

# Sexual Orientation as a Contextual Frame for Attractiveness Judgments

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Despite strong consensus about the basic features that make someone look objectively attractive, contextual variation may modulate subjective assessments. Here, we investigate how social group membership provides such a context, comparing attractiveness judgments between lesbian, gay, and bisexual (LGB) versus straight perceivers, and examining how these attractiveness judgments relate to beliefs about the target person's sexual orientation. We indeed find that perceivers rate targets as more attractive when they believe the target's sexual majority/minority status matches their own (Study 1). This association differs according to context, however: Although straight and LGB perceivers evaluate the components of facial attractiveness similarly (Study 2), straight men use attractiveness as a cue to sexual orientation (i.e., deeming unattractive women lesbians; Study 3) whereas LGB perceivers use sexual orientation as a cue to attractiveness (e.g., gay men rate men they believe are gay as more attractive than men they believe are straight; Studies 4 and 5). Thus, LGB identity seems to create a context in which sexual minority perceivers learn to attend to information about sexual diversity that straight perceivers may ignore. These findings highlight how group membership provides a lens for social perception, specifically pointing to how the contextual mindset of partner selection may transmute otherwise objective judgments, such as facial attractiveness.

## Public Significance Statement

These studies show that a person's social group memberships create a context that shapes how they perceive and evaluate others. Specifically, people appraise others' attractiveness and sexual orientation differently depending on their own gender and sexual orientation: Lesbian, gay, and bisexual people tend to think that gay people look more attractive; whereas, straight men tend to think that unattractive women are more likely to be lesbians. These findings highlight how cognitive processes can color basic perception such that even judgments with high cross-cultural consensus and objectively relevant features (i.e., facial attractiveness) are susceptible to meaningful variation.

**Keywords:** attractiveness, sexual orientation, face perception

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Highly subscribed folk wisdom teaches that beauty is in the eye of the beholder. Yet data from decades of research have found that people strongly agree about what they find attractive (Cunningham et al., 1995; Rhodes, 2006). Helping to resolve this contradiction, studies have also reported that context may introduce meaningful variability into this “universal” agreement about attractiveness; for instance, body shape preferences differ across time and culture (Ricciardelli & Williams, 2012; Sentilles & Callahan, 2012). Here, we considered how intergroup processes might also provide context for perceptions of attractiveness.

We adopt the theoretical orientation that people learn to calibrate ostensibly objective perceptions (e.g., attractiveness cues rooted in signals of health; Thornhill & Gangestad, 1993) based on contextual circumstances that might temper or amplify their evaluations. Specifically, we investigated how one's sexual orientation generates a context for their attractiveness judgments by examining how perceptions of attractiveness and sexual orientation influence one another, and how this influence may vary according to the sexual orientation of the perceiver.

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## Value of Attractiveness

Physical attractiveness is a valuable commodity. Not only do physically attractive people enjoy more romantic and sexual opportunities (Finkel & Eastwick, 2008; Luo & Zhang, 2009), but they also earn up to 13% more money (Hamermesh & Biddle, 1993) and even live longer (Henderson & Anglin, 2003). This powerful attractiveness halo (Dion et al., 1972; Langlois et al., 2000) often favors dominant groups, assigning higher appraisals of attractiveness to physical attributes associated with dominant social groups (e.g., White people, cisgender people), or even to individuals merely believed to belong to these groups (Mao et al., 2019; Ryabov, 2019; Swami et al., 2013). People therefore appear to partly learn what their culture values as attractive and confer greater benefits to these high-status persons.

## Consistently Attractive Features

Whereas some of the factors supporting attractiveness judgments vary across cultures, subcultures, and other social groups (suggesting that preferences for these features are socially learned); some specific features are consistently judged as attractive across cultures, appearing to represent evolved preferences: sexually dimorphic features, facial symmetry, facial averageness, and a clear complexion (Fink et al., 2001; Johnston et al., 2001; D. Jones & Hill, 1993; Scheib et al., 1999).

Sexually dimorphic facial features generally relate to perceptions of attractiveness such that femininity enhances the attractiveness of female faces and facial masculinity enhances the attractiveness of male faces (e.g., Johnston et al., 2001; Komori et al., 2009; Law Smith et al., 2005; Scheib et al., 1999). Some studies report that feminine features enhance male attractiveness too, however—suggesting that a combination of feminine and masculine features might be ideal (e.g., Little & Hancock, 2002; Perrett et al., 1998).

Facial symmetry (how similar the left and right halves of the face are to each other) and averageness (the resemblance of a face to the composite “average” face in a particular cultural context) are believed to be universally attractive because they represent evolved preferences encouraging the selection of healthy mates (e.g., Grammer & Thornhill, 1994; Thornhill & Gangestad, 1993). Preferences for both symmetry and averageness emerge in studies from numerous cultures (e.g., D. Jones & Hill, 1993; Rhodes et al., 2001) and relate to markers of health, such as decreased susceptibility to infection (Thornhill & Gangestad, 2006). Indeed, perceived health mediates the association between perceived attractiveness and facial symmetry (B. C. Jones et al., 2001), thereby supporting the proposition that the attractiveness of facial averageness and symmetry helps to incentivize mating with healthier partners to produce fitter (i.e., healthier) offspring (e.g., Grammer & Thornhill, 1994; Thornhill & Gangestad, 1993).

Likewise, apparent skin health predicts perceptions of attractiveness by serving as a proxy for general health. Skin color and texture each contribute to health and attractiveness judgments (Fink et al., 2001, 2006; B. C. Jones et al., 2004). Smooth, blemish-free skin looks healthier and more attractive (Jaeger et al., 2018; Matts et al., 2007), whereas skin color’s role may reflect both evolutionary and cultural influences. Specifically, higher skin redness reflects greater blood oxygenation (a marker of cardiovascular fitness) and higher skin yellowness reflects greater dietary carotenoid consumption, signaling a healthy diet; both also increase perceptions of attractiveness (Lefevre & Perrett, 2015; see Re & Rule, 2016, for review). Melanin coloration (i.e., skin darkness, whether natural or from tanning) influences attractiveness judgments less consistently: Whereas some research identifies

darker skin tones as more attractive (e.g., Fink et al., 2001; Lefevre & Perrett, 2015), the encroachment of Eurocentric beauty standards may engender a preference for paler skin tones in people of color (e.g., M. Hunter, 2007; Swami et al., 2013; Vera Cruz, 2018).

## Contextually Attractive Features

Indeed, sociocultural factors—in particular, the influence of dominant social groups—may determine much of what perceivers consider attractive. As noted above, Eurocentric beauty standards favoring phenotypical markers of Whiteness are widespread (Yan & Bissell, 2014): Apart from preferences for pale skin, mainstream beauty standards also disfavor hair textures and styles associated with Black hair (Johnson & Bankhead, 2014; Robinson, 2011) whereas numerous cosmetic surgeries aim to reshape facial features to more closely resemble Anglo-European ideals (M. L. Hunter, 2011). These beauty standards reflect culturally contextual influences that can vary by time and place (in contrast to objective aspects of attractiveness, which people consistently favor across cultures and thus likely reflect either innate or universally learned preferences; e.g., averageness and symmetry). People may therefore learn to associate particular features with higher status, rendering them consensually more attractive in a given cultural context while gauged differently in another context with alternative learned associations. For instance, 19th-century U.S. beauty standards disfavored tanned skin due to its association with the outdoor labor of the working class; but, as industrialization concentrated the working class into large factories where they worked long hours indoors, suntans became a desirable symbol of affluence in the 20th century (Hunt et al., 2012). As a culture undergoes shifts in its dominant groups and their associated traits, members of that culture can thus learn different contextual markers of attractiveness.

This does not mean that variability in beauty standards exclusively favors members of dominant social groups, however. In some cases, individuals may rebel against these widespread associations by actively contrasting with them. For example, members of marginalized groups sometimes reject the status afforded to mainstream cultural practices by embracing their own appearance standards, such as lesbians’ adoption of butch and androgynous styles (Huxley et al., 2014; Krakauer & Rose, 2002) and Black women’s celebration of dark skin and natural hair textures (Tate, 2007; Thompson, 2009). Such flouting illustrates that mainstream cultural beauty standards do not exclusively dominate attractiveness perceptions. Rather, members of certain social groups—particularly groups that mainstream norms devalue—may appraise their own distinct appearance standards as attractive. Thus, when trying to understand what a given person considers beautiful, one must consider the groups to which that person belongs. Indeed, sociocultural influences aside, past research suggests an inclination for individuals to broadly favor their ingroup when judging attractiveness. For instance, people rate the mental representations of their social ingroup members as more attractive than the mental representations of their outgroup, even when the ingroup has been arbitrarily formed (Ratner et al., 2014).

Thus, social groups may serve as contexts for attractiveness perceptions that build atop the influences of evolved preferences and prevailing cultural norms. The visual markers associated with dominant social groups in a given cultural context may become incorporated into the beauty standards most people learn within that cultural context; at the same time, people may see their own (even marginalized) groups as attractive, cultivating an appreciation for the distinguishing

characteristics of their group membership or broadly judging shared identity itself as attractive. Here, we aim to examine the context that social group membership creates for attractiveness judgments by focusing on social groups defined by sexual orientation, namely the dominant sexual majority consisting of straight people, and the marginalized sexual minority consisting of lesbian, gay, and bisexual (LGB) people.

### Sexual Orientation and Attractiveness: Possible Mechanisms

In this research, we examine sexual orientation as context because it intimately relates to attractiveness judgments due to its elemental basis in sexual behavior. Moreover, the context of sexual orientation allows the opportunity to test group-based influences without interference from strong group-identifying cues given its perceptually ambiguous nature (Rule et al., 2007). This ambiguity enables a focus on perceivers' subjective beliefs about targets' identity and facilitates the manipulation of those beliefs.

We thus aim to examine whether perceptions of attractiveness and sexual orientation align according to the sexual orientation of the perceiver. Otherwise put, we examine whether straight people are most attracted to targets whom they believe are straight and whether sexual minority people are most attracted to targets whom they believe belong to the sexual minority. We further investigate whether this finding only occurs when perceivers judge targets of a (binary) gender to which the perceiver is attracted (e.g., whether lesbians rate women whom they believe are lesbians as more attractive than women whom they believe are straight, but give similar attractiveness ratings to men regardless of perceived sexual orientation) or emerges regardless of the gender(s) to which the perceiver experiences attraction (e.g., whether lesbians rate both male and female targets as more attractive when they believe the target belongs to a sexual minority group). We situate this research question within various hypotheses as to how and why judgments of attractiveness and sexual orientation may become associated. These hypotheses comprise two bottom-up mechanisms driven by facial appearance and two top-down mechanisms driven by social categorization. We note that these four mechanisms do not strictly compete: Multiple mechanisms may contribute to the same perceiver's judgments or the relative contributions of these mechanisms could vary according to the perceiver.

#### *Bottom-Up Mechanisms: Facial Appearance Cues and Wishful Thinking*

Evaluations of attractiveness and sexual orientation might become associated through the use of overlapping cues in the formation of these judgments. Although people can identify others' sexual orientation based on minimal cues (e.g., Rule & Alaei, 2016; Rule & Ambady, 2008; Rule et al., 2008; Tskhay & Rule, 2013), sexual orientation remains perceptually ambiguous relative to many other social categories (e.g., race and gender). This ambiguity may create a greater opportunity for the cues to group membership to become enmeshed in the attributes that group members find attractive because they may use one to evaluate the other, such that the same cues contribute to attractiveness judgments differently depending on the perceiver's sexual orientation. For example, people tend to judge gender-atypical faces as gay and lesbian; thus, utilizing gender atypicality as a cue to sexual orientation generally enhances the detection

of LGB identity (Freeman et al., 2010). Consequently, LGB perceivers may view gender atypicality more favorably than straight perceivers when judging the attractiveness of a face. Whereas research on gender norms within the LGB community has suggested that gay men generally prefer masculine partners and that lesbians likewise prefer feminine partners (Bailey et al., 1997; Shiramizu et al., 2020), individual gay men and lesbians nevertheless also display preferences for feminine men and masculine women, respectively (Levitt et al., 2003; Zheng et al., 2013)—indicating potential nuance in the effect of masculinity and femininity upon attractiveness perceptions.

Findings related to sociosexuality (i.e., an individual's interest in uncommitted sexual activity; Gettler et al., 2019) may partly explain this nuance. For instance, unpartnered women with greater interest in uncommitted relationships prefer men with masculine faces (Sacco et al., 2012) and symmetrical facial features (Quist et al., 2012). More broadly, people judge women who self-report higher sociosexuality as more attractive (Boothroyd et al., 2008; Fisher et al., 2016) and initially show more willingness to become romantically or sexually involved with someone who has had more past sexual partners (Stewart-Williams et al., 2017). A person's sociosexuality therefore influences the facial attributes that they find attractive, whereas a target's sociosexuality can affect judgments of their attractiveness by signaling their sexual availability. Analogously, we examine whether other facial cues to sexual availability (namely, those signaling a prospective partner's sexual orientation) likewise contextualize attractiveness judgments such that LGB individuals prefer partners who appear gay, and straight individuals prefer partners who appear straight. If so, we would expect to find that certain facial attributes (particularly masculinity and femininity) contribute differently to judgments of attractiveness made by LGB and straight perceivers.

Perceiver sexual orientation and judgments of attractiveness and sexual orientation may also become connected through perceivers' converse use of attractiveness as a cue to sexual availability. This would represent a form of motivated perception (e.g., Balcetis & Dunning, 2006) or "wishful thinking" whereby people tend to infer that targets they find attractive are capable of reciprocating their interest. For instance, a straight man viewing an objectively attractive woman might be inclined to believe she is straight, whereas a lesbian viewing that same woman might be inclined to believe she is gay, such that each perceiver arrives at a conclusion that enables their potential pursuit of the attractive target. If perceivers do engage in this wishful thinking, we would expect that manipulating target attractiveness would shift sexual orientation judgments (and would shift the judgments differently for LGB and straight perceivers), reflecting a self-serving inference that attractive people constitute part of one's pool of potentially viable mates.

#### *Top-Down Mechanisms: Compatibility and Ingroup Favoritism*

Perceived mate compatibility may also mechanistically link perceiver sexual orientation to the use of perceived sexual orientation as a cue to attractiveness. Sexual orientation places an important constraint upon attempts to form sexual and romantic relationships, which can only successfully form if each party is capable of attraction to the gender of the other party. Thus, we might expect to observe an adaptive process whereby the mere belief that a target is attracted to people of one's own gender (irrespective of their appearance) may increase one's attraction to that target.

Sexual orientation categorizations may alternatively shift judgments of attractiveness through a broader process of ingroup favoritism. Consider that people's mental representations of members of even arbitrary ingroups look more attractive than their mental representations of members of outgroups (Ratner et al., 2014) and that similarity robustly enhances attractiveness (Byrne, 1997; Montoya & Horton, 2013). Similarity based on sexual orientation—namely, shared membership with either the straight sexual majority or with the LGB sexual minority—may therefore increase attractiveness. Unlike sexual compatibility, this ingroup favoritism mechanism may emerge regardless of whether the perceiver experiences attraction to people of the target's gender. For instance, straight people primarily form friendships with other straight people whereas sexual minority people, although more likely to report cross-orientation friendships (perhaps due to the greater proportion of straight people in the population), form more friendships with sexual minority people than straight people do (Baiocco et al., 2014; Galupo, 2007). Given that the prospect of friendship enhances a stranger's attractiveness (Kononov & Ein-Gar, 2023), we might expect that a target who shares a perceiver's sexual orientation would seem more attractive regardless of their gender for the same reason that they seem to be a more desirable friend.

## The Current Research

In Study 1, we explore the hypothesis that perceived minority sexual orientation will lead target individuals to be judged as less attractive by straight perceivers but as more attractive by LGB perceivers. In the following studies, we then investigate the mechanisms underlying the link between attractiveness and sexual orientation, assessing various factors' contributions to this link and how the influence of these factors may vary for different perceivers. We begin by examining whether aspects of facial appearance contribute to attractiveness judgments differently in LGB and straight perceivers (Study 2). We then investigate whether perceivers engage in "wishful thinking" to infer target sexual orientation based on attractiveness (Study 3) and whether target sexual orientation affects attractiveness judgments through compatibility effects or ingroup favoritism (Studies 4 and 5). We report all measures, manipulations, and exclusions in the article.

## Transparency and Openness

Processed, deidentified data and accompanying analysis program files and code for all studies reported here are available on Open Science Framework (OSF; [https://osf.io/jtgeu/?view\\_only=d7fb05071dd4106a98a3c9ebda31676](https://osf.io/jtgeu/?view_only=d7fb05071dd4106a98a3c9ebda31676)); we cite all programs used for data analysis and include them in the References. The research participants who posed for these photos did not consent to dissemination of the photos through openly available repositories, so we cannot share them publicly. We preregistered Study 2's experimental method ([https://osf.io/qjtjy/?view\\_only=3156348fcd4741ef864aba392bf76507](https://osf.io/qjtjy/?view_only=3156348fcd4741ef864aba392bf76507)) and Study 5's method and analyses ([https://osf.io/jrsgu/?view\\_only=61259d313feb4d138159b5fd236e9dbf](https://osf.io/jrsgu/?view_only=61259d313feb4d138159b5fd236e9dbf)); Studies 1, 3, and 4 were not preregistered.

## Study 1

We first examined whether sexual orientation influences attractiveness judgments by asking straight and LGB participants to rate the attractiveness and sexual orientation of people belonging to the

gender that they prefer most. We hypothesized that straight participants would rate targets they believe to be straight as more attractive than targets they believe to be gay, and that LGB participants would rate targets they believe to be gay as more attractive than targets they believe to be straight.

## Method

### Participants

To ensure that each face image in the stimulus set would be rated at least 20 times, we recruited 189 American and Canadian participants ( $M_{\text{age}} = 31.66$  years,  $SD = 10.56$ ; 101 women including one genderfluid woman, 77 men including one transgender man, 10 participants of other genders, and one participant who did not indicate their gender; 131 White/Caucasian, 17 Black/African American, nine East Asian, nine Hispanic/Latin, four South Asian, two Indigenous/Native/Aboriginal/First Nations, two Southeast Asian, one Middle Eastern, three with other racial/ethnic identities, one who did not indicate their race/ethnicity) through Prolific.co.uk. Participants were screened by sexual orientation to guarantee that the sample included a balance of both straight and sexual minority participants: In the final sample, 98 participants identified as straight/heterosexual, 56 as bisexual, 20 as gay/lesbian/homosexual, seven as pansexual, two as asexual/aromantic, four reported other sexual orientations, and two did not indicate their sexual orientation (and were thus excluded from analysis). Participants input their age via numeral-only text entry, and their gender via a multiple-choice question in which participants could choose as many labels as desired from the following: man, woman, nonbinary, transgender, agender, genderfluid, something else (accompanied by a text-entry box). Participants indicated their race/ethnicity through a multiple-choice question in which they could choose as many labels as desired from the options reported above, including a "something else" option accompanied by a text-entry box for those who wished to report another racial/ethnic identity. Participants indicated their sexual orientation through a multiple-choice question in which participants selected a single option from the labels reported above, including a "something else" option accompanied by a text-entry box for those who wished to report another sexual orientation. We use these demographic measures throughout the studies reported here. Participants were compensated £1.25.

### Materials

**Stimuli.** We assembled a pool of 200 target face images (50 images each of gay men, gay women, straight men, and straight women) from a lab database of past participants who consented to have their photos used in future studies and provided demographic information. These target individuals were largely young adults ( $M_{\text{age}} = 19.31$ ,  $SD = 2.19$ ) of varying races/ethnicities (71 East Asian, 50 White/Caucasian, 18 South Asian, 18 Southeast Asian, seven Middle Eastern, six Hispanic/Latin, three Black/African Canadian/African American, one Indigenous/Native/Aboriginal/First Nations, 25 who reported multiple racial or ethnic identities, and one who reported other racial or ethnic identities). Participants were photographed from a frontal angle under standardized lighting conditions and instructed to smile for the photo. Photos were cropped to show the face from the bottom of the neck to the top of the head/hair. See Figure 1, for example, face images.



**Figure 1***Example Face Images*

Note. See the online article for the color version of this figure.

### Procedure

Participants first indicated their degree of attraction to men versus women from 1 (*only attracted to men*) to 7 (*only attracted to women*) to branch them toward rating the targets belonging to their preferred gender (those who indicated equal attraction to men and women were randomly assigned to a target gender;  $n = 35$ ). They then viewed 25 face images randomly selected from the pool of 200. Upon viewing each face image, they rated the target's sexual orientation from 1 (*definitely straight*) to 8 (*definitely gay*) and rated their attractiveness from 1 (*not at all attractive*) to 8 (*very attractive*); we displayed both rating scales simultaneously under each face image, with the sexual orientation scale positioned above the attractiveness scale. After rating all 25 face images, participants completed a final demographics questionnaire.

### Analytic Approach

To determine how perceptions of sexual orientation contribute to attractiveness judgments, we fit a cross-classified multilevel model predicting attractiveness ratings from the interaction between a participant's sexual orientation and their subjective ratings of each target's sexual orientation. Each target-participant dyad functioned as a datapoint, yielding 4,598 observations in the model data. Simulation-based sensitivity analysis conducted with *simr* (Green & MacLeod, 2016) indicated that this sample size yields 99% power to detect a fixed interaction effect with slope  $b = 0.10$  in the model of interest across 1,000 simulations. We estimated the models in R (Version 4.0.4; R Core Team, 2021) using the *lme4* (Bates et al., 2015) and *lmerTest* (Kuznetsova et al., 2017) packages with an unstructured covariance matrix, Satterthwaite degrees of freedom, and grand-mean centered predictors. We did not preregister this study or its analytic approach.

## Results

### Main Analysis

Analysis of a baseline model including only random intercepts for targets and participants indicated that observations clustered within both targets ( $ICC = .14$ ) and participants ( $ICC = .44$ ), supporting the use of cross-classified multilevel modeling. We, therefore, fit a cross-classified model with random intercepts for targets and participants, and a fixed interaction effect between participant sexual orientation (LGB vs. straight) and ratings of target sexual orientation. Results showed that participant sexual orientation significantly moderated

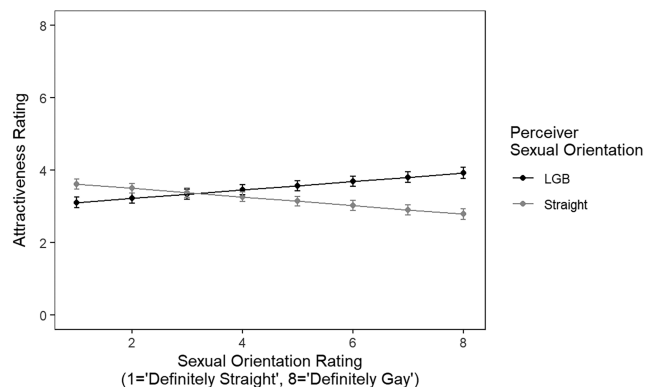
the effect of target sexual orientation,  $b = -0.12$ ,  $SE = 0.01$ ,  $t(4,350.20) = -9.43$ ,  $p = .002$ ,  $R^2 = .02$ , 95% confidence interval (CI) [0.01, 0.03], such that perceiving a target as more likely to be gay predicted greater attractiveness ratings among LGB participants but lower attractiveness ratings among straight participants (Figure 2). The simple fixed effect of participant sexual orientation was not significant,  $b = -0.07$ ,  $SE = 0.09$ ,  $t(179.09) = -0.80$ ,  $p = .43$ ,  $R^2 = .00$ , 95% CI [0.00, 0.00], nor was the simple fixed effect of sexual orientation rating,  $b = -0.00$ ,  $SE = 0.01$ ,  $t(4,445.35) = -0.09$ ,  $p = .93$ ,  $R^2 = .00$ , 95% CI [0.00, 0.00].

## Discussion

These results thus demonstrate that sexual orientation creates an interpretive context for evaluating attractiveness. Specifically, participants' perceptions of who was gay and straight influenced who they rated as attractive respective to their own sexual majority/minority status, such that LGB participants gave higher attractiveness ratings to targets who they believed were more likely to be gay, whereas straight participants gave higher attractiveness ratings to targets who they believed were more likely to be straight. Thus, we see that judgments of sexual orientation and attractiveness correlate but that the direction of this correlation depends on the context created by the sexual orientation of the perceiver. That said, this result does not account for much of the variance in attractiveness judgments (only 2%), suggesting that other factors primarily shape these judgments (e.g., consistent predictors of attractiveness such as facial averageness and symmetry). Nevertheless, we find that both a person's sexual orientation and their beliefs about a target's sexual orientation significantly predict their attraction to the target. Thus, the context created by sexual orientation may modulate or contribute to attractiveness judgments or, alternatively, inferences about a person's sexual orientation may follow from (rather than shape) attraction; the top-down or bottom-up mechanisms that underlie this finding remain unclear. We therefore further examine this initial finding in Study 2 by investigating a potential bottom-up mechanism: Specifically, we test whether perceiver sexual orientation creates a context that may moderate the contributions of the specific facial features normally comprising attractiveness (i.e., facial symmetry, complexion, and sexually dimorphic features).

**Figure 2**

*Estimated Marginal Means of Moderated Association Between Sexual Orientation and Attractiveness Judgments*



Note. Error bars represent standard error. LGB = lesbian, gay, and bisexual.

## Study 2

Study 1 showed that perceptions of sexual orientation correlate with perceptions of attractiveness and that this correlation differs for LGB and straight participants. These findings say little about the mechanisms through which this difference emerges, however. In Study 2, we examine whether bottom-up facial features explain the differences between LGB and straight participants' judgments of attractiveness: Specifically, we consider whether the context of a participant's sexual orientation alters how different facial attributes shape their attractiveness judgments (e.g., might straight and LGB participants' attractiveness judgments differ because they attend to different facial features when making their judgments?).

To achieve this, we collected a new set of ratings from an independent sample of participants to retroactively norm our Study 1 face images. These ratings comprised facial attributes that bear on attractiveness judgments (namely, facial symmetry, complexion, masculinity, and femininity). We then incorporated these judgments as target-level factors in two cross-classified multilevel models predicting the attractiveness ratings collected in Study 1: one model that incorporated these facial attributes as simple effects (i.e., to replicate and confirm that they compose the elements of attractiveness), and one that included participant sexual orientation as a moderator of the effects of these variables. These tests allowed us to examine whether low-level perceptual features contribute differently to LGB and straight perceivers' attractiveness judgments and whether such a difference might account for the divergence in attractiveness judgments observed in Study 1.

## Method

### Participants

In keeping with the guidelines on treating stimuli as a random factor outlined by Judd et al. (2012), we recruited 615 American and Canadian participants ( $M_{\text{age}} = 32.10$  years,  $SD = 10.87$ ; 284 women including one transgender woman and one nonbinary woman, 307 men including one transgender man, 14 participants of other genders, and 10 participants who did not indicate their gender; 373 White/Caucasian, 66 East Asian, 39 Black/African American, 33 who reported multiple racial/ethnic identities, 27 South Asian, 22 Southeast Asian, 20 Hispanic/Latin, 13 Middle Eastern, three Indigenous/Native/Aboriginal/First Nations, seven with other racial/ethnic identities, 12 who did not indicate their race/ethnicity), through Prolific.co.uk. Of these participants, 475 identified as straight/heterosexual, 66 identified as bisexual, 29 identified as gay/lesbian/homosexual, 19 identified as pansexual, nine identified as asexual/aromantic, four reported other sexual orientations, and 13 did not indicate their sexual orientation. This sample size allowed us to obtain 30 ratings of each face image on each norming variable. Participants were compensated £1.10.

### Materials

Participants viewed and rated face images drawn from the same pool of 200 face images used in Study 1.

### Procedure

Participants were randomly assigned to rate 50 face images on one of five facial attributes: symmetry ("How symmetrical is this person's face?") from 1 (*not at all symmetrical*) to 8 (*extremely*

*symmetrical*); complexion ("How healthy is this person's skin?") from 1 (*not at all healthy*) to 8 (*extremely healthy*); masculinity ("How masculine is this person?") from 1 (*not at all masculine*) to 8 (*extremely masculine*); femininity ("How feminine is this person?") from 1 (*not at all feminine*) to 8 (*extremely feminine*), and affect ("How is this person feeling?") from 1 (*extremely negative*) to 8 (*extremely positive*), which we collected for a separate analysis unrelated to attractiveness described in the [online supplemental materials](#). To avoid floor or ceiling effects resulting from gender-based contrasts (particularly for gendered facial attributes, such as masculinity and femininity), participants were randomly assigned to rate only male or female targets. They then completed the final demographics questionnaire described in Study 1.

### Analytic Approach

To determine how these facial attributes contribute to attractiveness judgments, we fit two nested cross-classified multilevel models predicting the attractiveness ratings collected in Study 1. The first model tested the objective attractiveness components described above: facial symmetry, complexion, and sexual dimorphism (Grammer & Thornhill, 1994; Johnston et al., 2001; B. C. Jones et al., 2004). We operationalized sexual dimorphism as two interaction terms: the interaction between facial masculinity and target gender, and the interaction between facial femininity and target gender. The second model added participant sexual orientation as a moderator of each predictor. Comparing this second model to the first using likelihood-ratio tests allowed us to determine whether the (subjective) context created by sexual orientation that we identified in Study 1 contributes unique variance beyond the influence of attractiveness's component perceptual features. This study's design and analyses were preregistered; we document and explain all deviations from our preregistration in the [online supplemental materials](#).

Each target-participant dyad from Study 1 served as its own data point, yielding 4,598 observations. Simulation-based sensitivity analysis conducted with simr (Green & MacLeod, 2016) indicated that this sample size yields 86% power to detect a fixed two-way interaction effect with slope  $b = 0.10$  in the more complex model. We estimated the models in R (Version 4.0.4; R Core Team, 2021) using the lme4 (Bates et al., 2015) and lmerTest (Kuznetsova et al., 2017) packages with an unstructured covariance matrix, Satterthwaite degrees of freedom, and grand-mean centered predictors.

## Results

### Model 1: Objective Attractiveness

The constrained model included random intercepts for both target and participant effects, and fixed effects of target facial symmetry, target complexion, and sexually dimorphic features (i.e., the interaction between target facial masculinity and target gender, the interaction between target facial femininity and target gender). Results showed that complexion, facial masculinity, and facial femininity all significantly enhanced attractiveness, whereas facial symmetry did not (Table 1). Target gender also significantly moderated the effect of facial masculinity on attractiveness such that male targets' attractiveness benefited more from masculinity than female targets' attractiveness did. Target gender did not moderate the effect of facial femininity on attractiveness, indicating that facial femininity enhances attractiveness similarly regardless of target gender.

**Table 1**  
*Model 1: Fixed Effects*

Effect	<i>b</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>	95% CI
Facial symmetry	0.12	0.07	191.94	1.84	.07	.02	[0.01, 0.03]
Complexion	0.19	0.04	194.06	5.02	<.001	.12	[0.10, 0.14]
Target gender	0.22	0.12	358.05	1.86	.06	.01	[0.00, 0.02]
Facial masculinity	0.29	0.09	196.76	3.33	.001	.05	[0.04, 0.06]
Facial masculinity × target gender	0.31	0.09	197.11	3.58	<.001	.06	[0.05, 0.07]
Facial femininity	0.53	0.09	195.99	5.81	<.001	.15	[0.13, 0.17]
Facial femininity × target gender	−0.04	0.09	196.23	−0.43	.67	.00	[0.00, 0.00]

Note. CI = confidence interval.

### Model 2: Participant Sexual Orientation as Context

Model 2 included the same random intercepts and attractiveness components as the previous model, adding interactions with participant sexual orientation to each (Table 2). This allowed us to determine how sexual orientation may shape perceivers' processing of the attractiveness of different facial features.

As with Model 1, we found that the simple effects of complexion, facial masculinity, and facial femininity enhance attractiveness and that facial masculinity particularly benefits male targets (i.e., target gender moderates the effect of facial masculinity). Participant sexual orientation did not moderate how any of these facial cues relate to attractiveness, however, indicating that sexual orientation does not provide a direct contextual frame for how the attractiveness of specific facial features is processed. Correspondingly, this model did not show a significantly better fit than the first model,  $\chi^2(8) = 10.51, p = .23$ .

### Discussion

Study 2 helped to characterize the context that sexual orientation creates for attractiveness judgments. We found that a person's sexual orientation does not directly moderate how specific facial features relate to attractiveness judgments: Although LGB and straight perceivers can arrive at different conclusions about the same target's attractiveness, the facial attributes that LGB participants find attractive match the facial attributes that straight participants find

attractive. Thus, we found no bottom-up effect whereby perceiver sexual orientation moderated the effect of target appearance upon attractiveness ratings. This is perhaps unsurprising given that the facial attributes included in these models represent cross-culturally consistent predictors of attractiveness. That said, we note the close conceptual overlap between sexual dimorphism, which influences attractiveness judgments (Johnston et al., 2001; Komori et al., 2009), and gender (a)typicality, which influences sexual orientation judgments (Freeman et al., 2010). We might therefore anticipate that sexual dimorphism would predict attractiveness judgments differently for LGB and straight participants because highly sexually dimorphic targets would appear more straight (and thus, more attractive to straight perceivers; Study 1).

Instead, we found that these facial attributes contribute similarly to LGB and straight participants' attractiveness judgments and do not account for the divergence in their respective ratings. Thus, the divergence in attractiveness judgments may stem from the heuristic sense of a person's attractiveness seated within cognition, rather than the individual perceptual items comprising attractiveness. In Studies 3–5, we therefore shift away from considering particular facial features as we further examine the association between perceived sexual orientation and attractiveness ratings identified in Study 1.

### Study 3

Thus far, we have found that people rate targets who they see as more likely to share their own sexual majority/minority status as more

**Table 2**  
*Model 2: Fixed Effects*

Effect	<i>b</i>	<i>SE</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>	95% CI
Participant sexual orientation	−0.14	0.10	256.5	−1.45	.15	.01	[0.00, 0.02]
Facial symmetry	0.12	0.07	191.9	1.82	.07	.02	[0.01, 0.03]
Facial symmetry × participant sexual orientation	0.06	0.03	4296.0	1.71	.09	.00	[0.00, 0.00]
Skin health	0.19	0.04	194.3	5.04	<.001	.12	[0.10, 0.14]
Skin health × participant sexual orientation	0.00	0.02	4312.0	0.21	.83	.00	[0.00, 0.00]
Target gender	0.20	0.12	356.3	1.69	.09	.01	[0.00, 0.02]
Target gender × participant sexual orientation	0.03	0.10	254.7	0.31	.76	.00	[0.00, 0.00]
Facial masculinity	0.29	0.09	198.7	3.35	<.001	.05	[0.04, 0.06]
Facial masculinity × target gender	0.31	0.09	199.0	3.56	<.001	.06	[0.05, 0.07]
Facial masculinity × participant sexual orientation	0.01	0.04	4281.0	0.29	.77	.00	[0.00, 0.00]
Facial masculinity × target gender × participant sexual orientation	0.03	0.04	4280.0	0.72	.47	.00	[0.00, 0.00]
Facial femininity	0.53	0.09	197.2	5.77	<.001	.15	[0.13, 0.17]
Facial femininity × target gender	−0.04	0.09	197.4	−0.48	.63	.00	[0.00, 0.00]
Facial femininity × participant sexual orientation	−0.03	0.05	4290.0	−0.65	.52	.00	[0.00, 0.00]
Facial femininity × target gender × participant sexual orientation	−0.01	0.04	4286.0	−0.24	.81	.00	[0.00, 0.00]

Note. CI = confidence interval.



attractive, even though straight and LGB perceivers seem to judge the facial attributes that constitute attractiveness similarly. To better understand this incongruity, we examine a bottom-up “wishful thinking” hypothesis here: that perceivers are motivated to infer that someone who looks attractive has a sexual orientation compatible with their own, rendering them a potential partner. We therefore manipulated targets’ attractiveness and asked participants to judge their sexual orientation. We specifically expected that LGB participants would judge attractive targets as more likely to be gay than unattractive targets, and that straight participants would likewise judge attractive targets as more likely to be straight than unattractive targets.

## Method

### Participants

We aimed to recruit 200 participants, which would grant 80% power to detect a small ( $\eta^2 = .01$ ) interaction effect in the mixed analysis of variance (ANOVA) outlined below per analysis in G\*Power (Faul et al., 2009). In anticipation of the need to exclude participants (e.g., for not reporting their sexual orientation), we recruited 208 American and Canadian participants ( $M_{\text{age}} = 32.29$  years,  $SD = 11.94$ ; 99 women including two transgender women, 97 men including one transgender man, 11 participants of other genders, and one participant who did not indicate their gender; 126 White/Caucasian, 22 East Asian, 14 who reported multiple racial/ethnic identities, 11 Black/African American, eight Middle Eastern, eight South Asian, eight Southeast Asian, six Hispanic/Latin, one Indigenous/Native/Aboriginal/First Nations, two with other racial/ethnic identities, two who did not indicate their race/ethnicity) through Prolific.co.uk. Of these participants, 109 identified as straight/heterosexual, 55 identified as bisexual, 23 identified as gay/lesbian/homosexual, 12 identified as pansexual, three identified as asexual/aromantic, four reported other sexual orientations, and two participants did not indicate their sexual orientation (rendering them ineligible for analysis). This yielded 206 participants; sensitivity analysis in G\*Power (Faul et al., 2009) indicated that this sample size afforded 80% power to detect a small interaction effect ( $\eta^2 = .01$ ). Participants were compensated £2.50.

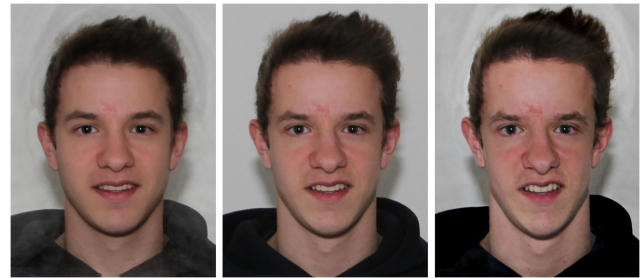
### Materials

To manipulate attractiveness, we altered each face image used in Studies 1 and 2 to increase and decrease its resemblance to an average composite face. We used WebMorph (beta V2; DeBruine, 2018) to delineate and transform the face images, adapting Valentine et al.’s (2004) guidelines. We began by creating two composite face images (one female and one male) that represented the average face shape and surface information (color and brightness) of all the female and male face images used above, respectively. We then created one version of each face image that we transformed to be 25% more similar to the average face image (i.e., reducing any differences in facial shape, color, or brightness between the face image and the average face image of the corresponding gender by 25%) and another version of each face image that we transformed to be 25% less similar to the average face image (i.e., increasing any differences in facial shape, color, and brightness between the face image and the average face image of the corresponding gender by 25%). See Figure 3 for an example set of transformed face images.

We reviewed all transformed face images and excluded any that two or more research assistants independently judged unsuitable due to

**Figure 3**

*Example of Transformed Face Images for Study 3*



*Note.* These images depict the same face image edited to be 25% more similar to the average face image and thus more attractive (left), unedited (center), and edited to be 25% less similar to the average face image and thus less attractive (right). See the online article for the color version of this figure.

transformation anomalies (e.g., blank spaces in the face, visible outlines of features from the average face image, etc.;  $n = 29$ ). The final stimulus set included 171 targets (40 LGB women, 46 straight women, 40 LGB men, 45 straight men) for 513 total face images. This subset largely resembled the full set of targets used in Studies 1 and 2 with respect to age ( $M_{\text{age}} = 19.34$ ,  $SD = 2.25$ ) and race/ethnicity (63 East Asian, 42 White/Caucasian, 17 South Asian, 16 Southeast Asian, four Middle Eastern, six Hispanic/Latin, one Indigenous/Native/Aboriginal/First Nations, 21 who reported multiple racial or ethnic identities, and one who reported other racial or ethnic identities), although we note that all three Black targets in the full stimulus set were excluded from this subset because exaggeration of skin tone differences relative to the average face image obscured some facial features. We acknowledge this as an important limitation of these facial transformations when using the same composite face image for multiple racial groups.

### Procedure

As in Study 1, participants first indicated their degree of attraction to men versus women to branch them toward rating targets of their preferred gender. They then rated one face image of every target of the corresponding gender from 1 (*definitely straight*) to 8 (*definitely gay*) with the face images evenly split between the increased attractiveness, decreased attractiveness, and unaltered versions. Thus, participants viewed and rated the perceived sexual orientation of one face image of every target of their preferred gender (i.e., 86 ratings for participants viewing women, 85 ratings for participants viewing men) but experienced all three image types. Three counter-balanced conditions assured that participants saw only one image of each individual target and that they saw an approximately equal number of face images from each image type.

### Analytic Approach

To determine how manipulating target attractiveness affected participants’ sexual orientation judgments, we computed each participant’s mean sexual orientation ratings for the increased, decreased, and unaltered face images and submitted the scores to a two-way mixed ANOVA with participant sexual orientation as a between-subjects factor (LGB vs. straight) and image type as a



within-subjects factor (increased attractiveness, unaltered, decreased attractiveness). We conducted our analyses in R (Version 4.0.4; R Core Team, 2021) and jamovi (Version 2.3; The jamovi project, 2022). We did not preregister this study or its analytic approach.

## Results

### Main Analysis

LGB participants ( $M = 3.79$ ,  $SD = 0.80$ ) rated targets as more likely to be gay than straight participants ( $M = 3.45$ ,  $SD = 0.88$ ) did,  $F(1, 202) = 10.96$ ,  $p = .001$ ,  $\eta^2 = .05$ , 90% CI [0.02, 0.08]. Sexual orientation ratings also differed by image type, however,  $F(2, 404) = 6.12$ ,  $p = .002$ ,  $\eta^2 = .01$ , 90% CI [0.002, 0.02]. Decomposing this latter main effect using post hoc Tukey tests showed that decreased-attractiveness targets ( $M = 3.70$ ,  $SD = 0.88$ ) were rated as significantly more likely to be gay than increased-attractiveness targets ( $M = 3.53$ ,  $SD = 0.87$ ),  $t(202) = 3.24$ ,  $p = .004$ ,  $r_{\text{effect size}} = .22$ , 95% CI [0.14, 0.29], and marginally more likely to be gay than unaltered targets ( $M = 3.60$ ,  $SD = 0.82$ ),  $t(202) = 2.18$ ,  $p = .08$ ,  $r_{\text{effect size}} = .15$ , 95% CI [0.07, 0.23]; ratings of increased-attractiveness and unaltered targets did not differ,  $t(202) = 1.42$ ,  $p = .33$ ,  $r_{\text{effect size}} = .10$ , 95% CI [0.02, 0.18].

A marginally significant interaction between participant sexual orientation and image type qualified this effect,  $F(2, 404) = 2.87$ ,  $p = .06$ ,  $\eta^2 = .01$ , 90% CI [0.00, 0.02]. Consistent with our predictions, Tukey tests showed that straight participants rated decreased-attractiveness targets ( $M = 3.60$ ,  $SD = 0.95$ ) as more likely to be gay than both unaltered ( $M = 3.41$ ,  $SD = 0.80$ ),  $t(202) = 2.98$ ,  $p = .04$ ,  $r_{\text{effect size}} = .21$ , 95% CI [0.13, 0.28], and increased-attractiveness targets ( $M = 3.33$ ,  $SD = 0.86$ ),  $t(202) = 3.85$ ,  $p = .002$ ,  $r_{\text{effect size}} = .26$ , 95% CI [0.19, 0.33], but rated the increased-attractiveness and unaltered targets similarly,  $t(202) = 1.29$ ,  $p = .79$ ,  $r_{\text{effect size}} = .09$ , 95% CI [0.01, 0.17]. In contrast, LGB participants' ratings of the increased-attractiveness ( $M = 3.76$ ,  $SD = 0.82$ ), unaltered ( $M = 3.80$ ,  $SD = 0.80$ ), and decreased-attractiveness targets ( $M = 3.82$ ,  $SD = 0.79$ ) did not significantly differ, all  $t(202) \leq 0.80$ , all  $ps \geq .97$ , all  $r_{\text{effect size}} \leq .06$ . Thus, attractiveness affected straight but not LGB participants' sexual orientation judgments.

### Exploratory Analyses

We performed an additional analysis incorporating participants' gender. To ensure balanced cell sizes, we limited this analysis to only participants who identified as men or women ( $N = 196$ ). Adding participant gender as an additional between-subjects factor returned a significant three-way interaction between participant gender, participant sexual orientation, and image type,  $F(2, 378) = 4.93$ ,  $p = .002$ ,  $\eta^2 = .01$ , 90% CI [0.001, 0.03]. Tukey tests showed that straight men rated decreased-attractiveness targets ( $M = 3.69$ ,  $SD = 0.95$ ) as more likely to be gay than both the unaltered ( $M = 3.25$ ,  $SD = 0.76$ ),  $t(189) = 5.22$ ,  $p < .001$ ,  $r_{\text{effect size}} = .35$ , 95% CI [0.28, 0.42], and increased-attractiveness targets ( $M = 3.13$ ,  $SD = 0.75$ ),  $t(189) = 6.05$ ,  $p < .001$ ,  $r_{\text{effect size}} = .40$ , 95% CI [0.33, 0.46], but rated the unaltered and increased-attractiveness targets similarly,  $t(189) = 1.48$ ,  $p = .94$ ,  $r_{\text{effect size}} = .11$ , 95% CI [0.03, 0.19]. LGB men, LGB women, and straight women rated all of the image types similarly, however, all  $t(189) \leq 1.13$ , all  $ps \geq .99$ , all  $r_{\text{effect size}} \leq .08$ .

As with the all-gender analysis, the interaction between participant sexual orientation and image type was only marginally significant,  $F(2, 378) = 2.75$ ,  $p = .07$ ,  $\eta^2 = .01$ , 90% CI [0.00, 0.02]. As above, a main effect of participant sexual orientation,  $F(1, 189) = 10.87$ ,  $p = .001$ ,  $\eta^2 = .05$ , 90% CI [0.02, 0.08], showed that LGB participants ( $M = 3.80$ ,  $SD = 0.80$ ) judged targets as more likely to be gay than straight participants ( $M = 3.45$ ,  $SD = 0.88$ ) did, and a main effect of image type,  $F(2, 378) = 6.04$ ,  $p = .003$ ,  $\eta^2 = .02$ , 90% CI [0.002, 0.04], showed that decreased-attractiveness targets ( $M = 3.69$ ,  $SD = 0.90$ ) were rated as more likely to be gay than the unaltered ( $M = 3.68$ ,  $SD = 0.84$ ),  $t(189) = 2.43$ ,  $p = .04$ ,  $r_{\text{effect size}} = .17$ , 95% CI [0.09, 0.25], and increased-attractiveness targets ( $M = 3.63$ ,  $SD = 0.89$ ),  $t(189) = 3.17$ ,  $p = .005$ ,  $r_{\text{effect size}} = .22$ , 95% CI [0.14, 0.30].

However, adding gender also allowed us to observe a two-way interaction between participant gender and image type,  $F(1, 378) = 7.72$ ,  $p < .001$ ,  $\eta^2 = .02$ , 90% CI [0.002, 0.04]. Men rated decreased-attractiveness targets ( $M = 3.74$ ,  $SD = 0.91$ ) as more likely to be gay than the unaltered ( $M = 3.44$ ,  $SD = 0.84$ ),  $t(189) = 4.25$ ,  $p < .001$ ,  $r_{\text{effect size}} = .30$ , 95% CI [0.22, 0.37], and increased-attractiveness targets ( $M = 3.39$ ,  $SD = 0.86$ ),  $t(189) = 4.33$ ,  $p < .001$ ,  $r_{\text{effect size}} = .30$ , 95% CI [0.22, 0.37]; no other comparisons reached significance, all  $t(189) \leq 1.98$ , all  $ps \geq .36$ , all  $r_{\text{effect size}} \leq .14$ . This two-way interaction, in turn, appears driven by the three-way interaction between participant sexual orientation, participant gender, and image type described above.<sup>2</sup>

## Discussion

In Study 3, we found partial evidence for the bottom-up "wishful thinking" hypothesis. Rather than participants rating physically attractive individuals as more likely to belong to their mating group, we found that straight men (and only straight men) rated less-attractive targets (for them, only women because of the study's design) as more likely to be outside of their mating group.<sup>3</sup> We note that the size of this exploratory three-way interaction effect is small ( $\eta^2 = .01$ ) and that post hoc power analysis in G\*Power (Faul et al., 2009) indicated that we achieved only 72% power for the detection of this effect, advising a cautious interpretation of this result. That said, this interaction appears to constitute an attenuating effect: Whereas most participant groups experienced no effect of image type on their sexual orientation ratings, the participant group driving the three-way interaction (straight men) showed robust differences in their ratings of the less-attractive targets relative to the other image types ( $r_{\text{effect size}} \geq .35$ ). Thus, although the overall effect is small, it is considerable for the relevant subset of participants driving the omnibus effect.

These results bolster our overall observation that sexual orientation provides a context for attractiveness perceptions. However, it

<sup>1</sup> We report the 90% CI here (and for all other  $F$  tests in the current work) because 95% CI can sometimes erroneously indicate a nonsignificant effect for  $F$  tests (i.e., the CI for a significant effect may nevertheless include 0; Smithson, 2001).

<sup>2</sup> See the online supplemental materials for additional results that decompose bisexual participants' ratings of each gender.

<sup>3</sup> Although faces manipulated to be less attractive might also be less sexually dimorphic, suggesting that they are LGB (e.g., Freeman et al., 2010), it is curious that only straight men construed the unattractive (female) faces as LGB; we discuss this further in the General Discussion.

provides only limited support for the proposed bottom-up “wishful thinking” mechanism, whereby attractiveness drives the association between attractiveness and sexual orientation illustrated in Studies 1 and 2. We therefore reverse the current test in Study 4 by examining whether top-down beliefs about a target’s sexual orientation affect perceptions of their attractiveness.

### Study 4

In Study 3, we sought to understand whether perceptions of attractiveness lead people to make motivated inferences about target sexual orientation. Here, we examine the reverse process: We explore whether a perceiver begins by judging a target’s sexual orientation and then makes a top-down adjustment of their perception of the target’s attractiveness. To test this question, we attached labels typical of dating advertisements to each face image and measured attractiveness ratings. We anticipated that LGB participants would rate targets they believe to be gay as more attractive than targets they believe to be straight, whereas straight participants would rate targets they believe to be straight as more attractive than targets they believe to be gay.

### Method

#### Participants

A priori power analysis using G\*Power (Faul et al., 2009) indicated that a sample of 200 participants would provide 80% power to detect a small ( $\eta^2 = .01$ ) interaction effect in the design outlined below. Upon collecting and analyzing data from 198 participants based on this calculation, however, we found that the interaction between participant and target sexual orientation appeared to be an attenuating effect, rather than the reversal effect we initially anticipated, prompting us to double the target sample size per Simonsohn’s (2015) recommendations. In anticipation of the need to exclude participants (e.g., for not reporting their sexual orientation), we thus recruited a total of 417 American and Canadian participants ( $M_{\text{age}} = 33.99$  years,  $SD = 12.51$ ; 200 women including four transgender women, 187 men, 15 participants of other genders, and 15 participants who did not indicate their gender; 246 White/Caucasian, 38 East Asian, 31 Hispanic/Latin, 24 who reported multiple racial/ethnic identities, 23 Black/African American, 16 South Asian, 15 Southeast Asian, three Middle Eastern, one Indigenous/Native/Aboriginal/First Nations, four with other racial/ethnic identities, 16 who did not indicate their race/ethnicity) through Prolific.co.uk. Of these participants, 213 identified as straight/heterosexual, 118 identified as bisexual, 56 identified as gay/lesbian/homosexual, 13 identified as pansexual, one identified as asexual/aromantic, and 16 participants did not indicate their sexual orientation (and were thus ineligible for analysis); six participants provided incomplete data and were likewise excluded, yielding a final sample of 395 participants. Sensitivity analysis in G\*Power (Faul et al., 2009) indicated that this design enjoyed 80% power to detect a small interaction effect ( $\eta^2 = .005$ ) with its final sample size (albeit not compensating for the loss of statistical power described by Simonsohn, 2015). Participants were compensated £1.50.

#### Materials

Because this study requires manipulating beliefs about the target sexual orientation, we reduced the stimulus set from the previous studies to include only targets whose sexual orientation is less

confidently categorized by participants. Employing such perceptually ambiguous targets would reduce the chance that participants would form strong appearance-based judgments about the targets’ sexual orientations that might lead them to question or reject the (experimentally manipulated) sexual orientation labels. We therefore aggregated the sexual orientation ratings of the unaltered images from Study 3 to obtain the average sexual orientation rating of each target based on their unaltered face image. We then selected the 60 target face images closest to the midpoint of the theoretical range of average sexual orientation ratings (4.5) for each gender, thereby omitting targets whose average ratings were closest to the extremes of the scale. This subset resembled the full set of targets used in the previous studies with respect to age ( $M_{\text{age}} = 19.23$ ,  $SD = 1.91$ ) and race/ethnicity (47 East Asian, 33 White/Caucasian, nine South Asian, eight Southeast Asian, three Middle Eastern, four Hispanic/Latin, one Indigenous/Native/Aboriginal/First Nations, 13 who reported multiple racial or ethnic identities, and one who reported other racial or ethnic identities).

#### Procedure

Participants first indicated their degree of attraction to men versus women, as above, and then rated all 60 targets of their preferred gender from 1 (*not at all attractive*) to 8 (*very attractive*). To manipulate participants’ beliefs about target sexual orientation, we randomly labeled each face image with text indicating their gender and preference: either “Man seeking man” or “Man seeking woman” for male targets, and either “Woman seeking man” or “Woman seeking woman” for female targets. These labels were counterbalanced across participants such that a given target could occur with either label for its gender across participants, but a given participant would only view each target once alongside one of the two labels. To explain our including this information, we informed participants that the task may involve viewing information from the targets’ online dating profiles in addition to their face images.

#### Analytic Approach

We averaged each participant’s attractiveness ratings for the targets they were led to believe were gay, and those they were led to believe were straight and submitted them to a two-way mixed ANOVA with participant sexual orientation as a between-subjects factor (LGB vs. straight) and target sexual orientation as a within-subjects factor (gay vs. straight). We conducted our analyses in R (Version 4.0.4; R Core Team, 2021) and jamovi (Version 2.3; The jamovi project, 2022). This study was not preregistered.

#### Results

Ostensibly gay targets ( $M = 3.41$ ,  $SD = 1.31$ ) received higher overall attractiveness ratings than ostensibly straight targets ( $M = 3.37$ ,  $SD = 1.29$ ) did,  $F(1, 393) = 5.09$ ,  $p = .03$ ,  $\eta^2 = .01$ , 90% CI [0.001, 0.02]. A significant interaction with participant sexual orientation qualified this main effect,  $F(1, 393) = 12.67$ ,  $p < .001$ ,  $\eta^2 = .03$ , 90% CI [0.01, 0.05], with Tukey tests showing that LGB participants rated targets as more attractive when they were led to believe that the targets were gay ( $M = 3.54$ ,  $SD = 1.34$ ) than when they were led to believe that the targets were straight ( $M = 3.43$ ,  $SD = 1.32$ ),  $t(393) = 4.00$ ,  $p < .001$ ,  $r_{\text{effect size}} = .20$ , 95% CI [0.13, 0.26]; no other attractiveness ratings significantly differed,

however, all  $t_s(393) \leq 1.89$ , all  $p_s \geq .24$ , all  $r_{\text{effect size}} \leq .09$ . The main effect of participant sexual orientation was not significant,  $F(1, 393) = 1.86$ ,  $p = .17$ ,  $\eta^2 = .00$ , 90% CI [0.00, 0.00].<sup>4</sup>

## Discussion

In Study 3, manipulating targets' attractiveness influenced judgments of sexual orientation whereas, here, manipulating targets' sexual orientation influenced judgments of attractiveness. Interestingly, these complementary processes applied to different groups, such that attractiveness influenced only straight men's judgments bottom-up and sexual orientation influenced LGB participants' judgments top-down. Although we return to this juxtaposition in the General Discussion, both streams of influence underscore how learning information about social targets contributes to forming a context for perception, even for an inference as robust as facial attractiveness.

## Study 5

Whereas target sexual orientation shaped judgments of attractiveness for LGB (but not straight) participants in Study 4, we note two key limitations to this result. First, we cannot determine whether it reflects a preference for sexually compatible targets (e.g., lesbians experiencing greater attraction to women who can reciprocate their interest) or ingroup favoritism (e.g., lesbians rating gay men as more attractive than straight men because gay men belong to their community), because participants only judge targets of a single preferred gender. Second, grouping lesbians, gay men, and bisexual people into a single LGB category flattens potential differences between these groups. We therefore repeated the paradigm used in Study 4 but (a) asked participants to rate both male and female targets (regardless of their preferred gender), (b) included (binary) participant gender in the analysis, and (c) distinguished between bisexual, gay/lesbian, and straight participants. These changes allowed us to differentiate between top-down effects driven by compatibility versus by ingroup favoritism, to compare bisexual versus gay/lesbian and straight participants, and to understand bisexual participants' preferences for male and female targets.

## Method

### Participants

A priori power analysis using power analysis for general anova designs (Westfall, 2016) indicated that 1,002 participants would yield 80% power to detect a small effect (Cohen's  $d = 0.20$ ; determined based on a pilot study) in the four-way mixed design outlined below. We successfully recruited 987<sup>5</sup> American and Canadian participants through Prolific.co.uk in exchange for £1.50, excluding 35 (eight who reported issues viewing the face images, 21 who did not report binary gender identities, and six who identified as asexual or did not report their sexual orientation) for a final sample of 952 participants ( $M_{\text{age}} = 36.14$  years,  $SD = 12.31$ ; 477 men including 21 transgender men, 475 women including four transgender women; 591 White/Caucasian, 131 Black/African American, 62 Hispanic/Latin, 60 who reported multiple racial/ethnic identities, 47 East Asian, 25 South Asian, 25 Southeast Asian, three Indigenous/Native/Aboriginal/First Nations, one Middle Eastern, five with other racial/ethnic identities, two who did not indicate their race/ethnicity). Of these participants, 354 identified as straight/heterosexual,

301 as gay/lesbian/homosexual, 273 as bisexual, and 24 as pansexual (for the purpose of analysis, we included these participants in the bisexual group because they experience attraction to both men and women). Sensitivity power analysis indicated that this final sample size provided 80% power to detect a small effect (Cohen's  $d = 0.21$ ) in the four-way mixed design outlined below.

### Materials

Participants viewed and rated face images drawn from the same subset of 120 face images used in Study 4.

### Procedure

Participants viewed 60 face images drawn at random from the larger pool of 120 face images and rated the attractiveness of each face from 1 (*not at all attractive*) to 8 (*very attractive*). As in Study 4, faces appeared alongside a randomized label indicating the target's gender and preference for a male or female partner. A face always appeared alongside the same-gender label (consistent with that target's actual self-reported gender) and a randomly selected label for their preferred mate gender; no participant saw the same face more than once. Unlike in Study 4, participants viewed both male and female faces irrespective of their own preferred gender. For exploratory purposes, participants rated their preference for men versus women as above from 1 (*only attracted to men*) to 7 (*only attracted to women*) in the posttask demographics questionnaire in addition to reporting their preferred sexual orientation label as described above.

### Analytic Approach

We averaged participants' attractiveness ratings for each of the four target categories (ostensibly gay men, ostensibly straight men, ostensibly gay women, ostensibly straight women) and submitted them to a four-way mixed ANOVA with participant sexual orientation (bisexual vs. gay/lesbian vs. straight) and participant gender (male vs. female) as between-subjects factors and target sexual orientation (gay vs. straight) and target gender (male vs. female) as within-subjects factors using jamovi (Version 2.3; [The jamovi project, 2022](https://www.jamovi.org/)) and R (Version 4.0.4; [R Core Team, 2021](https://www.r-project.org/)). Due to the design's complexity, we report full results in the [online supplemental materials](#) while focusing on the most relevant subset here. We preregistered both this study and its analytic approach on OSF ([https://osf.io/jrsgu/?view\\_only=61259d313feb4d138159b5fd236e9dbf](https://osf.io/jrsgu/?view_only=61259d313feb4d138159b5fd236e9dbf)).

### Results

As in Study 4, we found a significant two-way interaction between participant and target sexual orientation,  $F(2, 946) = 21.13$ ,  $p < .001$ ,  $\eta^2 = .02$ , 90% CI [0.01, 0.03]. Post hoc Tukey tests showed that bisexual participants rated ostensibly gay targets ( $M = 4.07$ ,  $SD = 1.39$ ) as more attractive than ostensibly straight targets ( $M =$

<sup>4</sup> See the [online supplemental materials](#) for additional results that decompose bisexual participants' ratings of each gender.

<sup>5</sup> We halted data collection prior to meeting the target sample size because we had exhausted the pool of active Prolific users who self-identified as lesbians and had not already participated in any previous studies in this line of research.

3.98,  $SD = 1.36$ ),  $t(946) = 4.11$ ,  $p < .001$ ,  $r_{\text{effect size}} = .13$ , 95% CI [0.10, 0.16], and that gay/lesbian participants rated ostensibly gay targets ( $M = 3.87$ ,  $SD = 1.49$ ) as more attractive than ostensibly straight targets ( $M = 3.73$ ,  $SD = 1.43$ ),  $t(946) = 6.47$ ,  $p < .001$ ,  $r_{\text{effect size}} = .21$ , 95% CI [0.18, 0.24]. Straight participants, in contrast, rated ostensibly gay ( $M = 3.70$ ,  $SD = 1.34$ ) and ostensibly straight targets ( $M = 3.74$ ,  $SD = 1.34$ ) similarly,  $t(946) = 2.18$ ,  $p = .25$ ,  $r_{\text{effect size}} = .07$ , 95% CI [0.04, 0.10].

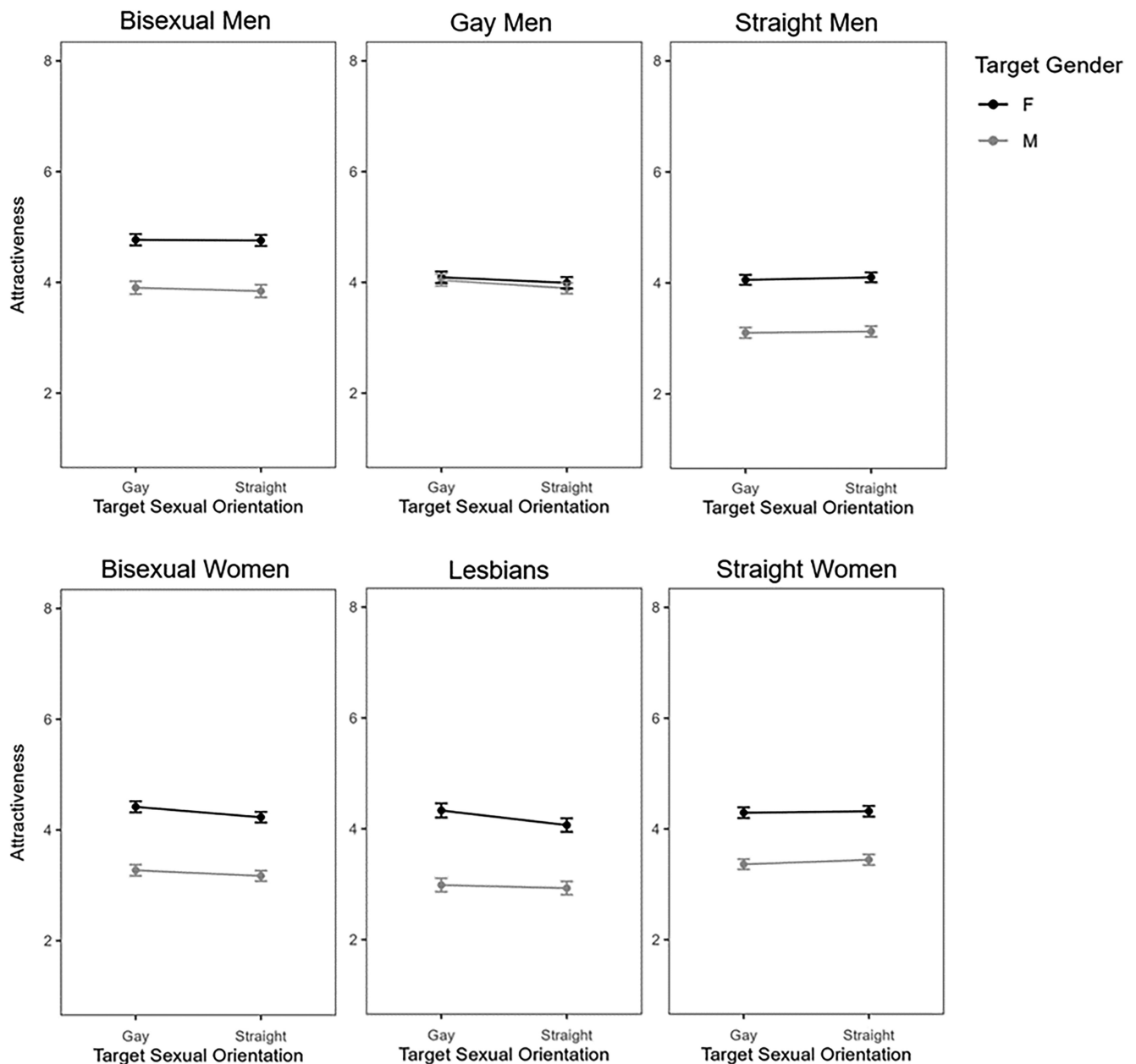
Whereas the four-way interaction between participant sexual orientation, participant gender, target sexual orientation, and target

gender was not significant,  $F(2, 946) = 1.44$ ,  $p = .24$ ,  $\eta^2 = .00$ , 90% CI [0.00, 0.00], we nevertheless conducted post hoc Tukey tests for the four-way interaction to disentangle sexual orientation compatibility from ingroup favoritism (see Figure 4 for cell means).

Whereas bisexual men rated gay and straight men similarly,  $t(946) = 1.47$ ,  $p = .25$ ,  $r_{\text{effect size}} = .05$ , 95% CI [0.02, 0.08], and gay and straight women similarly,  $t(946) = 0.27$ ,  $p > .99$ ,  $r_{\text{effect size}} = .01$ , 95% CI [-0.02, 0.04], bisexual women rated only gay and straight men similarly,  $t(946) = 2.68$ ,  $p = .54$ ,  $r_{\text{effect size}} = .09$ , 95% CI [0.06, 0.12]—rating lesbians as more attractive than straight women,  $t(946) = 4.42$ ,

**Figure 4**

Cell Means by Participant Sexual Orientation, Participant Gender, Target Sexual Orientation, and Target Gender



Note. The text above each panel indicates participant gender and sexual orientation. Error bars represent standard error. F = female; M = male.



$p = .003$ ,  $r_{\text{effect size}} = .14$ , 95% CI [0.11, 0.17]. Meanwhile, gay men rated other gay men as more attractive than straight men,  $t(946) = 3.84$ ,  $p = .03$ ,  $r_{\text{effect size}} = .12$ , 95% CI [0.09, 0.15], and lesbians rated other lesbians as more attractive than straight women,  $t(946) = 5.90$ ,  $p < .001$ ,  $r_{\text{effect size}} = .19$ , 95% CI [0.15, 0.22], but neither group differentiated between gay and straight targets of the other's gender, gay men,  $t(946) = 2.32$ ,  $p = .80$ ,  $r_{\text{effect size}} = .08$ , 95% CI [0.05, 0.11]; lesbians,  $t(946) = 1.37$ ,  $p > .99$ ,  $r_{\text{effect size}} = .04$ , 95% CI [0.01, 0.07]. In other words, all sexual minority participant groups except bisexual men rated same-gender targets as more attractive when those targets were ostensibly attracted to the participant's gender (i.e., when the targets were sexually compatible with the participant). Meanwhile, when sexual minority participants rated other-gender targets, they gave similar ratings regardless of whether the target was depicted as gay or straight. This was true even of bisexual participants. Although the compatibility perspective would predict, for instance, that a bisexual woman would find a man more attractive when he is described as seeking a female rather than a male mate (because this means he can reciprocate her feelings of attraction), we instead found that bisexual women rate ostensibly gay and ostensibly straight men as similarly attractive; likewise, bisexual men give similar attractiveness ratings for ostensibly gay and ostensibly straight women.

Noting male and female bisexual participants' different attractiveness rating patterns, we conducted an unregistered exploratory analysis comparing their self-reported same-gender attraction. We reverse-coded bisexual men's ratings so that higher scores indicate greater attraction to men (whereas higher scores in women indicate greater attraction to women). An independent-samples Welch  $t$  test with Satterthwaite approximation showed that bisexual women ( $M = 4.04$ ,  $SD = 1.01$ ) self-reported greater same-gender attraction than bisexual men ( $M = 3.38$ ,  $SD = 1.19$ ),  $t(268.12) = 5.30$ ,  $p < .001$ , Cohen's  $d = 0.62$ .

Though peripheral to the primary research question, we also note a very strong main effect of target gender,  $F(1, 946) = 823.75$ ,  $p < .001$ ,  $\eta^2 = .46$ , such that female targets are rated as significantly more attractive ( $M = 4.28$ ,  $SD = 1.31$ ) than male targets ( $M = 3.40$ ,  $SD = 1.35$ ). A significant three-way interaction with participant gender and sexual orientation qualified this difference such that gay men rated male and female targets as similarly attractive,  $t(946) = 1.01$ ,  $p > .99$ ,  $r_{\text{effect size}} = .03$ , 95% CI [0.00, 0.06], whereas all other participant groups rated female targets as significantly more attractive than male targets, all  $t(946) \geq 11.28$ , all  $ps \leq .001$ , all  $r_{\text{effect size}} \geq .34$ .

## Discussion

Study 5 replicates the interaction between participant and target sexual orientation identified in Study 4: Sexual minority (i.e., bisexual and gay/lesbian) participants express greater attraction to ostensibly gay targets. Moreover, the current results show that this preference for ostensibly gay targets emerges only for gay men's, lesbians', and bisexual women's ratings of same-gender targets. Thus, LGB participants' preference for LGB targets indicates a compatibility effect (i.e., seeing ostensibly gay same-gender targets as more attractive because they can reciprocate this attraction) rather than ingroup favoritism (i.e., rating ostensibly gay targets as more attractive irrespective of gender because they share a sexual minority identity with the perceiver). Interestingly, this top-down compatibility

effect emerges in bisexual women's ratings of women but not in their ratings of men; combined with straight perceivers' attractiveness ratings being agnostic of target sexual orientation, these compatibility effects thus appear to exclusively apply to sexual minority perceivers' attraction to the same gender.

That said, we stress two caveats to these findings. First, although pairwise comparisons identified significant effects of target sexual orientation, the four-way interaction itself did not reach significance. Given that the effect of target sexual orientation on attractiveness judgments appears to attenuate (rather than reverse) in straight participants, the interaction's true achieved power is likely much lower than the power analysis indicated (see [Simonsohn, 2015](#)). We recognize this as an important limitation and advise caution in interpreting these particular findings. We nevertheless consider these post hoc comparisons worthy of consideration for the light that they shed on how target and participant sexual orientation relate here and in Study 4.

The second caveat is that bisexual men did not rate ostensibly gay and straight men differently. Given that the bisexual women reported greater same-gender attraction than the bisexual men, we speculate that the degree of attraction to one's own gender may moderate the compatibility effect rather than simply one's identity as LGB. Future research could seek to address this possibility. Importantly, we do not raise this point to imply that the bisexual men in the sample are somehow "less bisexual" than the bisexual women; we do note, however, that bisexual men face particular attitudes and constraints that set them apart from other groups in the sample. For one thing, people hold particularly negative attitudes toward bisexual men, even when compared to other sexual minority groups ([Helms & Waters, 2016](#)). Moreover, men who experience attraction to both men and women have long faced assumptions that they are "really" gay ([Eliaison, 2000](#)). This antipathy and accompanying misconception may push men who experience attraction toward men and women toward labels other than "bisexual" and may furthermore shape how men who adopt the bisexual label express attraction. For instance, past research has highlighted men who identify as gay despite experiencing varying degrees of attraction to women ([McCormack & Savin-Williams, 2018](#)), suggesting that men who experience attraction to women but prefer men may, in at least some cases, elect to label themselves as gay rather than as bisexual. Other research has found that behaviorally bisexual men who experience more romantic and sexual involvement with women more often conceal their bisexuality from female partners and from others in their lives ([Schrimshaw et al., 2013](#); [Siegel & Meunier, 2019](#)). Even among men who identify as bisexual, then, incentives may exist to downplay one's attraction to ostensibly gay men to protect this identification and avoid being misperceived as truly gay.

We also note that all but gay men rated women as more attractive than men. Whereas this difference seems expected in the case of straight men and lesbians, it also applies to bisexual participants (who experience romantic and sexual attraction to men and women alike) and straight women, who express no romantic or sexual attraction to women. This suggests that the measure we used not only taps judgments of personal attraction (e.g., how much a perceiver experiences desire for a given target) but also a broader evaluation of the aesthetic attractiveness of a person's appearance separate from the perceiver's own sexual or romantic interest (see also [Bjornsdottir et al., 2024](#)); perhaps asking participants to rate targets of genders to which they are not attracted facilitated this

separation of personal interest from aesthetics. This broad preference for female targets might alternatively reflect a stimulus effect whereby the female targets possess attractive facial attributes to a greater extent than the male targets. Indeed, gender role expectations place greater value upon the physical appearance and attractiveness of women than of men (Fredrickson & Roberts, 1997; Parker, 2017; Ramati-Ziber et al., 2020); correspondingly, appearance-enhancing behaviors such as makeup use are far more normative in women (Hall et al., 2012). Thus, the average woman may enhance her appearance more than the average man, leading to higher attractiveness ratings. Notably, this overall pattern of perceiving women as more attractive was attenuated in gay men but not in straight women (the two participant groups with no romantic or sexual interest in women). We speculate that straight women may display greater aesthetic appreciation for women's attractiveness-enhancement efforts than gay men because women have had more exposure to the norms and expectations that shape female beauty standards. Thus, straight women's higher attractiveness ratings could reflect respect or admiration for the female targets' efforts.

### General Discussion

The present research demonstrates how one's own sexual orientation and beliefs about others' sexual orientation create a context that shapes their attractiveness judgments. We find evidence that, broadly, people rate individuals who they believe are members of their sexual orientation ingroup as more attractive than people who they believe are not. Indeed, in Study 1, participants' sexual orientation moderated the association between their perceptions of targets' attractiveness and sexual orientation. Although straight and LGB participants evaluated the components of facial attractiveness similarly (Study 2), experiments showed that perceptions of attractiveness can influence perceptions of sexual orientation (Study 3) and that sexual orientation perceptions can influence perceptions of attractiveness (Studies 4 and 5). Meaningfully, the flow of causality differs according to the perceiver: Straight men use attractiveness as a bottom-up cue to sexual orientation whereas LGB perceivers use sexual orientation as a top-down cue to attractiveness when judging same-gender (but not other-gender) targets. This, in turn, indicates that sexual orientation provides a contextual frame for social perception, with perceivers processing social stimuli differently as a result of the experiences, opportunities, and constraints stemming from their sexual identity.

Indeed, the association between perceived attractiveness and perceived sexual orientation appears to reflect bottom-up wishful thinking among straight men and top-down compatibility-based inferences among LGB perceivers. Specifically, attractiveness acted as a bottom-up cue to sexual orientation for straight participants in Study 3, such that straight men construed physically attractive women as more likely to be straight and construed physically unattractive women as more likely to be gay. In other words, straight men viewing attractive women made a self-serving inference that those women desire men as romantic and sexual partners, even though the "attractive" individuals merely consisted of edited images of the same people as the "unattractive" individuals (thus with the same actual sexual orientation, albeit between participants). Considering that sexually dimorphic features constitute a component of attractiveness ratings (Johnston et al., 2001; Komori et al., 2009) and that lesbians often don styles associated with men (e.g., short

hair), it may also be that straight men think of lesbians as less attractive than straight women due to their being less feminine than straight women (as past work on gender atypicality would predict; Freeman et al., 2010). Straight men's inferences that unattractive women are more likely to be gay could thus be driven by negative stereotypes about lesbians' appearance (beliefs not necessarily limited to straight men; Beren et al., 1997; Hayfield, 2013). That said, the sexual orientation judgments of LGB women (who viewed the same faces in Study 3) did not relate to attractiveness, perhaps reflecting resistance to negative stereotypes about their own group. Thus, straight men's and queer women's distinct sexual orientation judgments indicate that social context influences their social perceptions in divergent ways.

In contrast, sexual orientation acted as a top-down cue to physical attractiveness in Studies 4 and 5. There, LGB participants of all genders collectively rated the people they thought belonged to their mating pool as more attractive. This too represents a self-serving inference, but of a different nature. Namely, LGB people risk harassment and violence due to their sexual orientation (Huebner et al., 2004; Meyer et al., 2021) and can thus be endangered by mistaken passes at potential partners that prove to be straight. Sequestering their attraction to straight individuals while focusing their interest on queer targets thus helps them to guard their physical (and emotional) safety and relates to LGB individuals' (a) historic use of symbols (e.g., clothing) to unobtrusively signal their identity to each other (Chauncey, 1994; Lvovsky, 2020) and (b) greater contemporary use of online dating apps that allow unambiguous filtering of prospective partners, circumventing the risks associated with finding partners in other settings (Lever et al., 2008; Sumter & Vandenbosch, 2019).

It is therefore perhaps unsurprising that (top-down) cognitions related to identifying who may be a candidate for LGB individuals' sexual or romantic interest would influence their (bottom-up) perceptions of attractiveness. Yet, it is compelling that learning information about sexual orientation contextualizes a relatively fundamental social perception in this way—similar to previous work showing that ideas about a person's race can influence the basic perception of their physical features (e.g., Blair et al., 2002; MacLin & Malpass, 2001; Tskhay & Rule, 2015a). This reinforces that top-down social category information can meaningfully shape perceptions that one might expect low-level perceptual features to drive; these top-down influences may become especially pronounced when categorization is ambiguous or difficult (e.g., when judging social categories without obvious perceptual markers or when judging a racially ambiguous person).

The present research thus shows that a person's identity not only affects how different social perceptions connect, but also the direction of this connection. Specifically, sexual orientation and perceptions thereof affect attractiveness judgments at the target and perceiver level: People's sexual orientations influence both how they judge others' attractiveness and how attractive they are to (at least LGB) others. Group membership thus creates a context that guides social perceptions, including people's beauty standards and the cues that they use to judge sexual orientation (as for female targets in Study 3). Because these social perceptions do not proceed identically for different groups, considering perceiver identity as relevant context seems important when studying certain domains of social perception.

Based on this variation in how perceivers respond to diversity in the sexual orientations of those around them, the way that perceivers

learn to utilize information about targets' attractiveness and sexual orientation seems malleable. Our findings suggest that straight men and sexual minority women differ in how they have learned to utilize information about a woman's attractiveness as a cue to her sexual orientation. Straight men and sexual minority women thus appear to have acquired different notions of what sexual diversity (particularly minority sexual identity) looks like in women. The bottom-up cues that lead straight men to characterize a given social environment as sexually diverse (insofar as it is believed to include sexual minority women) therefore appear to differ from the cues that lead sexual minority women to this same conclusion. This difference highlights how the factors that promote perceptions of diversity can vary across perceivers, perhaps especially for perceptually ambiguous social categories. Presented with the same visual information about the same individuals, two different perceivers can nevertheless come to systematically different conclusions about whether the same group of people is sexually diverse.

Likewise, we find that straight and LGB perceivers differ in how they have learned to incorporate the sexual orientation of a target person in other social judgments. As discussed above, LGB people experience social forces and pressures that require them to confer greater importance on the sexual orientation of a target person when judging their attractiveness. Because of both their belonging to the numerical sexual minority and their experiences with marginalization based on their sexual orientation, LGB people may have learned to incorporate top-down information about target identity in their appraisals of a target's appearance. Membership in marginalized groups may thus lead people to learn to value diversity differently than members of socially dominant groups do: LGB people attend to information about the presence of sexual diversity more so than their straight counterparts (at least in this area of judgment) and respond favorably to those outside the majority, viewing them as more attractive.

Moreover, bisexual women prefer sexually compatible targets when judging women but not men. This suggests that these learned differences in response to diversity are themselves contextually bound: Bisexual women do not learn to broadly confer importance on the sexual orientation of people that interest them but, rather, they seem to have learned to account for this information in relevant contexts—namely, when judging women's attractiveness. When base-rate constraints on compatibility and the risk of revealing a sexual minority identity are absent (as when bisexual women consider seeking relationships with male and not female partners), these women appear not to have learned to take sexual orientation into account. Thus, contextual learning about how to detect the presence of diversity and what to do with this information may vary both between and within perceivers. Correspondingly, the downstream consequences of judgments about the group memberships of others and the diversity of one's social environment appear to differ not just according to the identity of the person making these judgments, but also according to the context in which these judgments take place.

These findings also provoke thoughts about other contextual factors that may influence social perception. For instance, apart from identity or group membership, one's behaviors and motivations might shape their physical attractiveness judgments. Indeed, as reviewed above, a person's sociosexuality can influence what facial attributes they find attractive (Quist et al., 2012; Sacco et al., 2012) and how attractive others find them (Boothroyd et al., 2008; Fisher et al., 2016; Stewart-Williams et al., 2017). One's relationship status

and goals might likewise affect how attractive they seem and to whom they feel attracted (O'Hagen et al., 2003; Petit & Ford, 2015). For instance, research on short-term and long-term mating strategies (i.e., seeking a partner for a single sexual encounter vs. a committed relationship, respectively) has suggested that individuals seek different types of partners within different physical and cognitive contexts according to which partner will best enhance the fitness of any potential offspring in that context (Burriss et al., 2011; Feinberg et al., 2012). When seeking a long-term mate, women may favor partners who can contribute both good genes (as indexed by physical attractiveness, dominance, etc.) and resources for childrearing (as indexed by wealth, social status, etc.); in contrast, when seeking a partner who they do not expect to coparent, they may value markers of genetic fitness more and care less about parenting potential (Li et al., 2011; Trivers, 1972). Mating strategies therefore provide another context that may shape attractiveness judgments.

## Limitations and Future Directions

These insights notwithstanding, the present results are small in magnitude. Thus, although perceived sexual orientation can shape judgments of attractiveness and attractiveness can shape judgments of sexual orientation (depending on the perceiver group), these particular factors do not preferentially drive these evaluations. As expected, much of the variance in these judgments relates to other cues, such as sexually dimorphic facial features and complexion (for judgments of attractiveness; e.g., Fink et al., 2006; Perrett et al., 1998) or gender typicality and affect (for judgments of sexual orientation; e.g., Freeman et al., 2010; Tskhay & Rule, 2015b). Yet, even small effects can have a meaningful practical impact and therefore merit consideration (e.g., Rosenthal & Rosnow, 2008). Indeed, given the far-reaching impact of attractiveness judgments on other social perceptions (e.g., Langlois et al., 2000; Lorenzo et al., 2010), even small differences in who looks attractive to whom can accumulate into noticeable differences in a person's relationships and life experiences (e.g., lifetime earnings; Hamermesh & Biddle, 1993). Context thus adds meaningful nuance to these otherwise powerful social perceptions. Identifying the cues studied here as significant contributors to attractiveness and sexual orientation judgments in certain contexts thereby further elucidates the underpinnings of these important social perceptions and their downstream impact, even as other cues logically take primacy in these judgments.

This work also adopts a highly limited framework of perceived sexual orientation such that the scale anchors (*definitely straight* to *definitely gay*) and manipulations ("[man/woman] seeking [man/woman]") capture only exclusive same-gender attraction and exclusive other-gender attraction, and do so within a binary framework of gender. The relative efficiency of this scale has advantages for the present work: The scale simultaneously captures beliefs about whether the target is attracted to the perceiver's own gender (which informs the majority of the hypotheses examined here) and confidence in those beliefs, such that we can collect two points of key information for the mechanisms explored here without increasing demands on participants by seeking multiple ratings of each target. This approach flattens judgments and depictions of target sexual orientation, however, eliding other minority sexual identities like bisexuality and asexuality, and the nuances of what different sexual orientation labels may indicate about attraction to people with

nonbinary genders. Thus, we lose the resolution to study the effects and antecedents of other possible beliefs about target sexual orientation, such as believing that a target experiences attraction to multiple genders or believing that a target experiences no sexual or romantic attraction at all. Moving past the initial set of findings reported here, future work that further explores the connection between judgments of attractiveness and sexual orientation should seek to build upon this operationalization to better reflect the expansiveness and complexity of sexual orientation and of gender. By incorporating more flexible measures and manipulations (e.g., asking participants to separately rate their beliefs about each target's degree of attraction to men, women, and nonbinary people; including manipulations of ostensible target sexual orientation that suggest patterns of attraction other than exclusive interest in men or exclusive interest in women), further studies can better capture the full spectrum of sexual diversity as it relates to judgments of attractiveness.

In a similar vein, we also note that the current operationalization of sexual orientation ingroups and outgroups is rather broadly construed: In most of the present studies, we treat sexual minority individuals as one group and members of the straight sexual majority as another. That said, numerous distinct identities exist under the umbrella of minority sexual orientations, and whereas shared experiences and forms of marginalization unite these identities, distinct experiences and struggles also characterize each group. Thus, future research may focus on more specific identities and ingroups within the queer community to examine whether these processes still hold true. For instance, further studies might examine whether bisexual perceivers feel more attracted to bisexual targets than to straight or exclusively gay targets, as these targets would share more of their lived experiences and would be less likely to perpetuate biphobia or bisexual erasure. Similar research may likewise examine whether asexual people who desire romantic relationships feel more attraction to asexual potential partners due to shared experiences and the lack of potential relationship complications that may stem from discrepant levels of interest in sex.

Furthermore, we note that the ratings solicited and the manipulations used in the majority of these studies make both target attractiveness and target sexual orientation highly salient. Demand characteristics might have therefore shaped participants' responses and overestimated the size of the observed effects. Future research may seek to replicate these results through more oblique study designs to address this possibility. That said, demand characteristics do not provide a parsimonious explanation for the group-specific findings in Studies 3–5. Perhaps these demand characteristics acted on perceivers differently according to their identity, such that straight participants gave socially desirable responses that ignored sexual orientation when judging attractiveness in Studies 4 and 5, whereas LGB participants inferred the aims of the study and felt pressured to respond accordingly. If so, it seems odd that straight men would freely ascribe minority sexual identity to less-attractive women in Study 3, however, or that bisexual women would only consider compatibility when rating female targets. If the present findings do reflect demand characteristics, then their inconsistency across participant identities merits investigation itself.

Future research may also seek to replicate these findings with other perceptually ambiguous social groups that could likewise create decisive contexts in mate selection. Notably, political affiliation shapes mate choice but does not pose the same absolute constraint

that sexual orientation does. In other words, individuals with different ideologies may be psychologically incompatible but not incompatible on the basis of gender. Thus, in addition to providing tests of the generalizability of these findings, differences related to political affiliation versus sexual orientation may illuminate the underlying processes relevant to how context modulates social perception by helping to exclude factors specific to sexual orientation.

## Constraints on Generality

The findings of these five studies indicate that (a) perceptions of sexual orientation correlate with perceptions of attractiveness, (b) the direction of this correlation varies according to the sexual orientation of the perceiver, and (c) the mechanisms that underlie this correlation differ according to the social groups to which the perceiver belongs. We note, however, that we conducted this research entirely within a North American cultural context: All target individuals were photographed at a lab in Toronto, Ontario and all participants reported residing in either the United States or Canada. We note also that the collection of photographic stimuli took place from 2016 to 2019 and that we collected participant data from 2021 to 2023. Thus, these findings may not generalize to other cultural contexts (as defined by both location and time), particularly those in which mainstream perceptions of sexual minority people differ substantially from contemporary mainstream North American opinion, or in which LGB people experience more limited rights (e.g., no legal recognition of same-gender marriage, criminalization of same-gender sexual activity). As noted above, perceived sexual orientation also emphasized exclusive attraction to a single binary gender in these studies, creating a framework of perception as either straight or gay/lesbian that does not properly encompass other sexual orientations; these findings thus stand to benefit from replication or extension to the contexts of other sexual identities and more expansive frameworks of gender.

## Conclusion

The present research illustrates how the context created by one's group membership can affect social perception. Specifically, perceiver identity can provide a context for social judgments that promote the use of distinct cues in evaluating attractiveness and sexual orientation. These alternative strategies lead to different outcomes for the judgments; that is, who people appraise as attractive. For instance, whereas attractiveness might guide some perceivers' (i.e., straight men's) perceptions of sexual orientation as a form of wishful thinking, LGB individuals appear to conversely consider sexual and romantic compatibility in assessing same-gender attractiveness (i.e., a same-gender target person's sexual orientation may gate whether an LGB perceiver finds them attractive). Group differences in the processes underlying attractiveness judgments may thus be shaped by those groups' social contexts such that context scaffolds social perception, leading to distinct interpersonal perceptual outcomes for members of different groups.

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