of peace in which "games against nature" take priority, the need for coalitional action is less acute and preferences shift towards more feminine and less dominant-looking leaders.[1]

Here, we extend this research in two ways: First, we provide additional evidence on the psychological processes used to evaluate the specific problem-context of the group and, hence, the need for coalitional action. Second, we provide additional evidence for the distinct trade-off involved in leadership choice by testing the extent to which the problem-context influences preferences for dominance in friends who are not expected to take a role in collective action enforcement.

1.2. Mechanisms for assessing problem-context: The role of political ideology

Previous research shows that contextually provided information about the level of conflict modulates preferences for dominance in leaders. Followership decisions, however, are very seldom made under completely clear contextual circumstances. To cope with uncertainty, theories about adaptive decision-making under uncertainty—such as life history theory (e.g., Nettle, Frankenhuis,

[1] Given the association between individuals' facial traits and psychological motivations, we likely evolved to gauge such motivations, in part, from facial features. Still, we should obviously have evolved to utilize a much broader range of cues than merely facial cues. In small groups (as those of our ancestors), people would be acquainted with potential leaders and have many other types of information besides facial features to form impressions of dominance motivations in the potential leaders. Consequently, these experimental studies—in which only facial information is available to subjects—possibly find greater effects of facial features on followership decisions than would be the case outside of the laboratory. At the same time, it should be noted that physical features are not just utilized in impression-formation processes to gauge motivations but also capabilities. Even if other information suggests that a person is motivated to dominate, we might still rely on the person's physical traits in our judgments to gain an impression of whether they have the physical capabilities to back up the lust for dominance.

& Rickard, 2013) and error-management theory (Haselton & Nettle, 2006; Tooby & Cosmides, 1990)—suggest that individuals rely on "forecasts" that reflect internally stored information about the world. To form adaptive followership decisions under uncertainty, it is therefore likely that decisions—in addition to contextual information—reflect individuals' default expectations or "bets" about social environments and the problems inherent in them. This utilization of the relevant stored, internal information should be a feature of the computational organization of followership psychology. To the extent this internal information differs from individual to individual, individual differences in followership decisions will emerge.

One important summary marker of the relevant individual differences in social perceptions is political ideology. Research shows that views on mass politics emerge from mechanisms designed to manage small-scale social interaction (Petersen, 2012), and differences in political ideology have been shown to relate to basic differences in how individuals understand and approach the social world (Alford, Funk, & Hibbing, 2005; Duckitt & Sibley, 2010; Hibbing, Smith & Alford, 2013, 2014; Jost, Federico, & Napier, 2009; Oxley et al., 2008).[2] In particular, research has demonstrated a clear link between conservative ideology and perceived level of between-group conflict. Conservatives relative to liberals (1) view the social world as more competitive (Duckitt & Sibley, 2010), (2) tend to value group-based inequality more (Pratto, Sidanius, Stallworth, & Malle, 1994) and (3) perceive out-groups as more threatening (Duckitt & Sibley, 2010; Smith, Oxley, Hibbing, Alford, & Hibbing, 2011). Furthermore, the priming of coalitional threat has been shown to move

[2] Individual differences in political ideology emerge, in part, from differences in lower-level traits, such as personality (Hibbing, Smith, & Alford, 2013) and life history strategies (Kurzban, Dukes, & Weeden, 2010). The adaptationist study of variation in political ideology is still in its infancy, but the perspectives that have helped researchers understand adaptive individual differences in lower-level traits (e.g., Buss, 2009b; Gurven, von Rueden, Massenkoff, Kaplan, & Vie, 2013) will likely also illuminate individual differences in political ideology (see, e.g., Petersen & Aarøe, 2014). For example, it is likely that within-group differences in default social "bets" (as reflected in ideological positions) are greater today than they were ancestrally, where within-group genetic diversity was likely less (Keinan & Clark, 2012) and group members were exposed to more similar ecological conditions (Gurven, von Rueden, Massenkoff, Kaplan, & Vie, 2013).

people's opinions in a conservative (or, at least, conformist) direction (Navarrete, Kurzban, Fessler, & Kirkpatrick, 2004).[3] In contrast, liberals seem more attuned than conservatives to "games against nature" in the form of non-coalitional threats such as environmental hazards (Dunlap, Xiao, & McCright, 2001). Paralleling the effects of contextual information about conflict levels, we therefore predict that conservatives relative to liberals should favor dominant leaders—suited for the punitive enforcement of coalitional action—while liberals should favor non-dominant leaders. Hibbing, Smith, and Alford (2013, 44–55, 96–103) review evidence related to this and find that conservatives generally prefer a more dominant leadership style than do liberals.

Integrating this new prediction with previously established results, we predict that valid information from both problem context and internal predispositions in the form of individual political ideology should simultaneously serve as inputs to the psychological system of followership and subsequently affect leader choice (the *leader choice prediction*).

1.3. Trade-offs in followership and friendship decisions

Existing research falls short on a particular dimension: Demonstrating that the contextual modulation of leader choice indeed reflects the existence of a distinct psychology of followership. That is, do findings from past research reflect computational machinery shaped by the specific adaptive trade-offs related to followership decisions? Or are the findings better interpreted as reflections of a general pattern in preferences for social partners? This has yet to be tested.

Choosing a leader poses different adaptive problems than making other social partner choices

[3] From political movements associated with the left (e.g., related to the rights of workers, women, and minorities), liberalism can clearly be paired with a perception of between-group conflict (e.g., capitalists versus workers). On average, however, the evidence shows that liberal individuals see the social world as less competitive. Moreover, a key difference remains between liberals and conservatives, even when both engage in group-based conflict: Conservatives seem to *value* between-group dominance more than liberals (Pratto, Sidanius, Stallworth, & Malle, 2004) and, hence, will view offensive coalitional action as more valuable.

and, according to an adaptationist perspective, should therefore be processed using specialized inference mechanisms (Tooby & Cosmides, 1992). Here, we specifically compare choices about leaders and choices about friends. Over human evolutionary history, friends have performed multiple roles, including as allies (DeScioli & Kurzban, 2009) and exchange partners (Tooby & Cosmides, 1996). In such contexts, valuable friends are those who are willing to return our investments in them, either by providing backup or helping us in situations of need. By implication, as friends we must seek out individuals whose welfare is specifically yoked to ours and, hence, who are therefore particularly likely to invest in us rather than other potential recipients.

These observations are important in relation to our current purpose of testing the distinctiveness of the followership psychology because they imply (1) that the benefits of having a dominant friend are less than the benefits of having a dominant leader and (2) that the costs of having a dominant friend are greater than the costs of having a dominant leader. First, to the extent that a key benefit of dominant leaders is the enforcement of participation in multi-person collective action, the benefits of dominance are tied to a service that is not part of friendships. The value of friends does not come from their respective abilities to make others willing to invest in collective goods but from *their* willingness to invest in *us*. Second, many of the diverse qualities that can be valued in leaders, such as impartiality (see, e.g., Boehm, 2000) and dominance, are counter-adaptive to value when choosing friends. In particular, the link between exploitive behavioral tendencies and dominance makes it even more costly to have a dominant friend than a dominant leader (e.g., Snyder et al., 2011; Stirrat & Perrett, 2010); both because the close nature of the relationship provides greater opportunity for exploitation and because the primary benefit of a friend is the willingness to provide help in need (i.e., be non-exploitive).

The implication of these observations is that while perceptions of threat (whether caused by context or individual predispositions) should up-regulate preferences for dominant leaders (in part,

due to a down-regulation of the attention towards potential exploitation from the leader), there is no reason to expect a similar up-regulation for dominance in friends; people should generally prefer non-dominant, cooperatively minded persons as friends (Tooby & Cosmides, 1996).[4]

In sum, we argue that the influence of problem context ("games against nature" vs. "games against people") and political ideology on preferences for physical traits in leaders emerges from a particular set of psychological trade-offs related to followership decisions. In the context of friendship decisions, these trade-offs are different. If valid, we should expect that the effects of context and ideology on facial preferences are specific to choices of leaders and not generalizable to choices of social relationships in general—such as choosing a friend. This constitutes our *distinctiveness prediction*: Problem context ("games against nature" vs. "games against people") and political ideology only affects choice of leader, not choice of friend.

2. Methods and materials

Past research has provided evidence for the existence of context-sensitive preferences for physical traits in leaders in the US, Netherlands and the UK. In order to replicate these findings and add new evidence in favor of a distinct psychology of followership, we investigate preferences for physical traits in leaders in a country that resembles the previously used countries: Denmark. Consistent with previous research, we assessed preferences for physical traits using a vignette set-up and pictures of manipulated faces of potential leaders and, in line with increasing awareness regarding replicability (Cesario, 2014), we report data from two independent studies designed to test the predictions.[5]

[4] Of course, this does not mean that other types of contextual variation and individual differences in general will not influence friendship preferences. Yet the trade-offs involved in the choice of friends are different from the trade-offs involved in followership decisions.

[5] Replication data and command files are available at Dataverse Network (thedata.org): http://dx.doi.org/10.7910/DVN/28547

2.1.Experiment and procedure

For the vignettes, our aim was to construct scenarios that would enable us to simultaneously assess both choices of leaders and friends. Using a set-up from Antonakis and Dalgas (2009) as inspiration, we created scenarios focused on being on board a ship in the 18th century that was about to head home from the New to the Old World. The scenario came in two versions through which we experimentally manipulated the context of the choices by randomly assigning subjects to either a "game against people" scenario or a "game against nature" scenario. In the "game against people" condition, subjects were told that the surrounding waters were pirate-filled and the crew therefore had to be prepared for combat. In the "game against nature" condition, subjects were told that the voyage was at risk due to bad weather, and the crew therefore had to trust each other and be prepared to cooperate. In both the pirate ("game against people") and storm ("game against nature") scenarios, subjects are facing an outside threat, which is stressed as being potentially fatal in both scenarios. That is, this manipulation varies the type of problem facing the subject's group, but the level of threat is held constant (see Online Supplementary Material A.1. for full wording of stories). After reading the contextual vignette, subjects were confronted with two decisions: choice of captain and choice of cabin mate. For each decision, they were presented with pairs of face pictures from which they chose their preferred leader or friend (see subsection "Faces" and Figure 1 below).

2.2. Studies 1 and 2

This general set-up was used to test our predictions in two separate experimental studies. The scenarios used and the potential leaders were exactly the same in both studies. The studies, however, differed in terms of data gathering technique. Study 1 is a paper-and-pencil style survey experiment in which 83 undergraduate students participated as part of class participation. Subjects were randomly assigned to either the pirate or the storm scenario and asked to choose their

preferred captain (leader) and cabin mate (friend). Due to the paper-and-pencil format of Study 1, we were unable to randomize the order in which subjects chose their preferred captain and friend, nor were we able to randomize the relative position of the two faces within each face pair. These limitations were remedied in Study 2. Study 2 was collected online using Qualtrics, for which reason we could randomize both the experimental condition, order of choices, and the relative positions of the faces across subjects. Study 2, consisting of 234 subjects, was conducted among students from another Danish university. In both studies, the subjects also indicated their preferred political party, which serves as proxy for ideology. Subjects were grouped into a liberal or a conservative dichotomy on the basis of the placement of their preferred party on the liberal–conservative scale (cf. the latest Danish Election Survey) (the Online Supplementary Material A.2 provides further information about the coding procedure of ideology from party affiliations).

2.3. Faces

The faces used in Studies 1 and 2 are identical. They were chosen in order to represent a prototypical dominant and non-dominant male face, respectively.[6] Two different pairs of faces were used such that the preferences for the leader (captain) and friend (cabin mate) were obtained for different pairs. From an open access database of digitally created faces maintained by Alexander Todorov (for more information about the faces, see Oosterhof & Todorov, 2008), we collected two versions of the same face. The versions varied in terms of dominance. Specifically, in terms of dominance, the versions were two standard deviations above and below, respectively, a dominance-neutral version of each target face. To provide extra validation of the dominance variation, we conducted a small pilot study that revealed that the person with the presumed dominant face was indeed also viewed by the Danish respondents as more dominant (for both face pairs 1 and 2: 89%

[6] While we used male faces in these studies, previous work suggests that dominance-related traits are processed similarly in male and female faces (Spisak, Dekker, Krüger, & van Vugt, 2012).

vs. 11%; t-test of difference: $t = 5.10$; $p < .001$) and physically stronger (face pair 1: 83% vs. 17%; t-test of difference: $t = 3.69$; $p = .002$; face pair 2: 94% vs. 6%; t-test of difference: $t = 8.00$; $p < .001$). Consistent with the arguments above that dominant faces are also viewed as dishonest and untrustworthy, respondents also rated the dominant face to be more unfriendly (face pair 1: 100% vs. 0%; t-test not possible; face pair 2: 94% vs. 6%; t-test of difference: $t = 8.00$; $p < .001$). See the faces in Figure 1.

"Figure 1 about here"

2.4. Statistical analysis

We analyze the data using logistic regression in order to test the explanatory power of the contextual scenario and the political ideology of the subjects on preferences for the dominant and non-dominant faces in relation to the choices of leaders and friends. To simplify the comparison of the effects of the two independent variables—context (pirate coded "1", storm "0") and political ideology (rightwing coded "1", leftwing "0")—these are both dichotomies. We report regression coefficients and the corresponding odds ratios, showing the predicted probabilities for choosing the dominant face in each of the two problem contexts for conservative and liberal subjects, respectively. Finally, all of the reported P-values are from two-sided tests of significance.

3. Results

Our *leader choice prediction* expects that the problem context and political ideology of the subjects jointly influence leader choice. More specifically, we expect the context to cause the subjects to choose the dominant-looking individual as the captain in the pirate condition more often than in the storm condition. Likewise, we also expect the individual's ideology to affect the choice of leader

parallel to the context effect such that conservative individuals choose the dominant-looking individual as captain more often than do liberal individuals.

The *leader choice prediction* is supported in both Studies 1 and 2, where context (Study 1: b = .97, odds ratio = 2.63, p = .05; Study 2: b = .53, odds ratio = 1.69, p = .06) and political ideology (Study 1: b = 1.44, odds ratio = 4.23, p = .02; Study 2: b = .58, odds ratio = 1.79, p = .04) predicts leader choice in the expected direction. Two independent, main effects of context and political ideology are found in both studies. Full models for these results are reported in Models A (Study 1) and C (Study 2) in Table 1.

"Table 1 about here"

For subjects in the pirate condition compared to those in the storm condition, the odds for choosing the dominant, physically strong-looking leader is 163% (Study 1) and 69% (Study 2) higher. Simultaneously, the odds that conservative subjects choose the dominant-looking leader are 323% (Study 1) and 79% (Study 2) higher than for liberal subjects (see Online Supplementary Material B. for any potential interactions between context and ideology).

Next, the question becomes whether or not these differences in facial preferences are specific for leader choices and followership decisions. Hence, we tested *the distinctiveness prediction* and whether context and political ideology also influence the choice of friend (cabin mate) or relate distinctively to leader preferences. We expect the latter—in other words, we anticipate that context and subjects' political ideology are unrelated to choice of friends. Friends are valuable when they are trustworthy, friendly, and care for one's welfare (Tooby & Cosmides, 1996). This should apply independently of the problems facing the larger collective and the individual's socio-ideological outlook. Again, we find support for our hypothesis since—as expected—the results for choice of

friend completely differ from the results found for choice of leader, with no significant effects of context (Study 1: b = –.04, odds ratio = .97, p = .96; Study 2: b = –.00, odds ratio = 1.00, p = 1.00) and political ideology (Study 1: b = –1.42, odds ratio = .24, p = .19; Study 2: b = –.01, odds ratio = .99, p = .99). The full models for these results are reported in Models B (Study 1) and D (Study 2) in Table 1. Almost all of the subjects pick the friendly, non-dominant-looking individual as friend and cabin mate: In Study 1, the non-dominant individual was chosen by 88% of all subjects as opposed to the 12% who picked the dominant individual ($p < .001$). However, there is a slight tendency—although still insignificant—for liberals to choose the dominant-looking person as cabin mate more often than conservatives. That is, based only on Study 1, neither context nor ideology relate to cabin mate choices; if anything, the effect of ideology on choice of friend is the opposite of its effect on choice of leader. Likewise, in Study 2, 82% of the subjects choose the non-dominant face as opposed to 18% favoring the dominant face as cabin mate ($p < .001$). Furthermore, for Study 2, the full randomization of the order of choices has further washed away any trends towards an effect of ideology. To illustrate the strong divergence between choice of leader and choice of friend, Figure 2 shows the predicted probabilities for choosing the dominant face as captain and cabin mate in the pirate and storm conditions, respectively.

"Figure 2 about here"

Altogether, these results support both *the leader choice prediction* and *the distinctiveness prediction*, indicating that the factors influencing leader choice—problem context and ideology—are specifically related to this choice and do not affect the choice of friends and social relations in general.

Our findings are potentially open for another interpretation. Snyder et al. (2011) show that

women's fear of crime positively predicts their preference for a dominant and physically formidable mate. Consequently, to demonstrate that our findings are driven by an adaptive followership psychology rather than female mate choices, we need to show that our effects do not emerge because only female subjects' change their facial preferences in the face of conflict but that both males and females are equally likely to do so. Also, from a mating perspective, there should be no difference between the captain and cabin mate choice situation. Both constitute a potential mate and, accordingly, the prediction from a mating perspective would be that females should, in fact, also show a change in preferences under conflict conditions for the cabin mate. We investigated the interaction between respondent sex and contextual condition for both choices and in both Studies 1 and 2. None of these interactions are significant (see Online Supplementary Material C. for full models); hence, we can reject the hypothesis that our findings are driven exclusively by modulations of female mating preferences.[7]

4. Discussion

Across two studies we replicate the central finding in previous research on preferences for leader faces that a more dominant, masculine, and physically strong-looking face is preferred more in times of war than in times of peace. In line with previous studies, we interpret these results as

[7] From a mating perspective one could also argue that if the female preference for physically dominant mates is not limited to contexts of crime but driven by danger risks in general, then we should see that female subjects have a stronger preference for the dominant face when choosing both captain and cabin mate. That is, however, not the case. Including subject sex (coded "0" for female and "1" for male) in the analyses reveals that, in Study 1, females trend towards having a weaker preference for a dominant captain (b = –.74, odds ratio = .48, p = .14) but a stronger preference for a dominant cabin mate (b = .64, odds ratio = 1.89, p = .36). In Study 2 we find no effect of subject sex on choice of captain (b = –.05, odds ratio = .95, p = .86) and that females have a significantly weaker preference for a dominant cabin mate than males (b = .72, odds ratio = 2.05, p = .05). In sum, these results do not support the hypothesis that females generally prefer dominant individuals more than males and thereby cause the presented results (see Online Supplementary Material C for full models).

indication that humans hold context-sensitive leader preferences regulated by an evolved followership psychology. Relative to previous studies, we extend the basis for this interpretation in several ways. First, rather than deducing the existence of followership psychology from an experiment about abstract mass politics, we utilized a setting (a ship with a limited number of fellow crew members) that mimics the social scale of ancestral life in small hunter-gatherer bands. Second, within this storyline, we clarify which specific contextual difference between war and peace causes the differences in preferences for dominant leadership. Specifically, we show that the presence of *a human threat* (i.e., the pirates) as opposed to *a threat from nature* (the storm) significantly increases the demands for dominant-looking leaders. That is, holding the level of threat constant, "games against people" (specifically, other groups) call for heightened coordination relative to "games against nature;" and this need, we have shown, makes people prefer a dominant-looking leader capable of punitively enforcing coordination. Third, we find that the effects of external contextual information are paralleled by the effects of internally stored information in the form of default perceptions about social conflict. Using political ideology as a summary marker of relevant individual differences, we showed that conservative subjects prefer the dominant, strong-looking leader across contexts, whereas liberal subjects prefer the non-dominant-looking leader. Conservative individuals make decisions as if the collective is threatened by out-group coalitions more than do liberals. This suggests that the individual differences underlying ideology matter for leader preferences, because these differences have downstream influences on social perceptions which are then picked up by our evolved psychology of followership.

However, our most important finding is that the contextual and ideological effects are *distinctly related* to choice of leader and not choice of friend. In this regard, our studies have provided important new evidence. This supports the widespread—yet, previously untested—assumption about the existence of a dedicated psychology of followership. Across two independent studies, we

show that both problem context and individual differences in political ideology specifically influence preferences for the physical characteristics of leaders rather than of social partners in general. Hence, the conservative preference for dominant individuals exclusively relates to leaders. Conservatives like strong, tough-minded leaders but not strong, tough-minded individuals in general. Worth noting is also the parallelism of the (lack of) effects of ideology and context on cabin mate preference. This again suggests that the two kinds of input (environmental cues and individual differences) feed through the same psychological mechanisms.

These findings could potentially change how researchers approach the study of the effects of the facial features of leader candidates on success in real-world contexts such as democratic elections. Previous research has argued that the effect of politicians' facial features on their electoral success reflects various forms of matching processes whereby voters seek candidates that are similar to themselves. One version argues that voters hold stereotypes about how candidates from different parties look and behave and, on that basis, voters are argued to seek out the candidate that best matches the stereotype of their preferred party (Goren, 2007; Hayes, 2005; Olivola, Sussman, Tsetsos, Kang, & Todorov, 2012; Rule & Ambady, 2010;). Another version argues that voters search and vote for candidates with personalities and faces resembling their own (Bailenson, Iyengar, Yee, & Collins, 2008; Caprara, Barbaranelli, Consiglio, Picconi, & Zimbardo, 2003;). A theory focused on similarity-oriented matching, however, cannot account for the finding of a divergence in facial preferences when making choices about leaders and friends. On the matching account, these two sets of preferences should be the same. Instead, the data presented here suggests that leader (and candidate) preferences should—at least also—be analyzed from an adaptationist perspective: Followers (and voters) draw on evolved psychological mechanisms to align themselves with the candidate they believe most capable of solving the problems confronting society at a given point in time.

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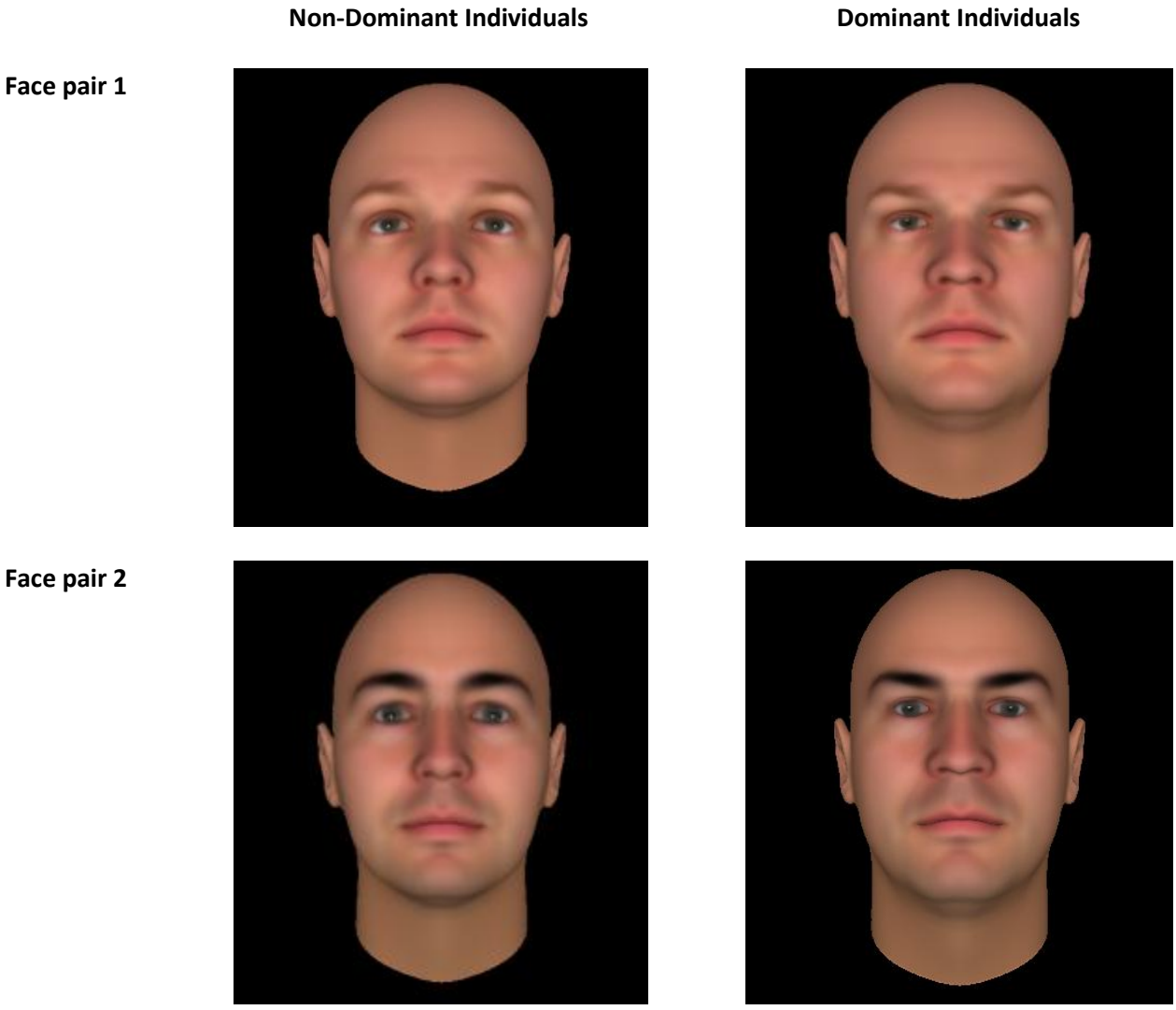
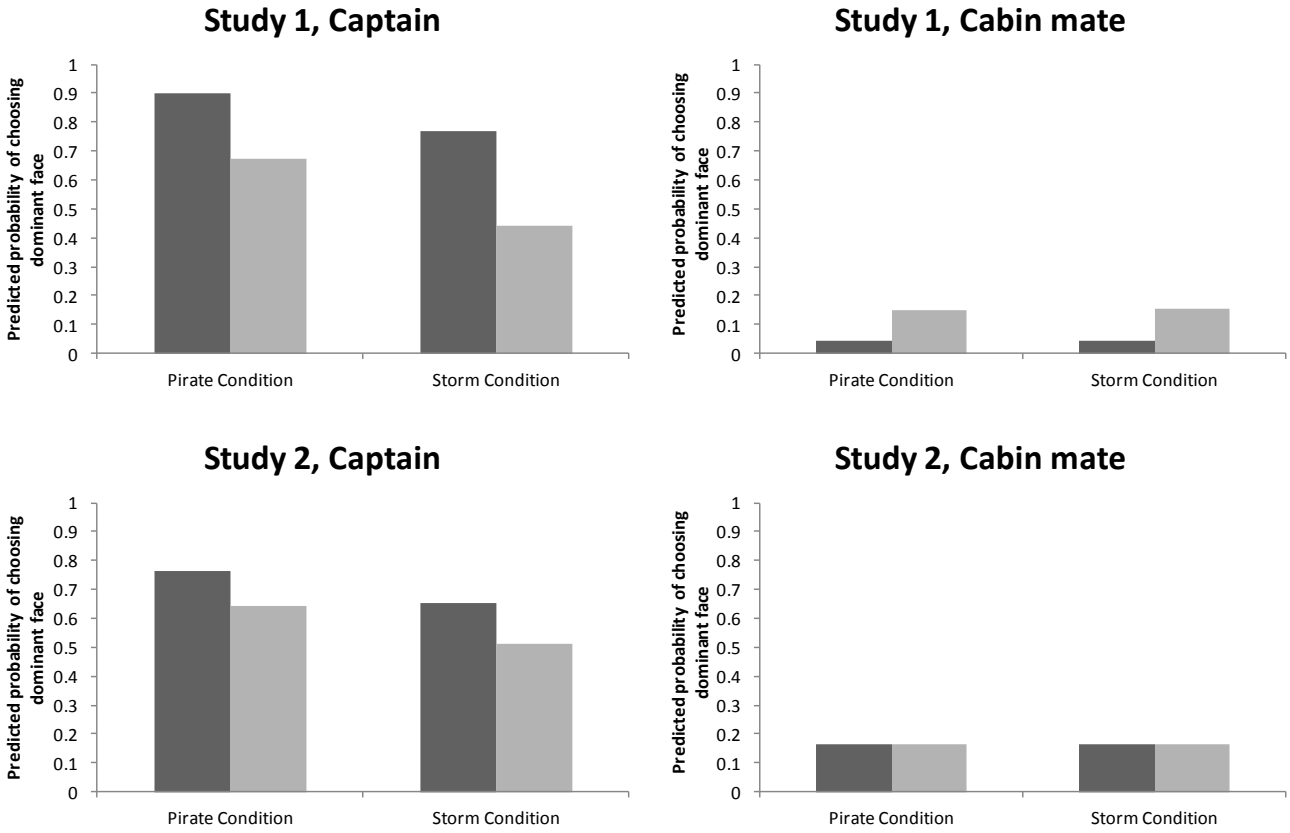
Figures

FIGURE 1 *Facial stimuli used in Studies 1 and 2*



Note: Faces taken from the open access face database created by Oosterhof and Todorov (2008).

FIGURE 2 *Predicted probabilities for choosing the dominant face as captain or cabin mate in Studies 1 and 2. Within each panel, bars show predicted probabilities for the pirate condition (to the left) and storm condition (to the right), respectively. Dark grey bars show predicted probabilities for conservative subjects and light grey bars for liberal subjects.*



Note: Number of subjects: Study 1 (n = 83); Study 2 (n = 234).

Tables

TABLE 1 *Logistic regressions for Studies 1 (Models A and B) and 2 (Models C and D). Effects of ideology and context on choice of non-dominant face (coded 0) vs. dominant face (coded 1) as captain (Models A and C) or cabin mate (Models B and D). Table shows odds ratios (standard errors in parentheses) and 95% confidence intervals.*

	Study 1				**Study 2**			
	Model A (Captain)		*Model B* (Cabin mate)		*Model C* (Captain)		*Model D* (Cabin mate)	
	OR	95% CI	*OR*	95% CI	*OR*	95% CI	*OR*	95% CI
Context	2.63 (1.29)*	1.01, 6.88	.97 (.66)	.25, 3.68	1.69 (.47)†	.98, 2.92	1.00 (.36)	.50, 2.10
Ideology	4.23 (2.63)*	1.25, 14.32	.24 (.26)	.03, 2.02	1.79 (.50)*	1.03, 3.11	.99 (.35)	.49, 2.00
Constant	.79 (.28)	.39, 1.59	.18 (.09)**	.07, .49	1.06 (.24)	.68, 1.66	.19 (.59)***	.11, .35
N	83		83		234		234	
Pseudo R^2	.09		.04		.02		.00	

Note: † p < .10; * p < .05; ** p < .01; *** p < .001. All p-values reported for two-tailed tests. Dichotomous ideology measure coded "0" for liberal and "1" for conservative subjects. Context coded "0" for storm condition and "1" for pirate condition.

Online Supplementary Material

Does a competent leader make a good friend?
Conflict, ideology and the psychologies of friendship and followership

A. Additional information on materials for Studies 1 and 2

A.1 Vignettes

Below are English translations of the vignettes from Studies 1 and 2. The vignettes were originally written and shown to respondents in Danish, as all of the respondents were Danes. For the sake of simplicity, the vignettes are presented below as they were shown to subjects in Study 1; that is, choice of captain was always presented prior to choice of cabin mate. Importantly, the order of these two choices was randomized in Study 2, and the subjects clicked on their preferred individual instead of marking him with a circle.

<u>"Game against nature" condition—storm scenario:</u>

Imagine that you are a sailor in the middle of the 18th century. You are in the West Indies. You have signed up for a voyage that will bring a valuable shipment from the islands back to Denmark.

The seas around the West Indies are filled with hurricanes and bad weather, which can strike without warning. To ensure the ship's safe return to Denmark, it is crucial that the crew members trust each other and work well together if rough weather strikes. A good captain to lead the crew is likely to make the difference between survival and death.

Below are two persons on board the ship. Whom do you prefer to lead the ship and the crew safely back to Denmark? Put a circle around the person that you prefer.

[Below this first pair of pictures the text continued:]

When not on duty, most time is spent in your cabin.

Below are two other persons on board the ship. Whom do you prefer as your cabin mate for the voyage back to Denmark? Put a circle around the person you prefer.

"Game against people" condition—pirate scenario:

Imagine that you are a sailor in the middle of the 18th century. You are in the West Indies. You have signed up for a voyage that will bring a valuable shipment from the islands back to Denmark.
The seas around the West Indies are filled with pirates who attack heavily loaded ships like yours without any hesitation. To secure the ship's safe return to Denmark, it is crucial that the crew is prepared for combat and able to defend themselves thoroughly if the pirates attack. A good captain to lead the crew is likely to make the difference between survival and death.

Below are two persons on board the ship. Whom do you prefer to lead the ship and crew safely back to Denmark? Put a circle around the person that you prefer.

[Below this first pair of pictures the text continued:]

When not on duty, most time is spent in your cabin.

Below are two other persons on board the ship. Whom do you prefer as your cabin mate for the voyage back to Denmark? Put a circle around the person you prefer.

A.2 Measurement of ideology

Subjects were grouped into liberal and conservative blocks depending on their indicated party preferences. Subjects were coded "0" as liberal if they voted for a party in the left-of-center block (*Enhedslisten, Radikale Venstre, SF* and *Socialdemokraterne*). Subjects were coded "1" as conservative if they voted for a party in the right-of-center block (*Dansk Folkeparti, Konservative Folkeparti, Kristeligt Folkeparti, Liberal Alliance* and *Venstre*). We ground this division of subjects based on their party preferences on two observations. First, respondents in the 2007 National Danish Election Study (the latest national election from which data is publicly available) have placed the Danish parties on a 0–10 liberal–conservative scale ("10" representing the most conservative position). The order of the parties on this scale strongly supports our grouping (parties

ordered from most liberal party to most conservative party with their average scores in parentheses): Enhedslisten (2.14), SF (3.54), Socialdemokraterne (4.93), Radikale Venstre (5.31), KristenDemokraterne (until 2003 named Kristeligt Folkeparti: 5.68), Liberal Alliance (until 2007 named Ny Alliance: 6.55), Dansk Folkeparti (7.48), Venstre (7.84), Konservative Folkeparti (7.89). Second, the historical record of party alliances in Denmark over (at least) the last 20 years further supports our grouping. From 1994 to 2001, Socialdemokraterne and Radikale Venstre held government, supported by SF and Enhedslisten. From 2001 to 2011, Venstre and Konservative held government with support from Dansk Folkeparti and Liberal Alliance (called Ny Alliance before 2007). From 2011, Socialdemokraterne and Radikale Venstre hold government with support from SF (even part of the government until January 2014) and Enhedslisten. In this time period, the ninth and last party—Kristendemokraterne—was only represented in parliament with 4 seats from 1998-2005 and the party was not part of government in these years.

A.3 Selection and validation of faces for Studies 1 and 2

The photo pairs used in Studies 1 and 2 were chosen such that one picture represented a prototypical dominant and the other a prototypical non-dominant face. Two different pairs of pictures were used such that preferences for the captain and cabin mate were obtained towards different pairs. Figure 1 in the main text shows the faces.

The faces were taken from an open access data base kept by Alexander Todorov (Oosterhof & Todorov, 2008) and tested for differences on our four focal traits: attractiveness, friendliness, physical strength, and dominance. As expected, more subjects in the rating survey saw the dominant face as the most dominant face (for both face pairs 1 and 2: 89% vs. 11%; t-test of difference: $t = 5.10$; $p < .001$) and physically strong face (face pair 1: 83% vs. 17%; t-test of difference: $t = 3.69$; $p = .002$; face pair 2: 94% vs. 6%; t-test of difference: $t = 8.00$; $p < .001$), whereas more subjects saw

the presumed non-dominant face as the most friendly (face pair 1: 100% vs. 0%; t-test not possible; face pair 2: 94% vs. 6%; t-test of difference: $t = 8.00$; $p < .001$) and attractive (for both face pairs 1 and 2: 89% vs. 11%; t-test of difference: $t = 5.10$; $p < .001$). Finally, it turned out that subjects tended to see the non-dominant face as slightly more competent-looking than the dominant face (face pair 1: 77.8% vs. 22.2%; t-test of difference: $t = 2.76$, $p = .014$; face pair 2: 66.7% vs. 33.3%; t-test of difference: $t = 1.46$, $p = .163$).

B. Potential context × ideology interactions for Studies 1 and 2

One could expect that besides the two main effects of context and ideology on choice of captain, the two variables might interact. We tested this possibility in both Studies 1 and 2:

TABLE B.1 *Logistic regressions for Studies 1 (Models A and B) and 2 (Models C and D). Effects of ideology, context, and the context×ideology interaction on choice of non-dominant face (coded 0) vs. dominant face (coded 1) as captain (Models A and C) or cabin mate (Models B and D). Table shows odds ratios (standard errors in parentheses) and 95% confidence intervals.*

	Study 1				**Study 2**			
	Model A (Choice of captain)		*Model B (Choice of cabin mate)*		*Model C (Choice of captain)*		*Model D (Choice of cabin mate)*	
	OR	95% CI			*OR*	95% CI	*OR*	95% CI
Context	3.31 (1.81)*	1.13, 9.68			1.94 (.70)†	.96, 3.92	2.00 (1.00)	.75, 5.34
Ideology	7.08 (6.10)*	1.31, 38.33			2.18 (.84)*	1.03, 4.63	2.10 (1.09)	.76, 5.78
Context × ideology	.30 (.37)	.03, 3.34			.68 (.38)	.22, 2.04	.21 (.16)*	.05, .93
Constant	.71 (.27)	.34, 1.48			.97 (.25)	.59, 1.60	.13 (.05)***	.06, .28
N	83				234		234	
Pseudo R^2	.10				.03		.02	

Note: † p < .10; * p < .05; ** p < .01; *** p < .001. All p-values reported for two-tailed tests. Dichotomous ideology measure coded "0" for liberal and "1" for conservative subjects. Context coded "0" for storm condition and "1" for pirate condition.

Table B.1 clearly illustrates that context and ideology do not significantly interact with each other when predicting choice of captain (Study 1: $\chi^2(1) = .95$, p = .33; Study 2: $\chi^2(1) = .59$, p = .44). However, this is not the case with respect to choice of cabin mate, where a significant interaction between context and ideology is found in Study 2 ($\chi^2(1) = 4.24$, p = .04). Substantially, this interaction shows that the probability of choosing the dominant face is very small for subjects who

are both rightwing and assigned to the pirate condition (“game against people”). The interaction cannot be estimated in Study 1 due to the fact that no rightwing subjects assigned to the pirate condition have chosen the dominant face. However, this result does not undermine our main point. The patterns for cabin mate choice point in the opposite direction compared to the captain choice results. Recall that for choices of captain, being assigned to the pirate condition (“game against people”) or being conservative independently enhance the probability of choosing the dominant face as captain (leader). These effects are nowhere to be found in the analyses of cabin mate preferences.

C. Potential context × sex interactions and main effect of subject sex for Studies 1 and 2.

Potential context and sex interactions

In the main text we argue that our results reflect the existence of a distinct followership psychology. However, another explanation—that potentially is also consistent with our findings—is that the contextual effect is primarily driven by the mate preferences of female subjects. Snyder et al. (2011) show that women's fear of crime positively predicts their preference for a dominant and physically formidable mate. In our studies this would be consistent with a greater preference for the dominant face under the conflict scenario for female subjects than for male subjects. This should also be found for both choice of captain and cabin mate. We investigated this potential interaction between context and subject sex ("0" for female and "1" for male) for choices of captain and cabin mate in Studies 1 and 2. Table C. 1. presents the full models for these analyses:

TABLE C.1 *Logistic regressions for Studies 1 (Models A and B) and 2 (Models C and D). Effects of ideology, context, subject sex, and the context×sex interaction on choice of non-dominant face (coded 0) vs. dominant face (coded 1) as captain (Models A and C) or cabin mate (Models B and D). Table shows odds ratios (standard errors in parentheses) and 95% confidence intervals.*

	Study 1				**Study 2**			
	Model A (Choice of captain)		*Model B* (Choice of cabin mate)		*Model C* (Choice of captain)		*Model D* (Choice of cabin mate)	
	OR	95% CI	*OR*	95% CI	*OR*	95% CI	*OR*	95% CI
Context	2.34 (1.63)	.60, 9.14	.25 (.31)	.03, 2.72	2.37 (.91)*	1.12, 5.03	.91 (.50)	.31, 2.70
Ideology	3.87 (2.44)*	1.13, 13.29	.21 (.23)	.02, 1.80	1.82 (.52)*	1.04, 3.19	.88 (.32)	.43, 1.80
Sex	.42 (.29)	.11, 1.60	.64 (.64)	.09, 4.49	1.38 (.53)	.65, 2.94	1.95 (.99)	.72, 5.30
Context X sex	1.30 (1.30)	.18, 9.20	10.18 (15.74)	.49, 211.03	.49 (.27)	.16, 1.45	1.11 (.80)	.27, 4.59
Constant	1.19 (.58)	.46, 3.10	.23 (.15)*	.06, .82	.91 (.25)	.53, 1.57	.15 (.06)***	.07, .33
N	83		83		234		234	
Pseudo R^2	.11		.09		.03		.02	

Note: † p < .10; * p < .05; ** p < .01; *** p < .001. All p-values reported for two-tailed tests. Dichotomous ideology measure coded "0" for liberal and "1" for conservative subjects. Context coded "0" for storm condition and "1" for pirate condition. Subject sex coded "0" for females and "1" for males.

Across the two studies, none of the interactions between subject sex and context are significant (Study 1, captain: χ^2 (1) = .07, p = .79; Study 1, cabin mate: χ^2 (1) = 2.25, p = .13; Study 2, captain: χ^2 (1) = 1.67, p = .20; Study 2, cabin-mate: χ^2 (1) = .02, p = .89). Furthermore, with respect to the expectation based on theories about female mate preferences, the interaction term has the right direction in only of the four analyses (Study 2, choice of captain). Altogether, these results do not support the alternative hypothesis. On that basis, our results—the two independent and significant main effects on choice of captain and not on choice of cabin mate—are better interpreted in line with the existence of a problem-sensitive, psychological system of adaptive followership.

Potential main effect of subject sex

Footnote 7 in the main text also refers to an "alternative mating perspective prediction"—that the female preference for physically dominant mates should potentially not be limited to contexts of crime (cf. Snyder et al., 2011) but rather driven by the risk of danger in general. If so, then female subjects ought to display a stronger preference for the dominant face, both when choosing captain and cabin mate. Table C.2. presents the full models from Studies 1 and 2 when predicting choices of captains and cabin mates when the main effect of subject sex is controlled for.

TABLE C.2 *Logistic regressions for Studies 1 (Models A and B) and 2 (Models C and D). Effects of ideology, context, subject sex, and the context×sex interaction on choice of non-dominant face (coded 0) vs. dominant face (coded 1) as captain (Models A and C) or cabin mate (Models B and D). Table shows odds ratios (standard errors in parentheses) and 95% confidence intervals.*

	Study 1				**Study 2**			
	Model A (Choice of captain)		*Model B* (Choice of cabin mate)		*Model C* (Choice of captain)		*Model D* (Choice of cabin mate)	
	OR	95% CI	*OR*	95% CI	*OR*	95% CI	*OR*	95% CI
Context	2.66 (1.33)*	1.01, 7.06	.99 (.68)	.26, 3.82	1.70 (.47)†	.98, 2.93	.97 (.35)	.48, 1.96
Ideology	3.95 (2.46)*	1.16, 13.42	.25 (.28)	.03, 2.15	1.80 (.51)*	1.03, 3.14	.88 (.32)	.43, 1.80
Sex	.48 (.24)	.18, 1.26	1.89 (1.32)	.48, 7.41	.98 (.28)	.57, 1.70	2.05 (.75)†	1.00, 4.21
Constant	1.12 (.48)	.48, 2.60	.13 (.08)**	.04, .46	1.07 (.27)	.65, 1.74	.14 (.05)	.07, .29
N	83		83		234		234	
Pseudo R^2	.11		.05		.02		.02	

Note: † p < .10; * p < .05; ** p < .01; *** p < .001. All p-values reported for two-tailed tests. Dichotomous ideology measure coded "0" for liberal and "1" for conservative subjects. Context coded "0" for storm condition and "1" for pirate condition. Subject sex coded "0" for females and "1" for males.

Table C.1. shows that the “alternative mating perspective prediction” is not supported in the data. Including subject sex (coded “0” for female, “1” for male) in the analyses reveals that, in Study 1, females trend towards having a stronger preference for a dominant captain (b = –.74, odds ratio = .48, p = .14) but a weaker preference for a dominant cabin mate (b = .64, odds ratio = 1.89, p = .36). In Study 2, we find no effect of subject sex on choice of captain (b = –.05, odds ratio = .95, p = .86), and that females have a significantly weaker preference for a dominant cabin mate than males (b = .72, odds ratio = 2.05, p = .05). In sum, there is no clear pattern from these analyses and, hence, the results do not support the “alternative mating perspective prediction” that females generally prefer dominant individuals more than males which then in turn could produce the results presented in the main text.