Supplementary Online Materials for:

Two signals of social rank: Prestige and dominance are associated with distinct nonverbal displays

Attention Check Question (Studies 1-4)

Question:
Research in decision making shows that people, when making decisions and answering questions, prefer not to pay attention and minimize their effort as much as possible. Some studies show that over 50% of people don't carefully read questions. If you are reading this question and have read all the other questions, please select the box marked 'other' and type 'Decision Making' in the box below. Do not select "predictions of your own behavior." Thank you for participating and taking the time to read through the questions carefully!

What was this study about?

Answer Choices:
1) Predictions of your own behavior
2) Predictions of your friends' behavior
3) Political preferences
4) Other (Please specify) _____

Criteria:
Only respondents who selected option choice 4 ("Other") and indicated "Decision Making" (not case sensitive) were included in final analyses.

Stimuli used in Study 1

All high-definition stimuli are available by request from the first author (Zakwitkower@gmail.com).

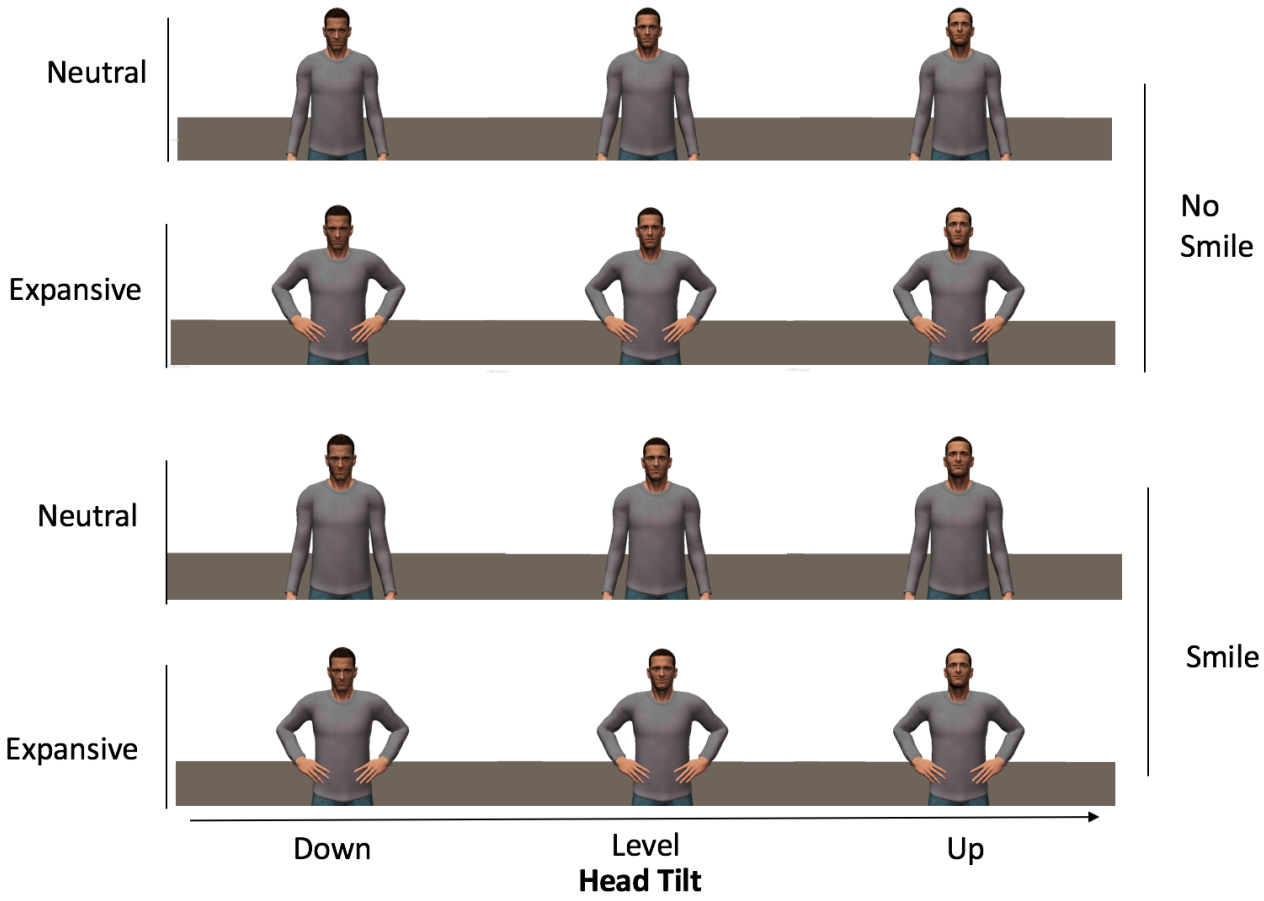

Figure S1. Stimuli used in Study 1

Additional Results

Perceptions of Prestige

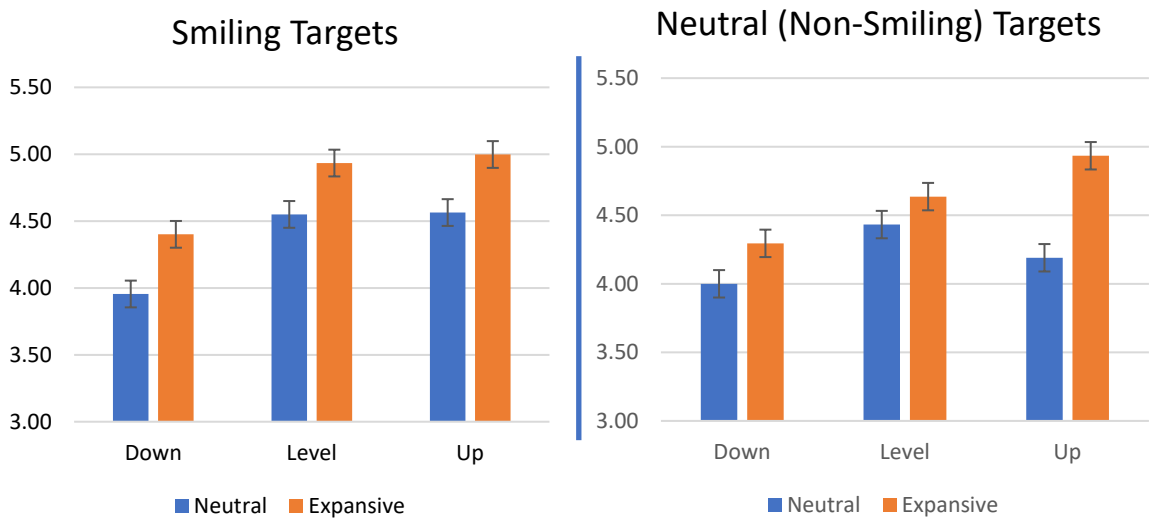

Figure S2. Head Tilt by Smiling by Expansiveness Interaction Predicting Prestige, Study 1.
Note. Error bars indicate +/- 1SE.

Perceptions of Dominance

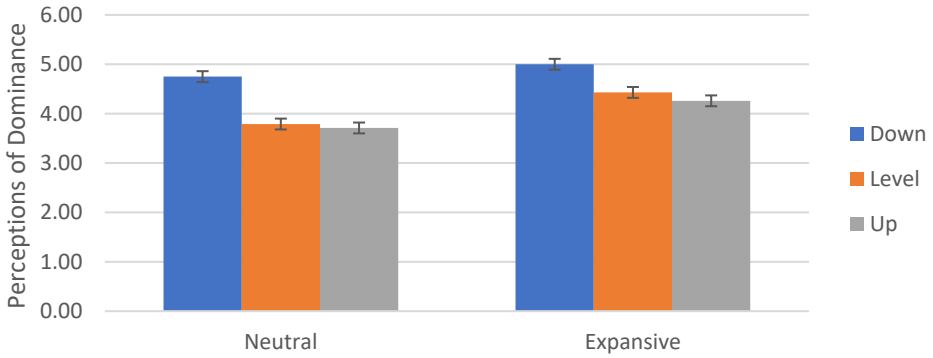

Figure S3. Head Tilt by Expansiveness Interaction Predicting Dominance, Study 1.
Note. Error bars indicate +/- 1SE.

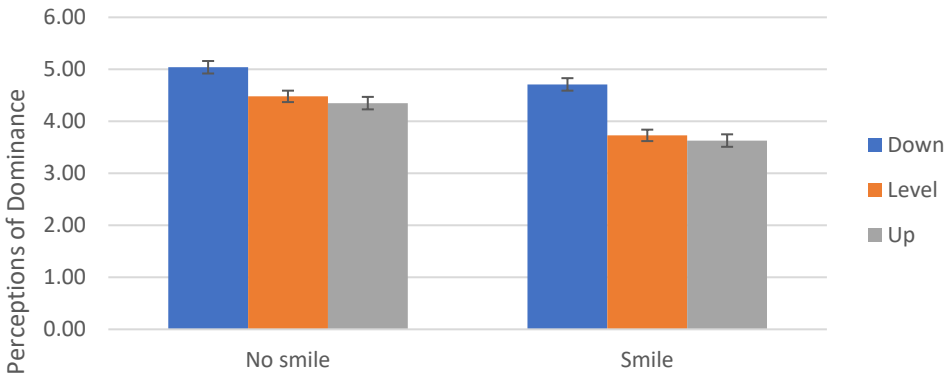

Figure S4. Head Tilt by Smiling Interaction Predicting Dominance, Study 1. Note. Error bars indicate +/- 1SE.

Additional Methodological Details and Results for Ancillary Measures

In addition to measuring dominance and prestige, as reported in the main text, we included a researcher-generated measure of liking ("I would like this person"), and a 3-item measure of social influence ("I would pay attention to this person", "This person is a leader", "This person is influential"). Participants rated each item on a 7-point Likert scale ranging from 1 (Not at all) to 7 (Very much). The three social influence items were averaged together (αs > .79 for each condition), whereas the liking item was analyzed as a single-item measure.

Perceptions of Influence

We conducted a 2 (expansiveness) X 2 (smiling) X 3 (head tilt) repeated-measures analysis of variance (ANOVA) on perceptions of influence. Main effects emerged for expansiveness, $F(1, 120) = 74.79$, $p < .001$, $\eta_p^2 = .38$, smiling, $F(1,120) = 26.57$, $p < .001$, $\eta_p^2 = .18$, and head tilt, $F(2, 240) = 8.62$, $p < .001$, $\eta_p^2 = .07$, indicating that perceptions of influence increased as targets showed greater expansiveness ($M = 4.63$, $SE = .07$ vs. $M = 4.18$, $SE = .07$, $p < .001$), no smile ($M = 4.52$, $SE = .07$ vs. $M = 4.30$, $SE = .07$, $p < .001$), and head tilt downward ($M = 4.52$, $SE = .07$ vs. $M = 4.37$, $SE = .07$ for head level, $M = 4.33$, $SE = .07$ for head tilted upward; p's $\leq .02$). No significant differences emerged between targets with head tilted up versus level ($p = .84$). We also found a 2-way interaction between head tilt and expansiveness, $F(2,240) = 6.69$, $p < .001$, $\eta_p^2 = .05$, indicating that when targets were not expansive head tilt significantly affected perceptions of influence, $F(2, 240) = 11.62$, $p < .001$, $\eta_p^2 = .09$, such that non-expansive targets were perceived as more influential when they tilted their head down (ps $\leq .006$). In contrast, when targets were expansive, head angle did not significantly alter perceptions of influence, $F(2, 240) = 1.21$, $p = .30$, $\eta_p^2 = .01$. This interaction may be the result of a ceiling effect; as average perceptions of influence rise as a function of expansiveness, the potential impact of head tilt is reduced. No bodily behaviors interacted with participant gender, and the 4-way interaction was not significant, $F(2,238) = 2.18$, $p = .12$, $\eta_p^2 = .02$.

Perceptions of Liking

We conducted a 2 (expansiveness) X 2 (smiling) X 3 (head tilt) repeated-measures ANOVA on perceptions of liking. Supporting our hypotheses, main effects emerged for smiling,

$F(1,120) = 21.34$, $p < .001$, η_p^2=.15, and head tilt, $F(2, 240) = 78.86$, $p < .001$, η_p^2=.40, suggesting that liking increased as targets displayed a smile ($M = 4.36$, $SE = .09$ vs. $M = 4.36$, $SE = .08$), and decreased when the head was tilted downward ($M = 3.57$, $SE = .10$ vs. $M = 4.40$, $SE = .08$ for level head and M = 4.50, SD = .08 for head up, $ps < .001$). No significant difference emerged between targets with heads tilted upward versus level ($p = .26$). Consistent with our expectation that expansiveness is linked to agency but not communion, no main effect of expansiveness emerged on liking, $F(1, 120) = .77$, $p = .38$, η_p^2=.01. In addition to these main effects, we observed 2-way interactions between head tilt and smiling, $F(2,240) = 6.06$, $p = .003$, η_p^2 =.04, and head tilt and expansiveness, $F(2,240) = 3.71$, $p = .03$, η_p^2 =.03. However, these were qualified by a 3-way interaction between head tilt, smiling, and expansiveness, $F(2,240) = 5.38$, $p = .005$, η_p^2 =.04 (see Figure S5).

This 3-way interaction indicated that a downwards head tilt always had a significant negative effect on liking when compared to a neutral and upwards head tilt, regardless of whether the target was expansive or smiling ($ps < .05$). In addition, an upwards head tilt had no effect on liking if a smile was present, regardless of whether the target was also expansive ($ps > .05$). However, when targets were not smiling, an upwards head tilt increased perceptions of liking only when targets were expansive ($p < .05$); when targets were neither smiling nor expansive, perceptions of liking decreased ($p < .05$). This interaction parallels the 3-way interaction uncovered for perceptions of prestige (see below); an upwards head tilt decreased perceptions of liking if shown in isolation, but when paired with other behaviors associated with prestige (i.e., expansiveness or smiling), upwards head tilt was equally or more effective in increasing liking.

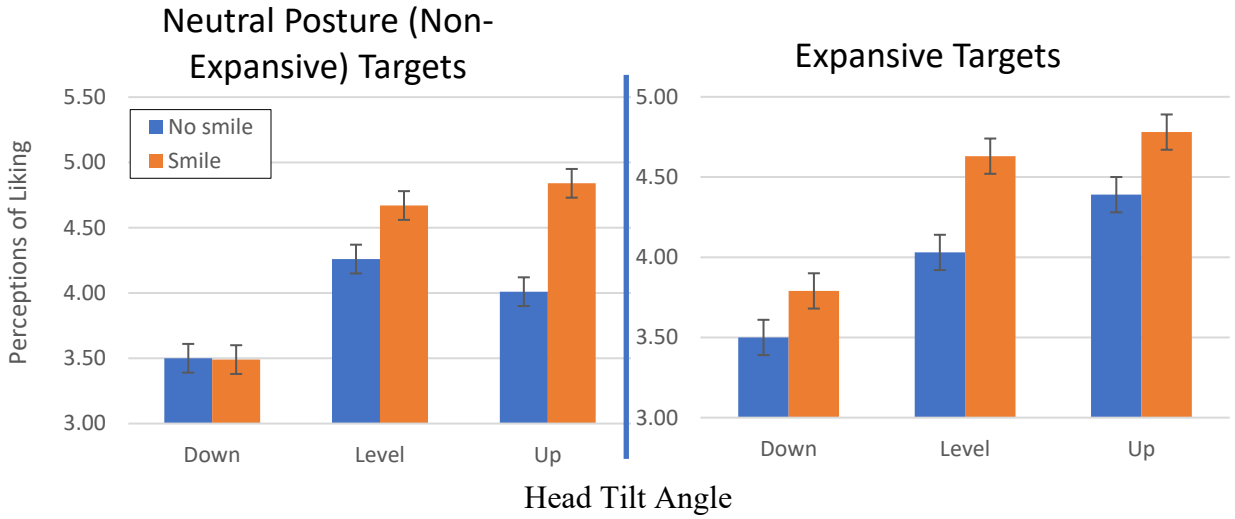

Figure S5. Three-way Interaction Between Expansiveness, Smiling, and Head Tilt Predicting Liking.
Note. Error bars indicate +/- 1SE.

Main Results using Multilevel Models instead of ANOVA Framework

Perceptions of Prestige

We ran a multilevel analysis predicting perceptions of prestige from smiling (dummy coded: 0 = no smile; 1= smile), expansiveness (dummy coded: 0 = neutral; 1 = expansive), and head tilt (dummy coded to compare head up = 0 with head level = 1, and head up = 0 with head down = 1), along with random intercepts and random slopes for participants. Supporting our hypotheses, smiling (compared to no smile), $b = .15$, $t = 2.16$, $p = .033$, 95%CI [.02 to .29], and expansiveness (compared to neutral), $b = .42$, $t = 6.45$, $p < .001$, 95%CI [.29 to .56], each increased perceptions of prestige. An upwards head tilt was associated with greater perceived prestige when compared to a downwards head tilt, $b = -.51$, $t = -7.42$, $p < .001$, 95%CI [-.65 to -.37], but not when compared to a neutral head angle, $b = -.03$, $t = -0.67$, $p = .50$, 95%CI [-.14 to .06].

Perceptions of Dominance

We conducted a similar multilevel analysis predicting perceptions of dominance from smiling (dummy coded: 0 = no smile; 1=smile), expansiveness (dummy coded: 0 = neutral; 1 = expansive), and head tilt (dummy coded to contrast head down = 0 with head level = 1, and head down = 0 with head up = 1), along with random intercepts and random slopes for participants. Supporting our hypotheses, no smiling, $b = -.60$, $t = -7.53$, $p < .001$, 95%CI [-.74 to -.44], and expansiveness (compared to neutral), $b = .48$, $t = 6.51$, $p < .001$, 95%CI [.35 to .62], each increased perceptions of dominance. Furthermore, downward head tilt increased perceptions of dominance when compared to a neutral head angle, $b = -.77$, $t = -7.89$, $p < .001$, 95%CI [-.95 to -.59], and when compared to an upwards head tilt, $b = -.89$, $t = -8.61$, $p < .001$, 95%CI [-1.7 to -.70].

Results from Multilevel Models Including Covariates

Multilevel analyses were conducted predicting each outcome variable from smiling (dummy coded: 0 = no smile; 1=smile), expansiveness (dummy coded:0 = neutral; 1 = expansive). When prestige was the criterion, head tilt was coded with head up as the contrast condition (dummy1: 0 = head up, 1 = head level, and dummy2: 0 = head up, 1 = head down), whereas when dominance was the criterion, head tilt was coded with head down as the contrast condition (dummy1: 0 = head down, 1 = head neutral, dummy2: 0 = head down, 1 = head up). Random intercepts and random slopes for participants are included in all models.[1] Coefficients indicate estimates after controlling for covariates (when applicable).

Coding covariates:
1) Gender (0 = Male, 1 = Female)
2) Ethnicity (treated as a factor – dummy coded to contrast "White/Caucasian" with "East Asian", "Hispanic/Latino", "Middle Eastern", "African American", and "Other"
3) Age (Age in years – continuous)
4) Income (Annual income before taxes – Continuous).

Model 1: Criterion ~ Smile + Expansiveness + Head Tilt
Model 2: Criterion ~ Smile + Expansiveness + Head Tilt + Gender
Model 3: Criterion ~ Smile + Expansiveness + Head Tilt + Gender + Ethnicity
Model 4: Criterion ~ Smile + Expansiveness + Head Tilt + Gender + Ethnicity + Age
Model 5: Criterion ~ Smile + Expansiveness + Head Tilt + Gender + Ethnicity + Age + Income

All models include random slopes and random intercepts for participants:
+ (1 + Smile + Expansive + as.factor(Head.Tilt) | SubjectID)

Criterion = Prestige	**Model 1**	Model 2	Model 3	Model 4	Model 5
Predictors	***b***	*b*	*b*	*b*	*b*
Smile	**0.15***	0.15*	0.16*	0.16*	0.16*
Expansiveness	**0.42***	0.42*	0.41*	0.41*	0.41*
Head Tilt					
Up v. Level	-.03	-.03	-.04	-.04	-.04
Up v. Down	**-.52***	-.51*	-.50*	-.50*	-.50*

Criterion = Dominance	**Model 1**	Model 2	Model 3	Model 4	Model 5
Predictors	*b*	*b*	*b*	*b*	*b*
Smile	**-0.60***	-0.60*	-0.60*	-0.60*	-0.61*
Expansiveness	**0.48***	0.48*	0.49*	0.49*	0.49*
Head Tilt					
Down v. Level	**-.77***	-.77*	-.76*	-.76*	-.76*
Down v. Up	**-.89***	-.89*	-.88*	-.88*	-.89*

Criterion = Influence	**Model 1**	Model 2	Model 3	Model 4	Model 5
Predictors	***b***	*b*	*b*	*b*	*b*
Smile	**-0.22***	-0.22*	-0.22*	-0.22*	-0.22*
Expansiveness	**0.45***	0.45*	0.45*	0.45*	0.45*
Head Tilt					
Down v. Level	**-0.15***	-0.15*	-0.15*	-0.15*	-0.15*
Down v. Up	**-0.19***	-0.19*	-0.19*	-0.19*	-0.20*

Criterion = Liking	**Model 1**	Model 2	Model 3	Model 4	Model 5
Predictors	***b***	*b*	*b*	*b*	*b*
Smile	**0.42***	0.42*	0.43*	0.43*	0.43*
Expansiveness	**0.06**	0.06	0.05	0.05	0.05
Head Tilt					
Down v. Level	**0.83***	0.83*	0.80*	0.80*	0.81*
Down v. Up	**0.94***	0.94*	0.93*	0.93*	0.93*

Results from Exploratory Multilevel Models Testing for Interactions

Prestige ~ Smile*Expansive*as.factor(HT) +
(1 + Smile*Expansive + Expansive*as.factor(S1HT.up) + as.factor(S1HT.up)*Smile | ID)

Predictors	***b***	***t***	***p***	***95%CI***
Intercept	4.19	41.17	<.001	3.99 to 4.40
Smile	0.37	3.34	.001	0.15 to 0.59
Expansiveness	0.74	7.51	<.001	0.55 to 0.94
Head Tilt				
Up v. Level (head1)	0.24	2.68	.008	0.06 to 0.42
Up v. Down (head2)	-0.19	-2.05	.042	-0.37 to -0.01
Smile*head1	-0.26	-2.25	.02	-0.48 to -0.03
Smile*head2	-0.42	-3.38	<.001	-0.66 to -0.18
Expansiveness*head1	-0.54	-4.54	<.001	-0.77 to -0.31
Expansiveness*head2	-0.45	-3.72	<.001	-0.68 to -0.21
Smile*Expansiveness	-0.31	-2.58	.01	-0.54 to -0.07
Smile*Expansiveness*head1	0.49	3.14	.002	0.18 to 0.80
Smile*Expansiveness*head2	0.46	2.95	.003	0.15 to 0.77

These results suggest that upwards head tilt either increased or maintained perceptions of prestige when paired with at least one other prestige behavior, but decreased perceptions of prestige when shown in isolation (i.e., without other prestige behaviors).

Dominance ~ Smile*Expansive*as.factor(HT) +
(1 + Smile*Expansive + Expansive*as.factor(S1HT.down) + as.factor(S1HT.down)*Smile | ID)

Predictors	***b***	***t***	***p***	***95%CI***
Intercept	4.94	40.43	<.001	4.70 to 5.18
Smile	-0.38	2.93	.001	-0. 63 to -0.12
Expansiveness	0.21	1.64	.10	-0.04 to 0.45
Head Tilt				
Down v. Level (head1)	-0.86	-6.26	<.001	-1.13 to -0.59
Down v. Up (head2)	-0.86	-6.07	<.001	-1.13 to -0.58
Smile*head1	-0.21	-1.34	.18	-0.52 to 0.10
Smile*head2	-0.36	-2.28	.02	-0.67 to -0.05
Expansiveness*head1	-0.60	3.79	<.001	0.29 to 0.91
Expansiveness*head2	-0.32	2.02	.04	0.01 to 0.63
Smile*Expansiveness	0.09	0.59	.55	-0.22 to 0.40
Smile*Expansiveness*head1	-0.42	-1.89	.06	-0.86 to 0.02
Smile*Expansiveness*head2	-0.05	-0.24	.81	0.49 to 0.38

These interactions suggest that perceptions of dominance strengthen or remain strong when behaviors are combined with each other.

Results from Multilevel Models

Perceptions of Prestige

We ran a multilevel analysis predicting perceptions of prestige from type of nonverbal display (treating each display as a factor, and contrasting the prestige display with all others), along with random intercepts and random slopes for participants. Supporting our hypotheses, the prestige display was judged as more prestigious compared to the neutral display, b = -.71, t = -5.82, p < .001, 95%CI [-.96 to -.44]; the dominance display, b = -.62, t =-5.95, p < .001, 95%CI [-.84 to -.41]; and the happy display, b = -.51, t = -4.41, p < .001, 95%CI [-.75 to -.28].

Perceptions of Dominance

We ran a multilevel analysis predicting perceptions of dominance from type of nonverbal display (treating each display as a factor, and contrasting the dominance display with all others), along with random intercepts and random slopes for participants. Supporting our hypotheses, the dominance display was judged as more dominant compared to the neutral display, b = -1.07, t = -7.24, p < .001, 95%CI [-1.37 to -.78]; the happy display, b = -1.57, t = -9.71, p < .001, 95%CI [-1.89 to -1.25]; and the prestige display, b = -1.22, t = -7.67, p < .001, 95%CI [-1.51 to -.91].

Perceptions of Agency

We ran multilevel analyses predicting perceptions of agency from type of nonverbal display (treating each display as a factor, and contrasting the prestige display with all others in one model, and contrasting the dominance display with all others in another model), along with random intercepts and random slopes for participants. Supporting our hypotheses, the prestige display was judged as higher in agency when compared to the neutral display, b = -.73, t = -5.96, p < .001, 95%CI [-.96 to -.48]; and the happy display, b = -.84, t = -6.85, p < .001, 95%CI [-1.07 to -.60]. In addition, the dominance display was judged as higher in agency when compared to the neutral display, b = -.62, t = -5.28, p < .001, 95%CI [-.86 to -.42]; and the happy display, b = -.73, t = -6.21, p < .001, 95%CI [-.96 to -.47]. In contrast, the prestige display and the dominance display were not judged as significantly different from one another in agency, b = -.10, t = -0.81, p = .42, 95%CI [-.15 to .35].

Perceptions of Communion

We ran multilevel analyses predicting perceptions of communion from type of nonverbal display (treating each display as a factor, and contrasting the prestige display with all others in one model, and contrasting the dominance display with all others in another model), along with random intercepts and random slopes for participants. Supporting our hypotheses, the prestige display was perceived as significantly higher in communion compared to the neutral display, b = -.47, t = -4.52, p < .001, 95%CI [-.67 to -.25]; and the dominance display, b = -1.08, t = -10.25, p < .001, 95%CI [-1.30 to -.89]; but not significantly different in communion compared to the happiness display, b = .19, t = 1.75, p = .082, 95%CI [-.15 to .40]. In contrast, the dominance display was judged as lower in communion compared to the neutral display, b = .62, t = 6.17, p < .001, 95%CI [.43 to .82]; the happy display, b = 1.28, t = 11.11, p < .001, 95%CI [1.06 to 1.52]; and the prestige display, b = 1.08, t = 10.03, p < .001, 95%CI [.88 to 1.29].

Results from Multilevel Models Including Covariates

Multilevel analyses were also conducted predicting each outcome variable from the nonverbal display, along with random intercepts for participants. Beta weights indicate comparisons after controlling for covariates (when applicable).

Dummy Coding with Prestige display as contrast:

Display	**p2**	**p3**	**p4**
Prestige	0	0	0
Neutral	1	0	0
Dominance	0	1	0
Happy	0	0	1

Dummy Coding with dominance display as contrast:

Display	**d2**	**d3**	**d4**
Dominance	0	0	0
Neutral	1	0	0
Happy	0	1	0
Prestige	0	0	1

Coding covariates:
1) Gender (0 = Male, 1 = Female)
2) Ethnicity (treated as a factor – dummy coded to contrast "White/Caucasian" with "East Asian", "Hispanic/Latino", "Middle Eastern", "African American", and "Other"
3) Age (Age in years – continuous)
4) Income (Annual income before taxes – Continuous).

Prestige Models:
Model 1: Prestige ~ p2 + p3 + p4 + (1+p2+p4| SubjectID)
Model 2: Prestige ~ p2 + p3 + p4 + Gender + (1+p2+p4| SubjectID)
Model 3: Prestige ~ p2 + p3 + p4 + Gender + Ethnicity+ (1+p2+p4| SubjectID)
Model 4: Prestige ~ p2 + p3 + p4 + Gender + Ethnicity + Age + (1+p2+p4| SubjectID)
Model 5: Prestige ~ p2 + p3 + p4 + Gender + Ethnicity + Age + Income + (1+p2+p4| SubjectID)

Dominance Models:
Model 1: Dominance~d2 + d3 + d4 + (1+p2+p4| SubjectID)
Model 2: Dominance~d2 + d3 + d4 + Gender + (1+p2+p4| SubjectID)
Model 3: Dominance~d2 + d3 + d4 + Gender + Ethnicity+ (1+p2+p4| SubjectID)
Model 4: Dominance~d2 + d3 + d4 + Gender + Ethnicity + Age + (1+p2+p4| SubjectID)
Model 5: Dominance~d2 + d3 + d4 + Gender + Ethnicity + Age+ Income+(1+p2+p4| SubjectID)

Criterion = Prestige

Comparison	**Model 1**	Model 2	Model 3	Model 4	Model 5
Prestige	***b***	*b*	*b*	*b*	*b*
Neutral	**-0.71***	-0.71*	-0.71*	-0.71*	-0.70*
Dominance	**-0.62***	-0.62*	-0.62*	-0.62*	-0.62*
Happy	**-0.51***	-0.51*	-0.51*	-0.51*	-0.50*

Criterion = Dominance

Comparison	**Model 1**	Model 2	Model 3	Model 4	Model 5
Dominance	***b***	*b*	*b*	*b*	*b*
Neutral	**-1.07***	-1.07*	-1.07*	-1.07*	-1.05*
Happy	**-1.57***	-1.57*	-1.57*	-1.57*	-1.56*
Prestige	**-1.22***	-1.22*	-1.22*	-1.22*	-1.21*

Criterion = Agency

Comparison	**Model 1**	Model 2	Model 3	Model 4	Model 5
Dominance	***b***	*b*	*b*	*b*	*b*
Neutral	**-0.62***	-0.62*	-0.62*	-0.62*	-0.62*
Happy	**-0.73***	-0.73*	-0.73*	-0.73*	-0.72*
Prestige	**0.10**	0.10	0.10	0.10	0.10
Prestige	***b***	*b*	*b*	*b*	*b*
Neutral	**-0.73***	-0.73*	-0.73*	-0.73*	-0.72*
Dominance	**-0.10**	-0.10	-0.10	-0.10	-0.10
Happy	**-0.84***	-0.84*	-0.84*	-0.84*	-0.83*

Criterion = Communion

Comparison	**Model 1**	Model 2	Model 3	Model 4	Model 5
Dominance	***b***	*b*	*b*	*b*	*b*
Neutral	**0.62***	0.62*	0.62*	0.62*	0.60*
Happy	**1.28***	1.28*	1.28*	1.28*	1.27*
Prestige	**1.08***	1.08*	1.08*	1.08*	1.07*
Prestige	***b***	*b*	*b*	*b*	*b*
Neutral	**-0.47***	-0.47*	-0.47*	-0.47*	-0.47*
Dominance	**-1.08***	-1.08*	-1.08*	-1.08*	-1.07*
Happy	**0.19†**	0.19†	0.19†	0.19†	0.19†

Results from Multilevel Models

Perceptions of Prestige

We ran a multilevel analysis predicting perceptions of prestige from nonverbal display (treating each display as a factor and contrasting the prestige display to all others), along with random intercepts and random slopes for participants. Supporting our hypotheses, the prestige display was judged as more prestigious compared to the neutral display, b = -1.12, t = -14.58, p < .001, 95%CI [-1.26 to -.98]; the dominance display, b = -1.16, t = -13.39, p < .001, 95%CI [-1.32 to -1.00]; and the happy display, b = -.20, t = -2.41, p = .017, 95%CI [-.36 to -.03]. A second multilevel analysis was conducted to test for interactions between each contrast and target gender, predicting perceptions of prestige (because participants viewed targets of their own gender only, all gender effects are potentially due to both target and perceiver, which were completely confounded). No interactions emerged; all $|b_{interaction}|$s ≤ .058, all ps > .72.

Perceptions of Dominance

We ran a multilevel analysis predicting perceptions of dominance from nonverbal display (treating each display as a factor and contrasting the dominance display to all others), along with random intercepts and random slopes for participants. Supporting our hypotheses, the dominance display was judged as more dominant when compared to the neutral display, b = -1.40, t = -13.44, p < .001, 95%CI [-1.59 to -1.20]; the happy display, b = -1.81, t = -15.16, p < .001, 95%CI [-2.05 to -1.60]; and the prestige display, b = -1.17, t = -10.40, p < .01, 95%CI [-1.40 to -.94].

A second multilevel analysis was conducted to test for interactions between each contrast and gender (analyzed as a factor, coded male 0, female = 1). Significant interactions emerged, but these did not reverse or eliminate the hypothesized effect. Specifically, the comparison between the dominance display and the neutral display varied by target gender, $b_{interaction}$ = -.76, t = -3.83, p < .001, 95%CI [-1.15 to -.37], such that the dominance display was perceived as more dominant than neutral for males, b_{male} = -1.02, t = -7.25, p < .001, 95%CI [-1.26 to -.70], but this difference was stronger for females, b_{female} = -1.78, t = -12.58, p < .001, 95%CI [-2.06 to -1.52]. In addition, the comparison between the dominance display and the happy display varied by gender, $b_{interaction}$ = -.69, t = 2.90, p = .003, 95%CI [-1.12 to -.19], such that the dominance display was perceived as more dominant than happiness for males, b_{male} = -1.47, p < .001, 95%CI [-1.79 to -1.14], but again the difference was larger for females, b_{female} = -2.16, t = -12.85, p < .001, 95%CI [-2.49 to -1.86]. No other interactions emerged.

Table S1. *Mean Dominance Perceptions of each Display, Separately by gender*

	Males	**Females**
Display Type	Mean (SE)	Mean (SE)
Neutral	4.43[b] (.12)	3.31[c] (.12)
Dominance	**5.44[a] (.13)**	**5.09[a] (.13)**
Happy	3.97[c] (.13)	2.93[c] (.13)
Prestige	4.13[bc] (.12)	4.08[b] (.12)

Note. Superscripts indicate significant differences based on 95% CI created around mean. SE = Standard Error.

Perceptions of Agency

We ran multilevel analyses predicting perceptions of agency from type of nonverbal display (treating each display as a factor, and contrasting the prestige display with all others in one model, and contrasting the dominance display with all others in another model), along with random intercepts and random slopes for participants. Supporting our hypotheses, the dominance display was judged as higher in agency when compared to the neutral display, b = -.96, t = -11.52, p < .001, 95%CI [-1.13 to -.79]; and marginally more agentic than the happy display, b = -.16, t = -1. 84, p = .067, 95%CI [-.38 to .01]. In addition, the prestige display was judged as higher in agency when compared to the neutral display, b = -1.46, t = -17.13, p < .001, 95%CI [-1.63 to -1.29]; the dominance display, b = -.50, t = -5.63, p < .001, 95%CI [-.68 to -.32]; and the happy display, b = -.66, t = -7.73, p < .001, 95%CI [-.83 to -.49].

A second set of multilevel analyses were conducted to test for interactions between each contrast and gender (coded male = 0, female = 1) on perceptions of agency. A significant interaction emerged for the contrast between the prestige versus neutral display, $b_{interaction}$ = -.56, t = -2.87, p = .004, 95%CI [-.96 to -.18]. The prestige display was perceived as more agentic than the neutral display for males, b_{male} = -1.19, t = -8.72, p < .001, 95%CI [-1.43 to -.90], but this effect was stronger for females, b_{female} = -1.74, t = -12.69, p < .001, 95%CI [-2.00 to -.1.49]. Another interaction emerged for the contrast between the prestige versus happy display, $b_{interaction}$ = -.70, t = -4.55, p < .001, 95%CI [-1.03 to -.40]. The prestige display was perceived as more agentic than the happiness display for males, b_{male} = -.32, t = -2.91, p = .004, 95%CI [-.51 to .11], but again this effect was stronger for females, b_{female} = -1.02, t = -9.30, p < .001, 95%CI [-1.21 to -.80]. Another interaction emerged for the contrast between the dominance versus neutral display, $b_{interaction}$ = -.48, t = -2.98, p = .003, 95%CI [-.80 to -.18]. The dominance display was perceived as more agentic than the neutral display for males, b_{male} = -.72, t = -6.30, p < .001, 95%CI [-95 to -.48], and again this effect was stronger for females, b_{female} = -1.20, t = -10.43, p < .001, 95%CI [-1.43 to -.98]. An interaction contrasting the dominance display and the happiness display also emerged, $b_{interaction}$ = -.63, t = -3.59, p < .001, 95%CI [-.98 to -.30]. Somewhat surprisingly, the dominance display was not perceived as more agentic than the happiness display for males, b_{male} = .15, p = .23, 95%CI [-.10 to .40], but the predicted effect emerged for the female target, b_{female} = -.48, t = -3.86, p < .001, 95%CI [-.73 to -.24]. No other interactions emerged.

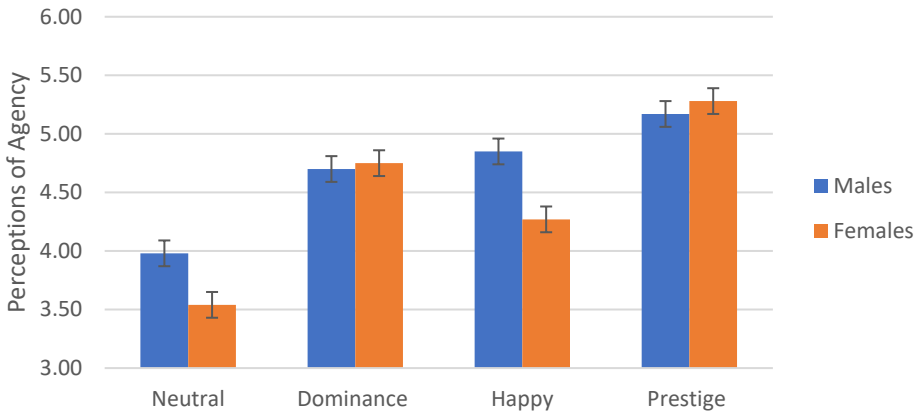

Figure S6. Gender by Display Interaction Predicting Agency
Note. Error bars indicate + / - 1SE.

Perceptions of Communion

We ran multilevel analyses predicting perceptions of communion from type of nonverbal display (treating each display as a factor, and contrasting the prestige display with all others in one model, and contrasting the dominance display with all others in another model), along with random intercepts and random slopes for participants. Supporting our hypotheses, the dominance display was perceived as significantly lower in communion compared to the neutral display, b = .88, t = 10.41, p < .001, 95%CI [.72 to 1.05]; the happy display, b = 2.21, t = 20.37, p < .001, 95%CI [1.98 to 2.42]; and the prestige display, b = 1.80, t = 18.44, p < .001, 95%CI [1.62 to 1.98]. The prestige display was perceived as significantly higher in communion compared to the neutral display, b = -.92, t = -10.81, p < .001, 95%CI [-1.09 to -.74], but lower in communion when compared to the happiness display, b = .41, t = 4.34, p < .001, 95%CI [.24 to .58].

A second set of multilevel analyses were conducted to test for interactions between each contrast and target gender (coded male = 0, female = 1) on perceptions of communion. A significant interaction emerged for the contrast between the dominance display and the neutral display, $b_{interaction}$ = .61, t = 3.74, p < .001, 95%CI [.32 to .91]. For both targets, the dominance display was judged as less communal than the neutral display, but this effect was stronger for the female target, b_{female} = 1. 18, t = 10.20, p < .001, 95%CI [.94 to .1.41], compared to the male target, b_{male} = .57, t =4.99, p < .001, 95%CI [.34 to .83]. Another interaction emerged for the contrast between the prestige and neutral displays, $b_{interaction}$ = .82, t = 4.41, p < .001, 95%CI [.44 to 1.21]. Both prestige targets were perceived as more communal compared to neutral, but the effect was stronger for the male target, b_{male} = -1.33, t = -10.20, p < .001, 95%CI [-1.61 to -1.10], compared to female, b_{female} = -.51, t = -3.90, p < .001, 95%CI [-.77 to -.25]. Finally, an interaction emerged for the contrast between the prestige display and the happiness display, $b_{interaction}$ = .50, t = 2.53, p = .01, 95%CI [.08 to .86]. For males, the two displays were perceived as equally high in communion, b_{male} = .16, t = 1.13, p = .26, 95%CI [-.12 to .40], but for females the happy display was perceived as more communal, b_{female} = .66, t = 4.68, p = .01, 95%CI [.37 to .93]. No other significant interactions emerged (see Figure S7).

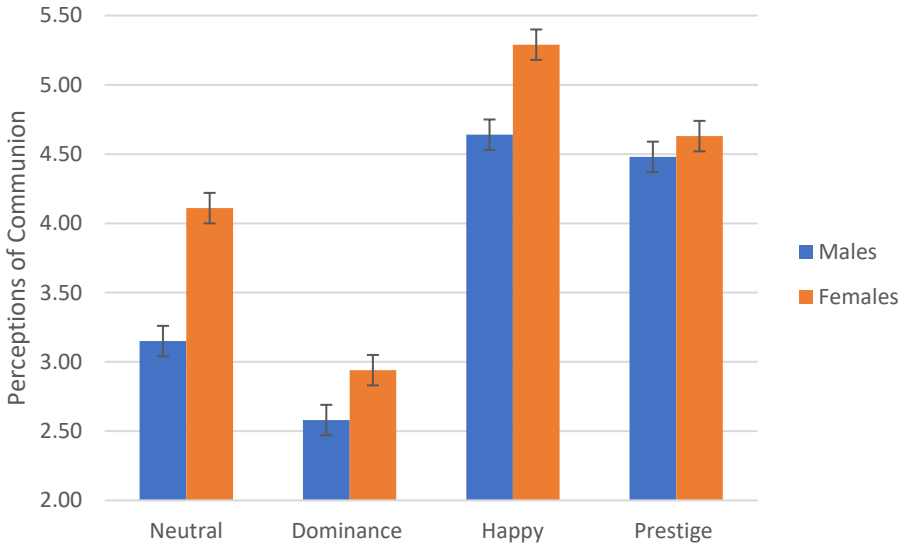

Figure S7. Gender by Display Interaction Predicting Communion, Study 3. Note. Error bars indicate + / - 1SE.

Results from Multilevel Models Including Covariates

Multilevel analyses were conducted predicting each outcome variable from the nonverbal display, along with random intercepts for participants. Beta weights indicate comparisons after controlling for covariates (when applicable).

Dummy Coding with Prestige display as contrast:

Display	**p2**	**p3**	**p4**
Prestige	0	0	0
Neutral	1	0	0
Dominance	0	1	0
Happy	0	0	1

Dummy Coding with dominance display as contrast:

Display	**d2**	**d3**	**d4**
Dominance	0	0	0
Neutral	1	0	0
Happy	0	1	0
Prestige	0	0	1

Coding covariates:

1) Gender (0 = Male, 1 = Female)
2) Ethnicity (treated as a factor – dummy coded to contrast "White/Caucasian" with "East Asian", "Hispanic/Latino", "Middle Eastern", "African American", and "Other"
3) Age (Age in years – continuous)
4) Income (Annual income before taxes – Continuous).

Prestige Models:

Model 1: Prestige ~ p2 + p3 + p4 + (1+p2+p4| SubjectID)
Model 2: Prestige ~ p2 + p3 + p4 + Gender + (1+p2+p4| SubjectID)
Model 3: Prestige ~ p2 + p3 + p4 + Gender + Ethnicity+ (1+p2+p4| SubjectID)
Model 4: Prestige ~ p2 + p3 + p4 + Gender + Ethnicity + Age + (1+p2+p4| SubjectID)
Model 5: Prestige ~ p2 + p3 + p4 + Gender + Ethnicity + Age + Income + (1+p2+p4| SubjectID)

Dominance Models:

Model 1: Dominance~d2 + d3 + d4 + (1+p2+p4| SubjectID)
Model 2: Dominance~d2 + d3 + d4 + Gender + (1+p2+p4| SubjectID)
Model 3: Dominance~d2 + d3 + d4 + Gender + Ethnicity+ (1+p2+p4| SubjectID)
Model 4: Dominance~d2 + d3 + d4 + Gender + Ethnicity + Age + (1+p2+p4| SubjectID)
Model 5: Dominance~d2 + d3 + d4 + Gender + Ethnicity + Age+ Income+(1+p2+p4| SubjectID)

Criterion = Prestige

Comparison	**Model 1**	Model 2	Model 3	Model 4	Model 5
Prestige	***b***	*b*	*b*	*b*	*b*
Neutral	**-1.12***	-1.12*	-1.12*	-1.12*	-1.12*
Dominance	**-1.16***	-1.16*	-1.16*	-1.16*	-1.15*

Happy	**-0.20***	-0.20*	-0.20*	-0.20*	-0.19*

Criterion = Dominance

Comparison	**Model 1**	Model 2	Model 3	Model 4	Model 5
Dominance	***b***	*b*	*b*	*b*	*b*
Neutral	**-1.40***	-1.40*	-1.40*	-1.40*	-1.35*
Happy	**-1.81***	-1.81*	-1.81*	-1.81*	-1.80*
Prestige	**-1.17***	-1.17*	-1.17*	-1.17*	-1.18*

Criterion = Agency

Comparison	**Model 1**	Model 2	Model 3	Model 4	Model 5
Dominance	***b***	*b*	*b*	*b*	*b*
Neutral	**-0.96***	-0.96*	-0.96*	-0.96*	-0.94*
Happy	**-0.16†**	-0.16†	-0.16†	-0.16†	-0.16†
Prestige	**0.50***	0.50*	0.50*	0.50*	0.50*
Prestige	***b***	*b*	*b*	*b*	*b*
Neutral	**-1.46***	-1.46*	-1.46*	-1.46*	-1.44*
Dominance	**-0.50***	-0.50*	-0.50*	-0.50*	-0.50*
Happy	**-0.66***	-0.66*	-0.66*	-0.66*	-0.66*

Criterion = Communion

Comparison	**Model 1**	Model 2	Model 3	Model 4	Model 5
Dominance	***b***	*b*	*b*	*b*	*b*
Neutral	**0.88***	0.88*	0.88*	0.88*	0.86*
Happy	**2.21***	2.21*	2.21*	2.21*	2.21*
Prestige	**1.80***	1.80*	1.80*	1.80*	1.83*
Prestige	***b***	*b*	*b*	*b*	*b*
Neutral	**-0.92***	-0.92*	-0.92*	-0.92*	-0.97*
Dominance	**-1.80***	-1.80*	-1.80*	-1.80*	-1.83*
Happy	**0.41***	0.41*	0.41*	0.41*	0.38*

Stimuli used in Studies 4a and 4b

All high-definition stimuli are available by request from the first author (Zakwitkower@gmail.com).

Figure S8. Stimuli used in Studies 4a and 4b

Note. Three additional actors posed nonverbal displays, but their images are not included here because they did not consent to the publication of their likeness. For access to these stimuli for research purposes, please contact the first author.

Additional Results: Study 4a

Perceptions of Prestige

A 4 (nonverbal display) x 2 (target gender) mixed-model ANOVA was conducted to assess whether the effect of nonverbal display on perceptions of prestige varied as a result of target gender. A small but significant interaction emerged, $F(3,2997) = 4.59$, $p < .001$, $\eta_p^2 = .005$. This interaction suggested that, for male targets, the dominance display was perceived as significantly less prestigious than the neutral display ($p = .002$, $d = .16$), whereas for female targets this difference was not conventionally significant ($p = .15$, $d = .10$). This is consistent with a greater prestige-penalty for males displaying dominance, which does not appear to exist for women. Importantly, for both male and female targets the prestige display was rated as more prestigious than the neutral ($ds \geq .71$, $ps < .001$) and dominance ($ds \geq .69$, $ps < .001$) displays; prestige and smiling did not differ significantly in either gender ($ds \leq .03$, $p > .99$).

Next, a 4 (nonverbal display) x 2 (participant gender) mixed-model ANOVA was conducted to assess whether the effect of nonverbal display on perceptions of prestige varied as a result of participants' gender. A small but significant interaction emerged, $F(3,2994) = 4.59$, $p = .01$, $\eta_p^2 = .004$, suggesting that male participants rated the prestige display as marginally more prestigious than did female participants, $p = .06$, $d = .10$, but female participants rated the dominance display as marginally more prestigious than did male participants $p = .095$, $d = .11$. In contrast, male and female participants did not differ in their prestige ratings of any other displays (ps > .17). Importantly, for both male and female perceivers the prestige display was rated as more prestigious than the neutral display (ds $\geq$ .64, ps < .001) and dominance display (ds $\geq$ .71, ps < .001), and prestige and smiling did not differ significantly (ds $\leq$.04, p > .99). There was no significant 3-way interaction between nonverbal display, participant gender, and target gender, $F(3,2988) = 1.14$, $p = .33$, $\eta_p^2 = .001$.

Perceptions of Dominance

A 4 (nonverbal display) x 2 (participant gender) mixed-model analysis of variance (ANOVA) on perceptions of prestige found a small but significant interaction, $F(3,2994) = 5.48$, $p = .002$, $\eta_p^2 = .005$, suggesting that female participants rated the smiling target as significantly more dominant than did male participants, $p < .001$, $d = .27$, but this gender difference did not emerge for any other nonverbal displays (ps > .13; see SOM). Importantly, for both male and female perceivers the dominance display was judged to be more dominant than the neutral (ds $\geq$ .78, ps < .001), smiling (ds $\geq$ .88, ps < .001), and prestige (ds $\geq$ .63, ps < .001) displays. No significant 3-way interaction emerged between nonverbal display, participant gender, and target gender, $F(3,2988) = 1.10$, $p = .53$, $\eta_p^2 = .001$.

Additional Results: Study 4b

Perceptions of Prestige:

A Chi-squared test of independence suggested that target gender was slightly related to the display selected, $\chi^2 = 36.52$, $p < .001$, *Cramer's V* = .25. Examining recognition rates for male and female targets separately indicated a pattern similar to that when collapsing across target gender; the prestige display was selected at rates significantly greater than chance, and significantly greater than all other displays, for both male (55%, 95% CI: [49% to 61%]) and female (51%, 95% CI: [44% to 57%]) targets. For male targets, the smiling display was selected at rates significantly lower than that for the prestige display, but still significantly greater than chance (35%, 95% CI: [29% to 41%]). In contrast, for female targets, the smiling display was selected at a rate significantly below the prestige display and no different from chance (28%, 95% CI: [22% to 34%]).

Endnote:

[1] All multilevel models were conducted using the lme4 package in R (Bates, Mächler, Bolker, & Walker, 2014), p values were constructed based on the lmerTest package in R (Kuznetsova, Brockhoff, & Christensen, 2015).