

Distinctive Facial Cues Predict Leadership Rank and Selection

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Abstract

Facial appearance correlates with leadership, both in terms of who is chosen (leader selection) and how they do (leader success). Leadership theories suggest that exceptional individuals acquire positions as leaders. Exceptional traits can differ between domains, however, and so the qualities valued in leaders in one occupation may not match those valued among leaders in another. To test this, we compared the relationship between facial appearance and leadership across two domains: law firms and mafia families. Perceptions of power correlated with leadership among law executives whereas social skill correlated with leadership in organized crime. Critically, these traits were distinctive within their respective groups. Furthermore, an experimental test showed that the relative frequency of facial traits in a group can render them either an asset or liability. Perceived leadership ability is therefore enhanced by characteristics that appear unique among individuals who satisfy the basic criteria for their group.

Keywords

leadership, face perception, masculinity, femininity

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Leadership selection is of the utmost importance in multiple sectors of today's world. It is therefore no surprise that leader choices are heavily scrutinized at all levels of society. Leaders ranging from the CEOs of the largest business corporations to the night shift managers at local fast food restaurants are selected based on the evaluations of others. Such decisions are far from trivial, as leadership selection can effect enormous consequences. Estimates suggest that business CEOs account for up to 45% of the variance in their firms' profits (Day & Lord, 1988) and political leaders affect the lives of every citizen in their constituencies (Blondel, 1987). Thus, given the importance of leadership selection, it is surprising that it can be affected so heavily by facial appearance. Indeed, whether one wins an election (e.g., Riggio & Riggio, 2010), gets promoted in the military (Collins & Zebrowitz, 1995; Mueller & Mazur, 1996), or has a profitable year of business (e.g., Rule & Ambady, 2008) may partly depend on his or her facial appearance (see van Vugt & Grabo, 2015, for review).

One of the best studied examples of the role of facial appearance in leadership selection comes from political candidates' electoral success. Facial appearance significantly correlates with election outcomes at various levels of government across the world. Studies have shown that naïve observers' judgments of political candidates' faces correlate with election results in many nations (e.g., Antonakis & Dalgas, 2009; Lawson, Lenz, Baker, & Myers, 2010; Martin,

1978; Rule & Ambady, 2010; Todorov, Mandisodza, Goren, & Hall, 2005) as well as the popular vote totals in presidential elections, and in Democratic and Republican party primaries (Armstrong, Green, Jones, & Wright, 2010). These studies suggest that people reach consensus about who "looks like a leader," which corresponds to the real-world selection of government officials. Further research has demonstrated that judgments from faces can also relate to how well leaders perform.

Faces of business CEOs (the apex rank and "leader" in a business corporation) correlate with how successful they are in achieving their goal of making their companies money (e.g., Pillemer, Graham, & Burke, 2014; Rule & Ambady, 2008). Yet the direction of this relationship is unclear. One unpublished manuscript reported that ratings of CEO competence did not correlate with companies' return on assets (ROA) after controlling for several related variables, including ROA under the previous CEO (Graham, Harvey, & Puri, 2016). Other studies, however, have found that CEOs' facial shape correlates with their companies' ROAs when controlling for the organization's ROA before they were hired

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(Wong, Ormiston, & Haselhuhn, 2011), and that ratings of leadership from CEOs' faces correlate with their companies' profits when controlling for the profits of their predecessors (Re & Rule, 2015). Moreover, judgments from the faces of Managing Partners (MPs) of law firms correlate with their firms' profits as well (Rule & Ambady, 2011a)—from photos taken decades before the leaders attained their positions (Rule & Ambady, 2011b). Thus, leaders' faces may contain a kernel of truth about their leadership ability. Whether they do or not, leaders' facial appearance seems to relate to their emergence within organizations and may foretell their companies' financial performance once selected.

Several studies have shown that facial features associated with physical formidability relate to leadership selection and success. Dominant, mature-looking, and masculine faces provide advantages in political leadership selection, perhaps due to the link between physical dominance and leadership emergence theorized to have directed leadership among early humans (and that still clearly applies among nonhuman primates; see Riggio & Riggio, 2010). Bigger, more dominant-looking people achieve positions of leadership across numerous occupational domains (see Blaker et al., 2013; Murray & Schmitz, 2011). Indeed, faces connoting physical power are associated with present-day leadership performance in business (Rule & Ambady, 2008) and facial cues conveying tall physical height or masculinity generally portend leadership selection in laboratory experiments that simulate intergroup threats (Little, 2014; Re, DeBruine, Jones, & Perrett, 2013; Spisak, Dekker, Krüger, & van Vugt, 2012; Spisak, Homan, Grabo, & van Vugt, 2012). Researchers have also found that facial width-to-height ratio (fWHR), which correlates with an individual's physical dominance and aggression (Carré & McCormick, 2008), statistically predicts the financial success of CEOs (Wong et al., 2011). Other studies have demonstrated that judgments of "competence" correlate with leadership selection (Armstrong et al., 2010; Todorov et al., 2005) and that such perceptions are associated with dominant-looking facial features (see Riggio & Riggio, 2010). Thus, subjective impressions of dominance and objective facial features advertising one's propensity for aggression not only relate to perceptions of leadership, but to leaders' actual behavior as well.

The majority of research on facial cues to leader selection has found that impressions of physical-dominance traits relate to who is chosen as a leader (e.g., Little, 2014; Riggio & Riggio, 2010). Such consistency might tempt one to reinvoke largely deflated efforts to isolate a unifying descriptive trait of successful leaders (e.g., Cowley, 1931). A handful of studies, however, have demonstrated that preferences for dominance and masculinity in leaders' faces decrease in contexts that emphasize peace and cooperation (e.g., Little, Burriss, Jones, & Roberts, 2007; Spisak, Dekker, et al., 2012). One recent study revealed that people could correctly categorize the faces of leaders as coming from business, the military, or sports (but not politics) more accurately than

chance (Olivola, Eubanks, & Lovelace, 2014). Correct categorizations hinged on variation between the faces in attractiveness, masculinity, and warmth (e.g., participants judged sports and military leaders as less attractive and less warm than political and business leaders), suggesting that leaders in different fields may be distinguished by different facial cues. Taken together, these studies suggest that the facial cues that correlate with leadership selection are not universal across all situations and domains.

The facial cues related to leadership choice may therefore vary by situational and occupational context (e.g., Little, 2014). Yet most real-world leadership studies have only examined high-achieving politicians or business executives—top-echelon members of society for whom powerful traits may be advantageous because they are rare. Conversely, it is possible that "baseline" traits, or traits expected to be common to politicians and business executives such as social ability and communication skills, may not be advantageous in leadership selection because these attributes are found among most members of these groups. Theories of leadership suggest that unique individuals within a group will typically stand out and emerge as leaders (Kaiser, Hogan, & Craig, 2008). Importantly, this "standing-out" relates to a quality in an individual that goes over and above the baseline characteristics typical of the group.

Some evidence suggests that the advantage in leadership selection owed to uniqueness also applies to facial cues. Livingston and Pearce (2009) found that, contrary to racial stereotypes, Black CEOs looked warmer and more "babyfaced" (e.g., more youthful, friendly, and warm; see Berry & McArthur, 1985) than did White CEOs, and that Black CEOs with babyfaces led more profitable companies and earned higher salaries compared with Black CEOs with more mature facial appearances. These results show contextual effects of race on the role of facial cues in leadership success; however, they also show that unique facial cues within a group (babyfacedness in Black men) provide advantages for obtaining and succeeding in positions of leadership. Characteristics of successful executives typically include being highly educated and socially capable (Gee & Jackson, 1977). Those who fulfill these criteria, but who also appear physically dominant and powerful, may therefore seem exceptional. Thus, executives who look both socially capable and physically dominant might advantageously "stand out" compared with other executives.

Social skill is not the norm in every business, however. Indeed, physical prowess is required over social skill in many lower status occupations (e.g., construction, stevedores, etc.). Here, we examined the relationship between appearance and leadership selection in a domain where dominance is the norm and social skill the exception: organized crime. By reversing the traits that are expected versus exceptional for leadership, we tested the hypothesis that individuals attain leadership positions when they are unique within their group beyond basic criteria, not because they possess particular absolute traits.

The organized crime context provides several advantages for studying leadership. Mafia families follow a stratified hierarchy with one leader and several subordinate levels (Jacobs & Gouldin, 1999), are outside the top-echelon organizations used in previous studies on appearance and leadership, and are free of business regulations, and therefore more closely resemble leadership selection processes found throughout most of human history (van Vugt, Hogan, & Kaiser, 2008). Mafia members presumably look more dominant than businessmen; thus, the appearance of social skill that is normative among businessmen may be distinctive and potentially advantageous for people in the mafia, whereas cues to physical dominance may be common and thus not provide such an advantage. Indeed, the term “Big Brains” has been documented as underworld vernacular referring to the leader of a gang (Monteleone, 1949).

The effects of facial appearance on leadership ascension have also been studied in another group where physical prowess is esteemed but whose norms and values differ markedly from the mafia—the military. U.S. Military Academy cadets’ facial dominance correlated with their rank both at the Academy and near the end of their career (though not at midcareer; Mazur, Mazur, & Keating, 1984; Mueller & Mazur, 1996). However, one recent study found that fWHR, which is associated with dominant behavior, inversely correlated with military rank (Loehr & O’Hara, 2013). Although military and mafia groups share some similarities, such as strictly regimented leadership hierarchies based on promotion through the ranks, they also exhibit important differences in how leaders emerge. Military promotion depends on a set of criteria, including time served and available positions, and is based specifically on duty performance, awards and medals, and training and education, with social influence playing only a small role (Moore & Trout, 1978). By contrast, promotion within a mafia family is generally based on individuals’ ability to successfully organize and manage their crews and endear themselves to their superiors, with competitive physical violence rarely occurring within families (Albini, 1971). Although accomplishments in both the military and organized crime often involve physical force and intimidation, leadership emergence may rely on different traits, with a greater role for social ability in mafia promotion versus more objective performance measures in the military.

In complement, we expected the opposite weighting of traits to occur among a high-status group: law executives. Unlike mafia members, law executives are typically well-educated, highly trained members of society (Gee & Jackson, 1977). Social ability is common among law executives, whereas traits related to physical dominance may be relatively unique. Law firms also have a defined, structured leadership hierarchy in which executive positions usually go to those who have excelled within their firm, as opposed to other types of industries in which executives are commonly hired across organizations (see Galanter & Palay, 1991). In

this way, the vertical promotion structure of law firms resembles the vertical promotion structure of mafia families, as both allow few opportunities to move across bounded groups. The differences in societal status but similarities in leadership structure therefore make mafia families and law firms excellent groups to compare when assessing leadership selection.

Although using faces of members of real leadership hierarchies allowed us to examine whether distinctive facial cues portend leadership rank in the real world, the relatively uncontrolled nature of these stimuli presents limitations. We therefore experimentally manipulated the frequency of facial cues (i.e., those connoting masculinity and femininity) within a population while controlling for all other parameters to confirm that distinctiveness influences leadership selection. Consistent with our hypothesis, we expected that targets exhibiting the scarcer set of facial cues would be perceived as more suitable leaders, regardless of whether their faces appeared masculine or feminine.

Across these tests, we hypothesized that leadership selection relies on the *distinctiveness* of facial traits within a selecting group rather than particular specific traits. Importantly, this distinctiveness must provide an advantage for the individual who possesses it. Distinctive facial traits can be deleterious; for example, mathematically normal faces are usually more attractive than distinctive faces (though not maximally attractive; DeBruine, Jones, Unger, Little, & Feinberg, 2007; Langlois & Roggman, 1990). We therefore suggest that distinctiveness only confers advantages when it indicates some beneficial quality that most individuals in the group do not have. In mafia families, where physical dominance is ubiquitous, this distinctive trait may be social ability. Among law executives, where social ability is a basic criterion, a dominant appearance may be beneficially unique. Thus, because a group should consist of people whose appearances convey characteristics relevant to its function or role (e.g., dominance in the mafia), we expected that group members who cue those characteristics but *also* appear to possess a relevant and beneficially unique trait would have an advantage in being selected to lead the group. This is not to say that traits common within a group are not important in leadership selection. Rather, because most members of the group have those traits, they may not prove useful when choosing a leader. We thus tested our hypothesis that distinctive facial cues provide advantages in leadership selection using the faces of members of real-world leadership hierarchies (law firms and mafia families) in Studies 1 to 2 and with an experimental sample in Study 3.

Study 1

Previous studies found that perceptions of power and dominance from faces related to leaders’ selection, rank, and success in politics (Riggio & Riggio, 2010), business (Rule & Ambady, 2008), and the military (Mueller & Mazur, 1996).

Furthermore, judgments of power from the faces of law firm MPs correlated with their firms' profits (Rule & Ambady, 2011a). These trends do not necessarily speak to leadership selection *within* a particular organization, however. We therefore tested whether facial appearance would correlate with the current leadership rank of a sample of executives from top American law firms to determine whether facial appearance can reveal one's rank within a structured hierarchy.

Method

We collected a database of 64 current executives from the New York offices of five of the highest revenue law firms in the United States: Baker & McKenzie; Jones Day; Sidley Austin; Skadden, Arps, Slate, Meagher & Flom; and White & Case (Ranker, 2014). Images and ranks of law executives were available from the firms' websites and consisted of three levels (from highest to lowest rank): MPs ($n = 5$), Partners ($n = 30$), and Associates ($n = 29$); all were Caucasian men, and we randomly selected roughly equal numbers of Partners and Associates within each firm. Power analyses indicated that this sample size would allow more than 85% power when assuming a 5% false-positive rate and an effect the size of that between judgments of Power and law firm profit margins (a measure of the attorneys' collective success) reported in previous research ($r = .33$; Rule & Ambady, 2011a). We cropped all of the images tightly around the targets' heads, converted them to grayscale to control for differences in image quality and lighting, and standardized them to uniform heights.

We presented the images using Qualtrics experimental software, asking 40 U.S. residents recruited through Amazon's Mechanical Turk (MTurk; 18 men, 22 women; $M_{\text{age}} = 34.45$ years, $SD = 11.59$) to rate the targets along five dimensions used in previous studies (Rule & Ambady, 2008, 2009): competence (1 = *not at all competent*, 7 = *very competent*), dominance (1 = *submissive*, 7 = *dominant*), facial maturity (1 = *babyish*, 7 = *mature*), likability (1 = *not at all likable*, 7 = *very likable*), and trustworthiness (1 = *not at all trustworthy*, 7 = *very trustworthy*), as well as social competence (1 = *not at all socially competent*, 7 = *very socially competent*) to directly test for perceived social ability. The participants rated the faces in random order within randomly ordered blocks grouped by trait. We then asked them to rate the faces for how successful a leader they thought each person would be from 1 (*not at all successful*) to 7 (*very successful*) in a seventh block placed at the end of the study so that the leadership judgments would not influence the trait inferences. We also presented an attention check question in which an upside-down face appeared with the instruction, "Please drag the slider to 3 if this picture is upside-down" at a random point in one of the blocks; all participants successfully completed the attention check.

As in previous studies (Rule & Ambady, 2008), a separate group of 10 participants (four men, six women; $M_{\text{age}} = 37.44$

years, $SD = 14.44$) rated the faces for both affect (1 = *not at all happy*, 7 = *very happy*) and attractiveness (1 = *not at all attractive*, 7 = *very attractive*) in separate randomly presented blocks to use as control variables as these perceptions can strongly affect social judgments (e.g., Zebrowitz, 1997). We removed one participant's data from the sample for providing invariant responses, leaving data from nine raters.

Results

Participants' ratings showed acceptable levels of reliability for both the traits and control variables (all Cronbach's $\alpha \geq .89$); we therefore averaged the ratings across participants so that each face served as the unit of analysis. We conducted a principal components analysis with oblique rotation and Kaiser normalization¹ to reduce the number of traits based on commonalities between them; inspection of the scree plots and eigenvalues revealed two factors: Power (dominance and facial maturity) and Social Skill (likability, trustworthiness, and social competence); see Table S1 in the Supplemental Material.² We therefore aggregated the targets' mean ratings for each of these traits to create composite scores. We conducted all analyses with 5,000 bootstrapped resamples with 95% confidence intervals (CIs) to account for data nonnormality that could not be remedied with statistical transformations.

To investigate how perceptions of traits from the leaders' faces related to their leadership status, we regressed the law executives' rank onto the composites (Power and Social Skill) and control variables (affect and attractiveness) in an ordinal regression (see Table 1 for correlations). Power predicted rank, $B = 2.07$, $SE = 1.08$, 95% CI = [1.16, 5.16], Wald $\chi^2(1) = 15.37$, $p < .01$, whereas Social Skill, $B = -0.01$, $SE = 1.29$, 95% CI = [-1.78, 2.93], Wald $\chi^2(1) < 0.01$, $p = .99$, affect, $B = -0.32$, $SE = 1.31$, 95% CI = [-3.87, 1.23], Wald $\chi^2(1) = 0.30$, $p = .59$, and attractiveness did not, $B = -0.59$, $SE = 1.18$, 95% CI = [-3.70, 0.70], Wald $\chi^2(1) = 1.37$, $p = .24$. All results remained significant when nesting the data by law firm in a multilevel model and when including the competence ratings in the composites (see Supplemental Material).

We also investigated how the trait ratings related to perceptions of the individuals' leadership ability by conducting a linear regression of leadership judgments onto Power, Social Skill, and the control variables. Power $B = 0.53$, $SE = 0.04$, 95% CI = [0.46, 0.60], $p < .01$, social skill $B = 0.76$, $SE = 0.09$, 95% CI = [0.57, 0.91], $p < .01$, and attractiveness $B = 0.08$, $SE = 0.04$, 95% CI = [0.02, 0.15], $p = .02$, all predicted the participants' subjective leadership judgments, though affect did not $B = -0.06$, $SE = 0.04$, 95% CI = [-0.12, 0.01], $p = .09$. Comparisons of the effect sizes (see Meng, Rosenthal, & Rubin, 1992) showed that Power predicted leadership judgments significantly better than either Social Skill ($Z = 2.44$, $p = .01$)³ or attractiveness did, however ($Z = 2.70$, $p = .01$). Inferentially identical results occurred when we

Table 1. Relationships Between Law Executives' Rank in Their Firms and Perceptions of Their Traits and Appearance in Study 1.

	1	2	3	4	5	6
1. Rank in firm		.37**	.73***	-.14	-.28*	-.46*
2. Perceived leadership	.58***		.67***	.65***	.19	.20
3. Power	.67***	.87***		.04	-.26*	-.35**
4. Social skill	.37**	.77***	.58***		.71***	.51***
5. Affect						.25
6. Attractiveness						

Note. Values above the diagonal represent bivariate correlations ($df = 62$); values below the diagonal represent partial correlations controlling for affect and attractiveness ($df = 60$). CI = confidence interval.

*95% CI did not include 0. **99% CI did not include 0. ***99.9% CI did not include 0.

included the competence ratings in the composites (see Supplemental Material).

Discussion

Judgments of Power correlated with the leadership rank of executives working within the New York branches of the top five U.S. law firms. Social Skill, however, did not vary between the ranks. These results show that the same traits that correlate with differences in leadership performance *between* law firms (Rule & Ambady, 2011a) also predict leadership selection *within* a firm. Thus, facial appearance distinguishes individuals' relative success both within and between hierarchies.

These results also demonstrate that facial cues associated with Power predict not only objective leadership rank, but subjective impressions of leadership ability as well. Given that the traits representing Power here do not typically accord with the characteristics associated with high-ranking legal executives (Gee & Jackson, 1977), these findings join previous work on facial cues to success in business, law, and politics in lending support to our hypothesis that distinctive traits may promote individuals to higher ranks of leadership. To more fully account for this possibility, however, we examined a novel group of targets in Study 2: individuals at various ranks within mafia families.

Study 2

In Study 1, we found that facial cues associated with Power correlated with leadership ascension in America's top law firms. This is perhaps unsurprising, given that similar cues correlate with leader selection in politics (Riggio & Riggio, 2010) and distinguish the success of the leaders of companies (Rule & Ambady, 2008) and law firms (Rule & Ambady, 2011a). These trends may be specific to high-status occupations, however. We thus extended our tests in Study 2 by examining whether facial appearance correlates with leadership ascension in a socially reprehensible domain where dominant behavior is the norm rather than the exception: the mafia. Moreover, we compared the mean trait ratings for the

mafia members against those of the law executives from Study 1 to confirm our hypothesis that dominant traits represent the norm in the mafia but not among legal executives, and that features driving impressions of social skill are normative among legal executives but distinct among mafia members.

Method

We collected a database of photos of current mafia members from New York's "Five Families" (Bonanno, Colombo, Gambino, Genovese, and Lucchese; Raab, 2006) consisting of police headshots and high-quality surveillance photos. Using online databases (mafiaToday.com, mobstars-inc.com, wikipedia.com, etc.), we obtained information about the ranks of the mafia members, which comprised five levels (from highest to lowest rank): Boss (including Acting Bosses), Underbosses and Consiglieres (ranked at the same level, as both are high-end associates of the Boss), Street Bosses, Capos, and Soldiers. Because the mafia is an underground organization, we only used images of members whose rank we could verify through several sources. In total, we collected photos of 64 members of the Five Families of New York: five Bosses, nine Underbosses and Consiglieres, three Street Bosses, 28 Capos, and 19 Soldiers (all Caucasian men). Power analyses indicated that this sample size would allow more than 85% power based on the same parameters used in Study 1. We cropped the images tightly around the targets' heads, converted them to grayscale, and standardized them to a uniform height.

As in Study 1, participants rated the faces for competence, dominance, facial maturity, likability, social competence, and trustworthiness in six randomly ordered blocks, followed by a leadership block using the same procedure described above.⁴ We requested that 35 U.S. residents complete the study through MTurk, though two extra participants engaged the task before the first 35 completed it and so we included them in the analysis. We excluded 10 participants for failing the attention check question or for providing invariant responses, leaving data from 27 participants in total (11 men, 16 women; $M_{\text{age}} = 36.44$ years, $SD = 12.32$).

Table 2. Relationships Between Mafia Members' Rank in Their Families and Perceptions of Their Traits and Appearance in Study 2.

	1	2	3	4	5	6
1. Rank in family		.33**	.09	.18	-.08	.05
2. Perceived leadership	.37**		.26*	.74***	.30*	.13
3. Power	.10	.45***		-.17	-.38**	-.40**
4. Social skill	.35**	.84***	.29		.75***	.42**
5. Affect						.34**
6. Attractiveness						

Note. Values above the diagonal represent bivariate correlations ($df = 62$); values below the diagonal represent partial correlations controlling for affect and attractiveness ($df = 60$). CI = confidence interval.

*95% CI did not include 0. **99% CI did not include 0. ***99.9% CI did not include 0.

Additional participants ($N = 10$; six men, four women; $M_{\text{age}} = 34.30$ years, $SD = 11.52$) separately rated the faces for both affect and attractiveness using the same scales as in Study 1.

Results

Participants' ratings showed acceptable levels of interrater reliability for both the traits and control variables (all Cronbach's α s $\geq .85$); we therefore averaged them across participants so that each target face served as the unit of analysis. We again conducted a principal components analysis with oblique rotation and Kaiser normalization. Inspection of the scree plots and eigenvalues revealed two factors: Power (dominance, facial maturity) and Social Skill (likability, trustworthiness, social competence); see Table S2 in the Supplemental Material. We thus averaged the trait ratings within these factors for each target to create composites and bootstrapped our statistical tests with 5,000 resamples and 95% CIs to account for data nonnormality.

We first compared the mean composite ratings for the mafia members with those for the law executives from Study 1. Consistent with our hypotheses, participants rated the mafia members ($M = 4.57$, $SD = 0.61$) higher in Power than the law executives ($M = 4.30$, $SD = 0.88$), $t(126) = 2.03$, $p = .04$, $r_{\text{effect size}} = .18$, and rated the law executives ($M = 4.02$, $SD = 0.61$) higher than the mafia members ($M = 3.53$, $SD = 0.70$) on Social Skill, $t(126) = 4.25$, $p < .01$, $r_{\text{effect size}} = .35$.⁵ Thus, the overall differences in baseline traits between the groups differed as expected: mafia members generally looked more powerful and law executives more socially skilled. Participants also rated the law executives as happier ($M = 3.88$, $SD = 1.26$) and more attractive ($M = 3.26$, $SD = 1.05$) than the mafia members ($M_{\text{affect}} = 2.80$, $SD = 1.06$; $M_{\text{attractiveness}} = 2.42$, $SD = 0.59$), $t_{\text{affect}}(126) = 5.20$, $p < .001$, $r_{\text{effect size}} = .42$; $t_{\text{attractiveness}}(126) = 5.59$, $p < .001$, $r_{\text{effect size}} = .45$. We expected these differences, given the different image sources (professional website photos for law executives vs. police mugshots and surveillance photos for mafia members), highlighting the need to control affect and attractiveness in our analyses.

With this foundation in place, we proceeded to analyze the relationships between the trait ratings and the mafia

members' perceived and actual leadership (as measured by their rank within their families), as we had for the law executives in Study 1. We conducted an ordinal regression of the mafia members' ranks onto their Power and Social Skill composite scores while accounting for the control variables (attractiveness and affect); see Table 2 for correlations. Results revealed that Social Skill, $B = 1.55$, $SE = 0.72$, 95% CI = [0.27, 3.07], Wald $\chi^2(1) = 12.41$, $p < .01$, predicted rank, whereas Power did not, $B = 0.02$, $SE = 0.36$, 95% CI = [-0.70, 0.71], Wald $\chi^2(1) = 0.01$, $p = .94$. Affect significantly negatively predicted rank, $B = -1.42$, $SE = 0.63$, 95% CI = [-2.74, -0.30], Wald $\chi^2(1) = 10.78$, $p < .01$, such that higher ranking mafia members looked less happy, but attractiveness showed no relationship with rank, $B < 0.01$, $SE = 0.37$, 95% CI = [-0.77, 0.71], Wald $\chi^2(1) < 0.01$, $p = 1.0$. All results showed similar patterns when nesting the data by mafia family in a multilevel model and when including ratings of competence in the Social Skill composite (see Supplemental Material).

We then separately regressed participants' leadership judgments onto the same variables to investigate how perceptions of leadership associated with the traits. Social Skill $B = 1.43$, $SE = 0.12$, 95% CI = [1.19, 1.67], $p < .01$, Power $B = 0.27$, $SE = 0.09$, 95% CI = [0.09, 0.44], $p < .01$, affect $B = -0.41$, $SE = 0.07$, 95% CI = [-0.60, -0.25], $p < .01$, and attractiveness $B = -0.25$, $SE = 0.10$, 95% CI = [-0.44, -0.04], $p = .02$, all predicted leadership judgments, though Social Skill was a stronger predictor than Power ($Z = 4.69$, $p < .001$),⁶ affect ($Z = 6.81$, $p < .001$), or attractiveness ($Z = 5.31$, $p < .001$). The results of these analyses were inferentially identical when we included ratings of competence in the Social Skill composite (see Supplemental Material).

Discussion

Whereas Social Skill correlated with leadership rank in a sample of mafia members, Power did not distinguish those of lower versus higher rank. The results of Studies 1 and 2 therefore introduce a critical nuance to the previous literature on perceptions of leadership from faces and other nonverbal cues. Rather than corresponding to a particular trait, the assessment and acquisition of leadership appear to benefit

from physical attributes that are unique and valuable within a group. In other words, the facial traits related to leader selection may vary by organization type.

The results of Studies 1 and 2, though compelling, do not provide concrete evidence that distinct and beneficial facial cues provide advantages in leadership emergence. Despite facial appearance correlating with professional outcomes in a number of real-world leadership domains (e.g., Rule & Ambady, 2010), we wanted to confirm the influence of distinct facial cues on leadership selection through a controlled experiment. We therefore examined whether the relative frequency of facial traits within a group biases leader selection by using two tightly controlled experimental conditions in Study 3.

Study 3

To better understand how rare qualities can portend leader emergence, we experimentally varied which traits were normative versus unique in a group using digitally manipulated faces. We created two conditions: one with a small sample of masculinized faces within a larger population of feminized faces, and one with a small sample of feminized faces within a larger population of masculinized faces. Testing leadership perceptions in these experimental conditions may confirm evidence from Studies 1 and 2 that beneficially unique facial attributes confer advantages in leadership selection based on the prevalence of traits within the group. Importantly, both masculine and feminine faces can benefit leadership. Facial masculinity is associated with dominance and strength (Boothroyd et al., 2005; Jones et al., 2010), akin to the Power composite in Studies 1 and 2, whereas facial femininity is associated with trustworthiness, likability, and warmth (Boothroyd et al., 2005; Perrett et al., 1998)—similar to the Social Skill composite described above. Both masculinity and femininity can therefore be useful in leadership roles. Previous work has demonstrated a preference for masculinity in leaders' faces in times of intergroup conflict, but a preference for feminized faces in peacetime or when intragroup relations must be maintained (Little et al., 2007). Those studies presented masculinized and feminized faces in equal proportions, however. According to our hypothesis that facial cues signaling traits that are beneficial but unique to a group "stand out" and therefore provide advantages for leadership attainment, we predicted that the small subset of distinct faces in both conditions would be perceived as better leaders within their larger sample population regardless of which characteristic defined them as unique.

Method

We obtained a sample of 53 Caucasian men's faces ($M_{\text{age}} = 24.96$ years, $SD = 4.80$) from a commercially available database (www.3d.sk). All of the faces had been photographed posing neutral expressions in standardized lighting with their

hair pulled back and without facial adornments; we standardized the interpupillary distance of the faces to control their size.

We then transformed these faces to look more masculine or feminine following the methods used in previous studies (e.g., DeBruine et al., 2006). That is, we first created "prototype" faces by averaging populations of men's and women's face images (see Re et al., 2013). Next, we used prototype-based image transformations to manipulate two-dimensional shape in the 53 men's faces by adding or subtracting 50% of the linear differences in shape between our male and female prototypes to every face image, thus creating masculinized and feminized versions of each face. The 53 masculinized and 53 feminized versions differed only in the sexual dimorphism of the faces' two-dimensional shape (and were therefore matched on all other parameters). Past research has demonstrated that this method successfully alters individuals' perceptions of masculinity and femininity (e.g., DeBruine et al., 2006).

We randomly selected five faces from the group to act as "nontypical" targets and then created two conditions. In one, the nontypical faces were feminized while all other faces were masculinized (the "masculine majority" condition). In the other, the nontypical faces were masculinized while all others were feminized (the "feminine majority" condition).

We first presented participants with all of the targets sequentially in random order for 1 s each. The participants then completed a rating task in which they evaluated all of the targets for leadership ability in random order using the same 7-point scale as above, randomly inserting the same attention check question that we used above as well. We randomly assigned 30 separate MTurk Workers to both conditions; two participants did not finish the task for a total of 58 participants (29 men, 29 women; $M_{\text{age}} = 35.69$ years, $SD = 13.00$). Power analyses indicated that this sample would be sufficient to achieve more than 85% power assuming a false-positive rate of 5% and the average effect size in social and personality psychology ($r = .21$; Richard, Bond, & Stokes-Zoota, 2003).

Results

Participants' ratings showed excellent levels of interrater reliability in both conditions (Cronbach's $\alpha \geq .91$). We submitted these scores to a 2 (Face Typicality: typical, nontypical) \times 2 (Condition: masculine-majority, feminine-majority) ANOVA with repeated-measures on the first factor. As hypothesized, we observed a Face Typicality main effect such that participants rated nontypical faces as better leaders than typical faces, $F(1, 56) = 67.10$, $p < .001$, $\eta_p^2 = .55$, but no Condition main effect, $F(1, 56) = 0.80$, $p = .38$, $\eta_p^2 = .01$. Importantly, Face Typicality and Condition significantly interacted, $F(1, 56) = 24.08$, $p < .001$, $\eta_p^2 = .30$.

Decomposing the interaction showed that participants in the feminine-majority condition assigned higher leadership

ratings to the nontypical masculinized faces ($M = 4.24$, $SD = 1.19$) than to the typical feminized faces ($M = 2.79$, $SD = 0.88$), $t(29) = 7.89$, $p < .001$, $r_{\text{effect size}} = .83$; they therefore rated the five minority (masculinized) faces as better leaders than the majority (feminized) faces. These findings are not surprising, as they accord with previous research showing a general preference for masculine faces as leaders (e.g., Little, 2014). More critically, however, participants in the masculine-majority condition assigned higher leadership ratings to the nontypical feminized faces ($M = 3.50$, $SD = 0.98$) than to the typical masculinized faces ($M = 3.14$, $SD = 0.56$), $t(27) = 3.12$, $p < .01$, $r_{\text{effect size}} = .51$. Thus, although they rated the five minority (feminized) faces as better leaders than the majority (masculinized) faces, this difference was weaker than in the feminine-majority condition in which the masculinized faces (which are usually preferred as leaders; for example, Little, 2014) were rare or unique.

To ensure that higher ratings were not just given to nontypical faces regardless of judgment, an additional 59 participants repeated Study 3 with the scale counterintuitively reversed (i.e., 1 = *very successful* to 7 = *not at all successful*). Consistent with the results of Study 3, participants in the feminine-majority condition assigned lower ratings (i.e., better leaders) to the nontypical masculinized faces ($M = 3.69$, $SD = 0.89$) than to the typical feminized faces ($M = 3.86$, $SD = 0.74$), and participants in the masculine-majority condition assigned lower ratings to the nontypical feminized faces ($M = 3.53$, $SD = 0.96$) than to the typical masculinized faces ($M = 3.88$, $SD = 0.76$), although the effect of Face Typicality did not reach significance $F(1, 57) = 2.35$, $p = .13$, $\eta_p^2 = .04$, or did the effects of Condition or the interaction between Typicality and Condition, both $F(1, 57) \geq .28$, both $ps \leq .60$, both $\eta_p^2 \geq .05$.

Discussion

People therefore perceived the faces with relatively unique traits as more leader-like than they did the faces that were typical within the group. Although we expected this, it may nevertheless seem surprising. Other experimental studies have demonstrated that increasing facial masculinity generally heightens perceptions of leadership ability (Little, 2014). Notably, those experiments did not vary the frequency of the traits. Indeed, the interaction effect showed that the difference in participants' leadership ratings between typical and nontypical targets was greater when the masculinized targets constituted the minority than when they comprised the majority. Thus, people may therefore prefer masculine faces for leadership roles, but this depends on the relative frequency of traits within a population. Individuals who look distinct within their group may therefore be assessed as better leaders, both when these traits vary and cluster naturally (as in Studies 1 and 2), and when they have been experimentally manipulated to appear rare versus normal (here). Of course, both masculinity and femininity have been shown to

beneficially affect leadership selection in different ways, depending on context (see Little et al., 2007; Spisak, Dekker, et al., 2012). Not all unique characteristics are advantageous, however—a topic we revisit below.

General Discussion

Here, we found that facial appearances conveying unique, beneficial traits correlated with leadership rank within a group. Specifically, law executives looked more Socially Skilled and mafia members looked more Powerful than members of either respective group. Although both of these baseline traits positively contribute to leadership selection in certain circumstances (e.g., Little, 2014; Little et al., 2007), they did not correlate with the group members' ranks when common in the group (perhaps because they do not differentiate the members well). Rather, individuals whose faces suggested that they additionally possessed the complementary trait occupied higher ranks within their respective groups. Thus, mafia members who seemed more socially skilled (beyond their baseline dominance) and law executives who seemed powerful (beyond their baseline social skill) had attained higher ranking positions within their organizations. Confirming our hypothesis that exceptional traits facilitate leadership emergence within groups, targets who we experimentally manipulated to appear unique in a group of faces received higher ratings of leadership ability even when the unique trait was one not highly valued in most leadership contexts (i.e., femininity). These data therefore provide both naturalistic and experimental evidence suggesting that individuals with characteristics unique to a group may look like better candidates for leadership, thereby increasing the likelihood that they are selected as leaders.

These findings offer clarity on how facial appearance relates to leadership selection. Most research on impressions of leaders from faces has focused on politics (e.g., Little et al., 2007) or business (e.g., Wong et al., 2011), largely investigating the traits that relate to leadership selection and success across organizations (e.g., the success of leaders of different companies; Rule & Ambady, 2008) rather than *within* them. The present data offer something new on both fronts. Not only did we examine how the frequency of apparent traits within a group related to rank and position, we also investigated this for leaders outside the high-status groups typically studied in past research by considering leaders in organized crime. In addition, we supplemented our correlational data with experimental evidence to provide converging support for our hypothesis and further allowing us to extend our tests to contrived groups. Doing so permitted us to observe that, despite the frequency with which power-related traits had associated with leadership selection in past studies (e.g., Little et al., 2007), particular facial cues may not be universally valued in leaders. Rather, dominance and power may characterize the political and business leaders studied in the bulk of the extant literature. The present

findings may shed new light on those prior data by suggesting that dominance and power are not normative among politicians and businesspeople but, rather, constitute beneficially unique characteristics that allow individuals with those traits to emerge as leaders in those specific domains. The observation that facial cues associated with dominance and power benefit leader selection in past work may therefore be because the traits are relatively rare in those high-status organizations, not because they are universally prized qualities of leaders.

As an example, mafia members were rated higher in Power than the law executives but did not differ from their subordinates in the present research (i.e., their Power ratings did not vary according to rank within their family). In distinction, mafia bosses were rated much higher than their subordinates on Social Skill—the beneficial and distinctive trait. Many men in American mafia organizations are physically formidable and have histories of violent crime but little education or social grooming (Jacobs & Gouldin, 1999). Nevertheless, mafia groups (like most business organizations) rely on meticulous planning, the management of relationships, and intergroup cohesion and cooperation to operate successfully (Albini, 1971). Mafia leaders must therefore retain the elements of physical threat common to their groups but also convey the impression that they have the intelligence and social prowess to conduct their family's business successfully. In contrast, law executives—especially those found in America's top law firms—are all members of society's elite, with above-average education and a history of academic and professional excellence (Gee & Jackson, 1977). Indeed, law executives were rated higher on Social Skill than were mafia members. This may help to explain why executives in law, business, and politics strive to display signs of superiority (such as high confidence and “Power clothes”) to get ahead (Mills, 1999).

Beneficially unique traits correlated with leadership rank in the present studies, whereas baseline attributes or “common” traits assumed for each group did not. This does not mean that these baseline traits do not matter for leadership selection. Rather, all members of each group likely possess these baseline criteria, simply leaving little variance to distinguish them from each other. Indeed, the variance in Power ratings was greater than that for Social Skill among the law executives, but the opposite was true for mafia members. Baseline traits might therefore also correlate with leadership selection if enough variation exists for these traits within a group, as suggested by data on the influence of masculinity on leadership selection during times of conflict (Little et al., 2007). Such variation may not occur often in the real world, however, given the threshold of the baseline trait required to initially enter the domain. For instance, obtaining even a low-ranking position at a top law firm requires high intelligence and excellent people skills throughout one's undergraduate and legal training. Candidates who complete the necessary internships at law

firms and successfully navigate the firm's interview process are likely already in the upper tail of social skill compared with the general population, leaving little possible variability in the resulting selected group. Uniquely beneficial traits may therefore portend leader selection better because the candidates eligible for leadership in the pool have all reached ceiling levels on the common trait required to join and remain in the group.

Indeed, research on actual leadership behavior suggests that different styles of leadership provide advantages under different circumstances (Lord, Brown, Harvey, & Hall, 2001). Just as particular leadership skills may be effective in one situation but not in others (Zaccaro, 2007), certain facial cues may be an asset to leadership selection in one domain but a liability in another. Thus, the present results support theories proposing that behavioral traits that “stand out” facilitate leader selection (Kaiser et al., 2008), extending this perspective to physical appearance.

Naturally, not all traits would confer advantages in leadership selection, even when unique. Notably, we did not examine such features here. Rather, only unique traits that are beneficial beyond basic criteria likely assist individuals in securing positions of leadership. For example, nontypical features such as physical deformities, which are unique by definition (i.e., rare), would likely not benefit leadership selection (Senior et al., 2012). All of Social Skill, Power, masculinity, and femininity generally represent positive traits, though they benefit perceptions of leaders differently depending on the context (e.g., Little et al., 2007). Thus, the traits valued in leadership may be relative rather than absolute (e.g., Rule et al., 2010), and the context may define whether a particular characteristic is beneficial. Future research may need to explore the boundaries of how specific traits facilitate versus constrain leadership success in greater detail, however.

Moreover, although the current studies demonstrate that facial traits correlate with leadership ascension and selection in a predictable manner, they do not speak to actual leadership *ability*. Previous studies have demonstrated that facial appearance relates to objective measures of organizations' success among business CEOs (Rule & Ambady, 2008, 2009) and law firm MPs (Rule & Ambady, 2011a), even when controlling for company performance before the leader takes power (Re & Rule, 2016; Wong et al., 2011). Facial appearance may relate to leader selection through self-fulfilling prophecies in which those perceived to “look like a leader” get treated as leaders, and therefore ascend to leadership roles faster. Consequently, individuals with “leader-like” appearances may come to believe in their efficacy as leaders because of others' expectations. Thus, they may act more leader-like, creating a feedback loop in which appearance and behavior ultimately converge (see McArthur & Baron, 1983; Re & Rule, 2015). These possibilities require further testing to specify how appearance and behavior interact to influence perceptions of leadership.

We also only used American Caucasian male targets in the present work. Previous research has demonstrated that the facial traits that portend the outcomes of American elections do not apply to Japanese elections, and vice versa (Rule et al., 2010). These disparities may result from cultural differences in leadership-style preferences, again underlining the context-dependent nature of leadership evaluation (Jung & Avolio, 1999). Similarly, research has shown that the traits ascribed to successful Black leaders differ from those attributed to successful White leaders (Livingston & Pearce, 2009). The facial traits advantageous for leadership ascension could also vary by sex. Women often suffer discrimination in their efforts to attain leadership positions because of a disconnect between the communal qualities perceived as typical of women and the agentic qualities perceived as typical of good leaders (e.g., Eagly & Karau, 2002). Women who appear agentic may therefore contrast against communal stereotypes, giving them an edge (e.g., Rule & Ambady, 2009); but they may also fare poorly when evaluated in other ways. Future research might therefore make gains by evaluating how the frequency of facial traits correlates with leadership for women and members of other cultural and racial groups.

Conclusion

The present findings suggest that leader ascension does not correlate with one particular trait inference (cf. Cowley, 1931); rather, facial cues germane to one group may provide advantages in others. Appearance thus correlates with leadership attainment in different walks of life in ways particular to each, from high-profile leaders in politics, business, and law to unregulated groups in the opprobrium of society (such as the mafia). These data therefore introduce new insight to the accumulating literature on the relationship between appearance and leadership selection and success. By demonstrating that the traits supporting assessments of leadership fluctuate depending on the constitution of apparent traits within a group, the present findings allow for a reinterpretation of the extant literature and a new conceptual foundation for understanding how nonverbal appearance cues can influence the evaluation and emergence of leaders.

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Supplemental Material

Supplementary material is available online with this article.

Notes

1. Identical factors emerged whether we used principal components analysis or maximum likelihood exploratory factor analysis with either direct oblimin rotation or varimax rotation.
2. Competence loaded differently on Power and Social Skill in Studies 1 and 2. Perceptions of competence may be a downstream inference comprised of attributes related to both Power and Social Skill (Riggio & Riggio, 2010), and ratings of competence in leadership studies load onto these factors differently depending on context (e.g., Rule et al., 2010). Furthermore, competence correlated very strongly with leadership ratings ($r_s \geq .92$), creating collinearity problems when analyzing predictors of leadership impressions. Thus, we excluded the competence ratings from our primary analyses (see the Supplemental Material for results of analyses with ratings of competence included in the Power and Social Skill composites in Study 1 and the Social Skill composite in Study 2).
3. Based on comparisons of dependent partial correlations accounting for the control variables (affect and attractiveness).
4. To ensure that the trait ratings did not affect the leadership judgments, we recruited a separate sample of 41 participants to rate the mafia faces for leadership alone. Leadership judgments correlated very strongly across both samples, $r(62) = .85, p < .001$.
5. We speculate that law executives were rated as more powerful than socially skilled because perceivers may globally assign lower scores for traits that require more egocentric inferences (e.g., ratings of how likable someone is may be inferred partly from how much *the perceiver* would like the person) versus those for which established physical cues exist (e.g., dominance).
6. Based on comparisons of dependent partial correlations accounting for the control variables (affect and attractiveness).

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