

LEADING WITH PRIDE:  
DO HUBRISTIC AND AUTHENTIC PRIDE  
PROMOTE DISTINCT FORMS OF SOCIAL STATUS?

by

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## ABSTRACT

Why do humans experience pride? We propose that pride evolved to help individuals cope with the challenge of attaining and maintaining social status. However, given recent evidence for distinct “authentic” and “hubristic” facets of pride (Tracy and Robins, 2007), it is unclear whether the two facets promote status in different ways. Specifically, how might we account for the anti-social and narcissistic hubristic pride from a functionalist perspective? The present research addresses this question by testing whether hubristic and authentic pride underlie distinct routes to attaining high status. We argue that hubristic pride may motivate the attainment of dominance, a form of high status associated with force, threat, and intimidation; whereas authentic pride may motivate the attainment of prestige, a form of high status associated with demonstrated intelligence, skills, and altruism (Henrich & Gil-White, 2001).

In the first of two studies ( $N = 191$ ), we assessed the everyday experience of pride, dominance, and prestige through self-reports. In Study 2 ( $N = 91$ ), we replicated these findings using self- and peer-ratings from individuals in naturalistic groups. Findings from both studies show that: (a) hubristic pride is specifically linked to dominance while authentic pride is linked to prestige; (b) the pride facets and their respective forms of status share similar patterns of correlates, consistent with evolutionary accounts of each emotion and status. Discussion focuses on implications for understanding pride, human social status, and the roles of emotion and personality in determining leadership emergence.

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## INTRODUCTION

From 1967 to 2005, Hank Greenberg, CEO of American International Group (AIG), helped build AIG into the 18<sup>th</sup> largest public company in the world. As a young man, Greenberg had served in the U. S. Army where he stormed the beaches of Normandy on D-Day, rose to the rank of Captain in the Korean war, and eventually received a Bronze Star for bravery. For 40 years, Greenberg ruled AIG using many of the same skills that allowed him to rule the battle field. Notorious for mercilessly harassing his managers, Greenberg routinely and persistently demonstrated an obsessive drive for power and control. He continues to be feared, for his relentless ability to humiliate subordinates and colleagues, and is widely viewed as one of the most arrogant and autocratic CEOs ever to grace the company. Yet, having bumped up AIG's market value from \$300 million to \$150 billion, Greenberg's aggressive leadership style made his name a business legend.

Meg Whitman, former CEO of eBay, represents another successful leader in the business world. She joined eBay when it had a mere 30 employees, and led it to its current dominance in the global online auction market. Interestingly, Whitman orchestrated eBay's tremendous success with a very different leadership style than that used by Greenberg; instead of controlling every decision, Whitman more subtly steered the decision-making process. She has been described as leading by "not leading", instead hiring intelligent collaborators and allowing them to reach the correct decisions. As she has said, "We reach consensus or I make the decision. If I am wrong, I change it, and I don't take myself too seriously" (Hayward, 2007).



Although both Greenberg and Whitman have enjoyed some of the greatest successes possible in the business world, and have influenced the lives of thousands of employees and stockholders, they have done so through seeming antithetical leadership styles, and appear to be driven by highly divergent sets of emotions—and specifically, by two different kinds of pride. The present research examines whether these two leadership styles are, in fact, distinct and viable routes toward attaining power, and whether they are impelled by two distinct ways of feeling proud.

### **The Evolution of Social Status**

Human and non-human social groups tend to be organized hierarchically (Buss, 1991; Savin-Williams, 1980), meaning that group members are distributed along a dimension of social rank, with some individuals deemed “high status” relative to others. The hierarchical nature of social groups may assist individuals in meeting the fundamental challenges created by group living. Specifically, social hierarchies help reduce conflict, ease the distribution of resources, and facilitate the division of labor (Dewsbury, 1982; Ellis, 1995; Savin-Williams, 1979; 1980). Across species, high status individuals have a disproportionate amount of influence, such that social status can be defined as the degree of influence one possesses over group decisions and processes (Bales, Strodtbeck, Mills, & Roseborough, 1951; Berger, Cohen, & Zelditch, 1972; Cartwright, 1965; Kipnis, 1972; Sankowsky, 1995).

Although status hierarchies facilitate the collaborative survival of all members, holding a high status position within a group provides additional benefits. High-status

individuals are typically the recipients of myriad privileges and resources, such as preferential access to mates, food, and territory (Ellis, 1995; Hill, 1984). In contrast, low status individuals must forsake these benefits, instead ensuring their provision to higher-status conspecifics. As a result of this disparity, high status tends to promote better overall fitness than does low status, and a large body of evidence attests to a strong relation between social rank and fitness or well-being, in both human and nonhuman animals (e.g., Adler, Epel, Castellazzo, & Ickovics, 2000; Barkow, 1975; Cowlshaw & Dunbar, 1991; Eibl-Eibesfeldt, 1989; Ellis, 1995; Fournier, Zuroff, & Moskowitz, 2007; Hill, 1984). As a result, members in all species likely evolved a motivation to “get ahead” by competing with other group members for status (Handgraaf, Van Dijk, Vermunt, Wilke, & De Dreu, 2008; Krebs, Davies, & Parr, 1993; Trivers, 1985; Winter, 2007).

### **Pride and Status**

Pride may be the affective mechanism that evolved to facilitate the attainment of status, and it may do so in at least three distinct ways (Tracy, Shariff, & Cheng, in press). First, experiencing pride motivates individuals to strive for achievements in socially valued domains. Pride feelings are pleasurable and thus reinforcing; there is no other emotion that not only makes individuals feel good, but good about *themselves*, in particular. The reinforcing properties of pride motivate individuals to seek future achievements (Verbeke, Belschak, & Bagozzi, 2004), and individuals who are successful in this pursuit are, in turn, rewarded with social approval, acceptance, and status—all of which promote adaptive fitness. Supporting this account, previous research suggests that pride experiences increase task performance (Herrald & Tomaka, 2002) and perseverance

at difficult tasks (Williams & DeSteno, 2008), both of which would promote success in achievement-related domains.

Second, pride also seems to promote status through its informational properties; it may inform individuals that they merit increased status and group acceptance. Studies suggest that individuals associate pride with high status (Tiedens, Ellsworth, & Moskowitz, 2000), and those who are dispositionally dominant (i.e., assertive and firm) tend to feel greater pride than those low in dominance (Anderson & Berdahl, 2002; Keltner, Gruenfeld, & Anderson, 2003). Moreover, the belief that pride is associated with high-status generalizes across cultures; individuals from Germany, France, Japan, and the U.S. all view pride as an emotion more frequently experienced by high-powered, compared to less powerful, individuals (Mondillon et al., 2005). Furthermore, recent research demonstrates a direct behavioral link between the experience of pride and increased status; the experimental induction of pride led individuals to behave in a more socially dominant manner in a group task (Williams & DeSteno, 2009).

Finally, a third way in which pride promotes status is through its universally recognized nonverbal expression (Tracy & Matsumoto, 2008; Tracy & Robins, 2008), which may inform observers (other social group members) of the proud individual's achievement, indicating that he/she deserves higher status. Supporting this account, a series of studies recently showed that the pride expression is rapidly and automatically perceived as a signal of high status, more so than any other emotion expression (Shariff & Tracy, in press). In addition, the high-status message sent by the pride expression overrides contradicting contextual information, in predicting implicit judgments of the

target individual's status (Shariff, Markusoff, & Tracy, under review). In other words, even individuals who are known to be low-status are unconsciously viewed as high status if they show the pride expression. Supporting this link, participants in the pride induction study mentioned previously not only displayed more dominant behaviors, they were also perceived as more socially dominant by other group members and independent observers (Williams & DeSteno, 2009)—perhaps as a result of their nonverbal expression.

### **Two Facets of Pride**

If pride evolved to promote social status, one question that arises is why there are two distinct facets of pride, only one of which seems to promote socially valued achievements (e.g., Lewis, 2000; Tangney, Wagner, & Gramzow, 1989; Tracy & Robins, 2004). That is, studies have shown that pride is best characterized as having an “authentic” facet, fueled by feelings of accomplishment, confidence, and success; and a more “hubristic” facet, marked by arrogance and conceit. These two facets are distinct both in the way that people conceptualize pride, and in the way it is experienced (Tracy & Robins, 2007). The two facets have also been shown to promote highly divergent personality profiles; authentic pride is the more pro-social, achievement-oriented facet, associated with the socially desirable Big Five personality traits, high implicit and explicit self-esteem, positive interpersonal relationships, satisfying romantic relationships, and good mental health; whereas hubristic pride is more anti-social, associated with disagreeableness, low conscientiousness, neuroticism, narcissism, and shame-proneness, as well as problematic and unsatisfying and mental health problems (Tracy & Robins, 2007; Tracy, Cheng, Robins, & Trzesniewski, 2009).

Given the notably negative personality and behavioral correlates of hubristic pride, why might both facets have evolved? One possibility is that both facets promote social status, but they do so in different ways.

### **Two Fundamental Status Strategies**

Building on the ethological literature on the emergence of status, Henrich and Gil-White (2001) proposed a model articulating two distinct paths to attaining status in human societies: *dominance* and *prestige*. *Dominance* refers to the use of intimidation and coercion to gain a form of status that is based on fear. In the dominance hierarchies that characterize most nonhuman species (and also exist in humans), social rank is determined on the basis of ritualistic agonistic encounters (Attenborough, 1992; Griskevicius et al., 2009; Krebs, Davies, & Parr, 1993; Trivers, 1985). In humans, dominance is not limited to physical domination, but can be attained by threatening to remove or withhold any reproductive- or survival-relevant resource, such as access to money, mates, well-being, or self-esteem. Power through dominance can be seen in situations such as a boss criticizing an employee, a classmate threatening to reveal another's secret, or a teacher embarrassing a student. In each case, dominant individuals create fear and powerlessness in subordinates, and subordinates submit by complying with demands or providing material or social resources.

In contrast, *prestige* refers to the use of skills and wisdom to attain a more respect-based status. According to Henrich and Gil-White (2001), prestige arose in response to the evolution of culture in human societies. Once individuals acquired the

ability to attain, use, and share cultural information, selection likely favored social learning from knowledgeable or skilled conspecifics. In order to extract benefits (i.e., learn cultural knowledge) from skilled social models, group members are thought to ingratiate themselves by displaying deference. This deference—the provision of mates, food, and other valued resources—would allow subordinate group members to gain access to prestigious models, who in turn demonstrate or teach their skills and permit them to be copied. As a result, prestigious individuals should be the most skilled or knowledgeable group members, given an evolved preference for high-quality information in cultural learning. The competition for prestige, unlike dominance, thus involves the demonstration of culturally valued achievements, as well as attractiveness as a model to be copied—prestigious individuals must altruistically allow group members to learn and copy their behaviors at a relatively low cost. In short, individuals may compete for prestige by jockeying to be perceived as the most successful and accessible social model.

Ethnographic observations across cultures support the distinction between dominance and prestige (see Henrich & Gil-White, 2001), but few studies have empirically investigated whether both forms of status characterize hierarchical relationships in contemporary human groups, or high-status individuals within groups. In what is perhaps the only study to date assessing the personality correlates of the two forms of status, Buttermore (2006) demonstrated divergent personality profiles for the two constructs, with dominance characterized by Machiavellianism, aggression, and disagreeableness; and prestige by high self-esteem, low aggression, agreeableness, conscientiousness, and openness to experience. In the only other study we are aware of which empirically examined the two forms of status, basal levels of testosterone—a

hormone linked to aggression (Giammanco, Tabacchi, Giammanco, Di Majo, & Guardia, 2005)—were found to be negatively related to prestige but unrelated to dominance (Johnson, Burk, & Kirkpatrick, 2007), consistent with the need for prestigious individuals to maintain their attractiveness as social models by avoiding aggression in their quest for power.<sup>1</sup>

### **Which Strategy to Use?**

Although both dominance and prestige are viable ways of acquiring high status, the effectiveness of each strategy may vary by the context in which it is exercised. Dominance-oriented behaviors (e.g., aggression, manipulateness) can impose greater costs than benefits when individuals lack the capacity to intimidate others or enforce threats, or in social groups that do not permit or reward authoritative influence. Prestige, too, can be costly, or ineffective, when individuals are not perceived by others as possessors of valued cultural information, or in social groups structured largely around dominance hierarchies. Thus, characteristics of the group, person, and situation likely determine the utility of each strategy. In particular, dominance may be optimal if the individual is capable of instilling fear in others, but prestige may be more optimal if the individual possesses superior quality cultural information—presuming, in both cases, that the individual’s social group permits and rewards both strategies. In this view, dominance and prestige represent conditional strategies in which the tactic adopted at any given time is due to a combination of the situation (e.g., the hierarchy of a college study group is likely to be prestige-based), the person’s stable dispositions (e.g., a child with a hostile and aggressive temperament may be best suited for dominance), and the interaction

between the two (e.g., a strong fighter may attain prestige during wartime, when soldiers are needed, but may be better off seeking dominance when the social group is at peace and his fighting prowess is useful only for intimidating weaker others).

However, conscious, deliberate analysis about which status strategy to pursue in a given context would be costly, because such mental computations are inefficient, occasionally subject to error, and tie up valuable cognitive resources (Cosmides & Tooby, 2000). An implicit program, such as an automatic affective mechanism, would free valuable mental resources (Lazarus, 1991; Plutchik, 1980). Indeed, such programs, guided by automatic analyses of the relative costs and benefits of a given behavioral response to an environmental event, are thought to have evolved to promote quick behavioral responses to recurrent, evolutionarily significant events. For example, the decision of whether to fight or flee when facing an attacker is not typically made through a conscious deliberative process, but rather by way of an automatic emotional response (i.e., anger or fear) to an implicit cognitive appraisal of the situation (computing the probability of winning or losing a fight with this particular adversary; Bargh & Chartrand, 1999; Cosmides & Tooby, 2000). In this framework, pride may be the automatic affective response that allows individuals to cope most effectively with opportunities for status-enhancement, and the two facets of pride may have evolved to guide behaviors oriented more specifically toward the attainment of prestige or dominance.



## **Pride as an Emotional Adaptation to the Flexible Use of Dominance and Prestige**

If pride evolved to solve the ancient, recurrent challenge of status attainment, the distinct facets of pride may have separately evolved to motivate the divergent sets of behaviors that allow individuals to acquire, maintain, and wield dominance versus prestige. The emergence of prestige hierarchies in human social groups likely created new selective pressures, and distinct emotions motivating behaviors oriented toward attaining two distinct forms of status may have been an adaptive solution. Specifically, hubristic pride may have evolved to motivate behaviors, thoughts, and feelings oriented toward attaining dominance, whereas authentic pride may have evolved more recently to motivate behaviors, thoughts, and feelings oriented toward attaining prestige (Tracy et al., in press).

### ***Hubristic pride and dominance***

Feelings of superiority and arrogance associated with hubristic pride may function to provide the mental preparedness for attaining dominance. In non-human primates with the capacity for at least minimal self-reflection (e.g., chimpanzees, bonobos), these feelings may be manifested as a generalized sense of superiority, perhaps representing an evolutionary precursor to human hubristic pride. In humans, these feelings arise out of more complex self-representations, and, in combination with (implicitly made) internal, stable, global, and uncontrollable attributions for the event that elicited the feelings (e.g., “I’m great, I’m always great, and I’m great at everything”), become hubristic pride (Tracy & Robins, 2007). The result is an emotion that may

function to further the attainment of dominance by equipping individuals with the mental preparedness to assert their power over others.

Hubristic pride may also motivate specific behaviors needed to attain dominance, such as aggression. Previous research has found that highly narcissistic and disagreeable individuals are more likely to report hubristic pride in response to pride-eliciting scenarios, and individuals prone to hubristic pride tend to be disagreeable, aggressive, and Machiavellian (Tracy & Robins, 2007; Tracy et al., 2009). By promoting hostility, aggression, and manipulative power-seeking, hubristic pride may allow individuals to galvanize fear in subordinates, necessary for dominance attainment. Further supporting this link, individuals high in trait hubristic pride tend to have poor interpersonal relationships and show a willingness to engage in anti-social behaviors (Tracy et al., 2009).

### *Authentic pride and prestige*

In contrast, the feelings of confidence and success associated with authentic pride may provide the mental preparedness for attaining prestige. These feelings arise from accomplishments attributed to one's unstable, controllable behaviors, such as effort and hard work (Tracy & Robins, 2007). Authentic pride is thus evoked when individuals experience precisely the kinds of successes that should lead to prestige—accomplishments in socially valued domains, which may benefit subordinate social learners. In addition, highly agreeable and conscientious individuals tend to respond to pride-eliciting events by experiencing authentic pride in particular (Tracy & Robins,

2007); these traits would increase the likelihood of authentically proud individuals sharing their knowledge with others, and working hard toward future accomplishments. Studies have shown that effort-based achievements—the kind that would generate authentic pride—promote longer perseverance on challenging tasks and greater desire for future success, compared to achievements based on stable, uncontrollable abilities (Dweck, 1999; Verbeke et al., 2004; Weiner, 1985).

More broadly, individuals who are confident, hard-working, energetic, kind, empathic, and non-dogmatic—the personality profile associated with trait authentic pride (Hart & Matsuba, 2007; Tracy et al., 2009; Tracy & Robins, 2007; Verbeke et al., 2004)—would be most likely to win the competition to become an attractive social model. Indeed, authentic pride may inhibit feelings of arrogance and superiority, associated with hubristic pride, which could lead to a loss of prestige. Competition for prestige would likely favor individuals who demonstrate knowledge and a willingness to share it but do not arrogate their authority or lash out at subordinates; aggressive interpersonal behaviors would in some sense “raise the price” subordinates must pay to attain valued knowledge. In fact, overly aggressive behaviors have been identified as attributes that can ‘break a leader’ in largely prestige-based hierarchies (Ames & Flynn, 2007; Bass, 1990). Authentic pride thus may have evolved to facilitate the attainment of prestige by promoting a focus on one’s effort and accomplishments, motivating productivity and continued hard work, fostering a sense of humility (Cheng & Tracy, in prep.), and inhibiting aggression and hostility.

Thus, each facet of pride may have evolved to promote coordinated cognitive and behavioral responses to achievements that allow for the attainment of dominance and prestige. Importantly, although the two facets may allow individuals to flexibly utilize both status strategies, individuals are also likely to show cross-situational consistency in strategy use (i.e., adopting one strategy more frequently than the other), which may be guided by chronic, dispositional tendencies to experience one facet of pride or the other. Given that the costs and benefits of each strategy are likely partly determined by individual differences in genetically based traits – such as one’s Big Five personality profile, physical height and weight, and intelligence—these traits may influence which facet of pride individuals are prone to experiencing and which form of status they are more likely to attain. In fact, previous research has shown that the use of force to gain power—a dominance-oriented strategy—is predicted by narcissism, aggression, and body size (Brunell et al., 2008; Buss & Perry, 1992; Raine, Reynolds, Venables, Mednick, & Farrington, 1998; Rodkin, Farmer, Pearl, & Acker, 2000). In contrast, traits such as high self-esteem, conscientiousness, agreeableness, intelligence, and altruism are associated with social acceptance and respect (Anderson, John, Keltner, & Kring, 2001; Boivin & Begin, 1989; Judge, Bono, Ilies, & Gerhardt, 2002; Rodkin, Farmer, Pearl, & Acker, 2000; Rubin, Bukowski, & Parker, 1998)—interpersonal characteristics central to attaining prestige. Divergent trait profiles may thus promote divergent pride tendencies, and, in turn, each facet of pride may promote a divergent set of behaviors leading to each form of status.

Figure 1 presents a theoretical model of this overarching causal process. In the pathway to prestige, a success occurs, signaling an opportunity for advancing one’s status.

An individual who is prone to authentic pride—high in agreeableness, conscientiousness, emotional stability, and self-esteem— would be likely to make an internal, unstable, and controllable (i.e., effort-based) attribution for the success, which then elicits authentic pride. The emotion then motivates behaviors such as the display of competence, altruistic sharing of wisdom and skills, and continued hard work toward future accomplishments. These behaviors would promote a prestigious reputation. In contrast, in the pathway to dominance, an individual prone to hubristic pride—high in disagreeableness, aggressiveness, neuroticism, and narcissism—would likely make an internal, stable, and uncontrollable (i.e., ability-based) attribution for the success, which then elicits hubristic pride. The emotion motivates behaviors that permit intimidation, such as the display of aggression and threats to remove or withhold valuable resources. These behaviors would promote a dominant reputation.<sup>2</sup> The present research will test several hypotheses emerging from this theoretical model.

**Hypothesis 1: Hubristic Pride is Positively Related to Dominance and Authentic Pride is Positively Related to Prestige**

We will test this hypothesis in Studies 1 and 2 by assessing self reports of proneness to both facets of pride, and self and peer reports of dominance and prestige. Measuring status through both self and peer reports will also allow us to examine accuracy and bias in the self-perception of dominance and prestige, and whether the two facets of pride have divergent effects on bias (i.e., over-estimation of dominance and prestige), such that authentic pride promotes over-estimation (i.e., self-enhancement) of one's own prestige, whereas hubristic pride promotes over-estimation of one's own

dominance. This subsidiary hypothesis to Hypothesis 1 emerges from Paulhus and John's (1998) distinction between an "egoistic" self-enhancement bias, characterized by exaggeration of one's social and intellectual status, and a "moralistic" self-enhancement bias, characterized by exaggeration of one's pro-social and socially conforming attributes. Studies have shown that whereas individuals high in narcissism tend to show an egoistic bias, individuals with more genuine high self-esteem tend to show a moralistic bias (Bonanno, Field, Kovacevic, & Kaltman, 2002; Campbell, Rudich, & Sedikides, 2002; Carroll, 1987); thus, we would expect to see similar differences between individuals high in hubristic versus authentic pride. In particular, these biases may emerge as divergent tendencies to self-enhance on dominance (demonstrating an egoistic bias) versus prestige (a more moralistic bias). That is, because hubristic pride involves an overemphasis on power, hubristically proud individuals may show distortions in self-perceptions of dominance, but not necessarily prestige, given that prestige-relevant traits (e.g., social acceptance, generosity) are peripheral to their identity. In contrast, authentically proud individuals highly value their social relationships, so may show distortions in self-perceptions of prestige. In both cases, these biases, despite being a form of inaccuracy, may be adaptive; self-enhancement on valued traits may be essential to motivating individuals to maintain their desired self-concept.

**Hypothesis 2: Hubristic Pride is Positively Related to Traits that Foster Dominance, and Authentic Pride is Positively Related to Traits that Foster Prestige**

Based on the theoretical process model shown in Figure 1, hubristic pride should be positively related to narcissism, aggression, social rejection, disagreeableness, and

body size, and all of these traits should show positive relations with dominance, and null or negative relations with prestige. In contrast, authentic pride should be positively related to self-esteem, social acceptance, agreeableness, conscientiousness, emotional stability, openness to experience, and academic achievement, and all of these traits should show positive relations with prestige and null or negative relations with dominance.

### **The Present Research**

We tested these predictions in two studies. In Study 1, participants reported dispositional levels of hubristic and authentic pride, and dominance and prestige. In Study 2, participants were varsity-level athletes on university teams who reported dispositional levels of hubristic and authentic pride, self-reports of dominance and prestige, and peer-ratings of their teammates' dominance and prestige, overall social status, and skills and related attributes. In both studies, participants also self-reported on the traits predicted to underlie dominance and prestige.

This research extends previous findings in several ways. First, this is the first research to test the novel theory that the two facets of pride evolved to promote distinct forms of status. Previous studies examining the link between pride and status have focused exclusively on the association between undifferentiated pride (i.e., not distinguishing between hubristic and authentic) and undifferentiated status (i.e., not distinguishing between dominance and prestige; e.g., Shariff & Tracy, in press; Tiedens et al., 2000; Williams & DeSteno, 2009). More broadly, previous theoretical and

empirical research on status has tended to neglect the dual-faceted nature of status observed in human societies, instead defining status as either exclusively prestige (e.g., Anderson et al., 2001; Barkow, 1975; Eibl-Eibesfeldt, 1989; Goldhamer & Shils, 1939; Goode, 1978) or exclusively dominance (e.g., Bernhardt, 1997; Collins, 1990; Ellis, 1995; Gibb, 1954; Hill, 1984; Kemper, 1984, 1991; Raven & French, 1958; but see Johnson, Burk, & Kirkpatrick, 2007). Thus, a second novel contribution of the present research is that we test Henrich and Gil-White's (2001) two-facet model of status, by examining whether the two forms of status can reliably be measured through self- and peer-reports.

Third, the use of self and peer assessments of both forms of status allowed us to address a third important question, of whether individuals show accuracy in their self-ratings of dominance and prestige. This question has been previously addressed for undifferentiated status, but we do not know whether individuals can accurately report where they and others in their social group stand on each of the two hierarchies, and whether individuals can differentiate between group members who are in high prestige versus those who are high in dominance. This question is critical to Henrich and Gil-White's (2001) model; if both hierarchies exist in human social groups, group members must be able to accurately determine their rank within each hierarchy. Finally, a fourth contribution is our development and validation of scales used to assess dominance and prestige through both self and peer reports.



## STUDY 1

In addition to testing whether hubristic and authentic pride have divergent relations with dominance and prestige (Hypothesis 1) and with traits that underlie the attainment of dominance and prestige (Hypothesis 2), Study 1 sought to validate a new measure for assessing self and peer perceptions of dominance and prestige. Our strategy was to include a broad item pool in Study 1 and subsequently refine the scales, based on reliability and factor analyses across Studies 1 and 2, with particular attention paid to replication across samples and methods (i.e., self and peer reports). Thus, as a first step, Study 1 assessed dispositional self-reports of prestige and dominance, with the goal of identifying a set of descriptors that are conceptually relevant to each trait, cohere together empirically, and show a clean factor structure, with high loadings on the primary factor and low loadings on the other factor.

### **Method**

#### *Participants*

191 undergraduates (70% female) completed an on-line questionnaire in exchange for course credit.

## *Measures*

*Developing the initial item pool for assessing dominance and prestige.* We began with the 16 items in the Self-Perceived Social Status Scale (Buttermore, 2006), which was developed as a self-report measure of dominance and prestige. To ensure coverage of the full scope of each theoretical construct, we supplemented the extant scales with six new items that captured key aspects of the two constructs. Thus, initial item pool consisted of 10 dominance items and 12 prestige items (see Table 1). Participants were instructed to “indicate the extent to which each statement accurately describes *you* by selecting the appropriate number from the scale below”, on a scale ranging from 1 (*Not at all*), to 7 (*Very much*), with 4 anchored as *Somewhat*.

*Trait hubristic and authentic pride.* Dispositional hubristic and authentic pride were assessed with the 14-item Hubristic and Authentic Pride-Proneness Scales (Tracy & Robins, 2007), which consists of two 7-item subscales for assessing trait hubristic and authentic pride ( $\alpha$ s = .89 and .87, respectively).

*Traits predicted to foster dominance or prestige.* We assessed the Big Five Factors of personality using the Big Five Aspects Scale (BFAS; deYoung et al., 2007); this measure provides scores for each of the Big Five traits as well as two distinct aspects within each trait: Extraversion ( $\alpha$  = .81; enthusiasm and assertiveness,  $\alpha$ s = .83 and .87, respectively), Agreeableness ( $\alpha$  = .81; compassion and politeness,  $\alpha$ s = .85 and .75, respectively), Conscientiousness ( $\alpha$  = .81; industriousness and orderliness,  $\alpha$ s = .82 and .74, respectively), Neuroticism ( $\alpha$  = .81; withdrawal and volatility,  $\alpha$ s = .81 and .87,

respectively), and Openness to Experience ( $\alpha = .81$ ; intellect and openness,  $\alpha = .84$  and  $.75$ , respectively). Aggression was assessed with the Aggression Questionnaire (Buss & Perry, 1992;  $\alpha = .91$ ); and social acceptance with the Inclusionary Status Scale (Spivey, 1990;  $\alpha = .91$ ). Self-esteem was assessed with the Rosenberg Self-Esteem scale (RSE; Rosenberg, 1965;  $\alpha = .89$ ); and narcissism with the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988;  $\alpha = .86$ ). Given that self-esteem and narcissism are distinct but share variance in self-favorability, we computed separate variables to capture the unique variance in each by regressing self-esteem on narcissism, and vice-versa, and saving the standardized residuals (see Paulhus, Robins, Trzesniewski, & Tracy, 2004). The resultant residualized variables can be conceptualized as the non-overlapping constructs of genuine self-esteem and narcissistic self-aggrandizement.

Finally, we also assessed other traits theoretically relevant to dominance and prestige: academic achievement measured as Grade Point Average (GPA), age, height, and Body Mass Index (BMI), a measure of body weight adjusted for height.

## **Results and Discussion**

### *Development of Dominance and Prestige Scales*

We conducted principal axis factor analyses, with oblimin rotation, to verify the presumed two-factor structure of the 22 dominance and prestige items and determine which items to retain. As predicted, a scree test suggested two factors; eigenvalues for the first six factors were 4.86, 4.23, 1.54, 1.43, .97, and .90. Together, these two components

accounted for 41.29% of the total variance (22.07 % for Factor 1, and 19.22% for Factor 2). As shown in Table 1, the 10 presumed dominance items loaded highly and positively on the first factor, and had low loadings on the second factor, whereas the 12 presumed prestige items loaded highly and positively on the second factor, and had low loadings on the first factor. The factors were correlated .02, indicating that dominance and prestige are independent.

We next identified potentially problematic items (i.e., items that did not cleanly load on only one of the two factors), as items with primary factor loadings below .50 and/or cross loadings greater than .30. Seven items met this criterion, but, because all 7 loaded more highly on their primary factor, which was the predicted factor for each, than their secondary factor, and because reliability analyses suggested good internal consistency for the full scales (alphas = .84 and .82 for dominance and prestige, respectively), we retained all 22-items at this stage. Thus, results for Study 1 are based on scale scores for the full 10 dominance items and 12 prestige items.<sup>3</sup>

*Hypothesis 1: Hubristic Pride is Positively Related to Dominance and Authentic Pride is Positively Related to Prestige*

Consistent with Hypothesis 1, trait hubristic pride was positively related to dominance ( $r = .48, p < .0001$ ) and negatively related to prestige ( $r = -.17, p < .05$ ), with the latter association considerably weaker ( $Z = 6.62, p < .01$ ).<sup>4</sup> Also consistent with Hypothesis 1, trait authentic pride was positively related to prestige ( $r = .51, p < .0001$ ) and to dominance ( $r = .19, p < .01$ ), with the latter association considerably weaker ( $Z =$

3.52,  $p < .001$ ). The two facets of pride were not correlated ( $r = .07$ , *ns*). Although it was not predicted, the small but significant correlation that emerged between authentic pride and dominance may be due to shared variance in agency and, perhaps, confidence. The negative correlation that emerged between hubristic pride and prestige may underscore the importance of avoiding any sense of arrogance or entitlement in attaining the more respect-based status.

To test whether the strong associations between the two facets of pride and corresponding forms of status were driven by the broader, theoretically related traits of self-esteem and narcissism, we conducted multiple regression analyses predicting each form of status from both facets of pride and narcissism and self-esteem. Hubristic pride significantly predicted dominance over and above the effects of the other variables,  $\beta = .31$ ,  $t(186) = 4.89$ ,  $p < .0001$ . Narcissism was also a significant predictor of dominance,  $\beta = .49$ ,  $t(186) = 6.69$ ,  $p < .0001$ , whereas the effects of authentic pride and self-esteem were non-significant.

In a separate regression equation, authentic pride was a marginally significant predictor of prestige when controlling for shared variance with the other predictors,  $\beta = .14$ ,  $t(186) = 1.78$ ,  $p = .08$ . Self-esteem also emerged as a significant predictor of prestige,  $\beta = .35$ ,  $t(186) = 4.05$ ,  $p < .0001$ , as did hubristic pride,  $\beta = -.25$ ,  $t(186) = -3.99$ ,  $p < .0001$ , and narcissism, which, somewhat surprisingly had a significant positive effect on prestige,  $\beta = .26$ ,  $t(186) = 3.57$ ,  $p < .001$ , possibly due to shared variance in agency and confidence (of note, authentic pride was also positively correlated with narcissistic self-aggrandizement,  $r = .17$ ,  $p < .05$ ). Overall, these results provide evidence for the

incremental validity of hubristic pride in predicting dominance, and suggest that while authentic pride is strongly related to prestige, this relation is partly due to the self-esteem boosting effects of authentic pride.

*Hypothesis 2: Hubristic Pride is Positively Related to Traits that Foster Dominance, and Authentic Pride is Positively Related to Traits that Foster Prestige*

Table 2 presents correlations of the two facets of pride and two forms of status with self-esteem, narcissism, social acceptance, aggression, and the Big Five personality dimensions. Dominance and hubristic pride were both negatively related to genuine self-esteem and social acceptance, and strongly positively related to narcissistic self-aggrandizement and aggression, consistent with our account of dominance as a status strategy sought by individuals with low levels of self and social acceptance who must therefore rely on intimidation and aggression to attain influence. In contrast, both prestige and authentic pride were strongly positively related to genuine self-esteem and social acceptance, and negatively related to aggression. Although narcissistic self-aggrandizement was positively related to prestige and authentic pride, the magnitude of these associations was considerably weaker than that between narcissism and dominance,  $Z = -4.55, p < .0001$ , and between narcissism and hubristic pride,  $Z = -2.70, p < .01$ .

For the most part, dominance and hubristic pride, and prestige and authentic pride, also showed convergent patterns of correlations with the Big Five traits (see Table 2). Prestigious individuals and individuals high in authentic pride tended to be extraverted, conscientious, emotionally stable, and open to experience. Prestigious individuals were

also high in agreeableness, but no significant relation emerged between authentic pride and agreeableness—likely due to the measure of agreeableness used here, given that previous studies (Tracy & Robins, 2007; Tracy et al., 2009) have repeatedly found a robust positive relation between authentic pride and agreeableness using a more established measure (i.e., the BFI; John & Srivastava, 1999). Dominant individuals and individuals high in hubristic pride tended to be disagreeable, but individuals high in dominance were also extraverted and somewhat conscientious, whereas those high in hubristic pride were somewhat introverted and low in conscientiousness, and low in openness.

These differences, too, may be due to the Big Five measure used here, given that previous studies have consistently found no relationship between hubristic pride and extraversion (e.g., Tracy & Robins, 2007). However, a benefit of the present measure is that it allowed for examination of more specific, lower-order personality correlates. Using the “aspects” scales, we found that assertiveness (an aspect of Extraversion) was positively related to both dominance ( $r = .46$ ,) and prestige ( $r = .56$ ), as well as authentic pride, ( $r = .51$ ), whereas enthusiasm (the other aspect of Extraversion) was positively related to prestige ( $r = .45$ ) and authentic pride ( $r = .35$ ), but negatively related to hubristic pride ( $r = -.27$ , all  $ps < .001$ ) and unrelated to dominance ( $r = -.11$ ,  $p = .13$ ). This pattern is consistent with previous research demonstrating the importance of extraversion for attaining status (e.g., Anderson et al., 2001; Judge et al., 2002), but adds nuance to this finding by demonstrating that the aspects of extraversion that promote leadership differ by the form of leadership attained.

Finally, as predicted, dominance was positively associated with height ( $r = .20$ ,  $p < .01$ ), which bore no significant relation with prestige. In addition, prestige and authentic pride were positively associated with academic achievement ( $r_s = .24$  and  $.33$ ,  $p_s < .001$ ), which was unrelated to dominance and hubristic pride. Thus, dominant individuals may acquire power through their physical size, whereas prestigious and authentically proud individuals may acquire power through intelligence and competence.

Overall, these results are consistent with our theoretical account of individuals high in dominance and hubristic pride as narcissistic and socially disliked group members who acquire influence through aggression, assertiveness, intimidation, emotional volatility, and physical size (height). In contrast individuals high in prestige and authentic pride tend to be socially accepted, have high genuine self-esteem, and exhibit enthusiasm alongside their assertiveness, as well as industriousness, emotional stability, openness, and high levels of achievement.

In summary, these results support our two hypotheses, and the highly divergent pattern of correlates between the two forms of status support the discriminant validity of dominance and prestige, and suggests that these are independent avenues to attaining social status.

However, one limitation of Study 1 is its reliance on self-report measures of status. Although previous research suggests that individuals are generally accurate perceivers of their own social status (Anderson, Srivastava, Beer, & Spataro, 2006), and such accurate self-perceptions may be essential to coordination among group members who vary in



status (Kilduff & Anderson, 2009; Van Vugt, Hogan, & Kaiser, 2008), other research suggests that individuals may be prone to over-estimating their positive traits, such as high status (Taylor & Brown, 1988). Furthermore, individuals high in hubristic and authentic pride may be particularly prone to such self-enhancement biases, possibly leading to artificial inflation of the key correlations of interest. Thus, in Study 2 we assessed both self- and peer-reported status.

## **STUDY 2**

Study 2 tested Hypotheses 1 and 2 using peer- and self-ratings of status. If the findings from Study 1 hold using peer-reports of status, we can infer that the previously found distinct relations between each facet of pride and each form of status are not due to biases in self-perception, but rather reflect actual relations between these emotions and social status. Peer-ratings also allow us to rule out the possibility that findings are artifacts of shared method variance.

Study 2 also extended the findings of Study 1 by examining status in naturalistic hierarchically structured social groups: university-level varsity athletic teams. Athletic teams provide an ideal context for examining questions about social status, for several reasons. First, as long-term group members, teammates have spent a great deal of time with each other in diverse situations (i.e., sports-related contexts, meals, parties, etc.), making them ideally suited to serve as peer-raters of personality. Second, athletic teams have an explicit hierarchical structure (with captains and other positions of power determined by team members and coaches), increasing the likelihood that individuals

agree about the relative social rank of all group members. Third, studies have found that once a group's hierarchical structure has fomented, this structure remains highly stable over time (Anderson et al., 2001; Fiske & Cox, 1960; Nelson & Berry, 1965), so relative levels dominance and prestige within this sample should be fairly solidified and apparent.

In addition to replicating the findings from Study 1, Study 2 also examined whether the two fundamental human motives of getting ahead and getting along (i.e., agency and communion, Bakan, 1966), have divergent relations with dominance and prestige. We expected that both dominance and prestige would be associated with high agency, but that dominance would be associated with low communion, and prestige with high communion. An additional novel contribution of this study was our assessment of peer-reports of traits theoretically relevant to dominance and prestige; no previous study has examined whether the two forms of status are built upon divergent peer-perceived trait profiles. We expected that prestigious individuals would be perceived by their teammates as good sources of advice (i.e., possessing high quality information and a willingness to share it), and highly intellectual and altruistic. In contrast, we expected that dominant individuals would be perceived by their teammates as low in altruism and helpfulness. We expected both forms of status to be positively related to perceived leadership.

The methodology of Study 2 also allowed us to examine several novel questions concerning the interpersonal perception of status: (a) Do group members show consensus in their judgments of a given individual's dominance and prestige?; (b) Are self-perceptions of dominance and prestige accurate (i.e., convergent with peer-perceptions)?;

and (c) Is hubristic pride systematically related to overestimation of dominance, and authentic pride systematically related to overestimation of prestige?

The first question, concerning interrater agreement on dominance and prestige, addresses Henrich and Gil-White's (2001) theoretical assumption that displaying appropriate and discriminant deference to dominant and prestigious individuals bears important adaptive consequences. Knowing *whom* to defer to (i.e., whom to learn from in the case of prestige, and whose demands to comply with in the case of dominance), is essential, so individuals should have an accurate (i.e., highly convergent with other group members) perception of each group member's level of dominance and prestige.

The second question addresses whether individuals can accurately perceive their own social status, and discriminate between the two forms of status in their self-perceptions. According to functionalist accounts of status, individuals must "know where they stand" in order for the group to tactfully coordinate each member's rank-defined role (Anderson et al., 2006; Berger, Rosenholtz, & Zelditch, 1980; Goffman, 1967). Given the costs associated with errors in status self-perception (e.g., demanding deference from non-subordinates could lead to attacks, and failing to demand deference from subordinates could lead to lost opportunities in resource acquisition), selection pressures may have favored an acute sensitivity toward accurately perceiving one's own status, and one's relative levels of prestige and dominance. Although questions of accuracy in status perception have been hotly debated (e.g., Anderson et al., 2006), these questions have not been addressed for dominance and prestige specifically; thus it remains possible that individuals can accurately estimate their overall status but are less capable of determining

whether their status is prestige- or dominance-based, or are prone to erroneously estimate their relative rank in one or the other respective hierarchy.

Importantly, however, although individuals should be motivated toward accuracy in self-perceptions of status, they may also be motivated to self-enhance on the domain of status. These competing motives are captured by Robins and John's (1997) "scientist" versus "politician" metaphors for self-perception processes. According to the *scientist* metaphor, individuals are motivated to form accurate perceptions of themselves (Bem, 1972) and discover the "truth"; in the case of social status, accuracy allows individuals to form realistic goals and engage in rank-appropriate behaviors. However, according to the *politician* metaphor, individuals are also motivated to self-enhance as part of impression management; by convincing themselves that their status is higher than it actually is, individuals may more effectively persuade others, leading to actual increased status and acceptance. More specifically, holding an exaggerated view of one's dominance may generate feelings of hubristic pride, which in turn would motivate the aggressive and forceful behaviors that increase actual dominance. Conversely, holding an exaggerated view of one's prestige may generate authentic pride, which in turn would motivate the achievements, conscientious behavior, and generosity that increases actual prestige. These relations are likely reciprocal: the two facets may differentially promote egoistic and moralistic biases, such that hubristic pride motivates a tendency to self-enhance on dominance (a trait emphasizing superiority and social power), and authentic pride motivates a tendency to self-enhance on prestige (a trait emphasizing popularity and social acceptance). Thus, our third question addresses whether hubristic pride is

systemically associated with overestimating dominance, and authentic pride with overestimating prestige.

## **Method**

### ***Participants and Procedure***

91 male<sup>5</sup> athletes from four university-level varsity athletic teams (baseball,  $n = 33$ , soccer,  $n = 19$ , volleyball,  $n = 13$ , and rugby,  $n = 26$ ) were recruited to complete a set of questionnaires.<sup>6</sup> Teams were paid for their participation. We ensured that all participants were members of the team for at least 4 months, allowing sufficient time for acquaintanceships to develop and hierarchical relationships to emerge and stabilize.

In addition to providing self-reports of personality, status, and pride, participants also provided peer-ratings of five teammates on dominance, prestige, and traits theoretically relevant to developing a dominant or prestigious reputation. Judges and targets were paired using a Latin square design, such that pairings were pseudo-random, and each participant was both a judge and a target. Participants were instructed to complete the questionnaires privately and avoid discussing the study with teammates prior to completion.

## *Measures*

*Self-rated measures.* The full 22-item dominance and prestige scales administered in Study 1 were again used to assess dominance and prestige. Also as in Study 1, dispositional hubristic and authentic pride were assessed with the Hubristic ( $\alpha = .88$ ) and Authentic ( $\alpha = .78$ ) Pride-Proneness scales (Tracy & Robins, 2007); aggression with the AQ ( $\alpha = .89$ ), social acceptance with the Inclusionary Status Scale ( $\alpha = .78$ ), self-esteem with the RSE ( $\alpha = .84$ ), and narcissism with the NPI ( $\alpha = .86$ ). As in Study 1, genuine self-esteem and narcissistic self-aggrandizement scales were computed by regressing self-esteem on narcissism and vice-versa and saving the standardized residuals. Big Five personality traits were assessed with the 44-item Big Five Inventory (BFI; John, Donahue, & Kentle, 1991), with subscales measuring Extraversion ( $\alpha = .84$ ), Agreeableness ( $\alpha = .81$ ), Conscientiousness ( $\alpha = .79$ ), Neuroticism ( $\alpha = .74$ ), and Openness ( $\alpha = .76$ ). Agency and communion were assessed with 8 items from the Revised Interpersonal Adjective Scales (IAS-R; Wiggins, Trapnell, & Phillips, 1988), a measure consisting of 8 items at each pole of the two orthogonal dimensions of agency and communion and 8 items at each intersection of the two dimensions. Given participants' limited time and the need to collect peer ratings of five individuals in addition to self-ratings, we used only the four items at each pole of the two major axes: "self-assured", "assertive", "self-confident", "dominant", "timid", "unauthoritative", "shy", and "unaggressive" (combined to form an agency scale, with the latter 4 items reverse-scored;  $\alpha = .85$ ) and "softhearted", "tender", "gentlehearted", "tenderhearted", "hardhearted", "unsympathetic", "coldhearted", and "warmthless" (combined to form a communion scale, with the latter 4

items reverse-scored;  $\alpha = .89$ ). We also again assessed as academic achievement (measured as GPA), age, height, and BMI.

*Peer-rated measures.* After completing all self-ratings, participants were told: “You will now be asked to provide your impressions and feelings about other members of your group. Please read each name presented at the top of each page very carefully and think about this particular person as you are providing your responses. You will be providing your impressions about 5 members in total”. For each target, participants were presented with the 22-item dominance and prestige scales, reworded to refer to a peer (see Table 1). Internal consistency alphas were .89 and .87 for peer-rated dominance and prestige, respectively, and inter-rater alphas were .80 and .80, respectively. This high level of inter-rater reliability suggests that individuals were able to reach agreement on their peers’ dominance and prestige.

Judges also completed the Self-Attributes Questionnaire (Pelham & Swann, 1989) for each target, in which they were instructed to: “Rate your impressions about the activities and abilities of this particular person...relative to other members of your group by using the scale ranging from 1 (*bottom 5% of group*), 6 (*upper 50%*), to 10 (*upper 5% of group*)”. We added several traits to the original questionnaire to assess, in total: intellectual ability (inter-rater reliability  $\alpha = .74$ ), social skills ( $\alpha = .78$ ), artistic and/or musical ability ( $\alpha = .62$ ), athletic ability ( $\alpha = .70$ ) physical attractiveness ( $\alpha = .72$ ), leadership ability ( $\alpha = .80$ ), altruism ( $\alpha = .55$ ), cooperativeness ( $\alpha = .59$ ), helpfulness ( $\alpha = .55$ ), ethicality ( $\alpha = .55$ ) and morality ( $\alpha = .45$ ).<sup>7</sup> Participants were also asked to indicate the likelihood that they would approach each of the five targets for advice in the

following domains: school ( $\alpha = .59$ ), family ( $\alpha = .37$ ), friends ( $\alpha = .41$ ), romantic partners ( $\alpha = .38$ ), work ( $\alpha = .44$ ), sports ( $\alpha = .55$ ), and the target's area of expertise ( $\alpha = .48$ ). The uniformly low levels of interrater agreement on these items likely reflects the fact that idiosyncratic factors such as friendships play an important role in determining who is sought for advice. Conversely, the fact that any consensus exists points to the importance of some underlying attribute predicting an individual's "advisorliness". To index each target's overall perceived advice-giving ability, we aggregated ratings across the seven domains (internal consistency  $\alpha = .87$ ; interrater  $\alpha = .61$ ).

## **Results and Discussion**

### *Development of Dominance and Prestige Scales*

To examine whether the factor structure of dominance and prestige that emerged in Study 1 replicated across self- and peer-ratings, and across samples, we conducted principal axis factor analyses using oblimin rotation separately on self- and peer-reports of the 22 items.

Using self-ratings, the two-factor structure that emerged in Study 1 was generally replicated. Eigenvalues for the first six factors were 5.40, 3.58, 1.88, 1.52, 1.08, and 1.06, and the first two components accounted for 40.81% of the total variance (23.08% for Factor 1 and 21.54% for Factor 2) and correlated .04, confirming their independence. In contrast to Study 1, the prestige factor emerged as the first factor and dominance as the second factor, suggesting that both forms of status are equally important components, or,



potentially, that prestige is more important or salient in the context of athletic teams, whereas dominance is more important or salient in generalized personality. With the exception of a single item, Item 9 (*I have flashes of unpredictable or erratic anger*), designed to assess dominance that in Study 2 loaded slightly higher but negatively on prestige (-.45 vs. .44), all items loaded more strongly and positively on their presumed primary factors than their presumed secondary factors.

To provide a quantitative index of the level of correspondence between the factor structures that emerged in Studies 1 and 2, we computed correlations between the two profiles of factor loadings. These correlations, computed across the 22 items, indicate the extent to which items with a high (vs. low) loading on the dominance or prestige factor in Study 1 also had a high (vs. low) loading on the dominance or prestige factor in Study 2. The two dominance factors correlated .89, and the two prestige factors correlated .94, suggesting a high level of consistency in the factor structure across the two studies.

We next conducted principal axis factor analysis using oblimin rotation on the 22 peer-reported dominance and prestige items.<sup>8</sup> Based on the scree test, a two factor structure again emerged. Eigenvalues for the first six factors were 6.01, 5.86, 1.40, .97, .84, and .78. The first two components accounted for 53.96% of the total variance (27.31% and 26.65% for Factors 1 and 2, respectively) and correlated -.01. Once again, all items loaded more strongly and positively on their presumed primary factors, and dominance emerged as the first factor, and prestige as the second factor.

Comparing the pattern of factor loadings for each item in the self- and peer-reported scales, 9 of the 10 items designed to assess prestige had higher primary loadings on this factor; Item 9 (*I have flashes of unpredictable or erratic anger*) had approximately equal loadings on both factors in the self-reported scale, but loaded more highly on prestige in the peer-reported scale, as expected. All 12 items designed to assess dominance had higher primary loadings on this factor. To index the level of correspondence between the factor structures of the self- and peer-reported items, we computed correlations between the profiles of factor loadings on the self-rated and peer-rated factors. Again, these correlations were computed across the 22 items and thus indicate the extent to which items with a high (vs. low) loading on the dominance or prestige factor in the self-rated scale also had a high (vs. low) loading on the dominance or prestige factor in the peer-rated scale. Peer and self-rated dominance profiles correlated .40 ( $p = .06$ ), and peer and self-rated prestige profiles correlated .51 ( $p < .05$ ). Thus, a similar structure emerged across self- and peer-ratings, though consistency was not as high as when comparing self-ratings across studies. This suggests that although the primary and secondary factor loading of each item did not differ across self and peer perceptions, the relative magnitude of each loading, on each factor, was not entirely consistent.

To determine which items to retain for the final dominance and prestige scales, we evaluated each item based on results of all three factor analyses (Study 1, and Study 2 self- and peer-ratings). We first excluded all items with primary factor loadings below .50 and/or cross-loadings above .30 in at least two of the three sets of ratings. This led to the exclusion of 5 items from the initial 22 (see Table 1). Four items remained that were sub-

optimal in one of the three sets (see Table 1). We opted to retain these items because although they fell short of the established criteria in one set of ratings (two were suboptimal in Study 1, one in Study 2 peer-ratings and one in Study 2 self-ratings), they had good properties in the other two sets, and their inclusion increased the overall scale alphas.<sup>9</sup> The final scales thus included 8 dominance items with good internal consistency ( $\alpha$ s = .83 in Study 1, .77 for self-ratings in Study 2, and .88 for peer-ratings in Study 2) and interrater reliability (alpha = .78, in Study 2); and 9 prestige items with good internal consistency ( $\alpha$ s = .80 in Study 1, .84 for self-ratings in Study 2, and .85 for peer-ratings in Study 2) and interrater reliability (alpha = .84, in Study 2). All analyses presented below are based on these scales.

#### *Do Group Members Agree on Others' Dominance and Prestige?*

To test whether individuals converged (i.e., showed reliability) in their perceptions of teammates' status, we examined the degree to which targets elicited similar status ratings from their peers (i.e., the part of the total variance that is explained by the role of the target; Kenny, 1995). In the Level 2 equations modeled in Hypothesis 1, target and perceiver effects were modeled as random variables.<sup>10</sup> Target variance reflects variation in peer-ratings due to the target, and larger target variance indicates that a given target elicited consistent status ratings from others. In other words, the amount of target variance in the model indicates level of consensus. Relative target variance, which captures the proportion of total variance in peer ratings accounted for by targets, thus serves as an indicator of the level of consensus among teammates in their judgments of status. Of the total variance in peer-rated dominance, the percentage of target variance

was 35.43%, indicating that perceivers showed agreement in their discrimination among targets' varying dominance levels. Of the total variance in peer-rated prestige, the percentage of target variance was 44.60%, suggesting that individuals showed agreement in their discriminations among targets' varying prestige levels.<sup>11</sup> Overall, there was a high degree of consensus in individuals' perceptions of teammates' levels of dominance and prestige.

*Hypothesis 1: Hubristic Pride is Positively Related to Dominance and Authentic Pride to Prestige*

Consistent with Hypothesis 1 and the results of Study 1, trait hubristic pride was positively related to dominance ( $r = .49, p < .0001$ ) and trended toward having a negative relation with prestige ( $r = -.16, p = .13$ ). Also as consistent with Hypothesis 1 and previous results, trait authentic pride was positively related to prestige ( $r = .56, p < .0001$ ) and dominance ( $r = .22, p < .05$ ), with the latter association considerably weaker ( $Z = 2.72, p < .01$ ).<sup>12</sup>

We next examined the incremental validity of the two facets of pride in predicting each form of status when narcissism and self-esteem were entered as simultaneous predictors. Replicating Study 1, hubristic pride remained a significant predictor of self-rated dominance,  $\beta = .32, t(186) = 3.45, p < .001$ , and narcissism also significantly predicted dominance,  $\beta = .44, t(186) = 4.44, p < .0001$ . Similarly, authentic pride remained a significant predictor of self-rated prestige,  $\beta = .27, t(186) = 2.41, p < .05$ , hubristic pride significantly predicted a drop in prestige,  $\beta = -.19, t(186) = -2.14, p < .05$ ,

and self-esteem predicted an increase in prestige,  $\beta = .35$ ,  $t(186) = 3.27$ ,  $p < .01$ , while the unexpected positive effect of narcissism on prestige found in Study 1 was non-significant.

*Data analytic strategy for peer-ratings of status.* Hierarchical linear models were estimated to account for the fact that peer ratings of dominance and prestige were nested within perceivers and targets, and observations exhibited clustering and non-independence of error (Bryk & Raudenbush, 1992). Peer-ratings were thus modeled as random effects that may vary across both perceivers and targets. Variance in the dependent variable was partitioned into within-person and between-person components, allowing predictor terms to be represented at the level of the specific dyad (Level 1) and at the level of the person (Level 2). For clarity of presentation, however, we present below a single equation that specifies the multiple sources of variation from both Levels 1 and 2. Separate models were estimated for dominance and prestige.

We specified the following model to estimate the effect of hubristic pride on dominance:

$$Y_{ij} = \beta_{00} + \beta_{01} \textit{Authentic Pride}_j + \beta_{02} \textit{Hubristic Pride}_j + \beta_{03} T_1 + \beta_{04} T_2 + \beta_{05} T_3 + \alpha_i + \rho_j + \varepsilon_{ij}$$

In this model,  $Y_{ij}$  is Perceiver  $i$ 's rating of Target  $j$  on dominance. Random effects are modeled with terms  $\alpha_i$ , and  $\rho_j$ —representing person  $i$ 's target effect, and person  $j$ 's perceiver effect—and their variances are estimated as parameters of the model.  $T_1$ ,  $T_2$ , and  $T_3$  are dummy codes for the volleyball team, soccer team, and rugby team,

respectively, with baseball team as the reference group. The tests of the coefficients for the team dummy codes ( $\beta_{03}$ ,  $\beta_{04}$ , and  $\beta_{05}$ ) represent tests of each sports team's difference in mean dominance level when compared to the baseball team. Dummy codes correct for differences in the mean dominance of the teams when examining the effect of pride on dominance ratings (i.e., the regression of dominance on hubristic and authentic pride with team membership controlled). The hypothesis of interest will be examined by testing  $\beta_{02}$ , which is the effect of hubristic pride on peer-rated dominance, and comparing it to  $\beta_{01}$ , the effect of authentic pride on dominance.

Results of these analyses are presented in Table 3. As predicted, hubristic pride was positively related to peer-rated dominance,  $b = .36$ ,  $z = 3.03$ ,  $p < .01$ , but authentic pride was not related to peer-rated dominance,  $b = .01$ ,  $z = .06$ ,  $ns$ .<sup>13</sup> No significant relationship emerged for any of the team dummy codes, suggesting that teams did not differ in mean levels of dominance,  $bs$  ranged  $-.10$  to  $.33$ ,  $zs$  ranged  $-.35$  to  $1.04$ , all  $ns$ . Thus, individuals high in hubristic pride attained higher dominance in the eyes of their peers.

We specified the following model to estimate the effect of authentic pride on prestige:

$$Y_{ij} = \beta_{00} + \beta_{01} \text{Authentic Pride}_j + \beta_{02} \text{Hubristic Pride}_j + \beta_{03} T_1 + \beta_{04} T_2 + \beta_{05} T_3 + \alpha_i + \rho_j + \varepsilon_{ij}$$

This model is identical to the model predicting peer-rated dominance, except that  $Y_{ij}$  is Perceiver  $i$ 's rating of Target  $j$  on prestige. Consequently, the terms  $\alpha_i$ , and  $\rho_j$ —representing person  $i$ 's target effect, and person  $j$ 's perceiver effect—are random variables and their variances are estimated as parameters of the model. The tests of the coefficients for the team dummy codes ( $\beta_{03}$ ,  $\beta_{04}$ , and  $\beta_{05}$ ) represent tests of each sports team's differences in mean prestige levels in comparison to the baseball team. In the model, the key test of our hypothesis is examined by testing  $\beta_{01}$ , which is the effect of authentic pride on peer-rated prestige, and how it compares to  $\beta_{02}$ , the effect of hubristic pride on prestige.

Results pertaining to this model are presented in the lower half of Table 3. In examining the set of Level 2 predictors, the only significant relation that emerged was that of a positive effect of authentic pride on peer-rated prestige,  $b = .33$ ,  $z = 2.21$ ,  $p < .05$ , indicating that individuals high in trait authentic pride were perceived as more prestigious by their teammates. In contrast, hubristic pride was not related to perceived prestige,  $b = -.01$ ,  $z = -.14$ , *ns*. No significant relationship emerged for any of the team dummy codes, suggesting that teams did not differ in mean levels of prestige,  $bs$  ranged .29 to .41,  $zs$  ranged 1.28 to 1.45, all *ns*. Thus, individuals high in authentic pride obtained higher prestige in the eyes of their peers.

We next examined the incremental validity of the two facets of pride in predicting dominance and prestige when narcissism and self-esteem were entered as simultaneous Level 2 predictors. Replicating Study 1 and results from Study 2 self-rating dominance, hubristic pride remained a significant predictor of peer-rated dominance,  $b = .25$ ,  $z = 1.92$ ,

$p = .05$ , and narcissism also significantly predicted dominance,  $b = .1.23$ ,  $z = 2.02$ ,  $p < .05$ . However, authentic pride no longer emerged as a significant predictor of peer-rated prestige,  $b = -.08$ ,  $z = -.41$ , *ns*; the attenuation of this relation is likely due to authentic pride's shared variance with self-esteem, which, consistent with Study 1 and results from Study 2 self-rated prestige, predicted an increase in prestige,  $b = .57$ ,  $z = 2.68$ ,  $p < .01$ .

#### *Are Self-Perceptions of Status Accurate?*

To examine accuracy in self-perceptions of dominance and prestige, we correlated self- and peer-ratings of status. In addition to seeking convergence between these ratings, we also needed to examine whether individuals can accurately discriminate between the two forms of status in their self and peer-ratings. Table 4 shows a Multitrait-Multimethod matrix (MTMM; Campbell & Fiske, 1959) of correlations between dominance and prestige across different informants (i.e., self and peer reports), conducted on disaggregated data (at the dyadic level; i.e., for each person, self-rated dominance and prestige scores were correlated with each of the five peer-rated scores). First, self-ratings of dominance correlated strongly with peer-ratings of dominance, and self-ratings of prestige correlated strongly with peer-ratings of prestige, indicating that individuals are accurate in their self-perceptions of their dominance and prestige, and validating the use of both self- and peer-reports to assess dominance and prestige among naturalistic groups. It is interesting to note that peer-ratings of the two forms of status were positively correlated,  $r = .23$ , likely due to shared variance in agency (i.e., both represent high status). However, one limitation of these analyses is that peer-ratings for a given target across different judges were potentially clustered (i.e., non-independent).



To further test whether individuals can accurately judge how much dominance and prestige they have *relative* to others, while accounting for potential clustering in the MTMM analyses, we next examined *differential accuracy*, defined as the extent of convergence between self- and peer-ratings (Cronbach, 1955). Analyses were conducted on mean status ratings across the five perceivers for each target (i.e., on individual-level data), which was taken as an indicator of each target's actual status. For each individual, self-rated dominance and prestige were correlated with mean peer-rated dominance and prestige (averaged across five raters), respectively. Following Kenny, Kashy, and Cooks' (2006), we handled the potential clustering of self-ratings due to group by using three dummy variables to partial out the effect of group in the four sports teams. Results revealed substantial levels of differential accuracy in perceiving both forms of status: partial correlations were .33 for dominance and .40 for prestige, both  $ps < .01$ .

A second way of assessing accuracy is *elevation accuracy*, defined as the extent to which mean self-ratings, across targets, converge with mean peer-ratings, across targets and perceivers (Cronbach, 1955). Whereas differential accuracy represents the extent to which self- and peer-ratings show the same rank ordering, elevation accuracy represents the extent to which, on average, targets view themselves as higher or lower on a given trait than they are viewed by peers on that trait (i.e., mean-level accuracy). To account for potential dependencies due to group, we conducted these analyses at the level of the team (rather than at the individual level; Kenny, 1995). Self-ratings of dominance ( $M = 3.47$ ,  $SD = .12$ ) were significantly higher than peer-ratings ( $M = 3.00$ ,  $SD = .08$ ),  $t(3) = 6.48$ ,  $p < .01$ ,  $d = 3.30$ .<sup>14</sup> Similarly, self-ratings of prestige ( $M = 5.21$ ,  $SD = .29$ ) were significantly higher than peer-ratings of prestige ( $M = 4.64$ ,  $SD = .20$ ),  $t(3) = 5.61$ ,  $p < .05$ ,

$d = 3.07$ . Thus, individuals showed a positivity bias in evaluating their dominance and prestige.

*Do the Two Facets of Pride have Distinct Effects on Status Self-Enhancement?*

Although individuals are fairly accurate in perceiving their dominance and prestige, they may nonetheless differ systematically in their relative level of accuracy; specifically, we expected hubristic and authentic pride to promote the over-estimation of dominance and prestige, respectively. We assessed individual differences in self-enhancement using the *criterion discrepancy* operationalization, which quantifies self-enhancement as the extent to which an individual overestimates his/her traits relative to a credible criterion, such as peer ratings (John & Robins, 1994).<sup>15</sup> Self-enhancement was indexed by difference scores (for which we subtracted a target's mean status rating, averaged across 5 perceivers, from his/her self-rating) and residual scores (for which we regressed self-ratings onto mean peer ratings and saved the standardized residuals; Zumbo, 1999).<sup>16</sup>

Table 5 presents correlations between dispositional pride and both indices of self-enhancement on dominance and prestige. As predicted, authentic pride was positively correlated with self-enhancing on prestige, using both the difference score and residual score indices. Conversely, hubristic pride was positively correlated with self-enhancing on dominance, using both the difference and residual scores. Authentic pride was also positively correlated with self-enhancing on dominance, but only when residual scores were used. No relation emerged between hubristic pride and prestige self-enhancement,

regardless of whether difference or residual scores were used. These findings suggest that both facets of pride promote status self-enhancement, but they do so in different ways. Individuals high in authentic pride overestimate their prestige and, to a lesser extent, their dominance, whereas individuals high in hubristic pride self-enhance only on dominance.

*Hypothesis 2: Hubristic Pride will be Positively Related to Traits that Foster Dominance, and Authentic Pride will be Positively Related to Traits that Foster Prestige*

Table 6 presents correlations of hubristic and authentic pride, and peer- and self-rated dominance and prestige, with self-esteem, narcissism, social acceptance, aggression, agency, communion, and the Big Five traits. Peer-ratings of dominance and prestige were based on means across the five perceivers for each target individual (i.e., at the individual-level; inter-rater  $\alpha$ s = .84 for dominance .78 for prestige).

Replicating Study 1, self- and peer-rated dominance and hubristic pride were positively related to narcissism and aggression, and self- and peer-rated prestige and authentic pride were positively related to self-esteem and social acceptance. Individuals high in peer-rated dominance and hubristic pride were also extraverted and disagreeable, whereas individuals high in peer-rated prestige and authentic pride tended to be conscientious. Authentic pride was also positively related to extraversion and emotional stability, but, in contrast to the findings of Study 1, peer-rated prestige was not significantly related to extraversion, agreeableness, or emotional stability though trends were in the expected direction. These discrepancies with Study 1 did not emerge for correlations with self-ratings of dominance and prestige; in this case, results generally

replicated those of Study 1, with the exception of a marginally significant negative relation between conscientiousness and self-rated dominance ( $r = -.19, p = .08$ ; compared to a small but significant positive relation in Study 1).

To determine whether dominance and prestige, and their respective pride facets, are impelled by distinct interpersonal motives, we next examined relations with agency and communion. As was predicted, both dominance and prestige, and both pride facets, were positively associated with agency (see Table 6). Also as predicted, communion was positively associated with self-rated prestige but negatively with self-rated dominance; hubristic pride was also negatively correlated with communion. Correlations of communion with peer-ratings of dominance and prestige (and self-ratings of authentic pride) were in the predicted direction but did not reach significance.

Replicating Study 1, academic achievement (indexed by GPA) was positively related to peer-rated prestige ( $r = .19, p < .05$ , one-tailed, .95 CI [-.02, .38]), self-rated prestige ( $r = .28$ ), and authentic pride ( $r = .36$ , both  $ps < .01$ ). Age was positively related to both peer-rated dominance and prestige ( $rs = .26$  and  $.30$ , both  $ps < .05$  respectively). No significant associations emerged between height and any of variables examined.

We further explored the personality characteristics that accompany attaining each form of status by examining peers' perception of their teammates in two domains: advice-giving and expertise. Shown in the lower half of Table 6 are correlations between pride, self- and peer-rated status, and peer-ratings of these abilities. Individuals perceived as prestige were also viewed as capable advice-givers; this correlation held with self-

rated prestige, as well. In contrast, dominance was unrelated to perceived advice-giving abilities, consistent with the theoretical distinction between dominance and prestige. Correlations between the two pride facets and advice-giving did not reach significance, but trends in the expected directions emerged for both facets.

Individuals viewed by their peers as highly prestigious were also viewed as highly intellectual, and possessing good social skills, artistic or musical skills, athletic ability, leadership ability, and physical attractiveness. Individuals viewed as highly dominant were also seen as possessing artistic or musical ability, athletic ability, and leadership ability, suggesting that dominance is related to competence in some domains, but fewer than those that underlie prestige. Peer-rated prestige was also positively related to peer-perceived altruism, cooperativeness, helpfulness, ethicality, and morality, whereas dominance was negatively correlated with these pro-social traits. Individuals high in authentic pride were also viewed by peers as possessing social skills and strong leadership abilities; correlations between authentic pride and intellectual ability, artistic/musical ability, and athletic ability were all in the positive direction but fell just below significance. In contrast, individuals high in hubristic pride, but not authentic pride, were perceived as low in altruism, cooperativeness, helpfulness, ethicality, and morality.

### **Summary and Limitations**

Overall, the findings of Study 2 are generally consistent with those of Study 1. Specifically, confirming Hypothesis 1, individuals high in dispositional hubristic pride attained greater dominance within their social group, whereas individuals high in

dispositional authentic pride attained greater prestige; these relations emerged through both self- and peer-ratings of dominance and prestige. In support of Hypothesis 2, hubristic pride and dominance had a similar profile of personality correlates, including narcissism, aggression, disagreeableness, and low communion. Authentic pride and prestige also had similar correlates, which were diametrically opposed to the traits underlying dominance and hubristic pride: high self-esteem, social acceptance, conscientiousness, and emotional stability.

Study 2 also demonstrated that individuals show a high level of consensus in evaluating the dominance and prestige of others in their social group, suggesting that group members are sensitive to the hierarchical nature of their group, and can make reliable distinctions between the two theoretical forms of status. Furthermore, individuals showed high differential accuracy in self-perceptions of status, suggesting that they have a high level of insight into their own social rank, relative to others, and know where they stand in both the dominance and prestige hierarchies. However, accuracy does not preclude positivity (Funder & Colvin, 1997), and individuals rated themselves more positively than their peers rated them, on both dominance and prestige. As we predicted, individual differences in this tendency to self-enhance on dominance and prestige were linked to distinct pride predispositions, such that individuals high in authentic pride tended to overestimate their prestige, whereas individuals high in hubristic pride tended to overestimate their dominance. Although previous studies have examined differential accuracy and self-enhancement in the self-perception of status (e.g., Anderson et al., 2006), this is the first research to show that both processes occur for both dominance and

prestige, and that self-enhancement on each form of status can be predicted on the basis of distinct emotional dispositions.

Study 2 also revealed small but consistent differences between self- and peer-rated status. When status was assessed using peer perceptions, authentic pride was independent of dominance, and hubristic pride was independent of prestige. However, when status was assessed using self-perceptions, authentic pride was slightly positively correlated with dominance, and hubristic pride was slightly negatively correlated with prestige, in both Studies 1 and 2. The finding that self-rated dominance was linked to both facets of pride, but peer-ratings of dominance was linked only to hubristic pride, suggests that although confidence and arrogance promote self-perceived dominance, individuals who are confident are viewed as prestigious, but not dominant, in the eyes of their peers. The finding that individuals high in hubristic pride rate themselves as low in prestige, but are not necessarily viewed that way by their peers, suggests that the pro-social components of prestige may be experienced as particularly incongruous with these individuals' sense of power.

Importantly, the finding that both dominant and prestigious individuals were viewed by peers as possessing leadership abilities is consistent with the contention that both forms of status represent different ways of leading. Also consistent with Study 1, traits that promote intimidation and the use of force to acquire power (e.g., narcissism, aggression, extraversion, disagreeableness, and agency) were positively related to peer-perceived dominance; whereas traits that establish an individual's attractiveness as a social model (e.g., self-esteem, conscientiousness, social acceptance, agency, and

intelligence) were positively related to peer-perceived prestige. Similarly, individuals who were perceived to be good advisors on a range of topics were viewed as highly prestigious, but not dominant. For the most part, the traits found to underlie prestige and dominance showed convergent relations with authentic and hubristic pride, respectively, though in several cases relations with the pride facets were weaker, in all likelihood because dispositional pride is only one component of the broader status acquisition process. Thus, whereas prestige and dominance are broad traits based on a range of narrower traits, emotions, and interpersonal behaviors, authentic and hubristic pride are narrower emotional dispositions that likely promote some of the behaviors relevant to attaining each form of status, but, perhaps, not the entire constellation.

## **GENERAL DISCUSSION**

### **Hubristic and Authentic Pride Promote Distinct Forms of Social Status**

The primary goal of the present research was to examine whether hubristic and authentic pride might function to promote different forms of status—dominance and prestige. We tested this hypothesis using self- and peer-reports of status, and assessed status both as a dispositional trait that influences relationships across domains, and as social rank within the specific context of a hierarchically structured social group. Findings converged across studies and methods to show that individuals high in dispositional hubristic pride tended to view themselves, and be viewed by their peers, as dominant, whereas individuals high in dispositional authentic pride tended to view themselves and be viewed by peers as prestigious.



We also found converging support across studies for Hypothesis 2, that the pride facets and their respective forms of status share similar patterns of correlates, specifically with traits relevant to the attainment of dominance and prestige. If the two facets of pride evolved as part of a larger emotional and behavioral system facilitating the attainment of dominance or prestige, then each pride facet should show convergent relations with those traits that promote the corresponding forms of status, given that these traits may determine which facet of pride is experienced in response to success, and each facet of pride, in turn, promotes the set of behaviors that tend to be associated with each trait and that lead to a dominant or prestigious reputation (see Figure 1). Indeed, across both studies, individuals high in dispositional hubristic pride tended to be narcissistic, aggressive, extraverted, disagreeable, agentic, and large in physical size—all of which seemed to promote a dominant reputation. In contrast, individuals high in dispositional authentic pride tended to have high genuine self-esteem and be conscientious, agentic, and intelligent—traits that were positively related to prestige.

In addition to testing the novel theory that the two facets of pride promote distinct forms of status, our findings extend previous research on pride and status in several ways. These are several of the first studies (c.f., Buttermore, 2006; Johnson, Burk, & Kirkpatrick, 2007) to examine the determinants of dominance and prestige. In general, our findings replicate those of Buttermore (2006), but they extend this previous research by showing that dominance and prestige are associated with distinct, theoretically predicted personality profiles even when status is assessed based on peer- rather than self-perceptions. This contribution is particularly important because social status, perhaps more than any other trait, is more accurately measured through the reports of social group

members than the self, given that status is defined as the amount of influence conferred by group members. In addition, the use of peer reports allowed us to eliminate the possibility that differences in the personality profiles of dominant and prestigious individuals are due to socially desirable responding or other sources of shared method variance. Thus, our findings provide compelling evidence that: (a) dominance and prestige represent distinct ways of attaining and maintaining status in naturalistic human groups; (b) the attainment of dominance and prestige rests on different sets of emotions and traits; and (c) personality traits have a strong influence over who attains social status and, more specifically, which form of status is attained.

### **Accuracy and Distortion in Self-Perceptions of Dominance and Prestige**

Our use of a multimethod approach, in Study 2, to assess dominance and prestige also allowed us to examine: (a) whether social group members agree about the relative rank of others in their group, in both dominance and prestige hierarchies; (b) whether individuals are accurate perceivers of their own dominance and prestige; and (c) whether self-enhancing on the two forms of status is differentially linked to the two facets of pride.

Findings revealed that group members show a high level of consensus in their perceptions of others' dominance and prestige. This suggests that relative differences in dominance and prestige characterize the social ecology of naturalistic groups, and that individuals are sensitive to these differences.

We also found that individuals show a high level of accuracy in perceiving their own dominance and prestige; this extends and clarifies previous research demonstrating accuracy in self-perceptions of overall status (Anderson et al., 2006). Accurately perceiving the dominance and prestige of group members and oneself is likely to be highly functional; both forms of knowledge are essential to making the social comparisons necessary for appropriate intragroup behavior in any hierarchically structured situation, and for effectively competing for higher rank. More specifically, accurately perceiving one's own and others' dominance allows individuals to avoid physical harm or loss of resources by de-escalating agonistic contests with more dominant others, and accurately perceiving one's own and others' prestige is crucial for knowing which social models to learn from.

We also found that, despite high accuracy, individuals also exhibit a positivity bias in self-perceptions of dominance and prestige. These findings provide new insights to the longstanding debate over the normalcy of positive illusions (Barkow, 1975; Krebs & Denton, 1997) versus accuracy (Anderson et al., 2006) in the self-perception of status. In our view, both processes (accuracy and positivity bias) are likely to be adaptive; although individuals must know, relatively accurately, where they stand in each hierarchy, overestimating one's rank may provide the necessary confidence to seek power and engage in status competitions.

Furthermore, we found that individual differences in the overestimation, or self-enhancement, of status were systematic, and could be predicted from emotional dispositions; individuals prone to hubristic pride overestimate their dominance, and

individuals prone to authentic pride overestimate their prestige. These individual differences map onto the egoistic and moralistic biases proposed by Paulhus and John (1998), and are likely due to the divergent values and goals associated with the two facets of pride.

### **Emotions, Traits, and Dominance and Prestige**

By demonstrating that dominance and prestige are distinct routes to high status which can be accurately and reliably assessed from group members, the present findings provide the first empirical support for the recent conceptualization of status in terms of dominance and prestige. As a result, these findings may help address longstanding questions in the literature on social status. A first major implication is that, when researchers ask questions about which group members attain status, it is imperative to make the clarification: What kind of status? A perusal of the extant literature reveals that whereas some studies have defined status as general influence (Anderson et al., 2001; Anderson & Kilduff, 2009; Littlepage, Schmidt, Whisler, & Frost, 1995), importance (Reyes-Garcia et al., 2008), or leadership (Brunell et al., 2008; Judge, Bono, Ilies, & Gerhardt, 2002), others have defined it more specifically as dominance, operationalized as toughness (Weisfeld & Beresford, 1982); or prestige, operationalized as respect (Anderson et al., 2001; Hardy & Van Vugt, 2006). Given our finding that the traits that facilitate the attainment of dominance are entirely distinct from those that facilitate prestige, it is not surprising that these previous studies have yielded discrepant and sometimes incompatible conclusions on the predictors of high status.

More specifically, previous research has generally found that agreeableness is unrelated to status (Anderson et al., 2001; Judge, Bono, Ilies, & Gerhardt, 2002). However, other studies have shown that individuals who behave altruistically (and thus are likely highly agreeable) enjoy higher status (Hardy & Van Vugt, 2006). Our research clarifies these findings by showing that agreeableness is negatively related to dominance but positively related to prestige. This finding represents a major qualification to Anderson and colleagues' (2001) conclusion that "being nice, warm, and kind" does not lead to higher status; these traits do matter in prestige-based societies.

Our findings also shed light on longstanding debates about the impact of narcissism on the attainment of status. Several studies have shown that narcissists emerge as leaders in social groups (Brunell et al., 2008; Maccoby, 2000; Rosenthal & Pittinsky, 2006), but other studies have shown narcissists to have poor leadership skills and be disliked by their peers (Blair, Hoffman, & Helland, 2006; Harms, Wood, & Roberts, 2009). The present findings suggest that narcissism, and hubristic pride, are linked to high influence by promoting dominance, the form of status that does not require respect as a leader or social acceptance.

Several findings from the present research are also consistent with theoretical accounts of prestige hierarchies as having emerged as a uniquely human form of status, to facilitate the human capacity for cultural transmission (i.e., social learning). First, individuals grant prestige to group members with high intelligence and demonstrated academic success, traits indicative of an individual's possession of high quality cultural information and consequent attractiveness as a cultural model. Second, prestigious

individuals were sought for advice on a range of topics, suggesting that these individuals are viewed as teachers of cultural knowledge or wisdom. Third, prestigious individuals were viewed as altruistic, consistent with the need for prestigious leaders to generously share their knowledge and help others, to maintain their attractiveness as social models.

### **Limitations and Future Directions**

The major limitation of this research is that the correlational nature of both studies prevented us from directly addressing questions of causality—whether the experience of each facet of pride promotes the behaviors that lead to a reputation of dominance or prestige. However, given that the impact of each facet of pride on status likely occurs over time (i.e., leadership reputations are shaped over many experiences), these causal relations may be difficult to assess experimentally in a laboratory setting. It is not clear that a one-time experience of hubristic pride would lead to perceptions of dominance—but this is an important question for future research. However, the finding that dispositional hubristic and authentic pride retain their predictive power on dominance and prestige, in most cases, even when controlling for shared variance in narcissism and self-esteem, allows us to rule out the possibility that the correlations found here are entirely due to these third-factor variables.

A second limitation is that participants in Study 2 provided peer ratings for only five group members, rather than all others in the group (i.e., a full round-robin structure). The large number of ratings requested from this unique sample (all members of several varsity teams), and the large number of individuals on each team, necessitated limiting

the number of targets each individual rated. However, this design feature prevented us from testing for dyadic relationship effects (Kenny, 1994). Future studies are thus needed to examine potential relationship effects on peer-perceptions of status.

Another caveat worth noting is that, despite the importance of personality in influencing the likelihood of experiencing one or the other facet of pride and attaining either form of status, personality is unlikely to completely override an individual's ability to seek the 'other' form of status in a given situation. That is, individuals with a prestige-prone personality may still, at times, seek and attain dominance. This flexibility in strategy selection is precisely what makes the emotional system appropriate for regulating and guiding status-oriented behaviors. Future studies are thus needed to examine the extent to which individuals' adopted status strategies do and do not cohere with personality in everyday, real-world situations.

Furthermore, given that the present work was limited to long-term groups where status dynamics are fairly solidified, future research should examine the formation of dominance and prestige hierarchies within newly formed groups. In such contexts, initial judgments of traits such as intelligence and competence (prestige cues) can be misguided by extraversion or shyness (Paulhus & Morgan, 1997). Thus, the effects of authentic pride and related traits on prestige may be attenuated, making these hierarchies highly unstable during the formation period. Similarly, recent research has found that dominant individuals, even if lacking abilities, can attain influence by *appearing* confident and competent in newly acquainted groups (Anderson & Kilduff, 2009)—presumably, the form of status they are assumed to hold in such cases is prestige. Thus, arrogance may be

interpreted as a cue to prestige in first meetings, possibly leading to an early-on conflation of the two forms of status. Future studies, using longitudinal designs, are needed to track changes in dominance, prestige, and overall status over time as hierarchies solidify.

A final important caveat regards our findings on self-enhancement of status; is it possible that discrepancies between one's own and their peers' perceptions of their status exist because group members seek to derogate the status of their peers. Given the present findings that self-enhancement on each form of status was systematically related to each facet of pride, this seems unlikely (it is unclear why peers would want to derogate the prestige of authentically pride-prone peers, in particular, though they may be inclined to derogate the dominance of hubristically pride-prone peers). Nonetheless, future work is needed to more closely examine the sources of status disagreements.

## **Conclusion**

The present research provides the first evidence to date that the two facets of pride might have evolved to promote the attainment of dominance and prestige, and that these two forms of status represent distinct avenues to social influence. Feelings of arrogance, conceit, and egotism motivate the aggressive and hostile behaviors that may function to produce fear in others and advance a dominant reputation. In contrast, feelings of confidence, productivity, and success motivate the demonstration of skills, expertise, and altruism that may allow individuals to maintain the appearance of attractiveness as a social model, and attain a prestigious reputation.



**TABLES AND FIGURES**

*Table 1.* Initial item pool (22-items) for assessing *self-ratings* (used in Studies 1 and 2) and *peer-ratings* (used in Study 2) of dominance and prestige, and factor loadings from Studies 1 (for self-ratings items) and 2 (for peer-ratings items)

Self-rated Items	Study 1 Factor 1	Study 1 Factor 2	Peer-rated Items	Study 2 Factor 1	Study 2 Factor 2
<b>Dominance</b>					
1. I enjoy having control over others.	.768		1. He/she enjoys having control over other members of the group.	.838	
2. I often try to get my own way regardless of what others may want.	.687		2. He/she often tries to get his/her own way regardless of what others in the group may want.	.792	
3. I am willing to use aggressive tactics to get my way.	.731		3. He/she is willing to use aggressive tactics to get his/her way.	.782	
4. I try to control others rather than permit them to control me.	.772		4. He/she tries to control others rather than permit them to control him/her.	.806	
5. I do not have a forceful or dominant personality. (R)	.563		5. He/she does not have a forceful or dominant personality. (R)	.513	
6. Others know it is better to let me have my way.	.596		6. Members of the group know it is better to let him/her have his/her way.	.775	

Self-rated Items	Study 1 Factor 1	Study 1 Factor 2	Peer-rated Items	Study 2 Factor 1	Study 2 Factor 2
7. I do not enjoy having authority over other people. (R)	.583		7. He/she does not enjoy having authority over other members of the group. (R)	.780	
*8. Some people are afraid of me.	.603	-.227	*8. Members of your group are afraid of him/her.	.666	
†9. I have flashes of unpredictable or erratic anger.	.448	-.392	†9. He/she has flashes of unpredictable or erratic anger.	.726	
†10. I dislike giving orders. (R)	.472	.238	†10. He/she dislikes giving orders. (R)	.479	
<b>Prestige</b>					
11. Members of your group respect and admire me.		.702	11. Members of your group respect and admire him/her.		.791
12. Members of your group do not want to be like me. (R)		.609	12. Members of your group do not want to be like him/her. (R)	-.280	.645
†13. I have gained distinction and social prestige among others in the group.	.334	.596	†13. He/she has gained distinction and social prestige among others in the group.	.244	.807
*14. Others always expect me to be successful.		.382	*14. Members of your group always expect him/her to be successful.		.715
*15. Others do not value my opinion. (R)		.443	*15. Members of your group do not value his/her opinion. (R)		.748

Self-rated Items	Study 1 Factor 1	Study 1 Factor 2	Peer-rated Items	Study 2 Factor 1	Study 2 Factor 2
16. I am held in high esteem by those I know.	.228	.658	16. He/she is held in high esteem by members of the group.		.838
17. My unique talents and abilities are recognized by others.	.201	.679	17. His/her unique talents and abilities are recognized by others in the group.		.747
*18. I am considered an expert on some matters by others.		.681	*18. He/she is considered an expert on some matters by members of the group.	.302	.680
†19. I like to help others.	-.340	.455	†19. He/she likes to help others.	-.266	.464
20. Others seek my advice on a variety of matters		.700	20. Members of your group seek his/her advice on a variety of matters		.704
21. Others do not enjoy hanging out with me. (R)	-.266	.552	21. Members of your group do not enjoy hanging out with him/her. (R)	-.289	.570
†22. Others do not like to do favors for me or help me. (R)	-.416	.464	†22. Members of your group do not like to do favors for him/her or help him/her. (R)	-.519	.498

*Note.*  $N = 191$  in self-rating items (Study 1).  $N = 438$  in peer-rating items (Study 2). (R) denotes reverse scored items. Loadings  $< .20$  on factors were suppressed and thus not presented. Items with sub-optimal properties in only one of the three sets of factor analyses (in both Studies 1 and 2), which were retained in final scale, are marked by \*. Items eliminated from the final scale, due to sub-optimal properties in two of the three sets of ratings, are marked with †.

Table 2. Correlations of Hubristic and Authentic Pride, and Dominance and Prestige, with Theoretically Related Traits, Study 1

	Hubristic Pride	Self-rated Dominance	Authentic Pride	Self-rated Prestige
Self-Esteem (controlling for narcissism) <sup>a</sup>	-.24**	-.16*	.56**	.45**
Narcissism (controlling for self-esteem) <sup>a</sup>	.42**	.56**	.17*	.15*
Social Acceptance	-.14†	-.16*	.43**	.59**
Aggression	.47**	.55**	-.28**	-.38**
Extraversion	-.16*	.20**	.50**	.59**
Agreeableness	-.68**	-.61*	.00	.27**
Conscientiousness	-.16*	.15*	.46**	.39**
Neuroticism	.12†	.13†	-.49**	-.39**
Openness	-.21**	.08	.32**	.43**

Note.  $N = 191$ .

†  $p < .10$ . \*  $p < .05$ . \*\*  $p < .001$

<sup>a</sup> Following Paulhus et al. (2003), shared variance between self-esteem and narcissism was removed by regressing self-esteem onto narcissism, and vice-versa, and saving the standardized residuals, to create variables representing genuine self-esteem (i.e., self-esteem controlling for narcissism) and narcissistic self-aggrandizement (i.e., narcissism controlling for self-esteem).

Table 3. Multilevel Models Predicting Peer-Rated Dominance and Prestige from Dispositional Pride, Study 2

Model Parameter	Unstandardized Coefficient	<i>SE</i>	<i>z</i>
DV: Dominance			
Authentic pride ( $\beta_{01}$ )	.01	.17	.06
Hubristic pride ( $\beta_{02}$ )	.36	.12	3.03**
DV: Prestige			
Authentic pride ( $\beta_{01}$ )	.33	.15	2.21*
Hubristic pride ( $\beta_{02}$ )	-.01	.11	-.14

Note.  $N = 91$ . DV = dependent variable.

\*  $p < .05$ . \*\*  $p < .01$

Table 4. Multi-Trait Multi-Method Correlation Matrix for Dominance and Prestige, Study 2

Informant/Status	Self-report		Peer-report	
	Dominance	Prestige	Dominance	Prestige
Self				
Dominance	(.71)			
Prestige	.09	(.81)		
Peer				
Dominance	<b>.33</b>	.17	(.88)	
Prestige	.11	<b>.42</b>	.23	(.85)

*Note.*  $N = 91$ . Correlations greater than  $|.15|$  are significant at  $p < .05$ . Correlations between each form of status with itself across different informants (i.e., mono-trait, hetero-method correlations) are in boldface. Internal consistency reliabilities are shown in parentheses.

*Table 5.* Correlations of Dispositional Hubristic and Authentic Pride with Self-Enhancement on Dominance and Prestige, Study 2

	Hubristic Pride	Authentic Pride
Dominance self-enhancement		
Difference score index	.23*	.18
Residual score index	.45**	.23*
Prestige self-enhancement		
Difference score index	-.17	.23*
Residual score index	-.19	.48**

*Note.*  $N = 91$ . The difference score index was computed by subtracting a target's mean peer-rated status from the target's self-rating. The residual score index was computed by regressing self-ratings onto mean peer-ratings and saving the standardized residuals.

\*  $p < .05$ . \*\*  $p < .001$



*Table 6.* Correlations of Hubristic and Authentic Pride, and Self-rated and Peer-rated Dominance and Prestige, with Theoretically Related Traits and Abilities, Study 2

	Hubristic Pride	Peer-rated Dominance	Self-rated Dominance	Authentic Pride	Peer-rated Prestige	Self-rated Prestige
Self-rated Traits						
Self-Esteem (controlling for narcissism) <sup>a</sup>	-.17	-.03	-.13	.49**	.24*	.47**
Narcissism (controlling for self-esteem) <sup>a</sup>	.41**	.22*	.62**	.27*	.17	.18†
Social Acceptance	-.20	.08	.05	.43**	.29**	.57**
Aggression	.32**	.35**	.50**	-.21*	.03	-.25*
Agency	.23*	.46**	.49**	.40**	.39**	.53**
Communion	-.45**	-.12	-.38**	.14	.05	.21*
Extraversion	.25*	.29**	.38**	.27**	.12	.38**
Agreeableness	-.57**	-.39**	-.46**	.12	.15	.20†

	Hubristic Pride	Peer-rated Dominance	Self-rated Dominance	Authentic Pride	Peer-rated Prestige	Self-rated Prestige
Conscientiousness	-.31**	-.13	-.19†	.32**	.23*	.26*
Neuroticism	.18†	-.02	.04	-.43**	-.15	-.44**
Openness	-.16	.13	.05	.15	.10	.34**
Mean Peer-rated Abilities						
Advice-giving ability	-.12	.12	-.12	.09	.56**	.25*
Intellectual ability	-.17	-.06	-.10	.20†	.37**	.32**
Social skills	-.01	.19†	.16	.24*	.71**	.45**
Artistic/musical ability	-.05	.21*	-.08	.19†	.28**	.25*
Athletic ability	-.01	.29**	.14	.08	.57**	.21*
Physical attractiveness	-.09	.19†	.09	.09	.51**	.31**
Leadership ability	.08	.40**	.18†	.21*	.73**	.40**

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	Hubristic Pride	Peer-rated Dominance	Self-rated Dominance	Authentic Pride	Peer-rated Prestige	Self-rated Prestige
Altruism	-.25*	-.36**	-.26*	.02	.36**	.12
Cooperativeness	-.29**	-.54**	-.25*	.05	.33**	.11
Helpfulness	-.27*	-.38**	-.32**	-.02	.39**	.09
Ethicality	-.31*	-.41**	-.41**	.03	.26**	.14
Morality	-.34*	-.32**	-.38**	.03	.31**	.17

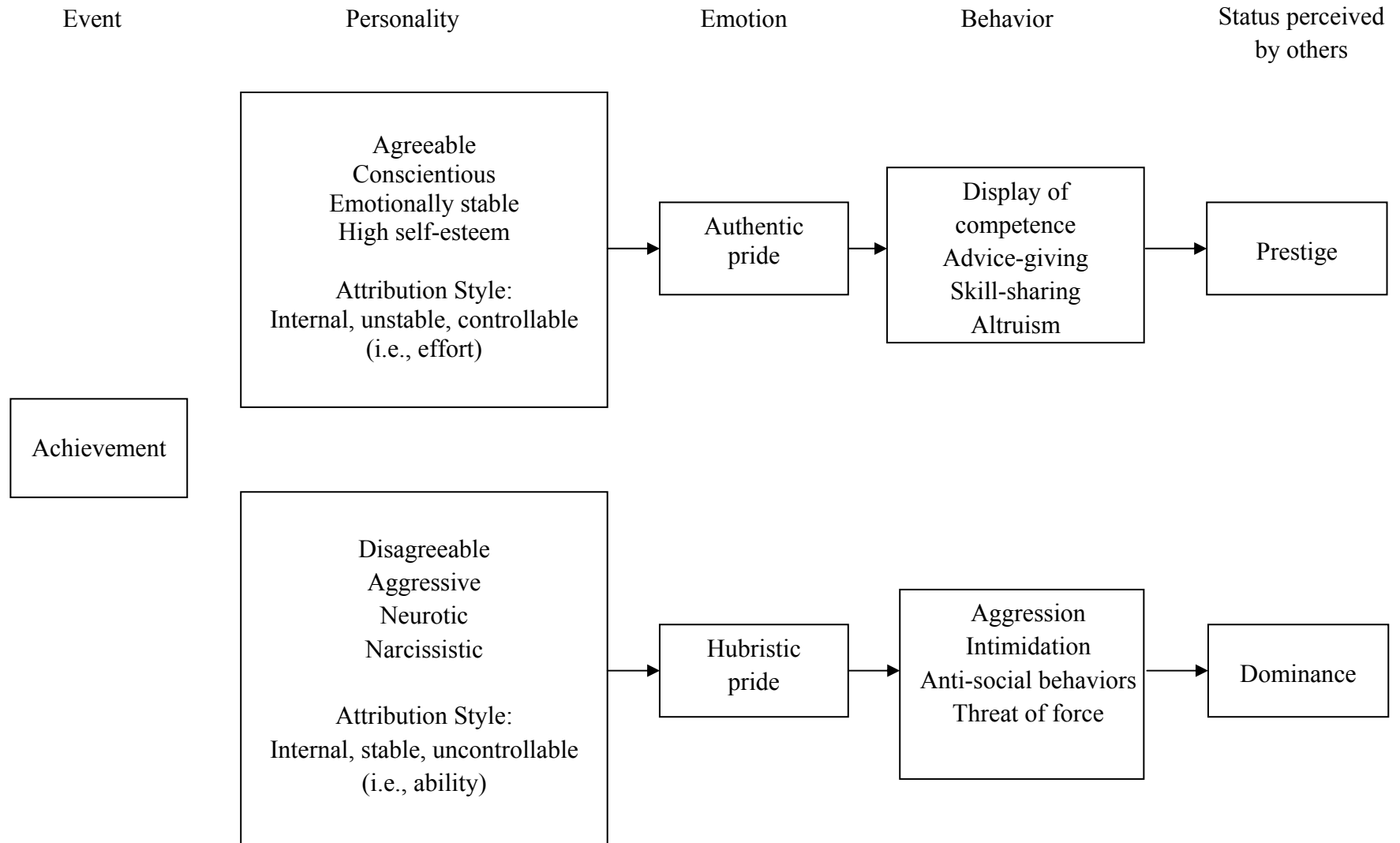
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*Note.*  $N = 91$ .

†  $p < .10$ . \*  $p < .05$ . \*\*  $p < .001$

<sup>a</sup> Following Paulhus et al. (2003), shared variance between self-esteem and narcissism was removed by regressing self-esteem onto narcissism, and vice-versa, and saving the standardized residuals, to create variables representing genuine self-esteem (i.e., self-esteem controlling for narcissism) and narcissistic self-aggrandizement (i.e., narcissism controlling for self-esteem).

Figure A.



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## NOTES

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<sup>1</sup> Distinctions paralleling dominance vs. prestige have been made in anthropology (e.g., Barkow, 1975; Chance & Jolly, 1970), clinical psychology (e.g., Gilbert, Price, & Allan, 1995), political psychology (e.g., Post, 2004), and sociology (e.g., Kemper, 1988, 1990, 1994). Although Henrich and Gil-White (2001) are not the first to distinguish between a fear-based and respect-based status, their framework has several advantages over earlier models. First, their account was derived from ethological observations of various species, and thus attempts to explain both human and nonhuman status dynamics. Second, complementary theories predict that individuals who possess socially attractive qualities (e.g., wisdom, skills, expertise) emerge as high status individuals, but do not explain why these qualities are attractive (c.f., Gilbert et al., 1995). Third, Henrich and Gil-White's model can account for cultural differences in preferred traits and abilities (e.g., why athletic ability is valued among adolescent boys but not academic scholars). By positing a cultural learning process, the dominance-prestige theory provides a basis for understanding the distal forces that shape preferences for social models and their traits.

<sup>2</sup> Figure 1 implies that personality, emotions, and behaviors lead to increase in status in serial, step-by-step sequence. However, strictly unidirectional and simple sequential processes are unlikely; the actual process more likely includes numerous feedback loops and bidirectional influences. In particular, the attainment of either forms of status is likely to reciprocally boost pride and shape personality.

<sup>3</sup> All results from Study 1 held using the finalized scales (reported in Study 2).

<sup>4</sup> The Meng, Rosenthal, and Rubin (1992) method was used to test the difference between two overlapping correlation coefficients. This test was our method of choice for comparing correlated correlation coefficients because of the limitations associated with the problematic, but widely used, Hotelling's *t*-test (see Meng et al., 1992).

<sup>5</sup> We attempted to recruit female athletes but were unsuccessful, because individuals on women's teams reported discomfort in evaluating their peers on the relevant dimensions. Interestingly, none of the men's teams recruited reported any discomfort or refused to participate.

<sup>6</sup> Data from a football team ( $n = 51$ ) were excluded from analyses because peer-ratings of dominance and prestige in this group were strongly correlated ( $r = .39, p < .05$ ), in contrast to the much lower correlations that emerged within every other team and the null correlations that emerged in all self-ratings. This difference suggests that the two hierarchies may not be distinct paths to high status within this group, perhaps because football players respect individuals who use force and intimidation to gain social influence, and thus the same traits facilitate dominance and prestige.

<sup>7</sup> Inter-rater reliabilities alphas were surprisingly low on several of these traits, so all results presented are based on aggregations across the five judges' ratings, to provide

mean peer-perceived scores that represent more stable and accurate estimates of each target's true underlying trait.

<sup>8</sup> The factor analysis was conducted on all available responses: 438 sets of peer-ratings across 91 targets.

<sup>9</sup> To further confirm the two factor structure and examine the psychometric properties of the final 17-item scale, we conducted confirmatory factor analysis on all 17 items using EQS 6.1 (Bentler, 2003). We compared the two factor solution with a forced one-factor solution, using the self-rating items. Confirmatory factor analysis is unstable and easily biased by small samples (Jackson, 2001), so we pooled self-rated responses from Studies 1 and 2 to estimate a more stable solution from a larger dataset. The one-factor model did not have an acceptable fit,  $X^2(119, N = 282) = 800.31, p < .0001$ , comparative fit index (CFI) = .47, Joreskog-Sorbom's goodness-of-fit (GFI) index = .64, root-mean-square error of approximation (RMSEA) = .15 (.90 CI [.14, .16]). The fit of a two-factor model, with the factors constrained to be independent, was a significant improvement,  $X^2_{\text{change}}(1, N = 282) = 505.17, p < .0001$ . However, the two-factor model fit parameters were still below optimal levels,  $X^2(119, N = 282) = 295.14, p < .0001$ , CFI = .86, Joreskog-Sorbom's GFI fit index = .88, RMSEA = .07 (.90 CI [.06, .09]). However, we were able to improve the fit by removing 3 additional items with cross-loadings on their secondary factor ( $X^2(76, N = 282) = 169.99, p < .05$ , CFI = .92, GFI = .91, RMSEA = .06 (.90 CI [.05, .08])), but opted to retain these items because they appear to capture unique components of each theoretical construct not assessed by other items of the scale. In fact, these three items may be the items that most closely approximate the distinction between dominance and prestige (Item 12: *Members of my peer group do not want to be like me*, reverse coded prestige; Item 21: *Others do not enjoy hanging out with me*, reverse coded prestige; Item 8: *Some people are afraid of me*, dominance item). The fact that these items had negative loadings on their secondary factor is what makes them less ideal for a clean two-factor structure as assessed by confirmatory factor analysis; however, these negative loadings are the result of these items keenly representing the distinction between dominance and prestige. It is also worth noting that the fit of a two-factor model, allowing for correlated factors, did not differ substantially from the two-factor independent factors model:  $X^2(118, N = 282) = 289.95, p < .05$ , CFI = .87, GFI = .88, RMSEA = .07 (.90 CI [.06, .09]). The lack of improvement in fit of this less restrictive, correlated factors model over the independent factors model indicates that there is no evidence that the two underlying latent factors are, in fact, correlated. In fact, using ML, ROBUST (to correct for potential non-normality of data), the correlation between the two latent factors was estimated to be .17, *ns*.

<sup>10</sup> Dyadic relationship variance was not estimated because target-perceiver pairs were randomly assigned such that each target was rated by five perceivers, and rated five other targets, but not necessarily those who served as his/her perceivers. Given the lack of reciprocal ratings, dyadic effects could not be estimated and variance due to dyadic effects was subsumed by error terms.

<sup>11</sup> The amount of relative target variance in peer-ratings of traits, such as for extraversion, is typically in the low 30% range (Kenny, Albright, Malloy, & Kashy, 1994). Our finding

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that dominance and prestige exhibit such high amounts of relative target variance reveals that group members share fairly impressive levels of consensus in perceiving these traits.

<sup>12</sup> As in Study 1, hubristic and authentic pride were independent, ( $r = -.01$ , *ns*). We therefore did not conduct regressions to control for shared variance.

<sup>13</sup> Hierarchical linear models were estimated using R's lme4 package (R Development Core Team, 2006). Tests of significance for estimated parameters were conducted with the asymptotic z-test (i.e., parameter estimate divided by normal theory standard errors).

<sup>14</sup> Effect size estimates were computed using Morris and DeShon's (2002) approach for repeated group designs, which is based on the average standard deviation from the two means, correcting for dependence between means. This approach generates within-subject effect sizes that are comparable (i.e., on a common metric) to between-subject effect sizes (see Morris & DeShon, 2002).

<sup>15</sup> In another tradition, referred to as *social comparison*, self-enhancement is defined as the degree to which individuals perceive themselves more positively than they perceive others (Chambers & Windschitl, 2004). This approach has been criticized for lacking a reality-based criterion against which the validity of self-evaluations can be examined (Kurt & Paulhus, 2008), and thus conflating self-enhancement tendencies with an above-average possession of positive traits (Block & Colvin, 1994; Klar & Giladi, 1999).

<sup>16</sup> Both the difference score and residual score measure of self-enhancement have advantages and disadvantages. The difference score approach can confound effects of self- and peer-perceptions (e.g., a variable could correlate with a discrepancy score because it correlates with self-perceptions, and not because it is negatively correlated with peer-perceptions). The residual score approach is immune to this issue, but can create problems of multicollinearity, which may lead to unstable estimates (Kwan et al., 2004). Zumbo (1999) recommended using both approaches and seeking convergence across analyses, to circumvent issues associated with either.