Swagger, Sway, and Sexuality: Judging Sexual Orientation From Body Motion and Morphology

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People can accurately judge the sexual orientation of others, but the cues they use have remained elusive. In 3 studies, the authors examined how body shape and motion affect perceived sexual orientation. In 2 studies, participants judged the sexual orientation of computer-generated animations in which body shape and motion were manipulated. Gender-typical combinations (e.g., tubular body moving with shoulder swagger or hourglass body moving with hip sway) were perceived generally to be heterosexual; gender-atypical combinations were perceived generally to be homosexual. These effects were stronger for male targets. Body shape affected perceived sexual orientation of women, but motion affected perceived sexual orientation of both men and women. Study 3 replicated and extended these findings. Participants judged dynamic outlines of real people (men and women, both gay and straight) in which body shape and motion were measured. Again, gender-atypical body motion affected perceived sexual orientation and, importantly, affected accuracy as well.

Keywords: sexual orientation, sex, gender, biological motion, waist-to-hip ratio

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In 1993, the U.S. Congress passed a statute that amended the government's long-standing policy that had prohibited gay men and lesbians from serving in the armed forces. What came to be known as "don't ask, don't tell" officially suspended the policy of questioning new recruits about their potential homosexuality. Consistent with the new policy, gay men and lesbians thereafter were allowed to serve in the military, as long as their sexual identities were kept secret. Knowing that a fellow service member was gay or lesbian, it was argued, could compromise group cohesion. The rationale and wording of this policy raise interesting questions. Can this policy be efficacious when it implies that absent an explicit declaration, one's sexual identity is not only unknown but also unknowable? Some evidence suggests that the answer to this question is an unequivocal no. People are indeed able to discern the sexual orientation of others with accuracy rates above chance (e.g., Ambady, Hallahan, & Conner, 1999), yet how they do so remains largely unknown.

Thus, in the present research, we seek to answer two questions. First, absent a direct declaration, what specific physical cues compel perceptions of a heterosexual versus a homosexual sexual orientation; that is, if we don't ask, how can we tell? Second, does reliance on these cues lead to accuracy or error in those perceptions; that is, are we accurate?

Perceiving Sexual Orientation: How and Why

Upon encountering an individual, people encode multiple personal characteristics, including but not limited to biological sex, age, and race (Stangor, Lynch, Duan, & Glass, 1992). Some scholars have argued that sexual orientation may be an equally important social category: a *master status*, or a critical personal characteristic that provides a lens through which people interact

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with an individual (e.g., Frable, Platt, & Hoey, 1998). Indeed, knowledge of another's homosexuality has interpersonal implications, increasing negative attitudes (Aberson, Swan, & Emerson, 1999; Fiske, Cuddy, Glick, & Xu, 2002) and framing subsequent perceptions (Eibach, Libby, & Gilovich, 2003; Gross, Green, Storck, & Vanyur, 1980; Kunda, Sinclair, & Griffin, 1997; Walker & Antaki, 1986). The consequences can be so severe, in fact, that some individuals elect to conceal their sexual identity to allow impressions to be formed uncontaminated by the knowledge. Although doing so may be beneficial interpersonally (Golebiowska, 2003), it is costly for subjective well-being (Frable et al., 1998).

Attempts to conceal one's homosexuality until the "right time" may be betrayed, however, by fine-tuned person perception processes. The folk concept known as *gaydar* describes the ability to detect homosexuality in others. Eye contact has been established as an important means by which gay men and lesbians identify one another (Carrol & Gilroy, 2002; Nichols, 2004; Shelp, 2002). Yet the ability to accurately judge sexual orientation, both homosexual and heterosexual, appears to be more general, extending beyond interpersonal interactions and homosexual observers. The accuracy of observers is above chance when judging the sexual orientation of targets who appear in nonverbal dynamic outlines (Ambady, Hallahan, & Conner, 1999). Precisely how these initial judgments are made, however, remains unknown, but it appears likely that gender atypicality may play a critical role.

A mismatch between one's biological sex and gender (i.e., masculinity or femininity; Unger, 1979) affects both self- and social judgments from an early age. During childhood, gender nonconformity evokes harsh reactions both in school (Fagot, 1977) and at home (Fagot & Hagan, 1991; Fagot, Leinbach, & O'Boyle, 1992; Martin, 1990; Sandnabba & Ahlberg, 1999), and the penalties tend to be more severe for boys. Furthermore, gender atypicality in childhood is stable into adulthood and portends later sexual orientation, and this is evident in both prospective and retrospective studies (Rieger, 2006; Rieger, Linsenmeier, Gygax, & Bailey, in press; Sirin, McCreary, & Mahalik, 2004). Nearly all gay men and lesbians report having had gender-atypical interests as children (Bailey & Zucker, 1995).

It is interesting that early gender atypicality, often described in terms of gender nonconformity, appears to have a biological basis. Gender-atypical interests, for example, are highly heritable, especially among girls (Knafo, Iervolino, & Plomin, 2005). Similar heritability estimates obtain for women's sexual preferences (Kirk, Bailey, Dunne, & Martin, 2000; Mustanski, Chivers, & Bailey, 2002). Thus, although lay theories about gender atypicality and later homosexuality tend to center on young boys' preferences, a stronger empirical foundation exists for the relation between gender atypicality and later homosexuality among young girls. These findings led Daryl Bem (1996) to speculate that childhood temperament, not sexual orientation per se, is heritable. Then, through development, what is deemed exotic in childhood is deemed erotic in adulthood. According to Bem, most children adopt gender-typical interests and preferences, thus enabling the "exotic-becomes-erotic" mechanism to produce a preponderance of heterosexuality.

The congruence (or lack thereof) between biological sex and expressed gender (i.e., behavioral conformity to gender norms) portends later sexual orientation and affects a range of evaluative social judgments. Differences in gender typicality are also apparent to observers of men and women who are, in reality, gay or straight. Observers of audiovisual clips from interviews, for example, rated gay male and lesbian targets to be more gender atypical in overall body movement, voice, and appearance relative to straight targets (Rieger, 2004, 2006). Thus, homosexual targets are perceived to be more gender atypical, even in the absence of direct knowledge of sexual orientation. The reverse may also be true: Targets may be perceived to be homosexual when their movements, voice, and appearance are perceived to be atypical.

To the extent that observers tacitly assume gender atypicality to be a valid heuristic for judging sexual orientation, cues that affect the basic perceptions of sex and gender should also govern perceptions of sexual orientation. The perception of sex and gender is undoubtedly informed by multiple cues, and some of them have a foundation in the human body. Two cues in particular—the body's shape and its motion—are likely to affect perceptions of sexual orientation because of their importance in perceptions of sex and gender (e.g., Johnson & Tassinary, 2005; Lippa, 1983; Pollick, Kay, Heim, & Stringer, 2005).

What Swagger and Sway May Convey

Social perception relies on a variety of physical cues, but the perception of biological sex and gender appears to rely heavily on two cues that are sexually dimorphic and may therefore be perceived to be gender typical or gender atypical. The body's shape—specifically, the waist-to-hip ratio (WHR)—is sexually dimorphic and has been related to judgments of biological sex. Hourglass figures (i.e., those with WHRs of 0.5 or 0.6), for example, are generally perceived to be women, but more tubular figures (i.e., those with WHRs of 0.8 or 0.9), in contrast, are generally perceived to be men (Johnson & Tassinary, 2005, 2007). Additionally, the body's shape appears to vary reliably between self-identified subtypes within the homosexual community. The labels *butch* and *femme*, for example, have been used liberally to describe members of the lesbian community, and each subtype corresponds to a stereotypic behavioral and physical phenotype. It is important to note that these labels also correspond to measurable physical differences between lesbians who identify themselves as butch versus those that identify themselves as femme. Compared with their femme counterparts, butch lesbians have higher WHRs and higher levels of testosterone (Singh, Vidaurri, Zambarano, & Dabbs, 1999). Analogous hormonal and morphological differences, however, have not been found for gay men. Thus, body shape may be more important for judging the sexual orientation of women than of men, especially if the lesbian stereotype conjures a butch subtype. Female targets with more tubular torsos (i.e., high WHRs independent of weight) may be more likely to be perceived as homosexual. This possibility is consistent with the findings reported in Ambady et al. (1999) in which the accuracy of sexual orientation judgments was above chance, even for photographs of female targets. Whether body shape may directly affect the perceived sexual orientation of men remains unclear.

The body's motion—specifically, its gait—is also sexually dimorphic and has been related to judgments of sex and gender. Men and women walk differently (Kerrigan, Todd, & Della Croce, 1998; Troje, 2002), and these differences are sufficient to support sex categorization that is above chance in accuracy, even when judgments are based on impoverished point-light displays (Pollick et al., 2005). The accuracy in sex categorization appears to rely, at least in part, on an inference from perceptions of gender. Walk motions that depict swaying hips are perceived to be feminine, and walk motions that depict swaggering shoulders are perceived to be masculine; from these perceptions, the sex of a target may be inferred (Johnson & Tassinary, 2005). Inferring sex from body motion most likely occurs under circumstances when other sexually dimorphic cues, such as body shape, are either not appreciable (e.g., in point-light displays) or nondiagnostic (e.g., the body's shape is ambiguous at the boundary between men's and women's shapes). Under other circumstances, however, the body's motion is not likely to be used to infer a target's sex. When the body's shape, for example, unambiguously identifies a target to be a woman, a masculine gait is unlikely to change the perceived sex of a target. Instead, the unique combination of body shape (that specifies a woman) and motion (that specifies a masculine target) will yield perceptions of a gender-atypical woman (see Johnson & Tassinary, 2007). This gender atypicality may then compel judgments of sexual orientation (Herek, 1984; Sirin et al., 2004). To the extent that gender atypicality carries more weight in social judgments of men than of women (e.g., Anthill, 1987; Archer, 1984; Herek, 1984; McCreary, 1994; Sirin et al., 2004), these effects may be stronger for male targets than for female targets.

Here we asked how the gender typicality of body cues affects perceptions of sexual orientation and whether such perceptions prove to be accurate or error prone. In Studies 1 and 2, participants judged computer-generated animations in which the body's shape and motion were varied systematically. Study 3 participants judged dynamic outlines of real people—men and women who were gay or straight—in which the body's motions were carefully measured using a three-dimensional motion capture system.

Study 1

In this study, we examined how body shape and motion affect perceptions of sexual orientation. Observers judged the sexual orientation of animations that varied in both shape and motion. We predicted that perceived sexual orientation would rely on the typicality of combined bodily cues. We predicted that walkers with low WHRs, typically judged to be women, would be judged homosexual when walking with shoulder swagger but heterosexual when walking with hip sway; we predicted that walkers with high WHRs, typically judged to be men, would be judged homosexual when walking with hip sway but heterosexual when walking with shoulder swagger. Finally, we examined if body shape and motion differentially inform judgments of men and women.

Method

Participants. Ninety-five New York University (NYU) undergraduates (16 men and 79 women) participated in exchange for course credit.

Materials and procedure. Stimuli included 25 computer-generated animations, hereafter called *walkers*, that depicted a human silhouette walking in place. These walkers varied both statically (five levels of body morphology from an hourglass WHR of 0.5 to a tubular WHR of 0.9), and dynamically (five levels of walk motion that varied from an extreme shoulder swagger to extreme hip sway). Morphological measurements of WHR made using Maya 3D, and walk motion was animated using Poser 4.[1]

Walk motions varied according to known sex differences in gait parameters (for a review, see Pollick et al., 2005). Specifically, the relative motion of the hips and shoulders varied across the range of stimuli, from a feminine motion (i.e., hip sway, or a high degree of both lateral and up–down hip motion in the coronal plane combined with minimal shoulder motion) to a masculine motion (i.e., shoulder swagger, or a high degree of front–back shoulder motion with minimal hip motion). These particular parameters have been referred to as attitudinal aspects of gait (see, e.g., Murray, 1967; Murray, Drought, & Kory, 1964; Murray, Kory, & Sepic, 1970), which, although unnecessary for locomotion, differ reliably in the population (see also Pollick et al., 2005). Walkers with moderate sway and swagger embodied gaits that are characteristic of women and men. In walkers with extreme sway or swagger, these sex-typed motions were exaggerated by 15% (30% from neutral). Keyframe specifications for each walk motion appear in Table 1. A comprehensive discussion that describes the development of these stimuli can be found in Higa (1999) and McLaughlin (1994), and a subset of walkers can be viewed in Supplemental Movie 1.

After providing informed consent, participants previewed each of the 25 walkers, presented in random order by customized software on a Macintosh laptop computer. Subsequently, in a different random order, participants again viewed each walker individually. Each participant categorized the walker's biological sex and sexual orientation (separately) using boxes labeled *male* and *female* and *heterosexual* and *homosexual*, and they judged the walkers' masculinity and femininity (separately, in counterbalanced order; hereafter referred to as *gender*; Unger, 1979; Unger & Crawford, 1993) and attractiveness using a computerized visual-analog scale. On completion, participants were thanked, fully debriefed, and excused.

Results and Discussion

Participant sex and both categorical judgments (i.e., perceived sex and sexual orientation) were coded numerically and centered at 0 (-0.5 = heterosexual, 0.5 = homosexual). We computed an index of perceived gender by averaging perceived femininity and perceived masculinity, also centered at 0. Thus, each dependent variable of interest shared a common scale and range (i.e., between -0.5 and 0.5). Both WHR and walk motion were also coded numerically and centered at 0. Thus, these variables shared a common range (i.e., -2.0 to 2.0).

Our basic analytic approach was to regress WHR, walk motion, and the interaction onto perceived sexual orientation. Yet two aspects of our data precluded the use of a standard multiple regression. Our primary dependent was categorical, and our design was entirely within-subject (i.e., WHR and walk motion were nested within each participant). Given these considerations, we adopted a multilevel regression approach that used generalized equations as opposed to least squares regression (GLM GEE; Diggle, Liang, & Zeger, 1994). This allowed us to accurately

[1] A full description of the development of these stimuli is found in Higa (1999), and parameter specifications appear in Johnson and Tassinary (2005).

Table 1
Relative Motion of the Shoulders and Hips for Each Walk Motion

Motion parameter	Walk motion: Extreme sway	Sway	Neutral	Swagger	Extreme swagger
Hip motion					
Frontal	8.37	6.44	4.12	1.69	1.69
Vertical	13.00	10.00	1.60	0.43	0.43
Lateral	0.02	0.015	0	0	0
Shoulder motion					
Twist	1.69	1.69	4.12	6.44	8.37
Side to side	0.34	0.34	0.85	1.36	1.768

Note. Walkers were rendered using Poser 4. Wireframes were exported to Maya 3D 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. Each animation lasted 10 s. Walkers completed 10 steps. Units express precise keyframe modifications in Poser units (adapted from Higa, 1999). For both shoulder and hip motion, *Frontal* refers to the degree of rotation about the figure's spine, *Vertical* refers to the degree of rotation about the navel, and *Lateral* refers to lateral left–right displacement of the body. Walkers with moderate sway and swagger embody gaits that are characteristic of actual men and women, and interpolations between these values generated a neutral motion (i.e., described by Cutting, 1978, and Cutting et al., 1978; modeled by McLaughlin, 1994). Extreme swagger and extreme sway amplify the sex-typical motions by 30% (Higa, 1999).

predict a dichotomous dependent variable and take into account the within-subjects aspects of our statistical design. In our description and interpretation of results, we use standard regression vernacular, with one exception. For this and subsequent GEE models, we report unstandardized regression coefficients. Participant sex was initially included in all statistical models. It had no effect on any dependent variable and will receive no further mention.

Manipulation check. First we confirmed that WHR and walk motion affected perceptions of sex and gender by comparing the independent weight of each variable for judgments. In separate analyses, we regressed categorical sex judgments and continuous gender judgments onto WHR and walk motion (identically scaled to permit comparisons). Consistent with prior research, both WHR and walk motion affected categorical sex judgments, but the effect was substantially stronger for WHR. As WHR rose from 0.5 to 0.9 and as walk motion changed from hip sway to shoulder swagger, walkers were more likely to be judged male, Bs $= -1.78$ and 0.19, SEs $= 0.14$ and 0.05, respectively, ps $< .0001$. Both WHR and walk motion affected judgments of gender, but in this case, the effect was stronger for walk motion. As WHR rose from 0.5 to 0.9 and as walk motion changed from hip sway to shoulder swagger, walkers were judged to be more masculine, Bs $= -0.04$ and 0.09, SEs $= 0.004$ and 0.005, respectively, ps $< .0001$. Thus, our manipulation of body shape and motion differentially affected basic social perceptions of sex and gender, replicating our prior work (Johnson & Tassinary, 2005).

Focal analysis. Next we examined how WHR (more strongly related to perceived sex) and walk motion (more strongly related to perceived gender) affect judgments of sexual orientation. We regressed perceived sexual orientation onto WHR, walk motion, and the interaction. The main effects for both WHR and walk motion were significant. As WHR rose from 0.5 to 0.9 and as walk motion changed from hip sway to shoulder swagger, walkers were more likely to be judged homosexual, Bs $= 0.23$ and 0.33, SEs $=$ 0.004 and 0.005, respectively, ps $< .0001$. More important, the interaction also reached significance, $B = 0.41$, $SE = 0.03$, $p <$ .0001 (see Figure 1). Walkers with smaller WHRs (i.e., 0.5 and 0.6, judged to be female by 94.7% and 87.2% of our participants) were more likely to be judged homosexual when swaggering than when swaying, but the simple slope differed from 0 only for the 0.5 WHR, simple Bs $= -0.49$ and -0.08, SEs $= 0.07$ and 0.05, $p < .0001$ and *ns*, respectively. Walkers with larger WHRs (i.e., 0.8 and 0.9, judged to be male by 92.0% and 94.7% of our participants) were more likely to be judged to be homosexual when swaying than when swaggering, simple Bs = 0.75 and 1.16, SEs = 0.06 and 0.09, respectively, ps $< .0001$. The most androgynous WHR (i.e, 0.7, judged to be male by 58.9% of our participants)

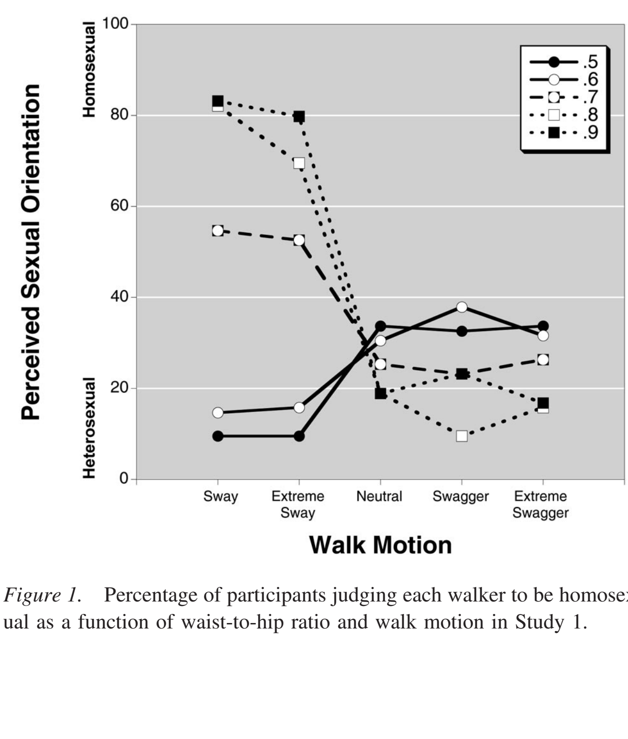

Figure 1. Percentage of participants judging each walker to be homosexual as a function of waist-to-hip ratio and walk motion in Study 1.

was also more likely to be judged homosexual when swaggering than when swaying, simple $B = 0.33$, $SE = 0.04$, $p < .0001$.

Sex specificity. Prior research found that the perceived sexual orientation of dynamic stimuli was above chance for judgments of both male and female targets but that perception of static images was above chance only for judgments of female targets (Ambady et al., 1999). Thus, motion was necessary to judge the sexual orientation of men, but static cues (that include body shape) were sufficient to judge the sexual orientation of women. If correct, this pattern should be evident in our participants' judgments. Sexual orientation judgments of walkers perceived to be men should be related to walk motion but not WHR. Sexual orientation judgments of walkers perceived to be women, in contrast, should rely on both walk motion and WHR. To test this prediction, we regressed perceived sexual orientation onto WHR and walk motion (separately centered around male and female judgments). As seen in Figure 2, judgments of sexual orientation for walkers perceived to be men relied on walk motion but not WHR, Bs = 1.21 and 0.14, SEs = 0.08 and 0.08, ps < .0001 and *ns*, respectively. Judgments of sexual orientation for walkers perceived to be women relied on both walk motion and WHR, Bs = − 0.50 and 0.33, both SEs = 0.06, both ps < 0.0001. It is important to note that these data highlight the differential use of bodily cues when judging the sexual orientation of men and women. When judging the sexual orientation of men, participants relied primarily on motion. When judging the sexual orientation of women, participants relied on both motion and morphology.[2]

These findings specify how people use bodily cues when judging sexual orientation, yet they likely underestimate the importance of gender-atypical body motion in such judgments. The body's motion is sexually dimorphic, a necessary precondition for a particular combination of motion and morphology to be perceived as gender atypical. And the body's motion, although a primary perceptual cue for gender, is nevertheless sufficient to accurately predict a target's sex (Johnson & Tassinary, 2005; Pollick et al., 2005). Although across all of our stimuli, WHR did relate to perceived sex as found in prior research, it is possible that body motion exerted a greater impact on perceived sex in gender-atypical combinations, a possibility that would in turn affect perceptions of sexual orientation. Someone with a WHR of 0.8 moving with hip sway, for example, may have been perceived to be a gender-atypical man or a woman with a tubular waistline, thus resulting in the target being judged to be either a homosexual man or a heterosexual woman, depending on the interpretation. This is most likely to affect judgments for walkers with the most ambiguous body shape (i.e., WHR = 0.7). This possibility may have weakened our effects for judgments of sexual orientation because we measured perceptions of sex, leaving specific cases open to alternate interpretations. This possibility was overcome, however, in Study 2, wherein we manipulated perceptions of sex for our most androgynous walkers.

Study 2

Method

Participants. Seventy-five NYU undergraduates (35 men, 39 women, 1 unreported) participated in exchange for course credit.

Materials and procedure. We included a subset of the 25 walkers, the 5 with the most androgynous WHR (i.e., WHR = 0.7, with all five walk motions). In Study 1, these were judged to be women by 41.1% of our participants. This ambiguity permitted us to plausibly manipulate through instructions the purported sex of the walkers across experimental conditions.

Participants were tested in small groups. After participants provided informed consent, we manipulated their expectations about the social judgment task. Some participants were told that the stimuli depicted computer-generated animations that were based on the shape and motion of real men (in the *specified male condition*) or women (in the *specified female condition*). Other participants were simply informed that the walkers were based on the shape and motion of real people (in the *unspecified condition*). Participants then previewed each of the five walkers, projected onto a large screen at the front of the testing room. Next, participants viewed each walker in a different random order and provided judgments that included biological sex (only in the unspecified condition) using boxes labeled *male* and *female*, sexual orientation (in all conditions) using boxes labeled *heterosexual* and *homosexual*, and masculinity and femininity (separately, in counterbalanced order) using 9-point Likert-type scales anchored by 1 = *not at all* and 9 = *completely*. On completion, participants were thanked, fully debriefed, and excused.

[2] In our own and others' research (e.g., Higa, 1999; Johnson & Tassinary, 2007; Rieger, 2006), sex atypicality has been shown to adversely affect judgments of attractiveness. One may worry that such effects are driven by not by an aesthetic appreciation for cue compatibility (as argued in Johnson & Tassinary, 2005) but instead via a stigmatized social percept that arises, perceived homosexuality. This possibility entails that the moderation of WHR and walk motion for perceived attractiveness (as reported in Johnson & Tassinary, 2007) is mediated by perceived sexual orientation. Statistically, this pattern is known as mediated moderation (Baron & Kenny, 1986). We estimated each path parameter using GLM GEE as described previously, yet we use the standard vernacular from Baron and Kenny (1986), and we report only those regression paths that are critical for testing the mediated moderation model. Because our work on attractiveness has focused heavily on the interaction between perceptions of sex and gender for perceived attractiveness (i.e., an internal analysis using perceptions rather than the parameters of WHR and walk motion), we did the same for this analysis. First, we regressed perceived attractiveness onto perceived sex, perceived gender, and the interaction of the two. Replicating Study 1 in Johnson and Tassinary (2007), the Perceived Sex × Perceived Gender interaction was strong and significant, $B = -1.02$, $t(94) = -15.78$, $p < .01$. Next, we regressed perceived sexual orientation onto perceived sex, perceived gender, and the interaction of the two. Again, the interaction was strong and significant, $B = 21.89$, $t(94) = 11.14$, $p < .01$. Thus, the compatibility of perceived sex and perceived gender affected perceptions of both sexual orientation and attractiveness. To determine whether these conspicuously similar effects arose because perceived homosexuals were judged to be less attractive, we regressed perceived attractiveness onto perceived sex, perceived gender, perceived sexual orientation, and the Perceived Sex × Perceived Gender interaction. To support mediated moderation, the Perceived Sex × Perceived Gender interaction should drop to nonsignificance in this final model. This was not the case. In spite of the fact that perceived sexual orientation did have a small direct effect on perceived attractiveness, $B = 0.03$, $t(94) = 2.02$, $p < .05$, the Perceived Sex × Perceived Gender interaction remained strong and significant, $B = -1.08$, $t(94) = 15.77$, $p < .01$. Thus, gender typicality's importance for judgments of attractiveness is distinct from its importance for judgments of sexual orientation.

Figure 2. Percentage of participants judging each walker to be homosexual as a function of perceived sex and walk motion (left panel) and perceived sex and waist-to-hip (WHR) ratio (right panel) in Study 1.

Results and Discussion

No participant in either of the specified conditions reported the wrong sex in our manipulation check. We coded walk motion, perceived sex, and perceived sexual orientation as described in Study 1. We coded condition using the same range (i.e., $-0.5 =$ specified male, $0 =$ unspecified, $0.5 =$ specified female). Then, we examined the effect of walk motion by condition. We regressed perceived sexual orientation onto walk motion, condition, and the interaction. The main effect of condition, but not walk motion, was significant, Bs $= -0.49$ and 0.07, SEs $= 0.25$ and 0.09, ps $= 0.05$ and *ns*, respectively. This was qualified by a Condition × Walk Motion interaction, $B = -1.34$, $SE = 0.23$, $p < .0001$ (see Figure 3). When walkers were described as depicting men, they were more likely to be judged homosexual when swaying than when swaggering, simple $B = 0.74$, $SE = 0.15$, $p < .0001$. When walkers were described as depicting women, in contrast, they were more likely to be judged homosexual when swaggering than when swaying, simple $B = -0.59$, $SE = 0.14$, $p < .0001$.

Together, the results of Studies 1 and 2 describe the potency of body cues in judging others' sexual orientation. When body shape and motion accord (i.e., a male shape exhibits masculine motion-),observers are likely to perceive the target to be heterosexual; when body shape and motion conflict, however, observers are likely to perceive a target to be homosexual. The use of computer-generated animations afforded the precision that was heretofore unattainable in other studies of person perception. Thus, we can say with confidence that these cues affect person perception. The ecological validity of such cues, however, remains unresolved. In Study 3, we address the issue directly though the use of stimuli based on the shape and walk motions of actual people.

Study 3

In this study, we examined whether gender-atypical body motion portends homosexuality. To do so, we moved away from using computer-generated animations to using dynamic outlines of men and women who were either homosexual or heterosexual. Each target's body motion was carefully measured using three-dimensional motion analysis and related to the accuracy or error in observers' judgments of them.

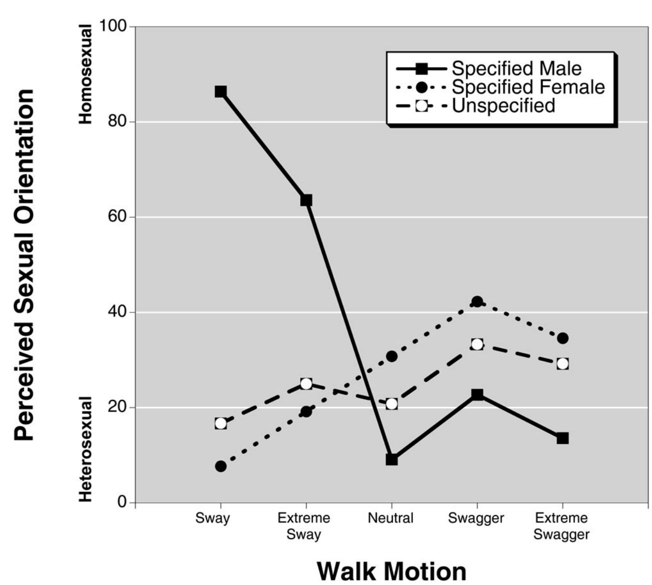

Figure 3. Percentage of participants judging each walker to be homosexual as a function of purported sex and walk motion in Study 2.

Method

Participants. One hundred twelve NYU undergraduates (43 men, 69 women) participated in exchange for course credit.

Stimulus preparation and motion specification. Stimuli included 32 movies that depicted the motions of 16 people, each recorded twice at different speeds as they walked on a treadmill. Targets included 8 men and 8 women. Within each sex category, half of the targets self-identified to be gay, and the other half self-identified to be straight. Thus, stimuli included two movies each of equal numbers of men and women who were gay and straight (i.e., 4 in each Sex × Sexual Orientation category).

For each target, we obtained precise measurements of both body shape and body motion. First, we measured each target's height, waist circumference, and hip circumference. Next, we measured each target's body motion and recorded a digital video (that would later serve as stimuli for participants to judge). We used a three-dimensional motion capture system, Optotrak 3020 by Northern Digital Instruments (Waterloo, Ontario, Canada), to measure body motion. Fourteen infrared markers were affixed to the body's major joints, although only four of the markers are pertinent to the current questions: those on the hips and shoulders. The exact three-dimensional coordinates of each marker were recorded (expressed in millimeters; sampling rate = 120 Hz). For each trial (two speeds), targets began walking on the treadmill. After the target acclimated to the speed, we began recording digital video of the target and measuring the target's body motion. The onset of the video and motion recordings was synchronized.

From the digital video files, we prepared 32 stimuli: 4 targets were in each cell of Sex (male, female) × Sexual Orientation (gay, straight) × Speed (1, 2). First we cut 10-s video clips from the longer video stream. These clips were transformed into dynamic figural outlines using the Find Edges feature in Adobe Premier. This technique, common in recent studies of the perception of nonverbal behavior, yields dynamic images that retain the outlines of the individuals in the image but that obscure many of the details (e.g., color of clothing, skin, hair). Examples of these dynamic outlines can be viewed in Supplemental Movie 2.

Procedure. Participants were recruited in small groups. After the participants provided informed consent, we described how stimuli were prepared. We explained to participants that they would be providing judgments about a set of movies that depicted real men and women who self-identified to be gay or straight and that, as participants, their task was to accurately judge both the sex and the sexual orientation of each target. We did not specify the distribution of each type of stimulus within the set, and, in the two cases in which participants asked, the experimenter stated that she was unsure of the actual breakdown. In a preview phase, participants viewed each of the 32 stimuli, projected onto a screen at the front of the testing room. During the testing phase, in which stimuli were presented in a different random order, participants categorized each target's biological sex and sexual orientation (separately) using boxes labeled *male* and *female* and *heterosexual* and *homosexual* and judged the walkers' masculinity and femininity (separately, in counterbalanced order) using visual-analog scales. On completion, participants were thanked, fully debriefed, and excused.

Results

We used a three-pronged analytic approach for interpreting the data that were collected in this study. First, we examined our participants' accuracy and errors using a traditional signal detection analysis (Swets, Tanner, & Birdsall, 1961). Then we explicated the relation of both actual and perceived sexual orientation to a subset of body cues, including both body shape and motion, using a Brunswikian lens model (Brunswik, 1943, 1955). Finally, we examined, using the regression technique described previously in this article, whether the presence of gender-atypical body motion led to accuracy or error when participants judged the sexual orientation of others.

Categorization accuracy. First we examined whether our participants accurately categorized the sexual orientation of each target. For gay targets, accurate categorization was coded as a hit and erroneous categorization was coded as a miss; for straight targets, accurate categorization was coded as a correct rejection and erroneous categorization was coded as a false alarm. Participants' overall accuracy was modest (55.02% hits or correct rejections collapsed across targets and participants; see Table 2). Although imperfect, judgments were significantly above chance (i.e., 50%), one-sample $t(111) = 5.529$, $p < .0001$, indicating that our stimuli must have displayed cues that were diagnostic of the targets' sexual orientation.

Next we examined whether participants were differentially sensitive to cues, whatever they may be, in male and female targets. Using the rate of hits and false alarms, we computed d' for each participant's judgments of male and female targets (separately). Then we compared the average d' for male versus female targets using a matched-sample t test. Relative to judgments of female targets, judgments of male targets proved to be more sensitive to cues that convey sexual orientation, $t(111) = 8.20$, $p < .0001$ (Ms = −0.09 and 0.70, respectively). Although the d' for judgments of women is negative, its direction should be interpreted with caution, as it did not differ significantly from 0, one-sample $t(111) = -1.32$, *ns*. Additionally, participants were considerably more conservative when categorizing the sexual orientation of men relative to women, and this was evident in measures of both the criterion to compel a homosexual categorization and β, an index of response bias (see Stanislaw & Todorov, 1999), ts(111) = 11.67 and 8.97, respectively, both ps < .0001; $M_{\text{criterion}}$s = 0.68 and 0.15 and M_βs = 1.77 and 1.00 for male and female targets, respectively.

Table 2
Accuracy and Error in Participants' Sexual Orientation Judgments in Study 3

	Targets' sexual orientation			
	Gay		Straight	
Target	Hits	Misses	C.R.	F.A.
Male	38.25%	61.75%	84.66%	15.34%
Female	43.05%	56.95%	53.84%	46.16%
Overall	40.63%	59.37%	69.22%	30.78%

Note. Average rates of hits, misses, correct rejections (C.R.), and false alarms (F.A.) were collapsed across targets and participants.

This implies that observers demanded a substantially stronger cue to compel a gay categorization for male relative to female targets.

These results suggest that observers are sensitive to cues that convey the sexual orientation of men but that they are relatively less sensitive to the cues that convey the sexual orientation of women. Although it is a first step in understanding body cues and the accuracy of social perceptions, this approach is mute with respect to which cues convey (or do not convey) the sexual orientation of others.

Diagnosticity and potency of motion and morphology. We used two lens model analyses to examine the relations between specific body cues and both actual and perceived sexual orientation.[3] The lens models estimated the diagnosticity (or ecological validity) of body cues for actual sexual orientation, the potency of body cues (or utilization validity) for average perceived sexual orientation, and the relation between actual and perceived sexual orientation.

First, we calculated indices of body cues from both morphological measurements and three-dimensional coordinates of hip and shoulder motion. We calculated the WHR of each target using the circumference measurements for the waist and hips. We computed the average range of motion in millimeters for the hips and shoulders of each target along three dimensions: (a) average lateral displacement of hip or shoulder markers, or side-to-side motion; (b) average vertical displacement of hip or shoulder markers, or up-and-down motion; and (c) average front and back displacement of hip or shoulder markers. Together, these yielded seven unique body cues.

For descriptive purposes, we first computed the zero-order correlation between each cue and actual and perceived sexual orientation (see Figure 4A). For male targets, several aspects of these correlations are noteworthy. First, the correlations between each individual cue and actual and perceived sexual orientation share the same sign and are largely comparable in magnitude. This pattern suggests that, at least at some level, observers were attuned to the cues that conveyed the sexual orientation of male targets, an implication that we examine directly via the lens model equation. Second, a few of the body cues showed strong relations between actual and perceived sexual orientation. A greater range of vertical motion in the shoulders and hips predicted both actual and perceived homosexual sexual orientation in men, and higher WHRs predicted both actual and perceived heterosexual sexual orientation in men.

Next we computed the cues' diagnosticity for men's actual sexual orientation (i.e., ecological validity, R_e) and potency for men's perceived sexual orientation (i.e., utilization validity, R_s; see Table 3). When considered as a set, the seven body cues proved to be highly predictive of actual sexual orientation, $R_e = .782$, and also highly consistent for average perceived sexual orientation, $R_s = .971$. Finally, what was apparent from a visual inspection of the correlations—that observers were appropriately using cues that were indicative of sexual orientation—was borne out in the relation between actual and perceived sexual orientation (i.e., achievement), $r_a = .620$.[4] Thus, not only were body cues diagnostic of men's sexual orientation, they were also potent to engender accurate perceptions among observers.

A decidedly different picture emerged, however, for the perception of female targets. We again began by computing the zero-order correlation between each cue and actual and perceived sexual orientation (see Figure 4B). Although some relations between each individual cue and actual and perceived sexual orientation share the same sign and magnitude, a considerable amount of variability was also evident. Of the three strongest predictors of actual sexual orientation (i.e., lateral shoulder motion and vertical hip motion both independently predicting heterosexual sexual orientation and larger WHR predicting homosexual sexual orientation), none of these relations were potent for perceptions, and two of the three even showed opposite signs for diagnosticity and potency. This suggests that not only were observers failing to fully exploit the cues that were most diagnostic of a target's sexual orientation, but when they did use the cues, observers were prone to misperceive the targets' sexual orientation. The sole exception to this pattern emerged for frontal shoulder and hip motion, the two cues that

[3] We thank an anonymous reviewer for recommending this descriptive analytic approach. We used Tucker's (1964) lens model equation to estimate diagnosticity and potency (see also Stewart, 2001). Although useful for descriptive purposes, this approach has limitations given the nature of our data. Because actual sexual orientation was binary and average perceived sexual orientation was theoretically continuous, albeit nonlinear in reality, this approach did not meet the assumptions of the linear regressions that are used to estimate the lens model equation. Consequently, our intent in using the lens model is primarily descriptive, not inferential, indicative of direction in a nonparametric sense (Darlington, 1990, pp. 370–372). That said, because the concerns regarding the assumptions of linear regression differentially affected the diagnosticity side of the lens model (i.e., the prediction of actual sexual orientation), we ran separate logistic regression analyses to confirm that the overall pattern of results for each component remained unchanged. These analyses corroborated the findings of the linear regressions, both at the level of each individual cue (in both direction and magnitude) and in the set of cues predicting sexual orientation. For male targets, the individual coefficients were as follows: for lateral hip, $B = 0.008$, $SE = 0.025$, odds ratio (OR) = 1.008; for vertical hip, $B = 0.167$, $SE = 0.089$, OR = 1.182; for frontal hip, $B = 0.002$, $SE = 0.025$, OR = 1.002; for lateral shoulders, $B = -0.003$, $SE = 0.019$, OR = 0.997; for vertical shoulders, $B = 0.167$, $SE = 0.089$, OR = 1.182; for frontal shoulders, $B = -0.025$, $SE = 0.020$, OR = 0.976; and for WHR, $B = -64.56$, $SE = 38.73$, OR = 0.000. Taken together, the set of body cues were diagnostic of men's sexual orientation, $\chi^2(7) = 22.18$, $p < .01$, and resulted in 100% categorization. For female targets, the individual coefficients were as follows: for lateral hip, $B = -0.078$, $SE = 0.040$, OR = 0.925; for vertical hip, $B = -0.093$, $SE = 0.067$, OR = 0.911; for frontal hip, $B = -0.021$, $SE = 0.027$, OR = 0.979; for lateral shoulders, $B = -0.050$, $SE = 0.036$, OR = 0.951; for vertical shoulders, $B = -0.196$, $SE = 0.128$, OR = 0.822; for frontal shoulders, $B = -0.021$, $SE = 0.027$, OR = 0.979; and for WHR, $B = 116.514$, $SE = 78.464$, OR = 3.99^{50}. Thus, we found similar estimates, in both direction and magnitude, for the diagnosticity of cues when we used analyses that are better suited for binary dependent measures. Moreover, this is but one piece of a three-pronged analytic approach—signal detection, lens model, and multilevel regression—that provides convergent evidence. Signal detection analysis has been used to augment a lens model analysis of binary data in prior empirical investigations (Szucko & Kleinmuntz, 1981). We therefore feel confident that when combined with our other analytic approaches, the lens model is a useful, if imperfect, descriptive framework to understand both the diagnosticity and the potency of body cues.

[4] We used the following lens model equation (Tucker, 1964; see also Stewart, 2001): $r_a = GR_eR_s + C\sqrt{1-R_s^2}\cdot\sqrt{1-R_e^2}$.

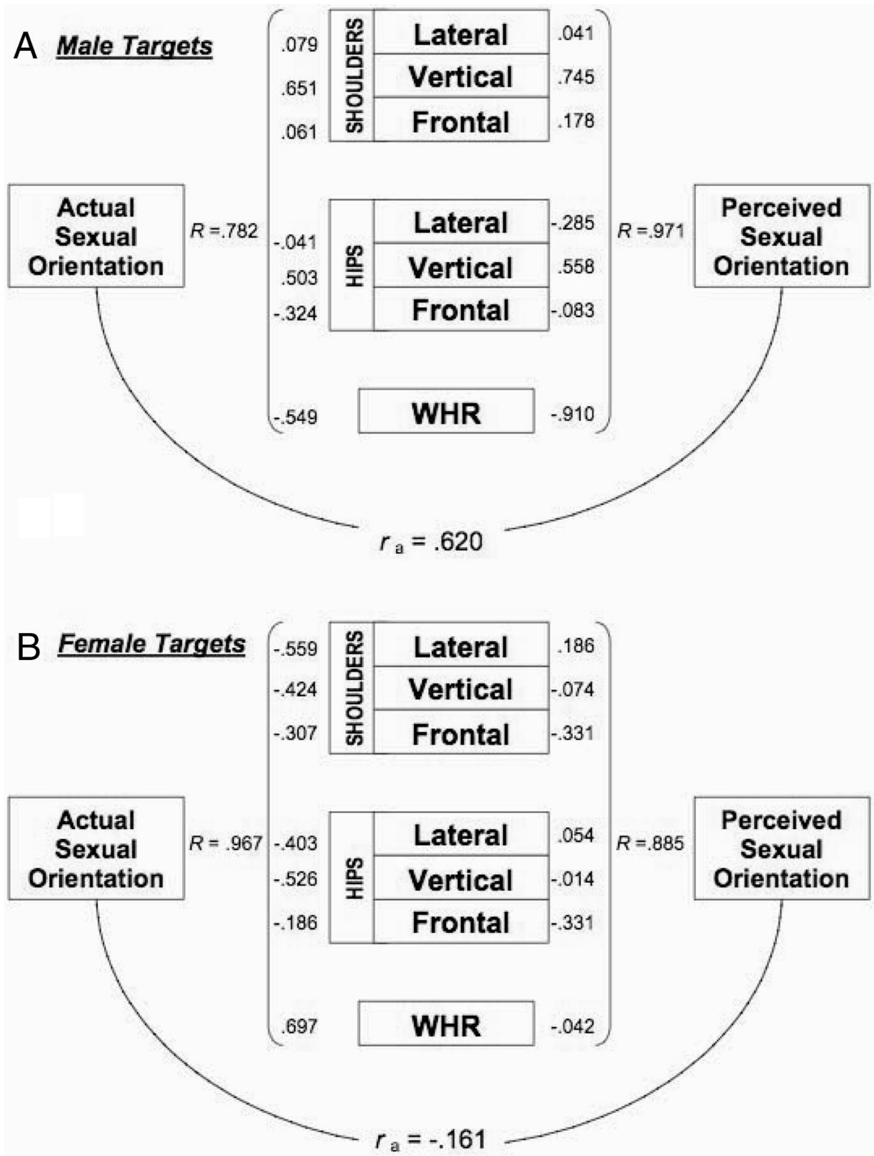

Figure 4. Lens model diagrams depicting relations between actual and perceived sexual orientation of male targets (A) and female targets (B) in Study 3. Numbers immediately adjacent to each body cue show zero-order correlations between the cue and actual and perceived sexual orientation (left and right, respectively). Bracketed coefficients reflect diagnosticity (left) and potency (right) for the set of cues. Finally, achievement is noted at the bottom of each diagram in arch.

were least diagnostic of the set. For these cues, a greater range of motion predicted both actual and perceived heterosexual orientation.

We also computed the cues' diagnosticity for actual sexual orientation (i.e., R_e) and potency for perceived sexual orientation (i.e., R_s) for female targets (see Table 3). When considered as a set, the seven body cues proved to be highly predictive of women's actual sexual orientation, $R_e = .967$, and, perhaps surprisingly, also highly consistent for average perceived sexual orientation, $R_s = .885$. Yet what was apparent from the inspection of the correlations—that observers were missing and in some cases misusing cues that were indicative of sexual orientation—was borne out in the relation between actual and perceived sexual orientation (i.e., achievement), $r_a = -.161$. Thus, although women's sexual orientation was reliably predicted by body cues and body cues engendered consistent perceptions of sexual orientation, the diagnosticity and potency of these cues did not align, leading observers to frequently misperceive the sexual orientation of the women.

In sum, the lens model analysis suggests that body cues are diagnostic of sexual orientation for both men and women, yet they compel accurate perceptions for male targets only. This finding corroborates the effects described in our signal detection analysis of participants' accuracy. However, although the lens model approach succinctly characterizes the diagnosticity and potency of

Table 3
Parameters Used to Calculate the Index of Agreement in the Lens Model Equations of Male and Female Targets in Study 3

	Model parameters				
Targets	R_e	R_s	C	G	r_a
Male	.782	.971	.438	.732	.620
Female	.967	.885	.147	−.208	−.161

Note. R_e = the multiple correlation between cues and actual sexual orientation; R_s = the multiple correlation between cues and the average perceived sexual orientation; C = the correlation between the residuals in the two multiple regression models; G = the correlation between the predicted scores from the two regression models; r_a = the index of achievement computed using the lens model equation.

these cues for both actual and perceived sexual orientation, this approach is not designed to explicate the specific role of gender typicality (or lack thereof) of body motion for judgments. To better understand how the gender typicality of body motion affected accuracy, we isolated one gendered cue—lateral body motion—and examined whether the gender typicality of this motion was sufficient to predict accurate perceptions.

Atypicality and perception accuracy. Although all of the motion cues that were included in our lens models are likely to be sexually dimorphic, we chose to restrict this analysis to a linear index of relative lateral motion in the shoulders and hips. This decision stemmed from both theoretical and practical considerations. First, lateral motion has been described to convey attitudinal aspects of gait as opposed to structural ones (Pollick et al., 2005; Runeson & Frykholm, 1983) and has been found to be sexually dimorphic (Cutting, Proffit, & Kozlowski, 1978). Second, this motion most closely mirrors the body motions that were modeled in the animations used in Studies 1 and 2: relative motion of the shoulders and hips. Consequently, this measure was promising for determining the validity the effects described in our prior two studies. Finally, the perspective from which our stimuli were recorded made this the most visually salient motion to observers.

Given these theoretical and practical considerations, we operationalized an index of gendered body motion—from masculine to feminine—by subtracting the range of shoulder motion from the range of hip motion. Thus, positive values implied a more feminine motion that consisted of relatively more hip than shoulder motion, and negative values implied a more masculine motion that consisted of relatively more shoulder than hip motion. Because these two measures are highly correlated, $r = .868$, $p < .01$, this subtractive measure had the additional benefit of eliminating the overall lateral body motion for each target, thus focusing this measure exclusively on the gender-typical dimension of gait (i.e., whether there is relatively more motion in the shoulders or hips). As a manipulation check, we confirmed that this was, in fact, the case. We regressed walk motion onto perceived gender typicality (a reflection of perceived masculinity averaged with perceived femininity) using the same regression technique that was used in Studies 1 and 2 (to control for the nesting of stimuli within participants). As predicted, our index of gendered body motion predicted perceived gender typicality, $B = 0.0443$, $SE = 0.0019$, $z = 22.83$, $p < .01$. These effects parallel the percepts that emerge from the range of motion cues in our animated stimuli. Moreover, the predicted values of perceived gender typicality for body motions that were ±1 standard deviation away from the mean of our gendered motion index predicted a decidedly masculine percept for a high degree of shoulder motion ($\hat{Y} = -0.68$) and a decidedly feminine percept for a high degree of hip motion ($\hat{Y} = 0.74$). Thus, given both the theoretical rationale and the empirical justification for doing so, we feel confident that our measure of gendered body motion is sound.

We examined whether the gender typicality of body motion predicted accuracy, coded numerically (0.5 = hits and correct rejections, −0.5 = misses and false alarms). We regressed accuracy onto motion, target sex, and the interaction using the same regression technique described previously. Overall, observers were more accurate when judging the sexual orientation of men, which resulted in a significant main effect for target sex, $B = -0.641$, $SE = 0.078$, $p < .0001$, but this accuracy varied with walk motion, interaction $B = -0.021$, $SE = 0.004$, $p < .0001$ (see Figure 5). When judging the sexual orientation of men, observers were more accurate when targets walked with more hip than shoulder movement, simple $B = 0.0096$, $SE = 0.002$, $p < .0001$. When judging the sexual orientation of women, however, observers were more accurate when targets walked with more shoulder than hip movement, $B = -0.011$, $SE = 0.004$, $p < .005$. Thus, for judgments of both male and female targets, gender-atypical body motion predicted greater accuracy in judgments of sexual orientation.

Discussion

The findings of our three-pronged analytic approach both replicated and extended the effects described in Studies 1 and 2. First, we corroborated our claim that gendered body motion influences the perceptions of sexual orientation, and we extended this basic pattern to predict the accuracy of perceptions. Specifically, gender-

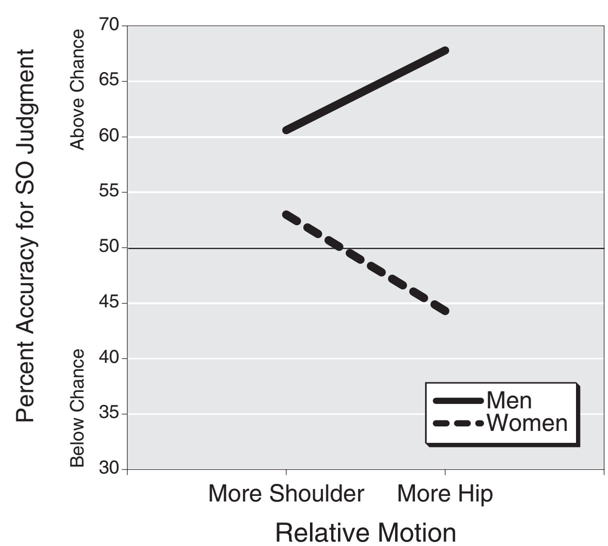

Figure 5. Accuracy of perceived sexual orientation (SO) as a function of target sex and walk motion. Regression lines were plotted using ±1 standard deviation from the mean walk motion and using coded target sex (i.e., male= −0.5; female = 0.5). Chance responding is 50%.

atypical motion (i.e., hip sway exhibited by men and shoulder swagger exhibited by women) compelled more accurate perceptions of both men's and women's sexual orientations. Additionally, we found that although the body's shape and motion are equally diagnostic of sexual orientation for men and women, the cues appear to be frequently misinterpreted in female targets, resulting in lower sensitivity in our signal detection analysis and lower achievement (negative, in fact) in our lens model analysis. These findings mirror what we observed in Study 1: a substantially stronger effect of gender atypicality for the perception of male targets than for female targets. Moreover, because the first studies used computer animations as stimuli, this replication allays a concern that our effects may have been artifactual, triggered by the carefully crafted stimuli but irrelevant in real-life interactions. Indeed, the results of Study 3 suggest that this is not the case.

These findings also provide a critical extension to our previous findings. Studies 1 and 2 focused exclusively on how the typicality of body shape and motion affect social judgments. In Study 3, we established that this typicality also portends accuracy in social judgments. Observers used the typicality of body motion to judge sexual orientation, and this reliance appears to have been warranted. Indeed, as walk motion became increasingly atypical for a target (i.e., more hip than shoulder motion among men and more shoulder than hip motion among women), judgments of sexual orientation were more accurate. This also means, however, that the more gender typical a target's gait, the less likely observers are to accurately discern his or her sexual orientation. To the extent that observers adopt the heuristic "gender-atypical motion indicates homosexuality," they are likely to be accurate. However, if they adopt the natural opposite heuristic, "gender-typical motion indicates heterosexuality," they are likely to err.

General Discussion

> The information, as well as the sign through which it is conveyed, is reflexive and embodied; that is, it is conveyed by the very person it is about, and conveyed through bodily expression in the immediate presence of those who receive the expression. (Goffman, 1963, p. 43)

In three studies, we specified how observers received embodied cues and used them to inform judgments of sexual orientation. Gender typicality, in both body shape and body motion, proved to be an important determinant of perceived sexual orientation. Gender-typical combinations of body shape and body motion were more likely to be judged heterosexual, and gender-atypical combinations were more likely to be judged homosexual. This pattern obtained for animated stimuli (Studies 1 and 2) and real human stimuli (Study 3). Which cue—shape or motion—carried more weight in one's judgment depended on whether the target was male or female (Study 1). Although both types of cues were diagnostic of the actual sexual orientation of the targets, the ability to extract meaningful and reliable information from a dynamic video was substantially greater for male targets than for female targets (Study 3). Finally, as the gender atypicality of our stimuli increased, judgments of sexual orientation became more accurate. These findings inform a growing literature centered on how body cues affect person construal, specifically with respect to sexual orientation.

Our approach remains mute regarding the origin of the embodied cues that portend sexual orientation, yet their validity as a foundation for judging the sexual orientation of others appears well-founded. In our studies, gender-atypical body motion, compared with gender-typical body motion, led to greater accuracy in perceptions of sexual orientation. In others' research (e.g., Ambady et al., 1999), body cues appear to expose one's sexual orientation and imply that observers' tacit assumptions are, to a certain extent, warranted.

Gendered Bodies and Biological Bases for Perceiving Sexual Orientation

We found that body shape alone affected sexual orientation judgments of animations that were judged to be women but not those that were judged to be men. Similarly, the diagnosticity of body shape for actual sexual orientation was larger among female, relative to male, targets in Study 3, even though the range of WHR was highly restricted in our stimulus sample. These patterns may have emerged, in part, because both body shape and sexual orientation share heritability patterns among women. Indeed, research has found strong familial effects and/or heritability estimates for sexual orientation generally (Bailey & Pillard, 1991; Bailey, Pillard, Neale, & Agyei, 1993), but the effects are particularly pronounced among women (Kirk et al., 2000). Similarly, body shape appears to be more highly heritable in women than men (Schousboe et al., 2003). And a higher WHR and greater levels of testosterone are common among self-identified butch lesbians (Singh et al., 1999). Thus, given ample variability in body shape across a set of stimuli, observers may rely on body shape to discern the sexual orientation of women because it is both heritable and diagnostic (cf. Allport & Vernon, 1933).

In comparison, body shape was less diagnostic of men's sexual orientation, and the cue was used less in perceptions of walkers that were androgynous in all respects other than body shape and motion. Why body shape is less diagnostic for judgments of men's sexual orientation is not clear, but we can speculate. It may be that body shape is simply not diagnostic of men's sexual orientation. Unlike women, men's sexual orientation and childhood gender nonconformity are only modestly heritable (Kirk et al., 2000; Knafo et al., 2005). Although men's body shape is moderately heritable (Schousboe et al., 2003), no shape differences have been documented for different populations of men, and our sample is not of sufficient size to establish such differences, even if they do exist. That said, it is clearly not the case that body shape is entirely nondiagnostic of men's sexual orientation. Body shape was diagnostic of both men's and women's sexual orientations (atypical WHRs for a target's sex tended to indicate the target was homosexual), but the effect was stronger for female targets than for male targets. Thus, it may be that body shape simply does not covary with sexual orientation to the same extent among men as it does among women. To be sure, additional research is required to examine this possibility.

Walking to Communicate and the Production of Gendered Gait

Body motion affected our participants' perceptions of both men's and women's sexual orientations, although the effect was substantially larger for judgments of men. The extent to which gait reveals sexually dimorphism (e.g., Cutting et al., 1978) in body shape versus socially learned gender roles (e.g., S. L. Bem, 1993) remains unclear, but few would disagree that gait is more malleable than body shape. Thus, when judging sexual orientation, observers rely on cues that can be displayed electively, such as mannerisms and walk motion, and that are deemed diagnostic at a social but not necessarily at a biological level. Indeed, expressive movements do covary with stable individual differences such as sex role (Frable, 1987), and our data suggest that this determines accuracy levels in sexual orientation judgments. This reliance on volitional atypicality to discern sexual orientation may be challenged in the coming years. Some anecdotal evidence suggests that cues that were once exclusive to gay men are increasingly being adopted by straight men, leading to new terms such as *metrosexual* and *gay vague* (Colman, 2005).

It is interesting that the effect of atypical walk motion was substantially larger for judgments of men, and this asymmetry may have arisen for several reasons. First, this asymmetry may have obtained for functional reasons. Female targets that are perceived to be homosexual tend to be atypical in two ways: They move in characteristically masculine ways and they have larger WHRs. A woman's atypicality, therefore, may be attributed to her morphology instead of her motion, but this is unlikely to happen for men. Instead, a man who is moving his male-typical body in a feminine manner must overcome the gait dictated by his morphology to produce this errant combination. Consequently, as a baseline, a man's atypical gait may carry greater weight than a woman's atypical gait in judging sexual orientation, a possibility that is consistent with our findings that observers use the body's shape to discern the sexual orientation of women but not men.

Second, gender-atypical motion may carry more weight for judgments of men because hip and shoulder motion may differ in the extent to which they specify femininity and masculinity, respectively. Said differently, hip sway may be more feminine than shoulder swagger is masculine. This possibility entails that femininity ratings of hip sway will be higher than the comparable masculinity ratings of shoulder swagger. Indeed, data from Study 1 confirm this to be the case. Masculinity ratings of moderate shoulder swagger were lower than femininity ratings of the moderate hip sway at an absolute level (*M*s = 0.59 and 0.68, respectively). It is important to note that these two walk motions in particular depict the actual gaits of men and women (i.e., Cutting et al., 1978). These data suggest that hip sway is more sex typed relative to shoulder swagger.

Finally, hip sway, because it is associated with femininity, may be less valued than masculine shoulder swagger in an androcentric society (S. L. Bem, 1993). According to S. L. Bem, what is masculine defines the societal standard, and what is feminine is viewed as an "inferior departure or deviation" (S. L. Bem, 1993, p. 42) from that ideal. Consequently, when women exhibit gender-atypical motions, they may be viewed as striving to reach a societal ideal; when men adopt gender-atypical motions, in contrast, they may be viewed as departing from the ideal, an inconsistency in need of reconciliation—and perceived sexual orientation changes accordingly. Women's movement toward economic and societal parity has widened the latitude of acceptable roles for women at the same time that it has narrowed the latitude of acceptable roles for men.

In sum, gender-atypical motion may exert greater impact on sexual orientation judgments of men because (a) it is unlikely to be attributed to structural mediation, (b) it is more sex typed in general (and therefore perceived to be more gender atypical), and (c) it is viewed as a departure from a societal ideal in need of an explanation.

We opened this article by asking two simple questions: If we don't ask, how can we tell? And if we can tell, are we accurate? We found that the perception of sexual orientation rests, at least in part, on the perception of the body's shape and motion. People appreciate the stability of these cues, and they use them to discern the sexual orientation of others.

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