Compatibility of basic social perceptions determines perceived attractiveness

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The human body's shape and motion afford social judgments. The body's shape, specifically the waist-to-hip ratio, has been related to perceived attractiveness. Early reports interpreted this effect to be evidence for adaptation, a theory known generally as the waist-to-hip ratio hypothesis. Many of the predictions derived from this perspective have been empirically disconfirmed, leaving the issue of natural selection unresolved. Knowing the cognitive mechanisms undergirding the relationship between judgments of attractiveness and body cues is essential to understanding its evolution. Here we show that perceived attractiveness covaries with body shape and motion because they cospecify social percepts that are either compatible or incompatible. The body's shape and motion provoke basic social perceptions, biological sex and gender (i.e., masculinity/femininity), respectively. The compatibility of these basic percepts predicts perceived attractiveness. We report evidence for the importance of cue compatibility in five studies that used diverse stimuli (animations, static line-drawings, and dynamic line-drawings). Our results demonstrate how a proximal cognitive mechanism, itself likely the product of selection pressures, helps to reconcile previous contradictory findings.

body motion | gender | person perception | waist-to-hip ratio | relationship

The human body has long been a source of inspiration for artists and scientists alike. Empirical investigations have attempted to link particular bodily cues to evaluative social judgments, specifically judgments of attractiveness (1–5). Much of the early research in this area investigated how the body's shape [i.e., the waist-to-hip ratio (WHR)] relates to judgments of a woman's attractiveness. To examine this attractiveness, researchers developed stimuli that systematically varied the WHR and weight of line-drawn women. Compared with "tubular" figures, "hourglass" figures (i.e., those with WHRs of ≈0.7) tended to be judged more favorably, at least in western societies (3). Buttressed by biomedical research relating low WHRs to health and fertility (6–10), these findings were initially interpreted from an evolutionary perspective: The WHR, it was argued, is a biological marker of health and fecundity, and men's preference for low WHRs was described as adaptive. The WHR hypothesis (3) spawned an abundance of subsequent research, some that corroborated the initial pattern of results and some that contradicted it.

The discrepant findings prompted attempts to understand the processes responsible for the seeming contradictions. In doing so, scholars noted both methodological and theoretical shortcomings in the WHR hypothesis as it was initially articulated (5, 11–14). The most widely used stimuli, for example, confound waist size with WHR and weight with hip breadth. This limitation led researchers to develop new stimulus sets that manipulated each element orthogonally (5, 12). These studies reported a substantial reduction, and even elimination, of the preference for a WHR of 0.7, and some studies reported preferences for WHRs that fell outside the range of human variation (12). Additionally, the theoretical assumption of cross-cultural invariance, a central tenant of the WHR hypothesis in its strongest articulation (3), appears increasingly doubtful. Men from geographically remote regions, for example, exhibited no systematic preference for WHRs of 0.7, and in some cases, men even preferred larger WHRs (11, 13, 14). Collectively, these findings are difficult to reconcile with the predictions derived from a simple version of the WHR hypothesis (cf. ref. 15).

Although the explanation for the empirical contradictions remains unclear, the collective findings do suggest that male preferences for particular body shapes may be an incidental product of more proximal and circumstantially situated cognitive processes, such as those that have been documented in other domains (16–18). Two explanations, in particular, have received increased attention. Some have speculated that a preference for a small WHR is the product of exposure to western media (14); others have focused on the unique environmental challenges that may lead culture-specific WHR preferences (19, 20). Although the findings to date cannot disentangle a media from a social-roles account, the two need not be considered mutually exclusive. What is deemed desirable for each sex may be determined by the sex roles specified by a society, and, in more western societies, the media may subsequently reinforce the value of these characteristics. Indeed, the roles of women vary greatly between remote and westernized cultures (19, 21), ranging from physically demanding manual labor to cognitively taxing intellectual duties. Moreover, there is some indication that such differences can also affect the average body morphology (19). Women in western societies are free of the manual labor that a foraging diet demands. Consequently, these women have relatively small WHRs. Women in more remote cultures, however, expend extreme physical resources to meet sustenance requirements, and consequently have larger WHRs on average (19).

Given that differences in the average WHRs between women in western and remote cultures may be the product of their societal roles, the WHR may also serve as an indirect indicator of the quality/fit of an individual for the gender-specific role dictated by a society. A small WHR afforded by a role lacking foraging behavior may come to be valued in western societies; a larger WHR gained from successful foraging may come to be valued in more remote cultures. Put simply, the physical manifestation of "femaleness" differs cross-culturally. If correct, evaluative social judgments such as attractiveness should vary as a function of the indices of fit with the role compelled by society. Moreover, although the specific indicators will undoubtedly vary

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Abbreviation: WHR, waist-to-hip ratio.

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across cultures (20, 22, 23), similar processes should govern evaluative judgments of both men and women. One straightforward measure of an individual's fit with their gender role is their degree of femininity or masculinity or gender typicality. Evaluative social judgments, such as attractiveness, should therefore reflect the congruence (or lack thereof) between one's biological sex and the level of perceived gender [i.e., masculinity/femininity (24, 25)]. From this perspective, perceived attractiveness can be conceptualized as the product of proximal cognitive mechanisms that integrate physical cues that are bound to sex and gender.

This possibility is difficult to examine given the extant data, in part because nearly all prior research has had a singular focus, operationalized as variation in the WHR and implemented by using a single stimulus set composed exclusively of static two-dimensional line-drawn figures (3). In the natural environment, however, perception of the body's shape is rarely decoupled from other body cues, which themselves may also be sexually dimorphic. The body's shape, for example, is generally perceived in motion, and body motion alone informs both basic (26–30) and evaluative (1, 31, 32) social judgments. Moreover, the perception of morphological cues as they are typically perceived (in motion) often changes perceptions. The ability of observers to accurately identify an individual, for example, differs considerably for judgments of static and dynamic stimuli (33, 34). In addition, the majority of the previous studies focused solely on evaluative social judgments, such as perceived attractiveness. In reality, perceiving another person generally provokes a broad range of social percepts simultaneously. A subset of these perceptions (i.e., age, race, and sex) appears to be compulsory (35, 36) and to provide a lens through which other interactions and perceptions are formed (37). Perceived attractiveness, in contrast, is likely a judgment that is contextualized by these more fundamental social perceptions. Prior research investigating the relationship between the WHR and perceived attractiveness was nevertheless unable to assess whether more fundamental social perceptions, such as the perception of biological sex, provide a lens through which a variety of physical cues are integrated, ultimately affecting the level of perceived attractiveness. For these reasons, the possibility that perceived attractiveness reflects the compatibility of biological sex and gendered cues (i.e., masculinity and femininity as specified within the society) remains speculative.

Here we explore this possibility by examining how perceived attractiveness varies as a function of body cues that, in western societies, differentially specify biological sex and gender. We hypothesized that perceived attractiveness would depend on the compatibility of basic social perceptions that arise from sexually dimorphic body cues. Specifically, we propose that some body cues will reliably provoke a sex categorization. Once this categorization has been made, other sexually dimorphic cues will be perceived to be either masculine or feminine and consequently compatible or incompatible given the perceived sex of a target. If correct, when a target is judged to be female, she should be judged attractive when also perceived to be feminine but not masculine, and vice versa when a target is judged to be male. Although multiple cues are sexually dimorphic, they are not equally likely to compel sex-category judgments. Indeed, two sexually dimorphic body cues have been differentially linked to perceptions of sex and gender: the body's shape (i.e., WHR) and motion [i.e., gait (Walk Motion)], respectively (28). We manipulated the WHR and Walk Motion of computer-generated animations that depicted a silhouetted person walking in place. These animations, hereinafter called "walkers," are described in Figs. 1 and 2, and subsets of the stimuli can be viewed in supporting information (SI) Movies 1 and 2. In three studies, we used these walkers to examine how observers combine the basic percepts brought about by sexually dimorphic cues for judgments of perceived attractiveness. Because the WHR and Walk Motion

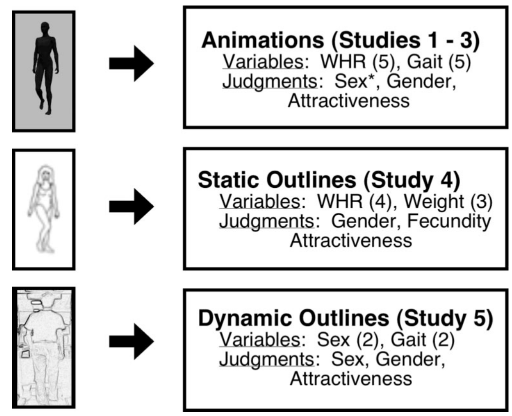

Fig. 1. Schematic overview of studies 1–5 including sample stimuli, a description of the variables, and a summary of the judgments provided by participants. *, For participants in study 3, the purported sex of the walkers was prespecified to some participants and judged by other participants.

cospecify both sex and gender, albeit differentially, we corroborated our results in conceptual replications in which participants judged both the static line-drawings used most widely in previous research (3) and dynamic representations of real people who walked in a characteristically masculine or feminine manner.

Results

Overview of Studies and Analyses. Across five studies, participants viewed a variety of stimuli, including computer-generated ani-

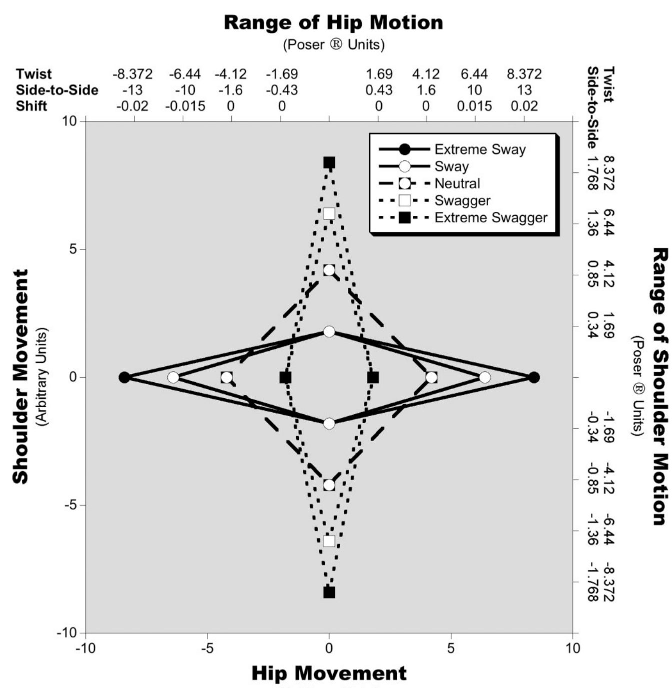

Fig. 2. Hip and shoulder motion specification for stimuli used in studies 1–3. Parallelograms represent the range of motion for one complete walk cycle. Units shown on the left and along the bottom show the relative hip and shoulder motion, and units shown on the right and along the top show precise keyframe modifications in Poser units. For both shoulder and hip motion, ''Twist'' refers to the degree of rotation about the figure's spine, ''Side-to-Side'' refers to the degree of rotation about the navel, and ''Shift'' refers to lateral left/right displacement of the body.

mations, static line-drawings, and dynamic line-drawings, and provided a range of judgments for each (a sex categorization as well as ratings of perceived masculinity, femininity, and attractiveness). Although the sex of each target was specified differently across the five studies (e.g., judged by participants, provided by the experimenter, or held constant in the stimuli), we predicted that perceived sex would contextualize the perception of other sexually dimorphic cues, leading the other gendered cues to be perceived as either masculine or feminine rather than as an indicator of sex category. We predicted that the congruence of these basic perceptions, biological sex and gender, would ultimately determine the level of perceived attractiveness.

Studies 1 and 2: Perceived Attractiveness of Computer-Generated Animations. In studies 1 and 2, participants judged walkers for sex, gender, and attractiveness (study 1, frontal view, $n = 366$; study 2, rear view, $n = 110$). We manipulated two sexually dimorphic cues independently (Figs. 1 and 2 and SI Movie 1) to yield 25 distinct walkers. The WHR of the walkers varied from hourglass (WHR of 0.5) to tubular (WHR of 0.9), and Walk Motions varied from an extreme shoulder "swagger" to an extreme hip "sway." Walkers faced 45° from a frontal view in study 1 and 225° from a frontal view in study 2. Facial features, hair, and breasts were absent to remove extraneous cues to sex.

The WHR and Walk Motion affected both basic and evaluative social judgments. Relative to walkers with larger WHRs, walkers with smaller WHRs were more likely to be judged as (*i*) female [*B* values (with SEs in parentheses) = −2.239 (0.098) and −1.752 (0.105) for studies 1 and 2, respectively; both *P* values <0.0001]; (*ii*) feminine [*B* values (SEs) = −0.064 (0.003) and −0.094 (0.006) for studies 1 and 2, respectively; both *P* values <0.0001]; and (*iii*) attractive [*B* values (SEs) = −0.088 (0.003) and −0.062 (0.005) for studies 1 and 2, respectively; both *P* values <0.0001]. Relative to walkers that moved with shoulder swagger, walkers that moved with hip sway were more likely to be judged to be (*i*) female [*B* values (with SEs in parentheses) = 0.129 (0.026) and 0.299 (0.039) for studies 1 and 2, respectively; both *P* values <0.0001]; (*ii*) feminine [*B* values (SEs) = 0.073 (0.003) and 0.057 (0.005) for studies 1 and 2, respectively; both *P* values <0.0001]; and (*iii*) attractive [*B* values (SEs) = −0.020 (0.002) and −0.016 (0.002) and $P < 0.0001$ and $P = 0.0005$ for studies 1 and 2, respectively]. Interaction effects between WHR and Walk Motion are discussed fully in the *SI Text*. Overall, our results confirmed that both body shape and body motion relate to fundamental social perceptions (i.e., sex and gender) and an evaluative social perception (i.e., attractiveness). Our primary prediction, however, centered on how perceived sex and gender combine to affect perceived attractiveness.

As predicted, the compatibility of perceived sex and gender predicted perceived attractiveness (Fig. 3). Collapsing across frontal and rear views, perceived women were judged to be more attractive than perceived men ($B = 0.058$; $SE = 0.007$; $P < 0.0001$), and more feminine walkers were judged to be more attractive than masculine walkers ($B = 0.059$; $SE = 0.018$; $P = 0.0009$). Critically, perceived attractiveness varied as a function of the compatibility of these two perceptions, even after partialling out the direct effects of WHR and Walk Motion (interaction, $B = 0.805$; $SE = 0.031$; $P < 0.0001$). Walkers that were perceived to be women were judged to be more attractive when they were perceived to be feminine relative to when they were perceived to be masculine (simple slope, $B = 0.462$; $SE = 0.024$; $P < 0.0001$), and the opposite was true for walkers that were perceived to be men (simple slope, $B = -0.344$; $SE = 0.022$; $P < 0.0001$).

In our initial studies, we confirmed that two sexually dimorphic cues, the WHR and Walk Motion, differentially informed judgments of sex and gender, and that the compatibility of these perceptions affected the level of perceived attractiveness. Although the WHR appeared to be the more compelling sexually dimorphic cue for sex-category judgments, it is by no means the only cue that observers are likely to use when judging the sex of people in day-to-day life. From our perspective, how a target's sex is discerned is less important than the fact that it is determined. Thus, once a target's sex is known, regardless of how that knowledge came about, other sexually dimorphic cues should be perceived to be either masculine or feminine and affect subsequent judgments of attractiveness. In the remaining studies, we examine this proposition by either prespecifying the sex of a target before judgments or permitting it to be perceived freely concurrent with the judgment task.

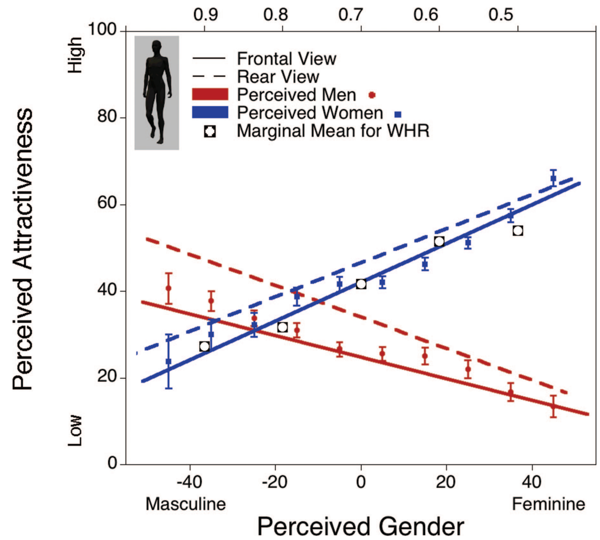

Fig. 3. Effects of perceived sex and gender on perceived attractiveness for frontal-view and rear-view animated walkers in studies 1 and 2. Lines depict partial regression plots (perceived women, blue; perceived men, red; frontal view, solid lines; rear view, dashed lines). Blue squares and red circles depict mean attractiveness of perceived women and men, respectively; bins = 10 units. One-sided error bars depict 95% confidence intervals. Black boxes depict mean attractiveness for each WHR.

Study 3: Perceived Attractiveness When Biological Sex Was Prespecified. In study 3, we prespecified the sex of a subset of walkers that varied in Walk Motion and measured participants' perceptions of gender and attractiveness ($n = 182$). Walkers included the WHR that was perceived to be most androgynous (i.e., the five walkers with a WHR of 0.7, judged to be women by 58% of participants in study 1). The sex of the walkers was prespecified to be either male or female for some participants but was left unspecified for other participants (who judged the sex of each walker).

As predicted, the interaction between perceived sex and gender was again significant, even after partialling out the direct effect of Walk Motion ($B = -0.932$; $SE = 0.105$; $P < 0.0001$) (Fig. 4). When walkers were described or judged to depict women, participants judged them to be more attractive when they were also perceived to be feminine relative to when they were perceived to be masculine (simple slope, $B = 0.613$; $SE = 0.057$; $P < 0.0001$), but the opposite was true for walkers described or judged to depict men (simple slope, $B = -0.319$; $SE = 0.073$; $P < 0.0001$).

These findings corroborate and extend those of studies 1 and 2. The compatibility of perceived sex and gender affected the level of perceived attractiveness, regardless of whether the sex of the target was judged from sexually dimorphic body shape (studies 1 and 2), judged from sexually dimorphic body motion (unspecified condition, study 3), or provided by the experi-

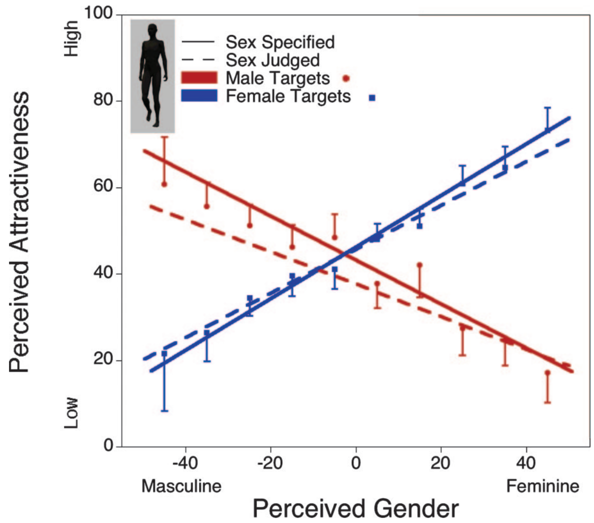

Fig. 4. Effects of perceived sex and gender on perceived attractiveness in study 3. Lines depict partial regression plots (perceived women, blue; perceived men, red; sex specified, solid lines; sex judged, dashed lines). Blue squares and red circles depict mean attractiveness of perceived women and men, respectively; bins = 10 units. One-sided error bars depict 95% confidence intervals.

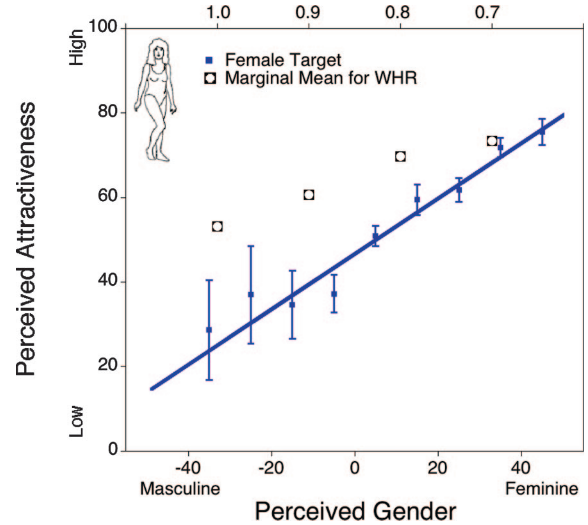

Fig. 5. Effects of perceived sex and gender on perceived attractiveness for line-drawn women in study 4. The line depicts a partial regression plot. Blue squares depict mean attractiveness; bins = 10 units. One-sided error bars depict 95% confidence intervals. Black boxes depict mean attractiveness for each WHR.

menter (specified conditions, study 3). Although we have argued here and elsewhere that the body's shape is a primary cue to a target's sex, it may serve as a cue for gender, at least in circumstances in which the sex of a target is readily apparent. The majority of previous research, for example, collected judgments of attractiveness for a set of female targets that varied in body shape and weight. Because the sex of these targets was both known and held constant, variations in sexually dimorphic body shape, from our perspective, were likely to be perceived in terms of gender, and judgments of attractiveness reflected the compatibility (or lack thereof) between the known sex and the perceived gender of each individual stimulus. Next we examine this possibility by replicating our effects of compatibility using the very stimulus set that has been most widely used in previous research (3).

Study 4: Perceived Attractiveness of Static Line-Drawings. In study 4, stimuli depicted line-drawn women that have been used in most prior research. Line-drawn women varied in WHR (i.e., four levels from 0.7 to 1.0) and weight (i.e., three levels from underweight to overweight). Participants judged gender, attractiveness, and fecundity ($n = 70$).

As predicted, targets that were perceived to be feminine were also perceived to be more attractive even after partialling out the direct effect for WHR ($B = 0.623$; SE = 0.051; $P < 0.0001$) (Fig. 5). Importantly, perceived attractiveness was more strongly coupled to perceived femininity ($B = 0.665$; SE = 0.051; $P < 0.0001$) than to perceived fecundity ($B = 0.231$; SE = 0.067; $P < 0.0005$; identically scaled and run in same model). Replicating our predicted pattern of results for judgments of line-drawn women provides important convergent evidence for our proffered explanation for why certain bodies are deemed attractive: that once the sex of a target is determined, other sexually dimorphic cues (in this case the WHR) are perceived to be either masculine or feminine, compatible or incompatible, and therefore attractive or unattractive.

Study 5: Perceived Attractiveness of Human Walkers. Finally, in study 5, we replicated our predicted pattern of results for judgments of dynamic line-drawings that depicted real men and women who had been trained to walk in characteristically masculine and feminine ways. Participants judged the sex, gender, and attractiveness of each target ($n = 29$). Again, the critical interaction between perceived sex and gender was significant ($B = 0.898$; SE = 0.089; $P < 0.0001$) (Fig. 6). Walkers judged to be women were more attractive when they were perceived to be feminine than when perceived to be masculine (simple slope, $B = 0.491$; SE = 0.081; $P < 0.0001$), but the opposite was true for walkers perceived to be men (simple slope, $B = -0.407$; SE = 0.064; $P < 0.0001$).

Discussion

Across five studies using diverse stimulus sets, we observed the predicted interaction between perceived sex and gender. That is, female targets, regardless of whether sex was judged by partic-

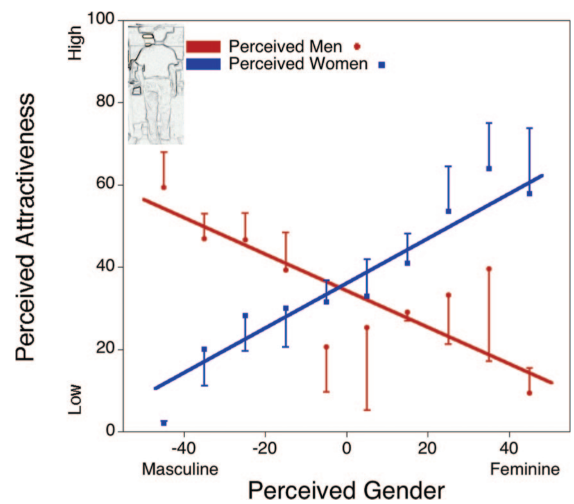

Fig. 6. Effects of perceived sex and gender on perceived attractiveness for human walkers in study 5. Lines depict partial regression plots (perceived women, blue; perceived men, red). Blue squares and red circles depict mean attractiveness of perceived women and men, respectively; bins = 10 units. One-sided error bars depict 95% confidence intervals.

ipants, provided by an experimenter, or held constant, were judged to be more attractive when they were perceived to be feminine than when they were perceived to be masculine, and the opposite was true for male targets. These findings support a proximal model of cue compatibility for how and why the body is perceived attractive. Body cues afford the basic social perceptions of sex and gender, and the compatibility of those basic percepts affects perceived attractiveness.

The convergence of our findings highlights the generality of our model: any sexually dimorphic cue may affect the level of perceived attractiveness once the sex of a target is known. When the WHR was the most reliable indicator for a target's biological sex, as it was in studies 1 and 2, another sexually dimorphic cue was interpreted in terms of gender and determined the level of attractiveness. When the sex of a target was reliably provided by a source other than the WHR (i.e., provided by the experimenter in study 3 or held constant in study 4), the remaining sexually dimorphic cue, body motion in study 3 and WHR in study 4, was perceived in terms of gender and determined the level of perceived attractiveness. In all cases, the biological sex of a target was the essential percept or lens through which other sexually dimorphic cues were interpreted and evaluated. When applied to cultures with different definitions for the social roles of men and women, our model predicts cross-cultural differences in the particular combinations deemed attractive. Although our approach is mute with respect to precisely which cues will convey masculinity or femininity and thus be deemed attractive within a given culture, it provides a foundation for deriving culture-specific hypotheses. Specifically, it predicts that cultures will differ in what is deemed attractive to the extent that cultures differ in the cues that characterize maleness and femaleness, masculinity and femininity (38).

Our findings are also noteworthy in a broader context of social judgments. The sex category judgments in studies 1 and 2 highlight an asymmetry between participants' perceptions of the distribution of men and women and the actual distribution of men and women within each WHR category. In reality, a WHR of 0.7 is almost exclusive to women, yet 42% of our participants in study 1 perceived walkers with this WHR to be men. This asymmetry is neither surprising nor troubling given the pervasiveness of such extremity effects. Extreme representations for natural and learned categories are quite common (39–42). They are believed to facilitate efficient social categorization (43, 44). Moreover, the use of such stimuli has been useful in revealing the mechanisms by which releasing stimuli trigger behavior (45). Recent evidence has linked extremetized or exaggerated category exemplars to favorable evaluations (46). In this way, extreme cognitive representations of sexual dimorphism, in this case the human body, may foster high levels of perceived attractiveness for bodies that fall within the tail of, or indeed even beyond, the actual distribution of men and women (12). In the current studies, we found exactly this pattern: compatible perceptions predicting high levels of perceived attractiveness for stimuli that exhibited extremitizations of a sexual dimorphism (studies 1 and 2) and for stimuli that fell within the normal range of human variation (studies 3–5). The implications of holding extreme representations of social categories are an important area for future inquiry.

Additionally, the lack of sex differences in our findings is also noteworthy. Based on current adaptationist theory (47), one might expect men to be more sensitive to cues that are presumed to signify reproductive fitness. We did not find such specificity. Instead, the effect of compatibility on perceived attractiveness was common to both men and women. This consistency between men and women favors our interpretation of our findings, a perspective that invokes common cognitive mechanisms. We have argued that the perceived level of attractiveness varies according to the compatibility of gendered perceptions. Such a general mechanism should, as we observed in our studies, be common to both men and women, and may indeed affect a range of stimuli beyond those included in the current studies.

Conclusion

Lysippus, the personal sculptor of Alexander the Great, is said to have achieved the eurhythmic ideal by depicting men as they appeared to be and not by depicting them as they were, his art creatively constrained by both the perceived and the perceiver (48). We have described how the compatibility of perceptions of sex and gender, themselves products of contemplation, determines perceived attractiveness. This broad perspective provides a promising framework for understanding how such attractiveness may relate to a variety of bodily cues and simultaneously for why there may be no single formula or cue to attractiveness.

Methods

Stimuli and Procedure. Animated walkers were rendered by using Poser (efrontier, Santa Cruz, CA). Wireframes were exported to Maya (Autodesk, San Rafael, CA) for accurate circumference measurements. Poser's default walk designer was modified to animate five Walk Motions including extreme sway, moderate sway, neutral, moderate swagger, and extreme swagger (Fig. 2). Walkers completed 10 steps in 10 s. Walkers with moderate sway and swagger embodied gaits that are characteristic of actual men and women, and interpolations between these values generated a neutral motion. Extreme swagger and extreme sway depicted 30% more motion from neutral.

Static line-drawings included the 12 stimulus images used in previous research (3).

Dynamic line-drawings depicted actual men and women who had been trained to walk in characteristically masculine and feminine ways (49). Two men and two women walked on a treadmill and with both a masculine and feminine gait. Digital videos of each walker were converted to dynamic line-drawings and cropped to exclude surrounding detail. This procedure yielded eight distinct dynamic line-drawings (SI Movie 2).

Stimuli were projected onto screens for large groups (studies 1, 3, and 5) or presented on television monitors to small groups (study 2). All dynamic stimuli were presented twice in different random orders, once for inspection and once for judgments. Static line-drawings were presented on paper in one of two random orders, and participants judged them immediately.

Statistical Analyses. In some studies (i.e., studies 1, 2, and 5, and the unspecified condition of study 3), participants provided categorical sex judgments, and these judgments were coded numerically (0 = male, 1 = female). Participants judged masculinity, femininity, attractiveness, and fecundity (only study 4) using visual analog scales. We computed a proportion to represent each judgment. Then, we created a single index of gender by reverse-scoring perceived masculinity, averaging it with perceived femininity, and centering it around 0. Thus, perceived gender varied from −0.5 to +0.5. Negative numbers correspond to a more masculine percept, and positive numbers correspond to a more feminine percept. In all studies, the order of the scales was counterbalanced.

Attractiveness data in all studies were analyzed by using generalized estimating equations, a technique that controlled for intraindividual correlations in residuals, thus estimating and controlling for random effects (50). WHR and Walk Motion were coded numerically from 1 to 5 (WHR in increasing order; Walk Motion from hip sway to shoulder swagger), then centered at 3 (i.e., WHR of 0.7 and neutral Walk Motion); perceived sex was coded numerically and centered at 0 (male = −0.5, female = 0.5); gender (and fecundity in study 4) was centered at 0 (range from −0.5 to 0.5); and perceived attractiveness was centered at its mean within each study. We regressed perceived attractiveness onto perceived sex, perceived gender, the interaction between the two, and WHR and Walk Motion to determine how the compatibility of these basic social perceptions affected perceived attractiveness. In study 4, an identical analysis strategy was used, without the factor of perceived sex. In studies 1 and 2, we also regressed perceived sex, gender, and attractiveness (separately) onto WHR, Walk Motion, and the interaction between the two. Portions of these results appear in the *SI Text*. Results from all generalized estimating equations analyses report unstandardized regression coefficients, and all *P* values are two-tailed. Across all studies, participant sex had a negligible effect on judgments and was therefore dropped from the analyses. Data were analyzed by using SPSS 12.0 (SPSS, Chicago, IL) and SAS 9.1 (SAS Institute, Cary, NC).

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