

Social Judgments from Faces and BodiesR. Thora Bjornsdottir^{1,2*}Paul Connor³Nicholas O. Rule⁴¹University of Stirling²Royal Holloway, University of London³Stevens Institute of Technology⁴University of Toronto*corresponding author: thora.bjornsdottir@stir.ac.uk

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Author note: Data and analysis code for all studies are available on the OSF

(<https://osf.io/8djfb/>). Studies 3 (<https://osf.io/2te9r/>), 4A (<https://osf.io/35hg9/>), and 4B (<https://osf.io/dgsq8/>, <https://osf.io/dcvhw/>, <https://osf.io/x5rt7/>) were preregistered. Stimuli used in Studies 1 and 2 are freely available (<https://osf.io/egj7c/>, <https://osf.io/ny32q/>), stimuli from Studies 3-4 cannot be shared, as the photographed individuals did not consent to sharing of their images.

Abstract

Despite the primacy of the face in social perception research, people often base their impressions on *whole persons* (i.e., faces and bodies). Yet, perceptions of whole persons remain critically under-researched. We address this knowledge gap by testing the relative contributions of faces and bodies to various fundamental social judgments. Results show that faces and bodies contribute different amounts to particular social judgments on orthogonal axes of social perception: bodies primarily influence status and ability judgments whereas faces primarily influence warmth-related evaluations. One possible reason for this may be differences in *signal* that bodies and faces provide for judgments along these two axes. To test this, we extended our investigation to social judgment *accuracy*, given that signal is a precondition to accuracy. Focusing on one kind of status/ability judgment—impressions of social class standing—we found that perceivers can discern individuals' social class standing from faces, bodies, and whole persons. Conditions that included bodies returned higher accuracy, indicating that bodies may contain more signal to individuals' social class than faces do. Within bodies, shape cued social class more than details of individuals' clothing. Altogether, these findings highlight the importance of the body for fully understanding processes and outcomes in person perception.

Key words: person perception, face, body, variance, whole person, social class

Statement of Limitations

Despite employing racially diverse samples of stimuli and participants, all were North American, limiting our ability to generalise the results beyond Western cultures. The results provide initial evidence that context can moderate the relative importance of faces versus bodies to different social judgments, but this needs more systematic testing. The studies also could not fully disentangle the contributions of body shape, posture, and clothing, leaving these questions open to future research. Finally, we assessed one possible reason for differing reliance on faces versus bodies for different judgments: differing degrees of signal. We tested this for only one social judgment (social class), however, leaving this explanation (as well as alternatives, such as perceiver beliefs or salience) untested for other social judgments.

Social Judgments from Faces and Bodies

As the locus of attention in interpersonal interactions (Zebrowitz, 1997), faces rightly earn a place of priority in understanding how people form perceptions of each other. Indeed, faces not only serve as the foremost means of identifying a person (e.g., people normally represent themselves in online spaces and on identification cards with a face photo), they also elicit important social judgments (e.g., whether to trust someone; Todorov et al., 2009). Impressions from faces moreover predict a variety of real-world consequences, including election outcomes, criminal sentences, and hiring decisions (Blair et al., 2004; Rule et al., 2016; Todorov et al., 2005; Wilson & Rule, 2015). Despite the face's importance, however, people do not perceive each other from faces alone but, often, as whole persons (i.e., a face and body).

Whole-Person Judgments

Compared to the wealth of studies investigating social judgments of faces, relatively little research has considered bodies or whole persons. Although difficulty standardizing body photos (e.g., requiring all targets to wear the same clothing) or concerns about the geographic and temporal specificity of clothing (Hester & Hehman, 2023) challenge the development of body-photo databases for research, considering perceptions of the body remains essential to an ecologically valid understanding of impression formation (see Hu et al., 2020, for a theoretical account of face-body integration). Additionally, the use of highly standardized body stimuli (e.g., with standardized or minimal clothing, as in Currie & Little, 2009; or from 3D body shapes rendered without clothing, as in Hu et al., 2018) trades ecological validity for high experimental control.

Research exploring whole-person judgments has demonstrated that both faces and bodies inform impressions of the whole person. For example, both faces and bodies contribute to

judgments of a whole person's attractiveness (e.g., Alicke et al., 1986; Currie & Little, 2009; Peters et al., 2007). Other research has shown that faces and bodies to integratively contribute to impressions. For instance, emotions expressed by faces affect perceptions of bodies, and emotions expressed by bodies affect perceptions of faces (e.g., Aviezer et al., 2012; Lecker et al., 2020; van de Riet & de Gelder, 2008; Willis et al., 2011). Similarly, the face and body provide mutual context in judgments of personality (Hu & O'Toole, 2023), each affecting whole-person judgments.

Yet the role of the body in shaping central social impressions (i.e., the primary axes of influential impression formation models, such as warmth and competence, Fiske et al., 2007; and dominance and valence/trustworthiness, Oosterhof & Todorov, 2008) of whole persons remains largely outstanding. Existing research shows that dimensions of valence and dominance encompass trait evaluations of faces (including across cultures; Jones et al., 2021; but see Sutherland et al., 2013, 2018, for an additional youthfulness/attractiveness dimension) and that similar (though not identical) dimensions of valence and agency encompass trait impressions of bodies (Hu et al., 2018). But how do faces and bodies work together to elicit whole-person impressions of these central dimensions? To date, only one set of studies has begun to address this question (Hu & O'Toole, 2023), and other consequential social judgments (e.g., social group membership or status) remain untested in the context of whole-person judgments.

Faces' and Bodies' Relative Contribution to Central Social Judgments

Understanding whole-person judgments critically involves the *relative* contributions of faces versus bodies; that is, how much variance in perceivers' judgments faces and bodies each explain. Research testing a parallel question probed the relative amounts of variance explained by perceivers and targets (with targets primarily faces; Bjornsdottir et al., 2022; Hehman et al.,

2017; see also Xie et al., 2019, for variations by target race and gender), finding that the amount explained by each depends on the particular judgment. For example, perceivers explain more variance than targets when judging attractiveness, whereas targets explain more variance than perceivers when judging age. A recent examination of personality judgments from photographs showing individuals' faces and bodies (from above the knees) suggests similar differences in contributions from *parts* of targets (i.e., faces vs. bodies; Hu & O'Toole, 2023). That work proposed and found support for the *trait-dependence hypothesis*, which states that both faces and bodies contribute to impressions of whole persons, though the relative contribution of each depends on the trait. Building from this single finding for personality perception, we systematically tested a related question for a variety of central social impressions here, including attractiveness, competence, dominance, warmth, social class, and personality.

Faces' and Bodies' Contribution to Impression Accuracy

Beyond understanding *how much* bodies and faces influence various social judgments, we also investigated *why* perceivers privilege the body versus face when assessing particular characteristics by considering bodies' and faces' respective roles in *accurate* impressions. Specifically, do faces and bodies differ in the amount of *signal* that they convey for certain attributes? To test this possibility, we focused on social class, a consequential attribute perceived with some accuracy from both appearance and behavior.

Social class typically refers to one's relative access to socioeconomic resources such as wealth, income, education, and occupational prestige (Oakes & Rossi, 2003), which corresponds to individuals' perceptions of their standing relative to others (Côté, 2011). As such, social class represents an important form of status in society and broadly affects people's life circumstances and day-to-day experiences (including, for example, health, decision-making, and social

perception; Bjornsdottir et al., 2017; Dietze et al., 2024; Sheehy-Skeffington, 2020; Wilkinson, 2022). Moreover, people quickly detect others' social class better than chance from nonverbal cues, including engagement cues during social interactions (Kraus & Keltner, 2009), accent prestige in speech (Kraus et al., 2019), and cues related to perceived health, attractiveness, and resting affect in facial appearance (Bjornsdottir & Rule, 2017). Sartorial cues also provide social class information (e.g., Gillath et al., 2012) and both clothing and posture can cue status in the workplace (Schmid-Mast & Hall, 2004). Impressions of social class can have weighty consequences because they closely connect to other critical social judgments (e.g., competence, employability; Bjornsdottir et al., 2024; Bjornsdottir & Rule, 2017; Kraus et al., 2019; Rivera, 2012) and affect social affiliation in interactions (Côté et al., 2017; Hughes, 2023). Notably, different investigations have operationalized social class in a variety of ways (e.g., income, subjective social class, workplace status) but nonetheless revealed the consistency with which perceivers judge social class—indeed, one set of studies showed that perceivers' judgments of different measures of social class from faces all strongly interrelated and comprised one latent variable of perceived social class, indicating that perceivers do not draw distinctions between operationalizations of social class (Bjornsdottir, 2019).

Recent theorizing suggests that body cues, especially clothing, may constitute particularly potent social class signals (Hester & Hehman, 2023). However, although select studies have examined the accuracy of whole-person social class or status judgments (Kraus & Keltner, 2009; Schmid-Mast & Hall, 2004), they did not seek to disentangle the respective contributions of the constituent features (e.g., faces, bodies). Further, because each study examined targets participating in dyadic interactions, engagement cues (Kraus & Keltner, 2009) and posture during the interactions (Schmid-Mast & Hall, 2004) revealed targets' social class standing,

leaving unaddressed whether and how much static cues to social class (available outside of the context of an interaction) might have also contributed. Thus, how people detect social class standing from whole persons not interacting with another person remains unknown, as does the respective influence of faces versus bodies in revealing social class.

The Current Research

We thus addressed several gaps in the literature by considering the relative contributions of faces and bodies in subjective perceptions of a variety of characteristics and objective detections of social class from whole persons. First, we used archival data to gauge the relative contributions of each of these channels in whole-person perceptions of attractiveness, competence, dominance, warmth, social class, and personality (Studies 1 and 2). Then, to test the possible role of signal, we compared social class detection based on photos of the face, body, or whole person (Study 3), and examined the specific body cues that support social class judgments (i.e., posture and shape vs. clothing; Study 4). Throughout these studies, we present targets not in standardized clothing but in naturally-varying clothing, given clothing's theorized and understudied importance in person perception (Hester & Hehman, 2023) and to maximize ecological validity. We preregistered Studies 3-4, provide all studies' data and analysis code on the Open Science Framework (OSF; <https://osf.io/8djfb/>), and report all measures, manipulations, exclusions, and how we determined sample sizes in the studies below.

Study 1

We first conducted two exploratory studies (Studies 1A and 1B) testing faces' and bodies' relative contributions to a wide range of social judgments. Despite examining a conceptually similar question as Hu and O'Toole (2023), these studies incorporated a broader variety of social judgments, recruited larger sample sizes, used a more controlled methodology,

and adopted a different statistical approach (operationalizing variance explained via intraclass correlation coefficients; e.g., Hehman et al., 2017; Xie et al., 2019). We also explored different stimulus types by presenting photographs either as whole-person images (Study 1A) or via both face and whole-person images (Study 1B). Stimuli and data for these studies originate from an existing database (Connor, 2022b; <https://osf.io/egj7c/>).

Stimuli

We leveraged a publicly available database of whole-person photographs of Asian, Black, and White individuals gathered in public and online between 2016 and 2019 (Connor, 2022b; see Connor et al., 2021, for details). Photographs showed targets in forward-facing neutral poses and in full color on white backgrounds. We used 323 whole-person images (51 Asian women, 53 Asian men, 60 Black women, 52 Black men, 53 White women, 54 White men; images standardized to 667 pixel height)¹ created by attaching different faces to different bodies using photo editing software (see Figure 1 for examples; see Supplemental Materials for all targets); each unique face and body appeared in the stimulus set at least twice (i.e., attached to at least two different bodies and faces, respectively).

¹ Individuals did not self-report their race, so these demographics are based on subjective perceptions.

Figure 1*Example Whole-Person Stimuli in Study 1*

Note. Left panel shows the same faces paired with different bodies, right panel shows the same bodies paired with different faces. Images taken from Full Body Photo Database (Connor, 2022b).

Participants

The Study 1A data in this secondary data analysis originate from those collected as part of the photo database and are from 889 undergraduate students at a public US university who rated the photos (652 female, 230 male, 3 nonbinary, 4 unreported gender; $M_{\text{age}} = 20.39$ years, $SD = 2.78$; 215 White/Caucasian, 470 Asian, 105 Latinx/Hispanic, 20 Black/African/Caribbean, 77 other race/ethnicity, 2 unreported race/ethnicity), plus 12 participants excluded for rating fewer than 50% of the stimuli. Study 1B data come from 307 undergraduates at the same university (225 female, 77 male, 5 nonbinary; $M_{\text{age}} = 20.84$ years, $SD = 3.0$; 74 White/Caucasian, 162 Asian, 28 Latinx/Hispanic, 6 Black/African/Caribbean, 34 other race/ethnicity, 3 unreported race/ethnicity) who rated the photos. On average, 15.16 ($SD = 4.34$) participants rated each target in Study 1A, and 5.97 ($SD = 2.47$) participants rated each target in Study 1B.

Procedure

Participants in both Studies 1A and 1B reported their impressions of 25 targets on 24 separate characteristics (see Figure 2 for the full list of characteristics) via quasi-random assignment that ensured that no participant viewed the same face or body more than once. Targets in Study 1A consisted of whole-person photographs whereas targets in Study 1B appeared in a split-screen format with zoomed-in headshots on the left and whole-person photographs on the right (see Supplemental Materials for more details).

Intraclass Correlation Coefficients

Intraclass correlation coefficients (ICCs) quantify the proportion of variance in an outcome variable attributable to different sources; extant research has used ICCs to quantify the variance in social judgments attributable to perceivers versus targets, for example (e.g., Hehman et al., 2017). To calculate ICCs, the data must be structured such that the sources of variance (e.g., faces, bodies) are crossed (e.g., multiple faces appear with multiple bodies), with these sources of variance then treated as random effects in a cross-classified multilevel model/hierarchical linear model (MLM/HLM). In our data, perceivers rated whole persons, with each whole-person stimulus comprised of a face and body that also formed parts of other whole-person stimuli. Thus, across the study, each face (body) appeared with multiple bodies (faces), allowing us to treat faces and bodies as random effects and to compute ICCs for each of faces and bodies when predicting ratings of the whole-person stimuli.

Thus, to obtain face and body ICCs, we fit cross-classified HLMs using the lme4 package (Bates et al., 2015) in R (R Core Team, 2023). Each model predicted ratings of a single characteristic from random effects of target faces, target bodies, and perceivers/raters.² We used

² See Supplemental Materials for results when including target race as a fixed effect.

Xie and colleagues' (2019) bootstrapICC function to calculate ICCs with 95% confidence intervals for each random effect.

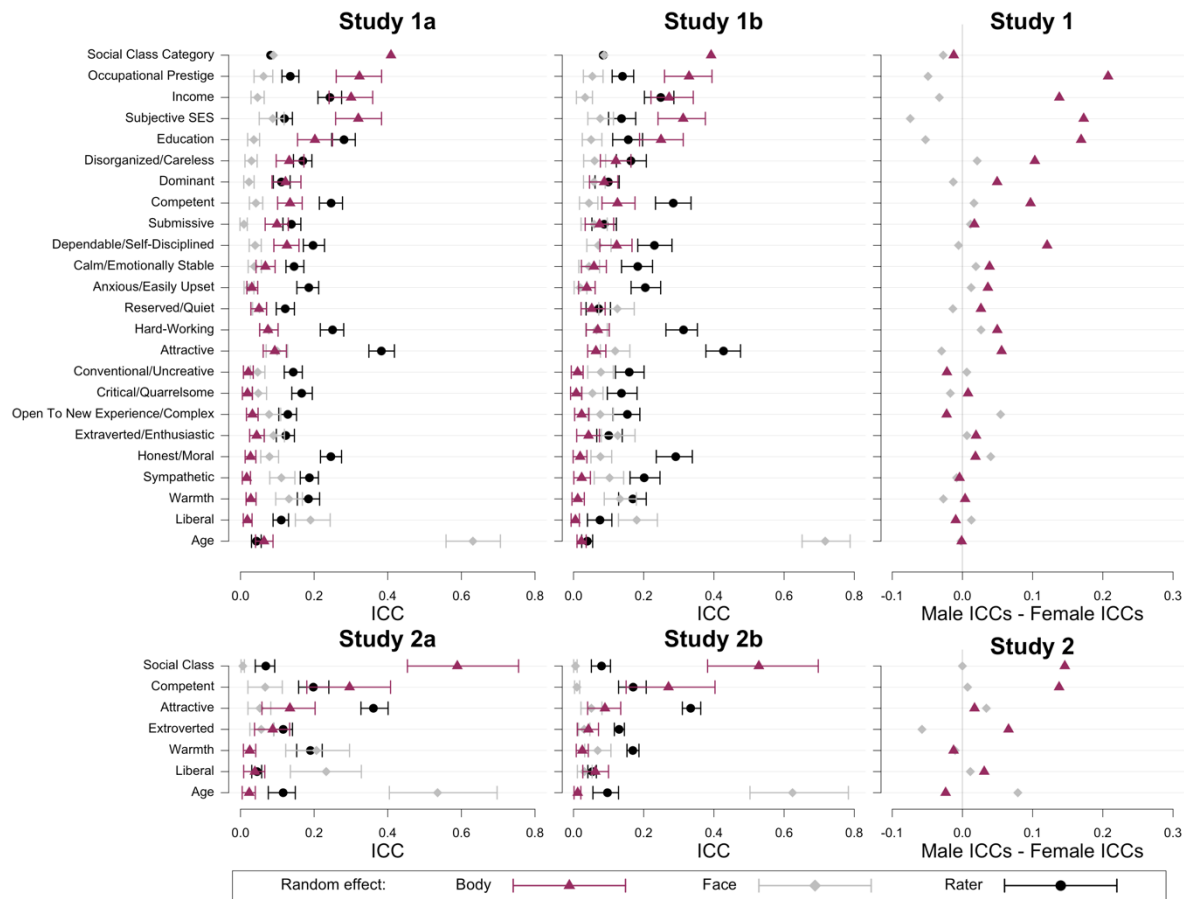
Results

Results (Figure 2, top left and top center panels) indicate that the relative importance of faces versus bodies varies widely across characteristics. Bodies influenced competence, conscientiousness (disorganized/careless, dependable/self-disciplined), dominance, and social class (education, income, occupational prestige, social class category, subjective SES) judgments more than faces did (i.e., body ICCs exceeded face ICCs). However, faces influenced age, honesty/morality, political orientation, sympathy, and warmth judgments more than bodies did (i.e., face ICCs exceeded body ICCs). Bodies and faces equally influenced agreeableness (critical/quarrelsome), attractiveness, extraversion (extraverted/enthusiastic, reserved/quiet), neuroticism (anxious/easily upset, calm/emotionally stable), openness (open to new experience/complex, reserved/quiet), and work ethic (hard-working) judgments.

Presentation format additionally moderated faces' and bodies' influence. Paired *t*-tests indicated that body ICCs for whole-person images in Study 1A exceeded those for split-screen (face + whole-person) images in Study 1B, $M_{\Delta} = .009$, $SD_{\Delta} = .02$, $t(23) = 2.60$, $p = .02$, $r_{\text{effect size}} = .48$. By contrast, face ICCs in Study 1B significantly exceeded face ICCs in Study 1A, $M_{\Delta} = -.01$, $SD_{\Delta} = .03$, $t(23) = -2.61$, $p = .02$, $r_{\text{effect size}} = .48$. Further analyses also returned significantly larger body ICCs (averaged across the two studies) for male versus female targets, $M_{\Delta} = .05$, $SD_{\Delta} = .07$, $t(23) = -3.84$, $p < .001$, $r_{\text{effect size}} = .63$; face ICCs did not differ by target gender, $M_{\Delta} = -.005$, $SD_{\Delta} = .03$, $t(23) = 0.85$, $p = .40$, $r_{\text{effect size}} = .17$ (Figure 2, top right panel).

Figure 2

Relative Contributions of Bodies, Faces, and Perceivers to Judgments in Studies 1 and 2, With Comparisons for Male Versus Female Targets



Note. Characteristics ordered according to magnitude of difference between body ICCs and face ICCs in Studies 1A and 2A. Points in left and middle panels denote ICCs, bars denote 95% confidence intervals. Points in right panels denote average ICCs for male targets minus average ICCs for female targets. Judgments of social class category in Study 1 treated as ordered categorical variable (Poor < Working Class < Middle Class < Upper Middle Class < Upper Class) and modelled via cumulative link mixed models (confidence intervals omitted due to lack of software package capable of the computation).

Discussion

Study 1 indicated that the relative importance of bodies and faces for social judgments depends both on the specific characteristics judged – in line with Hu and O’Toole’s (2023) trait-dependence hypothesis – and how targets are viewed. Overall, bodies primarily drove judgments

of characteristics related to status, power, and ability (i.e., competence, conscientiousness, dominance, and social class), whereas faces primarily drove judgments of age and attributes related to trustworthiness or valence (i.e., honesty/morality, political orientation, sympathy, and warmth). Bodies and faces similarly contributed to attractiveness and personality judgments (i.e., agreeableness, extraversion, neuroticism, openness, and work ethic).

These first two groups of characteristics map neatly onto the primary axes of social cognition (competence and warmth; Fiske et al., 2007) and of person perception (dominance and valence/trustworthiness; Oosterhof & Todorov, 2008). The results thus have substantial theoretical importance because they indicate that judgments of different primary axes of impression formation stem from the face and body to differing degrees. This may be because of the different amount of signal available or because of the perceived informativeness of faces versus bodies for these different primary judgments. That is, bodies may simply provide more information about ability, dominance, or status because body size and shape convey physical formidability, posture foretells impending action or threat, and clothing can reflect wealth and status (e.g., Gilbert et al., 2011; McElvaney et al., 2021; Oh et al., 2020). By contrast, the face may more effectively communicate warmth or trustworthiness, given those attributes' large overlap with emotional expressions (Todorov, 2008; Zebrowitz & Montepare, 2008). Indeed, extant work has shown that facial expressions of emotion drive approachability judgments to a greater extent than bodily expressions of emotion do (Willis et al., 2011), and that faces explain more variance than bodies in whole-person judgments of agreeableness-related traits (Hu & O'Toole, 2023).

We also found that increasing the salience of facial information by including zoomed-in headshots in split-screen images decreases perceivers' reliance on the body and increases

reliance on the face. Though intuitive, this demonstrates that perceivers' relative attention to faces versus bodies likely depends on context. Thus, focusing on face-based impressions in contexts like social media (where people primarily represent themselves with face images, often with little body information available) makes sense. When considering in-person interactions (where bodies are visible), however, researchers should not neglect to consider bodies.

These advances notwithstanding, we note two key limitations in Study 1. First, stimuli were assembled ad hoc, such that specific faces and bodies appeared with varying frequency (e.g., some faces appeared in different target images as many as nine times, others appeared only twice), and gender and race were not balanced. Second, the number of unique perceivers per target was low. We addressed both of these concerns in Study 2.

Study 2

In Study 2, we accessed another set of previously published data (from Connor et al., 2023, Studies 3 and 4) to conceptually replicate Study 1. These data incorporated judgments of only a subset of the characteristics considered in Study 1 but were based on (a) stimuli assembled in a more systematic fashion, (b) ratings gathered from a more representative sample of perceivers, and (c) with a greater number of perceivers per target.

Method

Stimuli

As in Study 1, stimuli were constructed using photo editing software to place different faces onto different bodies. Faces originated from the Chicago Face Database (CFD; Ma et al., 2015; 24 total: 8 Asian, 8 Black, 8 White; 12 female, 12 male) and bodies came from the photo database used in Study 1 (24 total: 12 female, 12 male). Faces and bodies were respectively attached to six different bodies and faces each, resulting in 144 unique stimuli varying in age,

gender, race, and apparent social class (i.e., clothing was status/social class-coded; see Connor et al., 2023, for details). Targets appeared as either whole-person photographs (face and full body) or as upper-body photographs (targets' faces and torsos; Connor, 2022a, <https://osf.io/ny32q/>; see Supplemental Materials). Though standardized in height (whole-person to 767 pixels, upper-body to 1,265 pixels), their presentation size varied according to participants' screens (whole-person images set to appear at 75% of the screen size and upper-body images at 70% of the screen size).

Participants

Undergraduates at a US public university ($N = 1,410$) and US citizens recruited via Prolific Academic ($N = 1,599$; pre-screened using Prolific's filters) were randomly assigned to rate either whole-person or upper-body images; for simplicity and consistency with Study 1, we separate the results by presentation format. For Study 2A, we analyzed data from 1,407 participants who rated whole-person images (617 undergraduates, 790 Prolific; 867 female, 512 male, 16 nonbinary, 12 unreported gender; $M_{\text{age}} = 30.49$ years, $SD = 13.83$; 696 White/Caucasian, 412 Asian, 132 Latinx/Hispanic, 88 Black/African/Caribbean, 57 other race/ethnicity, 22 unreported race/ethnicity). For Study 2B, we analyzed data from 1,602 participants who rated upper-body images (793 undergraduates, 809 Prolific; 953 female, 620 male, 22 nonbinary, 7 unreported gender; $M_{\text{age}} = 31.18$ years, $SD = 14.06$; 835 White/Caucasian, 455 Asian, 126 Latinx/Hispanic, 100 Black/African/Caribbean, 46 other race/ethnicity, 40 unreported race/ethnicity). An average of 136.07 ($SD = 29.31$) participants rated each target in Study 2A, and an average of 200.85 ($SD = 13.36$) participants rated each target in Study 2B.

Procedure

Participants reported their impressions of 12 target images on social class, age, conservative/liberal political orientation, attractiveness, warmth, competence, and extraversion (in that order) using slider scales from 1-100 (see Supplemental Materials for more details). As in Study 1, no participant viewed the same face or body more than once.

Results

Analyses followed the method used in Study 1. As Figure 2 shows (left and center lower panels), the relative importance of bodies versus faces again varied between the characteristics. Bodies influenced competence and social class judgments more than faces, and faces influenced age, political orientation, and warmth judgments more than bodies. Bodies and faces similarly influenced attractiveness and extraversion judgments.

Presentation format additionally moderated the effects. Body ICCs for whole-person images in Study 2A exceeded those for the upper-body images in Study 2B, $M_{\Delta} = .060$, $SD_{\Delta} = .06$, $t(6) = 2.85$, $p = .03$, $r_{\text{effect size}} = .76$. Face ICCs in Study 2B, however, did not exceed face ICCs in Study 2A, $M_{\Delta} = -.008$, $SD_{\Delta} = .03$, $t(6) = -0.87$, $p = .44$, $r_{\text{effect size}} = .33$. Both body [$M_{\Delta} = .05$, $SD_{\Delta} = .07$, $t(6) = -2.00$, $p = .09$, $r_{\text{effect size}} = .63$] and face [$M_{\Delta} = .009$, $SD_{\Delta} = .04$, $t(6) = -0.58$, $p = .59$, $r_{\text{effect size}} = .23$] ICCs did not significantly differ by target gender.

Discussion

Using a more controlled set of stimuli and larger sample of participants, Study 2 provided further evidence that the relative importance of bodies and faces in person perception depends on the specific characteristic judged, supporting the trait-dependence hypothesis (Hu & O'Toole, 2023). As in Study 1, bodies primarily drove status and ability judgments (i.e., competence, social class), faces primarily drove age, political orientation, and warmth judgments (though only

when viewing whole-person images for political orientation and warmth), and bodies and faces equally contributed to attractiveness and extraversion judgments.

Consistent with Study 1, bodies exerted a relatively greater influence when targets were viewed in whole-person photos compared to upper-body photos. Unlike Study 1, however, stimulus presentation did not significantly affect face ICCs, and target gender also did not moderate the results, perhaps as a result of these analyses enjoying substantially less statistical power here due to the lower number of traits rated (seven here vs. 24 in Study 1).³

Nonetheless, these results again suggest that judgments falling along different primary axes of person perception and social cognition differentially rely on bodies versus faces, and that stimulus presentation moderates the relative influence of bodies versus faces. This indicates that further attention to bodies is warranted in person perception research, particularly for status and ability-related judgments.

Study 3

Given the relative importance of bodies over faces in status and ability-related judgments in Studies 1 and 2, we wondered *why* perceivers judge such characteristics predominantly based on targets' bodies. One possibility is that the body conveys more *signal* for these attributes than the face does. To investigate this possibility, we explored bodies' and faces' roles in the formation of *accurate* impressions, as signal is a necessary precondition to accuracy (Funder, 1995; see also Bjornsdottir et al., 2022). We focused on one type of status/ability judgment here: social class standing. Prior work has shown that perceivers can detect others' social class

³ For example, based on the observed difference between face ICCs in Studies 1A and 1B ($M_{\Delta} = -.01$, $SD_{\Delta} = .03$, $d = 0.53$), Study 2's paired t test for face ICCs had just 22% power to detect a similarly sized difference, and 41% power for Study 2's t test comparing male and female body ICCs based on the effect observed in Study 1.

standing with some accuracy from facial appearance (Bjornsdottir & Rule, 2017). As Studies 1-2 showed, however, faces explain less variance in perceivers' social class judgments than bodies do when judging a whole person. Here, we therefore explored the possibility that bodies allow for more accurate judgments of social class than faces do (e.g., because bodies contain more signal to individuals' social class).

We thus tested the accuracy of social class perceptions from photos of faces, bodies, and whole persons. Based on previous research, we predicted that social class categorizations of neutral faces would exceed chance (consistent with previous findings; Bjornsdottir & Rule, 2017), though the comparative accuracy of social class categorizations from bodies, faces, and whole persons was exploratory. We also compared accuracy for neutral versus spontaneously posed photographs, thereby exploring whether self-selected dynamic posture and expression reveal or obscure social class (as other research has shown for personality; Naumann et al., 2009). We preregistered this study on the OSF (<https://osf.io/2te9r/>). Royal Holloway, University of London provided ethical approval for this and all following studies.

Method

Stimuli

Here, we operationalized social class according to family income. We collected photographs of Canadian undergraduates from an in-house database who reported family incomes substantially above (i.e., more than \$100,000) or below (i.e., less than \$60,000) the median in Canada (roughly \$80,000 at the time of stimulus collection in 2015-2017; Statistics Canada, 2023), which we respectively term *rich* and *poor* (following Bjornsdottir & Rule, 2017). We collected 160 total target photographs (80 rich, 80 poor; 100 female, 60 male), matching target gender and race/ethnicity as closely as possible across the *rich* and *poor* categories (rich:

50 female, 30 male; 30 East or Southeast Asian, 28 White/Caucasian, 7 South Asian, 5 Middle Eastern, 2 mixed-race, 1 Hispanic/Latinx, 7 unspecified race/ethnicity; poor: 50 female, 30 male; 33 East or Southeast Asian, 19 White/Caucasian, 11 South Asian, 3 Hispanic/Latinx, 2 Black/African, 2 Middle Eastern, 1 First Nations, 9 unspecified race/ethnicity). All targets were photographed so that their face and body were visible. In one photo, they posed neutrally (i.e., with their hands at their sides and a neutral facial expression) but, in another, they were instructed to pose spontaneously (i.e., however they wished).

We cropped the photos around the top of the head, bottom of the feet (if visible), and around the arms to serve as the whole-person stimuli (see Figure 3 for examples). We then cropped the faces around the top of the head, bottom of the chin, and around the ears to serve as the face stimuli. Finally, we cropped the heads from the photos (or covered them in a white box when we could not remove the head without removing the arms in the spontaneously posed photos) to serve as the body stimuli. All stimuli were standardized in height (faces to 400 pixels, bodies to 850 pixels, and whole persons to 1,000 pixels). Note that stimuli are not openly available because targets did not consent to sharing their images.

Figure 3*Example Neutral and Spontaneous Whole-Person Stimuli in Study 3*

Note. Example images from a volunteer not used in the studies, reproduced with permission.

Participants

We recruited 300 participants via Prolific Academic who reported either Canadian or American nationality to avoid cultural differences in detecting social class (e.g., Bjornsdottir, 2019). Nine participants reported trouble viewing the stimuli or having provided their answers without waiting for stimuli to load,⁴ and one participant categorized all targets identically.

Excluding these participants' data left 290 participants (149 female, 137 male, 2 nonbinary, 2 unreported gender; $M_{\text{age}} = 32.81$ years, $SD = 11.63$; 173 White/Caucasian, 35 East Asian, 17 mixed-race, 16 South Asian, 14 Southeast Asian, 12 Latinx/Hispanic, 11

Black/African/Caribbean, 3 First Nations/Native American/Indigenous, 2 Middle Eastern, 7

⁴ We did not exclude the data of participants who reported stimulus issues in one condition in which one target photo failed to load; rather, we omitted this photo from analysis.

unreported race/ethnicity).⁵ This sample size afforded 80% power to detect effect sizes of at least $r = .20$ in single-sample t -tests (to assess accuracy within each condition) and in an interaction in a 3×2 between-subjects ANOVA⁶ (to detect differences in accuracy between the conditions).

Procedure

We randomly assigned participants to one of the six conditions: neutral body, neutral face, neutral whole person, spontaneous body, spontaneous face, or spontaneous whole person. We instructed participants that they would see images of rich and poor individuals and would need to categorize each as *rich* or *poor* based on their first impressions. Participants then categorized all 160 targets individually in random order at their own pace (but were instructed not to spend too much time deliberating about any one image). Participants then provided demographic information (age, gender, ethnicity/race, nationality, subjective social class) and reported any problems with the study (issues with stimuli loading, providing responses before stimuli loaded) before debriefing.

Results

We calculated each participant's categorization accuracy using the signal detection value A' (Macmillan & Creelman, 2004; see Table S1 in Supplemental Material for hit and false-alarm rates) and compared accuracy to chance (.50). Accuracy significantly exceeded chance in all but one condition (spontaneous face) when correcting for multiple comparisons (Table 1).

⁵ 21 participants reported a non-North American nationality (in contrast to their Prolific screening information) but excluding their data does not change the pattern of results, so we retained them to preserve statistical power.

⁶ Our preregistration mistakenly reported a 2×2 ANOVA.

Table 1*Descriptive Statistics and Comparisons to Chance for Social Class Categorizations in Study 3*

		M_A'	SD	t	df	p	$r_{\text{effect size}}$
Face	Neutral	.56	.07	5.69	49	< .001	.63
	Spontaneous	.52	.07	2.02	46	.02	.29
Body	Neutral	.63	.07	13.68	48	< .001	.89
	Spontaneous	.62	.07	12.87	48	< .001	.88
Whole Person	Neutral	.62	.09	9.00	48	< .001	.79
	Spontaneous	.61	.06	12.74	45	< .001	.88

We next tested whether accuracy differed by condition using a 3 (photo type: face, body, whole person) \times 2 (target pose: neutral, spontaneous) between-subjects ANOVA. This revealed a significant main effect of photo type, $F(2, 284) = 43.94, p < .001, \eta^2 = .24$, but no significant effect of target pose, $F(1, 284) = 2.96, p = .09, \eta^2 = .01$, nor an interaction, $F(2, 284) = 1.62, p = .20, \eta^2 = .01$ (Figure 4). Decomposing the main effect of photo type revealed significantly greater accuracy for bodies ($M = .63, SD = .07$), $t(191.73) = 8.89, p < .001, r_{\text{effect size}} = .54$, and whole persons ($M = .61, SD = .08$), $t(188.34) = 7.09, p < .001, r_{\text{effect size}} = .46$, than faces ($M = .54, SD = .07$), whereas bodies and whole persons did not differ, $t(185.37) = 1.15, p = .25, r_{\text{effect size}} = .08$.^{7,8} Target gender did not moderate any of the results, $F_s \leq 1.18, p_s \geq .31, \eta^2 \leq .003$. In an exploratory

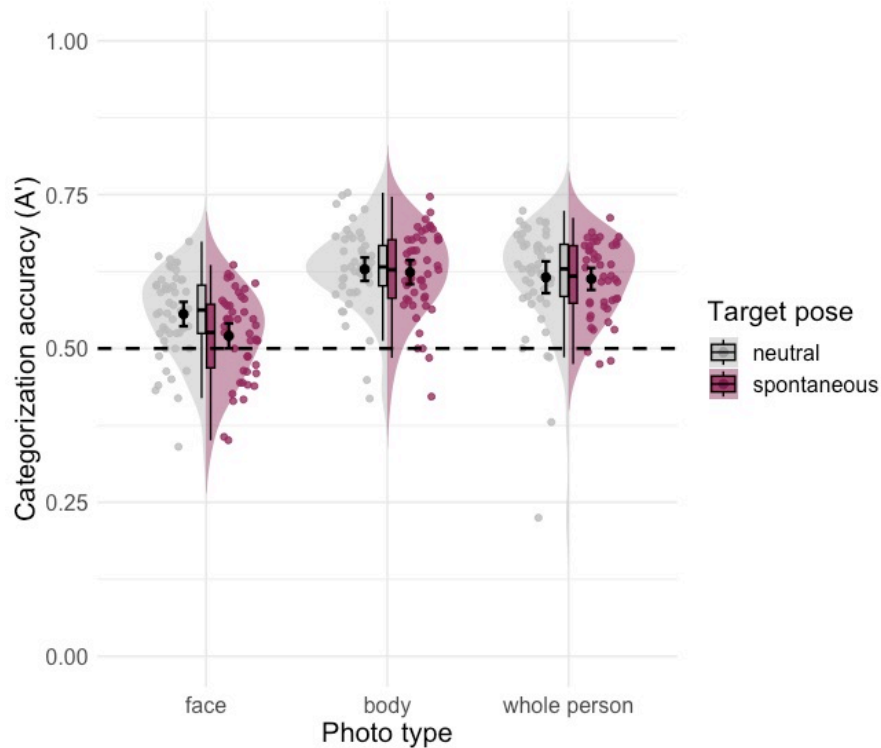
⁷ Due to the presence of outliers in Studies 3-4, we confirmed the results using nonparametric or robust tests where possible, finding no differences in the patterns observed.

⁸ Noninteger degrees of freedom reflect correction for unequal variance (Welch's t -test) in all studies.

step, we tested participants' subjective social class, ethnicity, gender, and age as possible moderators, finding none to be significant, $t_s \leq 1.72$, $p_s \geq .09$ (see analysis file on OSF).

Figure 4

Categorization Accuracy According to Photo Type and Target Pose in Study 3



Note. Black points with error bars represent means and 95% confidence intervals. Boxplots show medians and quartiles. Colored points represent individual participants; those beyond boxplot lines are outliers. Shading represents the distribution of data. Dashed line at .50 denotes chance.

Discussion

Participants detected targets' social class (as *rich* or *poor*) from both their faces and bodies, replicating and extending previous findings (Bjornsdottir & Rule, 2017; Schmid-Mast & Hall, 2004). Higher rates of accuracy emerged for judgments of images including bodies, however. Perceivers might therefore obtain greater signal strength about social class from

information available in bodies than faces. Viewing whole persons did not meaningfully improve accuracy compared to just bodies, suggesting that faces provide little additional signal.

Moreover, spontaneously posed faces returned no accuracy, aligning with previous findings that emotion expressions can effectively mask individuals' social class (Bjornsdottir & Rule, 2017, 2020). This suggests that the subtle static facial cues to social class (i.e., neutral faces' affect, perceived health/attractiveness; Bjornsdottir & Rule, 2017) may not be as powerful in driving perceptions as more salient dynamic cues, such as emotion expressions. Indeed, extant research demonstrates that emotion expressions successfully shift judgments of the same individual's social class standing, in line with valenced stereotypes (i.e., the same face is judged as high in social class more often when expressing a positive emotion and less often when expressing a negative emotion, compared to neutral; Bjornsdottir & Beacon, 2024; Bjornsdottir & Rule, 2020).

Neutral versus spontaneous body posture did not affect accuracy, however, suggesting that posture may not provide useful social class information beyond clothing and body shape, that information from clothing or body shape may be more salient than posture, or that posture may reflect social class similarly across neutral and spontaneous poses. We investigated this further in Study 4.

Study 4

Participants in Study 3 detected targets' social class better from images of bodies than faces, suggesting one potential explanation for why perceivers might prioritize information from bodies when judging targets' social class or status (as observed in Studies 1-2). However, these findings left ambiguous exactly *how* perceivers draw information about social class from bodies. Research showing that both clothing and posture convey social class and status (e.g., Carney,

2020; Gillath et al., 2012; Schmid-Mast & Hall, 2004) thus prompted us to consider the roles of clothing, body shape, and posture.

Study 4A

We first aimed to isolate the information available to perceivers, disentangling the respective influences of (a) body shape and posture (using silhouettes), and (b) clothing (using rectangular cut-outs to show individuals' clothing detail). Note that our approach provides an imperfect approximation because we could not completely disentangle body shape and clothing (i.e., the silhouettes also show the shape of targets' clothing, and the clothing cut-outs provide some information about body shape). We anticipated that each of the silhouettes and rectangular cut-outs would provide information about targets' social class and thus sought to measure *how much* information each would provide. We preregistered this study on the OSF (<https://osf.io/35hg9/>).

Method

Stimuli. For each of the 160 neutral body images from Study 3, we created two stimulus types: (a) silhouettes and (b) clothing cut-outs. For silhouettes, we used image-manipulation software to create black silhouettes of targets' bodies and clothing. For clothing cut-outs, we cropped a standard size rectangle from the center of each image to reveal the target's clothing but provide minimal body shape information (see Figure 5 for example stimuli). We again standardized the height of the stimuli (silhouettes to 850 pixels, clothing cut-outs to 500 pixels).

Figure 5*Example Body Silhouette and Clothing Cut-out Stimuli in Study 4*

Note. Example images from a volunteer not used in the studies, reproduced with permission.

Participants. As in Study 3, we recruited 100 North American participants through Prolific Academic (50 to rate each photo type). We excluded the data from nine participants who reported problems viewing stimuli or having provided responses without waiting for the stimuli to load (remaining $n = 92$; 49 male, 43 female; $M_{\text{age}} = 34.51$ years, $SD = 10.81$; 58 White/Caucasian, 14 Black/African/Caribbean, 6 East Asian, 5 Southeast Asian, 3 mixed-race, 2 First Nations/Native American/Indigenous, 2 Latinx/Hispanic, 2 South Asian). This sample size afforded 80% power to detect effect sizes of at least $r = .21$ in single-sample t -tests.

Procedure. We randomly assigned participants to rate either the silhouettes or clothing cut-outs following the procedure in Study 3: Participants viewed all 160 targets individually in random order, categorizing each as *rich* or *poor* at their own pace according to their first

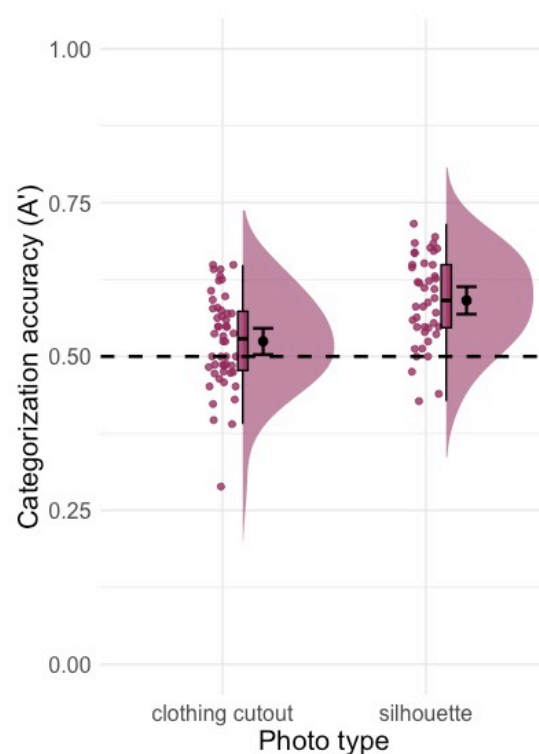
impression. Participants then provided demographic information (age, gender, ethnicity/race, nationality, subjective social class) and reported any problems with the study before debriefing.

Results

As in Study 3, we compared participants' categorization accuracy (A') to chance (.50) using single-sample t -tests (see Table S1 in the Supplemental Materials for hit and false-alarm rates). Accuracy significantly exceeded chance for both silhouettes ($M = .59$, $SD = .07$), $t(41) = 8.26$, $p < .001$, $r_{\text{effect size}} = .79$, and clothing cut-outs ($M = .52$, $SD = .08$), $t(49) = 2.32$, $p = .01$, $r_{\text{effect size}} = .31$. An exploratory between-condition comparison revealed significantly higher accuracy for judgments of the silhouettes than the clothing cut-outs, $t(88.55) = 4.34$, $p < .001$, $r_{\text{effect size}} = .42$ (Figure 6).

Figure 6

Categorization Accuracy as a Function of Photo Type in Study 4A



Note. Black points with error bars represent means and 95% confidence intervals. Boxplots show median and quartiles. Colored points represent individual participants; those beyond boxplot lines are outliers. Shading represents the distribution of data. Dashed line at .50 denotes chance.

In an unplanned step, we also explored accuracy differences in each condition by target gender. This showed greater accuracy for judgments of men's ($M = .64$, $SD = .09$) versus women's ($M = .56$, $SD = .09$) silhouettes, $t(41) = 4.38$, $p < .001$, $r_{\text{effect size}} = .56$. Accuracy did not differ between men's and ($M = .52$, $SD = .10$) and women's ($M = .53$, $SD = .09$) clothing cut-outs, $t(49) = -0.77$, $p = .45$, $r_{\text{effect size}} = -.11$. We furthermore tested, in an additional unplanned step, participants' subjective social class, ethnicity, gender, and age as possible moderators of accuracy, finding none to be significant, $ts \leq 1.08$, $ps \geq .28$ (see analysis file on OSF).

Discussion

Participants accurately categorized targets' social class via both body silhouettes and rectangular cut-outs of targets' clothing, indicating that multiple pieces of information in the body reveal social class. Silhouettes enabled significantly better detection, however, suggesting that posture or body/clothing *shape* provide more information (i.e., signal) about individuals' social class than the details of their clothing do. We thus explored the specific cues within body silhouettes that reveal individuals' social class in Study 4B.

Study 4B

To further understand which body attributes facilitate social class detection, we next explored various possible social class cues within body silhouettes. Specifically, we tested how much social class judgments relate to silhouettes' expansive posture (<https://osf.io/dgsq8/>), perceived dominance (<https://osf.io/dcvhw/>), and attractiveness (<https://osf.io/x5rt7/>).

More expansive posture relates to both perceived and actual dominance/power/status and is perceived as more attractive (Carney, 2020; Vacharkulksemsuk et al., 2016). We therefore

anticipated that expansive posture would relate to higher perceived and self-reported social class. Similarly, dominance and status (of which social class is one form) can manifest similarly in nonverbal behavior (Carney, 2020). We therefore reasoned that dominance perceptions might relate to social class impressions and could also relate to actual social class. Finally, status closely relates to attractiveness (e.g., Kalick, 1988), and attractiveness serves as a valid and utilized cue for perceiving social class from facial appearance (Bjornsdottir & Rule, 2017). Here, we tested whether this also applies to bodies.

Method

Stimuli. We used the same 160 neutral body silhouettes as in Study 4A, affording 80% power to detect effect sizes of at least $r = .22$ in a correlation, independent samples *t*-test, or linear regression.

Participants. Two trained coders rated posture expansiveness, and North American participants recruited from Prolific rated dominance and attractiveness. We aimed to recruit 30 participants for each trait to achieve good interrater reliability and stable rating averages (Hehman et al., 2018). Thirty-one participants rated dominance and 30 participants rated attractiveness. After excluding participants who reported problems viewing the stimuli or responding before they loaded, 25 participants rating dominance (18 female, 7 male; $M_{\text{age}} = 32.32$ years, $SD = 11.86$; 15 White/Caucasian, 3 Black/African/Caribbean, 2 East Asian, 2 Latinx/Hispanic, 2 Southeast Asian, 1 mixed-race) and 27 participants rating attractiveness (19 female, 7 male, 1 unreported gender; $M_{\text{age}} = 31.19$ years, $SD = 10.07$; 20 White/Caucasian, 1 Black/African/Caribbean, 1 East Asian, 1 Middle Eastern, 1 South Asian, 1 Southeast Asian, 2 unreported ethnicity) remained.

Procedure. Expansiveness coders rated the posture of all 160 silhouettes from -3 (closed) to +3 (expanded), following previous research (Vacharkulksemsuk et al., 2016). Dominance and attractiveness raters respectively rated all 160 silhouettes individually in random order on dominance from 1 (*very submissive*) to 7 (*very dominant*) or attractiveness from 1 (*not at all*) to 7 (*very*) based on their first impressions at their own pace. Participants provided demographic information (age, gender, ethnicity/race, nationality) and reported any problems with the study before debriefing.

Results

Coders' expansiveness ratings showed high agreement, $r(158) = .78, p < .001$, and participants' dominance and attractiveness ratings displayed high interrater reliability (Cronbach's α for both = .90). For each cue, we tested both validity (relation to self-reported social class) and utilization (relation to perceived social class, operationalized as the proportion of Study 4A participants who categorized each target as *rich*) using a lens model (Brunswik, 1956).

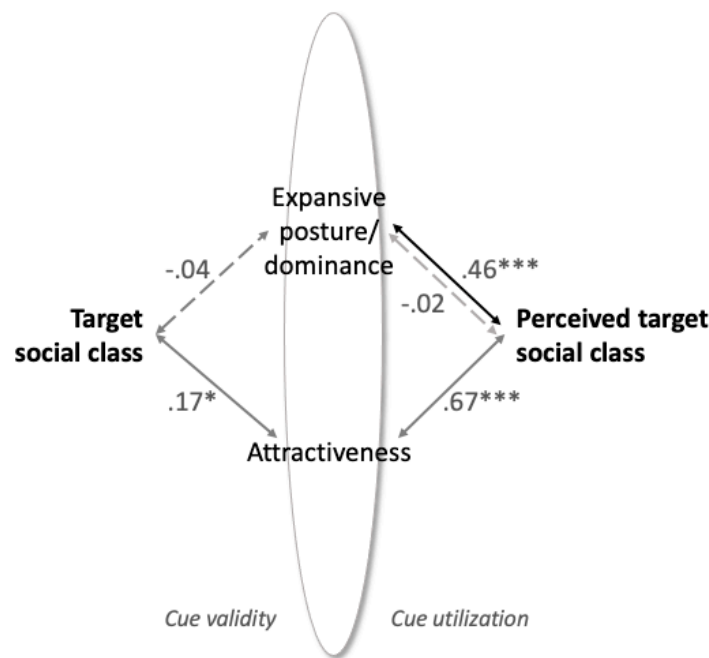
Expansive Posture and Dominance. Expansive posture and dominance ratings strongly correlated, $r(158) = .83, p < .001$, so we combined them into a single composite variable by normalizing and then averaging the two ratings (this was unplanned, see Supplemental Materials for our preregistered separate analyses of expansive posture and dominance). We then tested the validity and utilization of this composite expansiveness/dominance variable (Figure 7). *Rich* and *poor* targets did not differ in expansiveness/dominance, $t(158) = -0.56, p = .57, r_{\text{effect size}} = .04$, and target gender did not moderate this result, $B = -.11, SE = .13, t = -0.89, p = .37$. Expansiveness/dominance also did not significantly relate to perceived social class, $r(158) = .14, p = .07$, though target gender moderated their association, $B = -.05, SE = .02, t = -3.15, p = .002$:

Although perceivers did not utilize expansiveness/dominance when judging female targets, $r(158) = -.02, p = .82$, they did utilize it when judging male targets, $r(158) = .46, p < .001$, such that more expansive/dominant men's body silhouettes appeared higher in social class.

Attractiveness. *Rich* targets looked significantly more attractive than *poor* targets, $t(153.94) = 2.22, p = .03, r_{\text{effect size}} = .18$, and attractiveness and perceived social class positively correlated, $r(158) = .67, p < .001$. Attractiveness was therefore both a valid and utilized cue (Figure 7). Target gender did not moderate either relation, $|B|s \leq .03, |t|s \leq 1.35, ps \geq .18$.

Figure 7

Lens Model of the Cues to Social Class in Body Silhouettes in Study 4B



Note. Values are Pearson's r . Dashed lines indicate nonsignificant relation. Male targets represented by the darker solid line and female targets by the lighter dashed line in the association between expansive posture/dominance and perceived target social class.

* $p < .05$, *** $p < .001$.

Discussion

Attractiveness served as both a valid and utilized cue, helping to explain perceivers' accurate social class judgments from body silhouettes. *Rich* targets appeared more attractive, and more attractive targets were categorized as *rich* more often. These patterns echo those found for social class judgments from facial appearance (Bjornsdottir, 2019; Bjornsdottir & Rule, 2017) and align with findings showing that attractive bodies invite perceptions of “bourgeois orientation” (Nielsen & Kernaleguen, 1976), confirming broader stereotypes linking attractiveness and status (e.g., Dion et al., 1972). By contrast, expansive posture/dominance was not a valid cue to targets' social class, though perceivers did utilize it when judging male targets: Men's bodies with more expansive posture that appeared more dominant were judged as *rich* more often, consistent with existing research (Carney, 2020).

General Discussion

The present work addressed a critical gap in the person perception literature, quantifying the relative contribution of faces and bodies to a variety of foundational social judgments. The results of Studies 1-2, which align with Hu and O'Toole's (2023) trait-dependence hypothesis, indicate that faces and bodies differentially contribute to judgments along different primary axes of impression formation (at least in a Western culture—see Table 2 for summary of limitations). Specifically, bodies primarily drive judgments of attributes related to status and ability (e.g., competence, dominance, social class) whereas faces primarily drive judgments of age and attributes overgeneralized from emotion (e.g., warmth). This presents an important theoretical contribution, indicating that faces and bodies may have different degrees of signal or perceived value for different kinds of judgments. These findings also justify the focus on faces for some judgments (e.g., trustworthiness) but highlight the need to consider the body for others (e.g., status).

Table 2*Summary of Limitations*

Limitation	Assessment
Generalizability across cultures	Target and perceiver samples racially diverse but all North American, limiting generalizability outside Western cultures.
Effect of context	Studies 1-2 provide preliminary evidence that context can moderate the variance explained by faces versus bodies, but requires more systematic investigation – including testing targets’ visual context and perceivers’ judgment context.
Stimuli	Stimuli in Studies 1-2 created by swapping faces and bodies to create novel whole persons. Not all may have appeared entirely convincing. Future research may use other methods to confirm the pattern of results (though note that they do broadly align with Hu & O’Toole’s, 2023, results obtained using unmanipulated whole-person photographs).
Aspects of bodies driving judgments	We could not disentangle the contributions of body shape, body posture, and clothing with our stimuli. We took a preliminary step toward separating the contributions of clothing details from body and clothing shape to social class judgments in Study 4A, but future work could do this in a more controlled manner and for a broader variety of judgments.
Mechanism	The reasons for faces’ and bodies’ different contributions to different kinds of social judgments requires further testing. We tested differences in signal as one possibility, but only for social class judgments. Future work can test this and other explanations (e.g., salience, perceiver beliefs) for a greater number of judgments.

We also found that bodies explain less variance as body information decreases (i.e., with photos above the waist vs. the whole person) or faces become more salient (i.e., larger face photos presented alongside whole-person photos). Though perhaps intuitive, this finding provides empirical support for focusing more heavily on face-based judgments in research interested in impression formation in online contexts (where body information tends to be less available), for example. More broadly, this finding indicates that the variance explained by faces and bodies depends on the information available and the context. Future research can build on these findings to explore how the context—both the visual context in which the target appears and the context in which the perceiver forms their judgment—may potentially affect the relative importance of faces and bodies for different social judgments.

The findings from Studies 3-4 furthermore show that both faces and bodies can lead to *accurate* social judgments, using social class judgments as an example. Social class judgments reached highest accuracy when bodies were visible, thereby supporting the idea that bodies (vs. faces) primarily drive judgments of attributes related to status or ability because of greater available signal in the body. Social class signal appeared to stem more from shape cues (including body shape, posture, and clothing shape) than from details of clothing. Although this finding may challenge intuition as well as recent theorizing (Hester & Hehman, 2023), clothing cues to social class may be easier to fake than other nonverbal body cues. In other words, body shape and posture may contain less controllable social class residue, whereas clothing could be strategically used to (at least somewhat) mask a person's social class. We also found that bodies' perceived attractiveness facilitated accurate social class judgments, similar to faces and consistent with stereotypes linking attractiveness and status (Bjornsdottir & Rule, 2017; Dion et al., 1972). Although we operationalized social class in only one of many possible ways in these

studies (according to family income), we anticipate the same pattern of results using other social class measures, as there were strong interrelations between judgments of different measures of social class using whole persons in Study 1 (see Supplemental Materials) and faces in previous research (Bjornsdottir, 2019).

Throughout these studies, we observed some gender differences. In Study 1, bodies explained more variance for judgments of men than of women. Accuracy also differed in social class judgments (i.e., greater accuracy for judging men's vs. women's body silhouettes) and cue use: Perceivers used bodies' expansive posture/dominance to inform their judgments of men's but not women's social class (though expansive posture/dominance did not supply valid social class information for targets of either gender). We also found greater effects of women's versus men's faces (and men's versus women's bodies) for whole-person judgments in a set of supplementary studies (see Supplemental Materials). Together, these findings provide preliminary evidence that the importance of bodily appearance in predicting social judgments differs by gender, building on existing findings that facial appearance matters more for social judgments of women than of men (Xie et al., 2019). Future research may wish to examine this question more systematically and to explore differences by target race (as well as intersections between gender and race), as previous research has done with faces (Xie et al., 2019).

This work furthermore contributes to the growing area of whole-person perception. Future research could additionally explore the specific cues in the body driving different social judgments, disentangling the contribution of body shape, posture, and clothing. For example, researchers could pair faces with different bodies all wearing the same clothing to isolate the effects of body shape and posture. Alternatively, research could directly test the effects of varying just a target's clothing (but not their body shape or posture; expanding on Oh et al.,

2020). Future research could also include stimuli with greater variation in weight and musculature (somewhat limited in our sample of targets) to better understand the contribution of body shape. Specific to social class judgments, future work could more thoroughly explore the specific cues that contribute to how attractiveness judgments facilitate social class judgment accuracy from bodies; for example, quantifying the contribution of perceived weight and height, musculature, and gendered shape (e.g., Hu et al., 2018). Relatedly, testing whether impressions beyond attractiveness help to explain social class judgment accuracy when examining body photos (vs. silhouettes) or whole persons would improve ecological validity.

Another promising avenue for future research includes more thoroughly examining the reasons that bodies and faces explain different relative degrees of variance for specific social judgments. We suggested differences in signal as one possibility (and the results of Studies 3-4 provide support for this possibility, at least for judgments of social class), but research could move this idea further by investigating the contribution of faces and bodies to social judgment accuracy for a broader array of attributes. Perceivers' beliefs about what is most informative, and the relative salience of faces and bodies, likely also play a role (and Studies 1, 2, and the supplementary studies provide initial evidence for this). Researchers could explore this by manipulating the salience of each channel, or by manipulating perceivers' beliefs about the informational value of faces versus bodies for different social judgments.

Altogether, these findings add to the growing body of research on whole-person judgments, highlighting the importance of considering both bodies and faces when examining social judgments. The different amount of variance explained by faces and bodies for different kinds of social judgments may provide guidance for which aspects of target appearance researchers consider to best address their research questions. Thus, these data help to explain

why people may favor faces over bodies (or vice versa) when expressing themselves and perceiving others in daily life.

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Supplemental Materials

Study 1 Supplemental Method

In Study 1, targets were presented to participants under the text “imagine you saw this person on the street in your local area.” Underneath the targets was the heading “Demographic impressions” followed by questions asking about age (“How old would you guess they are?” with answer options “Less than or 15 years,” “16-20 years,” “21-25 years,” etc., with each five-year bin included until “76 years or older”), annual income (“What would you guess their annual income is? Or, if you think they're retired, what do you think their pre-retirement income was?” with answer options “\$0-\$10,000,” “\$10,001-\$20,000,” etc., with each \$10,000 bin included until “\$200,001 or more”), education (“What would you guess their education level to be?” with answer options ranging from “1 year” until “22 years or more - completed specialist degree or PhD”; other options with extra text were “7 years – completed primary schooling,” “9 years – completed middle school,” “13 years – completed high school,” and “17 years – completed 4-year college degree”), occupational prestige (“How prestigious would you guess their occupation is?” – a slider ranging from “0 – Not at all prestigious” to “100 – Very prestigious”), subjective socioeconomic status (“Think of this ladder as representing where people stand in our society. At the top of the ladder are the people who are the best off - those who have the most money, the most education and the most respected jobs. At the bottom are the people who are the worst off - who have the least money, least education, and the least respected jobs or no job. Please choose a number between 1-10 that best represents where you guess this person stands on the ladder” with response options ranging from “1 - bottom rung,” to “10 - top rung”) and politics (“On a scale from 1 to 10, how politically liberal or conservative would you guess this individual is?” with answer options ranging from “1 – completely conservative” to “10 – completely liberal”).

In this section, there was also a question about social class categorization (“People talk about social classes such as the poor, the working class, the middle class, the upper-middle class, and the upper class. Which of these classes would you guess this person belongs to?” with response options “Poor,” “Working class,” “Middle class,” “Upper-middle class,” and “Upper class”).

Next came the heading “Trait Impressions” followed by the text “To what extent would you guess this individual...” followed by 16 sliding scales measuring perceptions of warmth (“is warm”), competence (“is competent”), trustworthiness (“is honest, moral”), work ethic (“is hard-working”), extraversion (“is extroverted, enthusiastic”), reservedness (“is reserved, quiet”), sympathy (“is sympathetic, warm”; warmth was measured twice due to the inclusion of both global “warmth” and “competence” items plus all the individual items from the Very Brief Big Five inventory, one of which is “sympathetic/warm”; Gosling et al., 2003), disagreeableness (“is critical, quarrelsome”), conscientiousness (“is dependable, self-disciplined”), emotional stability (“is calm, emotionally stable”), neuroticism (“is anxious, easily upset”), openness (“is open to new experiences, complex”), conventionality (“is conventional, uncreative”), dominance (“is dominant”), and submissiveness (“is submissive”). All scales ranged from “0 – Not at all” to “100 – Very much.” A final sliding scale measured perceived attractiveness (“To what extent would you think this individual is physically attractive?” with responses ranging from “0 – Not at all” to “100 – Very much”).


To convert the items using numerical bins into continuous data, responses were scored at the bin midpoint with endpoints treated as additional bins at the end of the available ranges. For example, for perceived age, a response of “16-20 years” was scored as 18, and a response of “Less than or 15 years” was treated as a bin of 11-15 years, and scored as 13. For income,

“\$190,001-\$200,000” was scored as 195,000, and “\$201,000 or more” was treated as a bin of \$200,001-\$210,000 scored as 205,000.

Study 1 Targets

Study 1A Rating Example

Imagine you saw this person on the street in your local area.



Demographic impressions

How old would you guess they are?

What would you guess their annual income is?


(Or, if you think they're retired, what do you think their pre-retirement income was?)

What would you guess their education level to be?

How prestigious would you guess their occupation is?

Not at all prestigious **Very prestigious**

0 10 20 30 40 50 60 70 80 90 100



Think of this ladder as representing where people stand in our society. At the top of the ladder are the people who are the best off - those who have the most money, the most education and the most respected jobs. At the bottom are the people who are the worst off - who have the least money, least education, and the least respected jobs or no job.

Please choose a number between 1-10 that best represents where you guess this person stands on the ladder.

People talk about social classes such as the poor, the working class, the middle class, the upper-middle class, and the upper class. Which of these classes would you guess this person belongs to?

On a scale from 1 to 10, how politically liberal or conservative would you guess this individual is?

Trait impressions

To what extent would you guess this individual...

Not at all

Very much

0 10 20 30 40 50 60 70 80 90 100

is warm



is competent



is honest/moral



is hard-working



is extraverted, enthusiastic



is reserved, quiet



is sympathetic, warm



is critical, quarrelsome



is dependable, self-disciplined



is disorganised, careless



is calm, emotionally stable

is anxious, easily upset

is open to new experience, complex

is conventional, uncreative

is dominant

is submissive

To what extent would you think this individual is physically attractive?

Not at all

Very much

0

10

20

30

40

50

60

70


80

90

100

Study 1B Rating Example

Imagine you saw this person on the street in your local area.



Demographic impressions

How old would you guess they are?

What would you guess their annual income is?


(Or, if you think they're retired, what do you think their pre-retirement income was?)

What would you guess their education level to be?

How prestigious would you guess their occupation is?

Not at all prestigious **Very prestigious**

0 10 20 30 40 50 60 70 80 90 100



Think of this ladder as representing where people stand in our society. At the top of the ladder are the people who are the best off - those who have the most money, the most education and the most respected jobs. At the bottom are the people who are the worst off - who have the least money, least education, and the least respected jobs or no job.

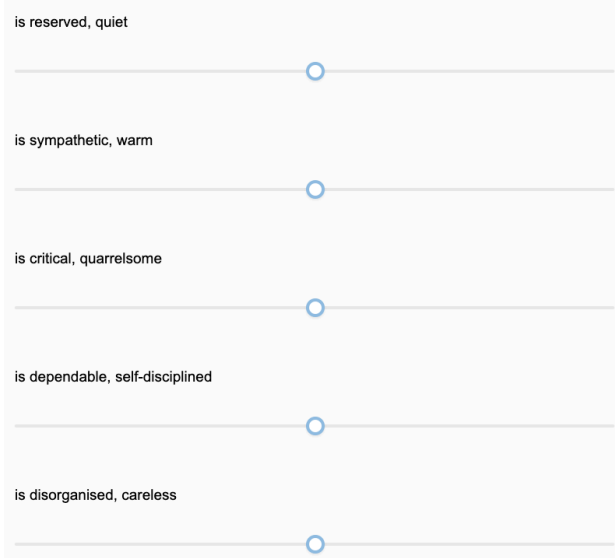
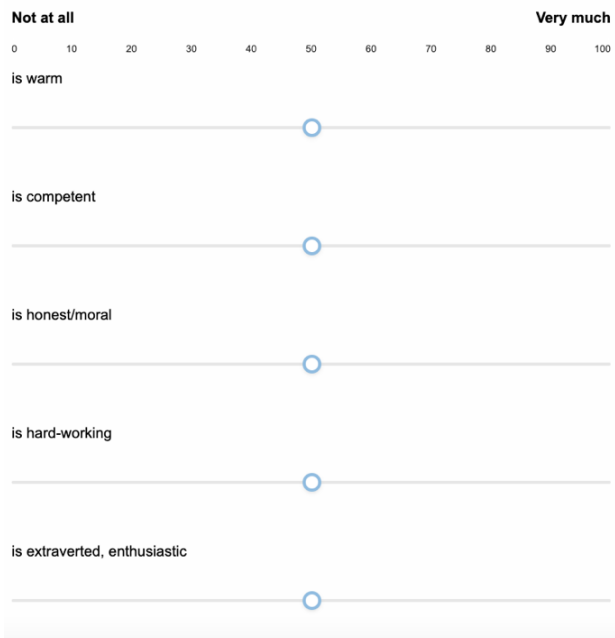
Please choose a number between 1-10 that best represents where you guess this person stands on the ladder.

People talk about social classes such as the poor, the working class, the middle class, the upper-middle class, and the upper class. Which of these classes would you guess this person belongs to?

On a scale from 1 to 10, how politically liberal or conservative would you guess this individual is?

Trait impressions

To what extent would you guess this individual...



is calm, emotionally stable

is anxious, easily upset

is open to new experience, complex

is conventional, uncreative

is dominant

is submissive

To what extent would you think this individual is physically attractive?

Not at all

Very much

0

10

20

30

40

50

60

70

80

90

100

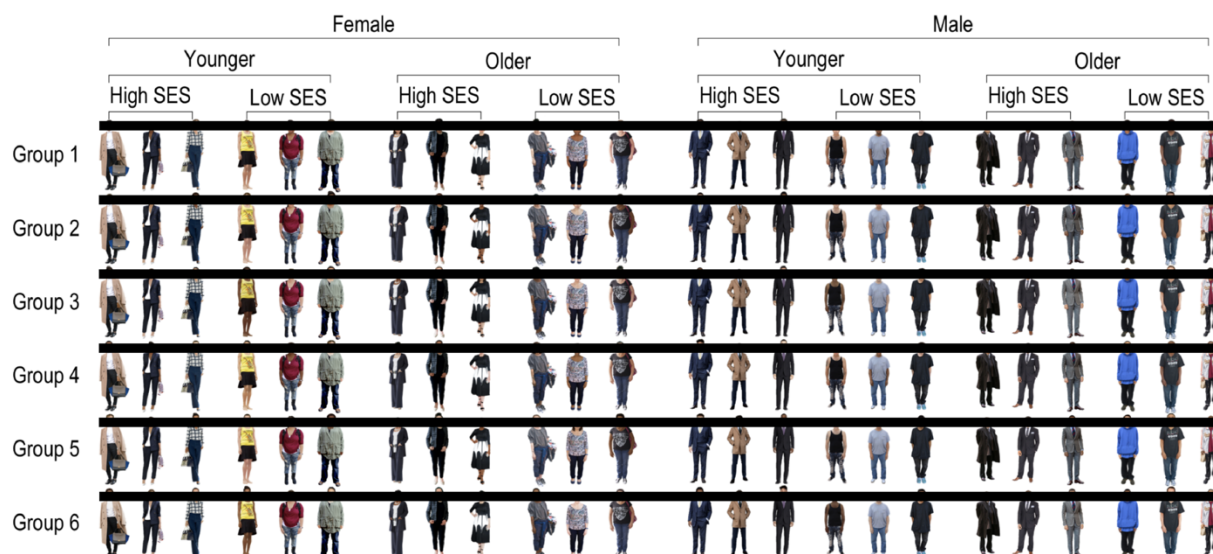
Study 2 Supplemental Method

Study 2 targets appeared under the instruction “Use the sliders below to indicate your impressions of this individual.” Participants responded to a series of sliders measuring perceptions of gender (responses ranged from “Completely female” to “Completely male”), race (three separate sliders measuring perceptions of targets as Asian, with responses ranging from “Not at all Asian” to “Completely Asian,” Black with “Not at all Black” to “Completely Black,” and White with “Not at all White” to “Completely White”), social class (“Lowest social class” to “Highest social class”), age (“Youngest age” to “Oldest age”), attractiveness (“Not at all attractive” to “Very attractive”), photo blurriness (“Not at all blurry” to “Very blurry”), warmth (“Not at all warm” to “Very warm”), competence (“Not at all competent” to “Very competent”), and extraversion (“Not at all extraverted” to “Very extraverted”). Study 2 data come from three different studies (Studies 3a, 3b, and 4 from Connor et al., 2023) and the complete set of traits rated was not identical across studies (perceptions of warmth, competence, political orientation, and extraversion were not measured in Study 4).

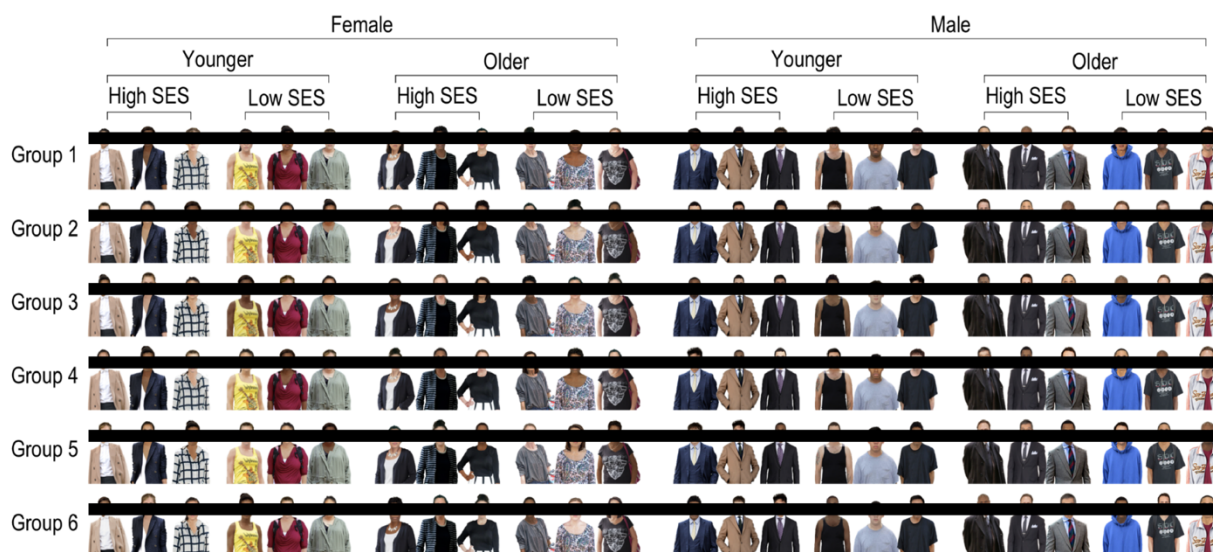
Study 2 Targets

Note that faces are redacted here because we do not have permission from the Chicago Face Database to reproduce these images in the present manuscript.

Whole-Person Presentation



Upper-Body Presentation



Study 2A Whole-Person Rating Example

Use the sliders below to indicate your impressions of this individual.

Gender
Completely Female Completely Male

Race = Asian
Not at all Asian Completely Asian

Race = Black
Not at all Black Completely Black

Race = White
Not at all White Completely White

Social Class
Lowest Social Class Highest Social Class

Age
Youngest Age Oldest Age

Attractiveness
Not at all Attractive Extremely Attractive

Blurred Picture
Not at all Blurry Extremely Blurry



Study 2B Upper-Body Rating Example

Use the sliders below to indicate your impressions of this individual.

Gender
Completely Female Completely Male

Race = Asian
Not at all Asian Completely Asian

Race = Black
Not at all Black Completely Black

Race = White
Not at all White Completely White

Social Class
Lowest Social Class Highest Social Class

Sympathetic/Warm
Not at all Warm Extremely Warm

Age
Youngest Age Oldest Age

Extraverted
Not at all Extraverted Extremely Extraverted



Study 1 and 2 Results with Race Fixed Effects

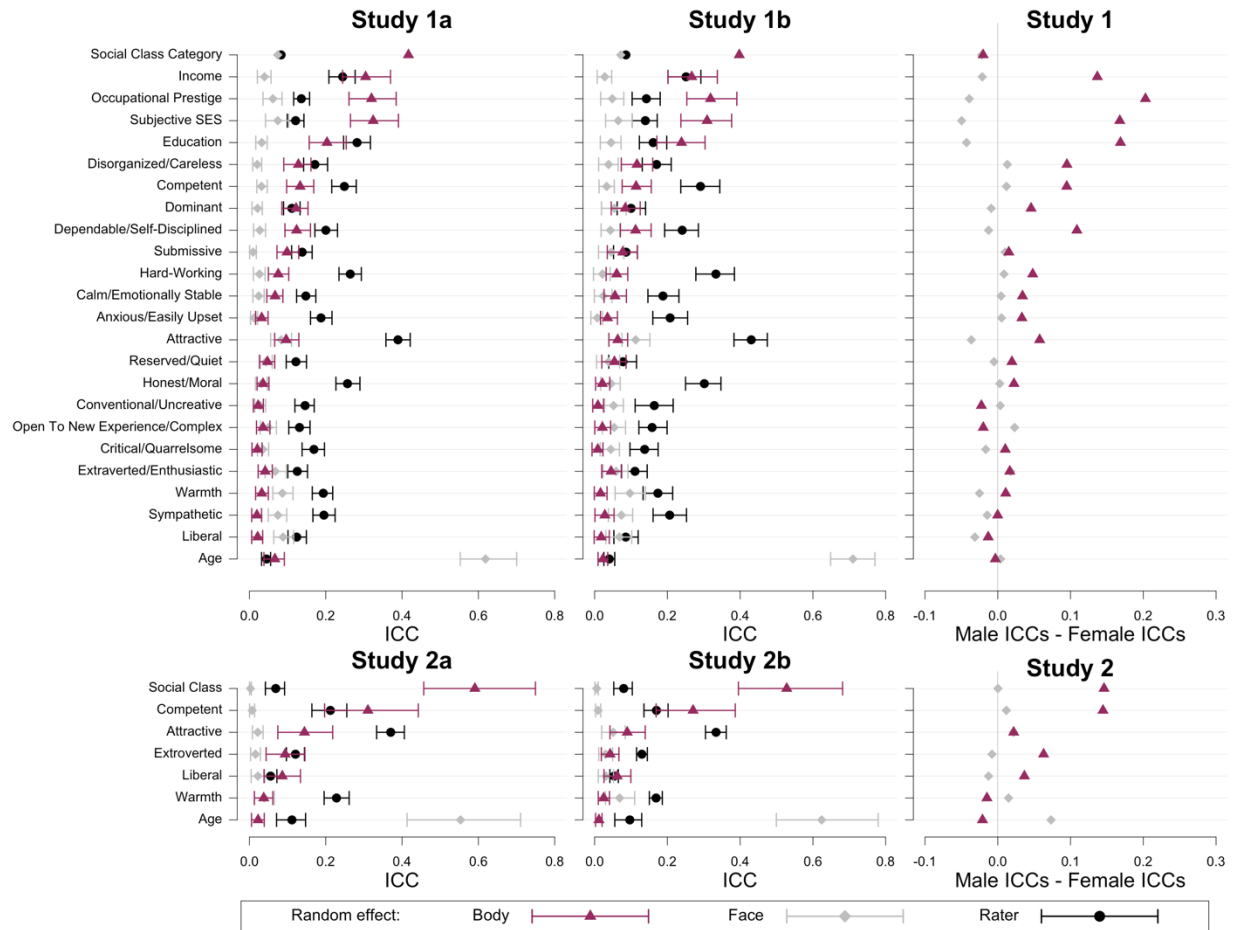
Here, we report results with race fixed effects to differentiate between racial stereotypes and impressions based on other aspects of appearance. We fit cross-classified hierarchical linear models (HLMs) using the lme4 R package (Bates et al., 2015). Each model predicted ratings of a single trait from random effects of target faces, target bodies, and perceivers; and fixed effects of targets' race. We used Xie et al.'s (2019) bootstrapICC function to calculate ICCs with 95% confidence intervals for each random effect.

Study 1

Bodies influenced competence and social class judgments (occupational prestige, subjective SES, income, education, social class category) more than faces did (i.e., body ICCs exceeded face ICCs), and also conscientiousness (disorganized/careless, dependable/self-disciplined) and dominance judgments (dominant, submissive) when viewing just the whole-person photos in Study 1A (Figure S1, upper left and center panels). Conversely, faces influenced age and warmth judgments more than bodies (i.e., face ICCs exceeded body ICCs), and also political orientation and sympathy judgments in Study 1A. Bodies and faces similarly influenced agreeableness (critical/quarrelsome), attractiveness, extraversion (reserved/quiet, extraverted/enthusiastic), honesty/morality, neuroticism (anxious/easily upset, calm/emotionally stable), openness (open to new experience/complex, reserved/quiet), and work ethic (hard-working) judgments.

Figure S1

Relative Contributions of Bodies, Faces, and Perceivers to Judgments in Studies 1 and 2 With Race Fixed Effects, Including Comparisons for Male Versus Female Targets



Note. Characteristics ordered according to magnitude of the difference between body ICCs and face ICCs in Studies 1A and 2A. Points in the left and middle panels denote ICCs, bars denote 95% confidence intervals. Points in the right panels denote the average ICCs for male targets minus the average ICCs for female targets. Judgments of social class category treated as ordered categorical variable (Poor < Working Class < Middle Class < Upper Middle Class < Upper Class) and modelled via cumulative link mixed models (confidence intervals omitted absent software capable of the computation).

Presentation format additionally moderated faces' and bodies' relative influence. Paired *t*-tests showed significantly larger body ICCs for whole-person images in Study 1A than split-

screen images in Study 1B, $M_{\Delta} = .01$, $SD_{\Delta} = .02$, $t(23) = 3.49$, $p = .002$, $r_{\text{effect size}} = .59$, whereas face ICCs did not significantly differ between the studies, $M_{\Delta} = -.009$, $SD_{\Delta} = .02$, $t(23) = -1.92$, $p = .07$, $r_{\text{effect size}} = .37$. Further analysis revealed significantly larger body ICCs (averaged across studies) for male versus female targets, $M_{\Delta} = .05$, $SD_{\Delta} = .07$, $t(23) = -3.77$, $p < .001$, $r_{\text{effect size}} = .62$, but significantly larger face ICCs (averaged across studies) for female versus male targets, $M_{\Delta} = -.009$, $SD_{\Delta} = .02$, $t(23) = 2.19$, $p = .04$, $r_{\text{effect size}} = .42$ (Figure S1, upper right panel).

These results largely replicate those found when not including race as a fixed effect in Study 1, though the size of some face ICCs differed. Perhaps because race may be communicated primarily by the face (vs. body) in whole-person targets (e.g., race is one of the first judgments made from the face; Fiske & Neuberg, 1990; Ito & Urland, 2003), face ICCs are inflated for characteristics closely associated with race when target race is not statistically modeled. For example, stereotypical associations exist between race and political orientation (e.g., Lerman & Sadin, 2014) but not between race and age. Consequently, the face ICC for political orientation judgments drops substantially (from .19 to .09) when adding the race fixed effects. By contrast, the face ICC for age ratings drops only from .63 to .62 when modeling race fixed effects.

Study 2

Bodies influenced competence and social class judgments more than faces, and faces influenced age and warmth judgments more than bodies (though only in judgments of upper-body images for warmth in Study 2B; Figure S1, lower left and center panels). Unlike in Study 1, bodies influenced attractiveness, extraversion, and political orientation judgments more than faces when participants judged whole-person targets in Study 2A. However, bodies and faces

equally influenced these characteristics when participants judged upper-body images in Study 2B. Body ICCs in Study 2A significantly exceeded those in Study 2B, $M_{\Delta} = .04$, $SD_{\Delta} = .021$, $t(6) = 4.61$, $p = .003$, $r_{\text{effect size}} = .88$, whereas face ICCs in Study 2B significantly exceeded those in Study 2A, $M_{\Delta} = -.02$, $SD_{\Delta} = .02$, $t(6) = -2.49$, $p = .047$, $r_{\text{effect size}} = .71$. Neither body nor face ICCs differed significantly between female and male targets (bodies: $M_{\Delta} = .05$, $SD_{\Delta} = .07$, $t(6) = -2.06$, $p = .09$, $r_{\text{effect size}} = .64$; faces: $M_{\Delta} = .01$, $SD_{\Delta} = .03$, $t(6) = -1.33$, $p = .23$, $r_{\text{effect size}} = .48$, Figure S1, lower right panel).

Overall, these results suggested that, as expected, including race as a fixed effect changed some patterns. As in Study 1, bodies primarily drove status and ability judgments (i.e., competence, social class), and faces primarily drove age judgments. In contrast to Study 1, however, bodies also mainly drove political orientation judgments (in addition to attractiveness and extraversion) when participants judged whole-person images. Moreover, including race as a fixed effect decreased the size of some face ICCs

We computed the participant-level correlations between the rated attributes from Studies 1A, 1B, 2A, and 2B. Correlations involving the social class category variable in Studies 1A and 1B are polyserial correlations treating the categorical judgments of social class as ordered categories (in ascending order: Poor, Working Class, Middle Class, Upper Middle Class, Upper Class). All other correlations are Pearson's correlations.

	anxious.easily.upset	disorganized.careless	reserved.quiet	submissive	critical.quarrelsome	dominant	age	conventional.uncreative	education	income	occupational.prestige	ses.ladder	social.class.category	attractiveness	honest.moral	warmth	sympathetic	calm.emotionally.stable	dependable.self.disciplined	competence	hard.working	liberal	open.to.new.experience.complex	extraverted.enthusiastic
anxious.easily.upset	1	0.2			0.2			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
disorganized.careless	0.2	1			0.2			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
reserved.quiet			1	0.2		0.2		0.2							0.2	0.2	0.2	0.2	0.2	0.2	0.2		0.2	0.2
submissive			0.2	1	0.2	0.2				0.2		0.2			0.2	0.2	0.2		0.2	0.2	0.2			0.2
critical.quarrelsome	0.2	0.2		0.2	1	0.2		0.2							0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	
dominant			0.2	0.2	0.2	1						0.2				0.2	0.2		0.2	0.2	0.2			0.2
age							1	0.2		0.2				0.2								0.2	0.2	0.2
conventional.uncreative	0.2	0.2	0.2		0.2		0.2	1						0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
education	0.2	0.2		0.2					1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
income	0.2	0.2		0.2					0.2	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
occupational.prestige	0.2	0.2		0.2					0.2	0.2	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
ses.ladder	0.2	0.2		0.2					0.2	0.2	0.2	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
social.class.category	0.2	0.2		0.2					0.2	0.2	0.2	0.2	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
attractiveness	0.2	0.2					0.2	0.2	0.2	0.2	0.2	0.2	0.2	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
honest.moral	0.2	0.2		0.2				0.2						0.2	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
warmth	0.2	0.2		0.2	0.2			0.2						0.2	0.2	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
sympathetic	0.2	0.2		0.2	0.2			0.2						0.2	0.2	0.2	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
calm.emotionally.stable	0.2	0.2			0.2			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1	0.2	0.2	0.2	0.2	0.2	0.2
dependable.self.disciplined	0.2	0.2			0.2			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1	0.2	0.2	0.2	0.2	0.2
competence																								

Study 2A



Study 2B



Table S1*Hit and False Alarm Rates in Studies 3 and 4A*

	Hits	False Alarm
	<i>M (SD)</i>	<i>M (SD)</i>
Study 3		
Face		
Neutral	.46 (.17)	.40 (.15)
Spontaneous	.46 (.15)	.44 (.15)
Body		
Neutral	.50 (.15)	.37 (.14)
Spontaneous	.53 (.20)	.39 (.18)
Whole person		
Neutral	.53 (.20)	.39 (.17)
Spontaneous	.52 (.20)	.41 (.18)
Study 4A		
Body silhouette	.53 (.13)	.43 (.11)
Clothing cut-out	.49 (.16)	.46 (.17)

Note. Hits calculated as the percentage of rich targets categorized as *rich*, false alarms calculated as the percentage of poor targets categorized as *rich*.

Study 4B Expansive Posture and Dominance Cues

Here, we report the preregistered analyses of expansive posture and dominance, testing them as cues in the body silhouette judgments.

Expansive Posture

Rich and *poor* targets' expansive postures did not differ (i.e., expansive posture was not a valid cue to social class), $t(157.74) = -0.85, p = .40, r_{\text{effect size}} = -.07$; gender did not moderate this result, $B = -.13, SE = .28, t = -0.45, p = .65$. Targets with more open posture were judged as *rich* more often, however, $r(158) = .16, p = .04$; target gender moderated this association, $B = -.02, SE = .01, t = -2.38, p = .02$. Specifically, expansive posture was a utilized cue for male, $r(58) = .40, p = .002$, but not female targets, $r(98) = .05, p = .60$.

Dominance

Rich and *poor* targets did not differ in perceived dominance, $t(157.99) = -0.23, p = .82, r_{\text{effect size}} = -.02$; gender did not moderate this result, $B = -.11, SE = .09, t = -1.29, p = .20$. Dominance therefore did not supply a valid cue to social class. Dominance was also not a utilized cue, $r(158) = .11, p = .16$, but target gender moderated this association, $B = -.09, SE = .02, t = -3.78, p < .001$, such that dominance was utilized in judgments of male targets, $r(58) = .47, p < .001$, but not female targets, $r(98) = -.12, p = .24$; more dominant-looking men were more often judged as *rich*.

Supplemental Studies

This set of studies explored how stimulus viewing order and the relative richness of visual information in the stimuli moderate perceivers' tendency to base social class judgments on the face versus body.

Supplemental Pilot Study

Here, we randomly assigned faces and bodies into sequential pairs and tested how each stimulus's actual social class and the order of stimulus presentation affected perceivers' social class judgments of the whole person pairing (preregistered: <https://osf.io/q42r8/>).

Method

Stimuli. We used the 160 neutral face and 160 neutral body stimuli from Study 3.

Participants. We recruited 160 North American participants via Prolific Academic, excluding three participants who reported issues with the stimuli loading or having responded without waiting for stimuli to load (remaining $n = 157$; 86 male, 65 female, 2 nonbinary, 1 genderfluid, 3 unreported gender; $M_{\text{age}} = 31.47$ years, $SD = 10.22$; 88 White/Caucasian, 31 East Asian, 8 mixed-race, 7 South Asian, 7 Southeast Asian, 5 Black/African/Caribbean, 3 Latinx/Hispanic, 3 Middle Eastern, 1 First Nations/Native American/Indigenous, 4 unreported ethnicity). This sample size afforded 80% power to detect a within-between interaction in an ANOVA with an effect size of at least $r = .14$.

Procedure. We programmed the study using Gorilla Experiment Builder (Anwyl-Irvine et al., 2020), randomly assigning participants to categorize targets of one gender (i.e., either women or men), and to one stimulus-order condition (faces or bodies first). We informed participants that they would (a) see photographs of people's faces and their bodies, and (b) categorize each person as *rich* or *poor*, based on their first impression. On each trial, participants saw the first stimulus (face or body) for 500 ms, followed by the second stimulus

(body or face) for 500 ms. Participants then categorized the person as *rich* or *poor* at their own pace. A 500-ms fixation cross preceded all trials. Importantly, the faces and bodies were paired randomly such that the face's social class and body's social class (and, thus, the congruence of the face's and body's social class) varied on each trial. Finally, participants provided demographic information (age, gender, ethnicity/race, nationality, subjective social class) and reported any problems with the study prior to debriefing.

Results

We computed the proportion of categorizations as *rich* for each trial type (poor face + poor body, rich face + poor body, poor face + rich body, rich face + rich body) and entered these values into a 2 (face social class: rich, poor) \times 2 (body social class: rich, poor) \times 2 (stimulus order: face first, body first) ANOVA with repeated measures on the first two factors.⁹ This revealed main effects of both face social class and body social class, but no other significant results (Table S2). Examining each main effect revealed that *rich* categorizations were more frequent on trials with rich faces ($M = .48$, $SD = .20$) than on trials with poor faces ($M = .46$, $SD = .20$), and that *rich* categorizations were more frequent on trials with rich bodies ($M = .52$, $SD = .20$) than on trials with poor bodies ($M = .41$, $SD = .18$), though this result was stronger for bodies (Figure S2). Adding target gender as a moderator did not change the pattern or significance of these results, $F_s \leq 3.64$, $p_s \leq .06$, $\eta^2 \leq .002$.

⁹ In the preregistration, we planned to test a 2 (first stimulus social class: rich, poor) \times 2 (stimulus congruence: congruent, incongruent) \times 2 (first stimulus: face, body) ANOVA, but the results are simpler to interpret using the ANOVA reported in the text.

Table S2

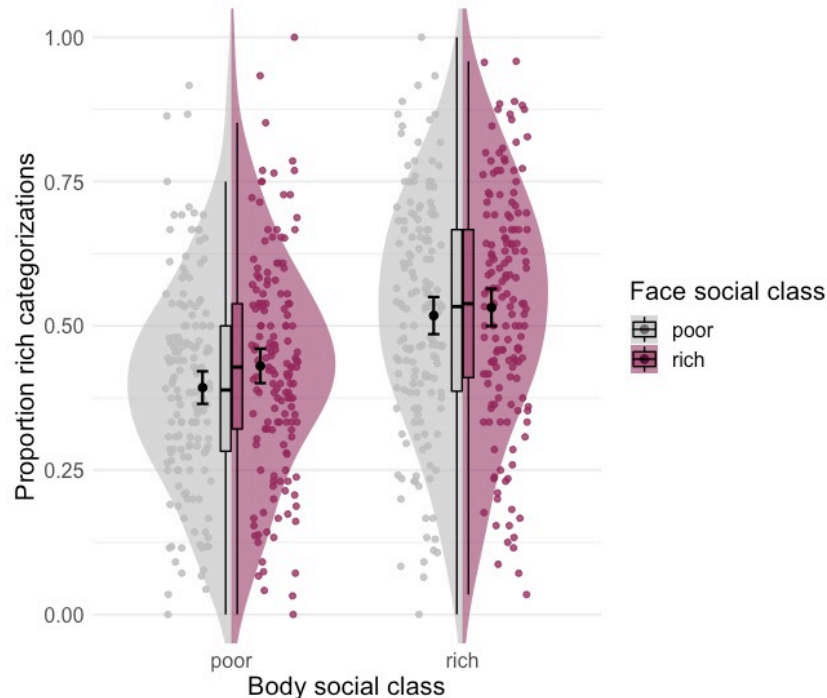
Results of ANOVA in Which Stimulus Presentation Order and Stimulus Social Class Predict Categorizations as “Rich” in Supplemental Pilot Study

	<i>F</i>	<i>p</i>	Generalized η^2
Stimulus order	0.80	.37	.004
Face social class	8.76	.004	.004
Body social class	129.08	< .001	.079
Stimulus order \times face social class	0.12	.73	.000
Stimulus order \times body social class	1.76	.19	.001
Face social class \times body social class	1.68	.20	.001
Stimulus order \times face social class \times body social class	0.10	.76	.000

Note. *df* = (1, 153)

Figure S2

Proportion of Categorizations as “Rich” as a Function of Stimulus Face and Body Social Class in Supplemental Pilot Study



Note. Black points with error bars represent means and 95% confidence intervals. Boxplots show median and quartiles. Colored points represent individual participants; those beyond boxplot lines are outliers. Shading represents the distribution of data.

Discussion

Here, stimulus presentation order did not affect participants' judgments – thus, the order that the face and body appeared did not moderate participants' relative reliance on the face or body when judging social class. Rather, conceptually replicating Studies 1-2, we found that both the face and body drive impressions of a whole person's social class, but that the body does so to a greater degree. The larger effect of the body (vs. the face) also parallels the results of Study 3, which showed similar accuracy for bodies with and without faces.

There were, however, some methodological features that may have influenced the results. First, body images appeared twice as large on-screen as face images (i.e., twice the height). This intentionally reflected the bodies' larger size relative to the faces, but may have

enhanced the bodies' salience. Some participants additionally reported difficulty processing the face images during the 500-ms presentation time but did not report this for the body images—suggesting easier processing of body images, particularly with constrained viewing times. Finally, some participants reported noticing visible mismatches between the face and body photos (e.g., visible mismatching hair). We therefore made minor methodological adjustments to address these problems in Supplemental Study A.

Supplemental Study A

This study replicated the pilot study, with some small methodological changes to address that study's limitations. Here, we employed self-paced viewing of the stimuli, cropped the body stimuli from the shoulders down to minimize visible hair and avoid obvious mismatches, and sized the face and body images to the same height (preregistered:

<https://osf.io/m7kdt/>).

Method

Stimuli. We used the 160 neutral-face and 160 neutral-body stimuli from Study 3. However, we cropped the body stimuli from the shoulders down (vs. the neck down) to minimize visible hair and avoid obvious mismatches, and we adjusted the face and body images to the same size (same image height).

Participants. We recruited 160 North American participants via Prolific Academic, excluding two participants who reported nationalities other than Canadian or American (in contrast with their Prolific information), one who responded identically on all trials, and six who reported trouble viewing the stimuli or providing answers without waiting for stimuli to load (remaining $n = 151$; 78 male, 72 female, 1 nonbinary; $M_{\text{age}} = 31.62$ years, $SD = 9.58$; 101 White/Caucasian, 12 East Asian, 11 Black/African/Caribbean, 10 mixed race, 5 South Asian, 4 Latinx/Hispanic, 2 Middle Eastern, 2 Southeast Asian, 1 Pacific Islander, 4

unreported race/ethnicity). This sample size afforded 80% power to detect effect sizes of at least $r = .15$ in a within-between interaction in an ANOVA.

Procedure. We programmed the study using Gorilla Experiment Builder (Anwyl-Irvine et al., 2020), randomly assigning participants to categorize either female or male targets in one stimulus-order condition (faces first or bodies first). We informed participants that they would (a) see photographs of people's faces and their bodies, and (b) categorize each person as *rich* or *poor*, based on their first impression. On each trial, participants saw the first stimulus (face or body) and then clicked a button to view the second stimulus. They then clicked a button to proceed to the categorization screen, where they categorized the person as *rich* or *poor*. Importantly, the faces and bodies were randomly paired such that the face's social class and body's social class (and, thus, the congruence of the face's and body's social class) varied on each trial. Finally, participants provided demographic information (age, gender, ethnicity/race, nationality, subjective social class), reported whether they based their judgments primarily on the face, body, or both, and reported any problems with the study before debriefing.

Results

For each participant, we calculated the proportion of *rich* categorizations for each trial type (poor face + poor body, rich face + poor body, poor face + rich body, rich face + rich body), submitting them to a 2 (face social class: rich, poor) \times 2 (body social class: rich, poor) \times 2 (stimulus order: face first, body first) ANOVA with repeated measures on all but the last factor. We observed only main effects of face social class and body social class (Table S3). *Rich* categorizations occurred more often when bodies in a pair were rich ($M = .52$, $SD = .18$) compared to poor ($M = .43$, $SD = .18$), and, to a lesser extent, when faces in a pair were rich ($M = .48$, $SD = .19$) compared to poor ($M = .46$, $SD = .18$; Figure S3).

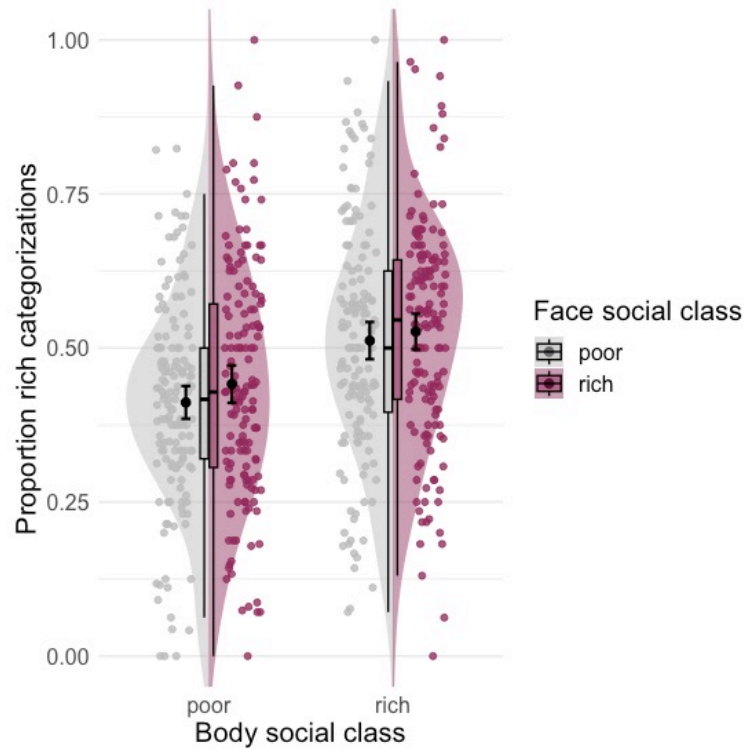
Table S3*Results of ANOVA in Which Stimulus Presentation Order and Stimulus Social Class**Predicted Categorizations as “Rich” in Supplemental Study A*

	<i>F</i>	<i>p</i>	Generalized η^2
Stimulus order	0.02	.90	.000
Face social class	6.34	.01	.004
Body social class	92.73	< .001	.062
Stimulus order \times face social class	2.26	.14	.001
Stimulus order \times body social class	0.00	.99	.000
Face social class \times body social class	0.68	.41	.000
Stimulus order \times face social class \times body social class	0.12	.73	.000

Note. $df = (1, 149)$

Figure S3

Proportion of Categorizations as “Rich” as a Function of Stimulus Face and Body Social Class in Supplemental Study A



Note. Black points with error bars represent means and 95% confidence intervals. Boxplots show median and quartiles. Colored points represent individual participants; those beyond boxplot lines are outliers. Shading represents the distribution of data.

Including target gender as a predictor did not alter these patterns but revealed a four-way interaction, $F(1,147) = 5.01, p = .03, \eta^2 = .003$. Decomposing the data by target gender revealed only a significant main effect of body social class for male targets, $F(1, 76) = 35.49, p < .001, \eta^2 = .06$, all other F s $\leq 3.05, p$ s $\geq .09, \eta^2 \leq .005$. For female targets, however, we observed main effects of both face social class, $F(1, 71) = 4.14, p = .046, \eta^2 = .003$, and body social class, $F(1, 71) = 73.08, p < .001, \eta^2 = .06$, as well as a stimulus order \times face class interaction, $F(1, 71) = 45.35, p = .02, \eta^2 = .004$ (all other F s $\leq 2.02, p$ s $\geq .16, \eta^2 \leq .003$). Decomposing this interaction revealed main effects of both face social class, $F(1, 34) = 7.68, p = .009, \eta^2 = .02$, and body social class, $F(1, 34) = 21.43, p < .001, \eta^2 = .05$, when bodies

appeared first, but a main effect of only body social class when faces appeared first, $F(1, 37) = 59.99, p < .001, \eta^2 = .07$.

Finally, 49.01% of participants reported basing their judgments primarily on the body whereas only 6.62% reported basing their judgments primarily on the face, and 44.37% of participants reported using both the face and body (see Table S4 for counts split by target gender and stimulus order).

Table S4

Number of Participants Reporting Each Focus, Split by Target Gender and Stimulus Order in Supplemental Study A

	Body Focus	Face Focus	Body & Face Focus
Female targets			
Body first	15	3	17
Face first	21	1	16
Male targets			
Body first	18	4	18
Face first	20	2	16

Discussion

Here, we found that both faces and bodies drive social class perceptions, but bodies' effect tends to be stronger—conceptually replicating Studies 1-2. Aligned with this, nearly half of participants explicitly reported basing their judgments primarily on the body. Furthermore, bodies drove social class judgments to a greater extent than faces did, regardless of whether participants saw targets' faces or bodies first.

Target gender moderated some of the results. Bodies alone drove judgments of men's social class whereas both faces and bodies influenced judgments of women's social class. Stimulus presentation order also affected judgments of women, such that faces affected social class judgments only when they appeared after bodies.

Supplemental Study B

We next sought to interrupt bodies' primacy in social class perceptions by reducing their visual richness. Specifically, we used body silhouettes rather than full-detail photos. Further, we presented the faces and body silhouettes together (which should aid their integration). In addition, we asked participants not just about *where* they focused their judgments (face, body, or both) but also *why*.

In Supplemental Study A, we found main effects for both faces' and bodies' actual social class but stronger effects for bodies, which we anticipated replicating here (preregistered: <https://osf.io/yswef/>).

Method

Stimuli. We used the same 160 neutral-face stimuli as in Supplemental Study A and the neutral-body silhouettes from Study 4.

Participants. We recruited 160 North American participants from Prolific Academic. We excluded 12 participants who reported problems viewing the stimuli or having responded before stimuli loaded, one participant who responded identically to all trials, and one participant who reported a nationality other than American or Canadian (remaining $n = 146$; 60 female, 83 male, 3 unreported gender; $M_{\text{age}} = 30.41$ years, $SD = 8.82$; 96 White/Caucasian, 16 Black/African, 12 East Asian, 6 Latinx/Hispanic, 4 mixed race, 4 South Asian, 2 Southeast Asian, 1 First Nations/Native American, 1 Middle Eastern, 4 unreported

race/ethnicity). This sample size afforded 80% power to detect an interaction in a within-subjects ANOVA of at least $r = .15$.

Procedure. We randomly assigned participants to categorize the photos of either female or male targets. On each trial, participants saw a face atop a body silhouette and categorized the person as *rich* or *poor* based on their first impression. A 500-ms blank screen preceded all trials. As in Supplemental Study A, the faces and bodies were randomly paired, such that the face's social class, body's social class, and congruence of the face's and body's social class varied on each trial; here, however, they were combined into a single stimulus (vs. appearing separately).

Finally, participants provided demographic information (age, gender, ethnicity/race, nationality, subjective social class), reported whether they tended to base their responses more on the face or the body (and if so, reported the reasons for focusing more on the face or body by selecting *I think people's faces [bodies] provide more information than their bodies [faces] about whether they're rich or poor, I think it's easier to judge people based on their faces [bodies] than their bodies [faces], People's faces [bodies] draw my attention more than their bodies [faces]*, or *Other*, with the opportunity to select more than one option), and reported any issues with the study.

Results

A 2 (face social class: rich, poor) \times 2 (body silhouette social class: rich, poor) repeated-measures ANOVA revealed a main effect of face social class, $F(1, 145) = 8.92, p = .003, \eta^2 = .006$, such that stimuli with rich faces ($M = .46, SD = .20$) were categorized as *rich* significantly more often than stimuli with poor faces ($M = .43, SD = .19$). Unexpectedly, body-silhouette social class returned no main effect (rich bodies: $M = .45, SD = .19$; poor bodies: $M = .44, SD = .20$), $F(1, 145) = 2.13, p = .15, \eta^2 = .002$, or interaction, $F(1, 145) = 1.33, p = .25, \eta^2 = .001$.

Including target gender as a predictor did not change these patterns but qualified the main effect of face social class with a target gender \times face social class interaction, $F(1, 144) = 9.62, p = .002, \eta^2 = .006$ (Table S5).¹⁰ Decomposing the interaction revealed that stimuli with *rich* faces ($M = .49, SD = .19$) were categorized as *rich* significantly more often than stimuli with *poor* faces ($M = .43, SD = .20$), $F(1, 73) = 28.62, p < .001, \eta^2 = .02$, for female but not male targets (rich faces: $M = .43, SD = .21$; poor faces: $M = .44, SD = .19$), $F(1, 71) = 0.002, p = .97, \eta^2 < .001$ (see Figure S4).

Table S5

Results of ANOVA in Which Stimulus Social Class and Target Gender Predicted Categorizations as “Rich” in Supplemental Study B

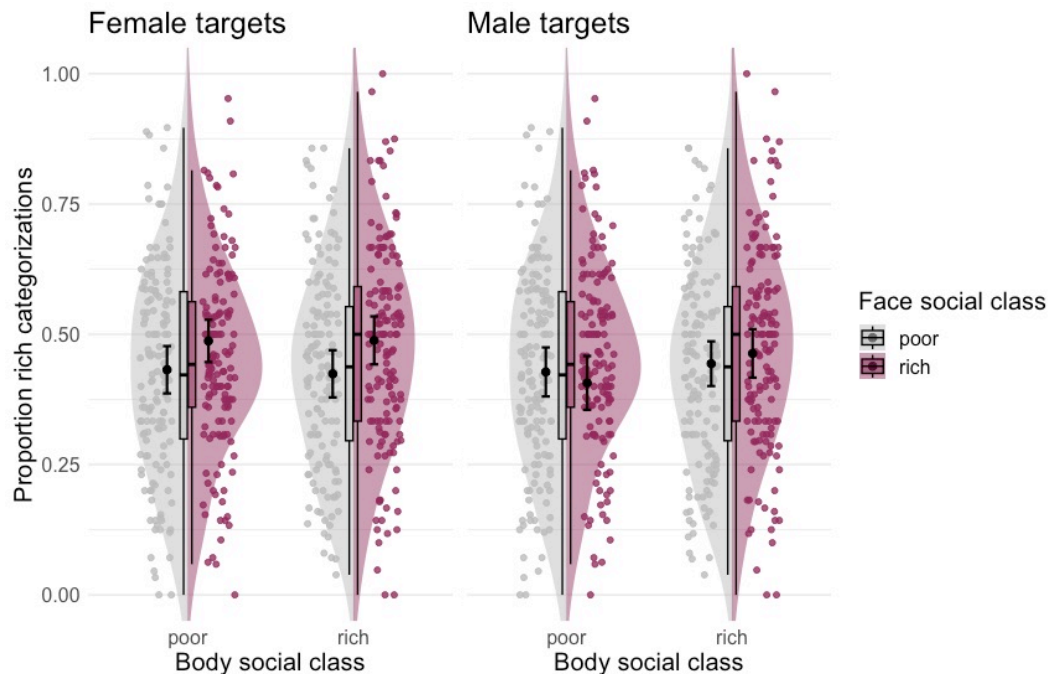
	<i>F</i>	<i>p</i>	Generalized η^2
Face social class	9.18	.003	.006
Body social class	2.24	.14	.002
Target gender	0.71	.40	.003
Face social class \times body social class	1.35	.25	.001
Face social class \times target gender	9.62	.002	.006
Body social class \times target gender	3.25	.07	.003
Face social class \times body social class \times target gender	0.57	.445	.0004

Note. $df = (1, 144)$

¹⁰ We also preregistered a plan to test participants' reported focus as an additional predictor, but do not report this analysis due to the extreme imbalance in the number of participants reporting each focus.

Figure S4

Proportion of Categorizations as “Rich” as a Function of Stimulus Face and Body Social Class in Supplemental Study B, Split by Target Gender



Note. Black points with error bars represent means and 95% confidence intervals. Boxplots show median and quartiles. Colored points represent individual participants; those beyond boxplot lines are outliers. Shading represents the distribution of data.

Finally, we examined the proportion of participants who reported basing their responses primarily on the face, body, or both (i.e., their reported focus) and participants' explanations for their focus. In contrast to Supplemental Study A, most participants (65.75%) reported basing their judgments primarily on the face, whereas only 9.59% based their judgments primarily on the body, and 24.66% reported basing their judgments on both the face and body (see Table S6 for counts by target gender). Among the participants who focused more on the face ($n = 96$), 52 selected that the face drew their attention more, 41 selected that the face was more informative than the body, and 31 selected that the face was easier to judge. Of the few participants who reported focusing primarily on the body ($n = 14$), 13 found the body more informative than the face, six found the body easier to judge, and four reported the body drawing their attention more.

Table S6*Number of Participants Reporting Each Focus, Split by Target Gender in Supplemental Study**B*

	Body Focus	Face Focus	Body & Face Focus
Female targets	7	49	18
Male targets	7	47	18

Discussion

In the absence of detailed clothing information, most participants focused primarily on the face when judging social class. The predictors of participants' judgments reflected this: We observed a main effect of face social class, but not body social class. Target gender qualified the face social class main effect such that it only emerged among female targets.

Overall, these results indicate that reducing the richness of body information (here, by using silhouettes rather than photographs) can attenuate the focus on the body—at least when forming judgments of women's social class. Because participants reported focusing more on the face here (in contrast to Supplemental Study A), the findings also suggest that people may *think* that clothing provides the best information for judging social class, given that the silhouettes did not contain clothing information (other than its shape). Indeed, extant work shows that clothing importantly affects social judgments (e.g., Hester & Hehman, 2023; Oh et al., 2020). Our findings also provide evidence of differences in how perceivers judge men's and women's social class, with faces driving judgments of women to a greater degree than of men.