



Short Communication

Familiarity increases the accuracy of categorizing male sexual orientation

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ABSTRACT

Although individual differences are known to influence numerous aspects of social perception, such as person memory and individuation, little is known about how such variations may affect social categorization. Extending prior research, the present study tested one potential moderator: familiarity with group members. Specifically, straight participants ($n = 84$) reported their real-life experiences with gay men and categorized faces as gay or straight. Results showed that participants who reported greater familiarity with gay men were significantly more sensitive, or accurate, in judging the sexual orientations of men from their faces. These results are discussed in terms of their theoretical implications for social perception and future research directions are outlined.

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1. Introduction

A growing body of research has successfully shown that individuals can infer information from others' appearance across numerous domains (Ambady, Bernieri, & Richeson, 2000; Zebrowitz, 1997; see also Tskhay & Rule, 2013). Indeed, perceivers can determine others' sexual interest (Stillman & Maner, 2009), political ideology (Rule & Ambady, 2010; Samochowiec, Wänke, & Fiedler, 2010), professional success (Ambady & Rosenthal, 1993; Collins & Zebrowitz, 1995), and group membership (Andrzejewski, Hall, & Salib, 2009) from very limited cues.

Importantly, it has also been shown that some individuals are advantaged in making these judgments over others. For instance, extraverts are often better judges of others' traits than are introverts (Lieberman & Rosenthal, 2001). Further, people show enhanced memory and attention for those with whom they share a social identity (Sporer, 2001). Yet, little is known about what factors influence individual differences in other domains of social perception, such as the accuracy of social categorization. The present research aimed to address this neglected issue and tested whether variations in familiarity with targets might influence the accuracy of social categorization. In doing so, we focused on male sexual orientation, a social category that is subtly distinguished but perceptible (see Tskhay & Rule, 2013).

Previous research has shown that individuals can judge sexual orientation significantly better than chance guessing from various nonverbal cues, such as posture and gesture (Ambady, Hallahan, & Conner, 1999), and body shape (Johnson, Gill, Reichman, & Tassinari, 2007). Recent work has also shown that perceivers accurately judge sexual orientation from facial appearance (Rule, Ambady, Adams, & Macrae, 2008). The extraction of information about a person's sexual orientation appears to occur automatically upon seeing his or her face (Rule, Macrae, & Ambady, 2009) but largely without the perceivers' awareness that they can make such judgments (Rule et al., 2008). Moreover, this accuracy extends across the targets' and perceivers' racial and cultural background (Johnson & Ghavami, 2011; Rule, 2011; Rule, Ishii, Ambady, Rosen, & Hallett, 2011; Valentova, Rieger, Havlicek, Linsenmeier, & Bailey, 2011). Yet, no prior study has tested whether familiarity with gay men may influence social categorization. However, to be able to fully understand the processes implied in social categorization, we need to consider how individual differences might impact such processes as a way to gain more insight into the nuances of social perception.

Familiarity is known to affect accuracy in the domain of emotion recognition. Individuals are more accurate in decoding the emotional expressions of cultural ingroup versus outgroup members (Elfenbein & Ambady, 2002). For instance, native Chinese performed better at recognizing the emotional expressions of other Chinese than did Chinese-American immigrants; who, in turn, were more accurate than Caucasian-Americans with no ties to Chinese culture (Elfenbein & Ambady, 2003). Moreover, Africans living in the US more accurately decoded the expressions of Americans (with whom they were familiar) than Chinese (with whom they were unfamiliar; Elfenbein & Ambady, 2003).

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Table 1
Descriptive statistics for items comprising the measure of participants' familiarity with gay men.

Item	<i>M</i>	<i>SD</i>
How many openly gay men do you know? ^a	3.39	1.61
How often do you interact with openly gay men? ^b	2.46	1.62
How often do you see openly gay men? ^b	1.54	.75
Do you attend the activities of the gay community in your city? ^b	1.14	.56
How often have you been in a gay club ^c	1.85	1.36

^a Scale Anchors: 1 = none, 7 = many.

^b Scale Anchors: 1 = never, 7 = always.

^c Scale Anchors: 1 = never, 7 = often.

However, categorizing individuals' social group memberships is not the same as emotion recognition or the discrimination of individuals' identities within a group. Indeed, social categorization is intergroup in nature, focusing on the distinction between two groups. Thus, when tasked with discriminating between members of two groups (e.g., judging race as Black or White), it is not clear which perceivers should possess an "ingroup" advantage because members of both groups would be concerned with distinguishing the intergroup boundary (e.g., it may be equally important for majority-group White perceivers to know the difference between who is like them and who is not as it may be for minority-group Black perceivers). In the current research, we therefore aimed to extend the prior work on ingroup effects by examining the role of individual differences in familiarity in an intergroup context: social categorization. Specifically, we tested the hypothesis that individuals' real-life familiarity with gay men is associated with greater accuracy in judging sexual orientation from faces.

2. Methods

2.1. Participants

Eighty-four male students from a large Italian university voluntarily took part in the study ($M_{Age} = 23.38$, $SD = 3.19$). All participants were Caucasian, with normal or corrected-to-normal vision. Data were collected in two different experimental waves but the two groups of participants did not significantly differ on the variables analyzed, all p 's > .11, and were therefore combined into a single group. Several gay men participated in the study but the sample of gay men was not large enough to achieve an adequate level of statistical power to perform group comparisons according to participant sexual orientation. We therefore did not include these participants in the final sample reported here; thus, all participants in the current work were self-identified heterosexuals.

2.2. Stimuli

We employed 90 gay ($n = 45$) and straight ($n = 45$) men's head-shot photographs borrowed from a set of photos previously validated for image quality, emotional expression, and facial attractiveness (Rule et al., 2008). Images presented a directly-oriented face free of any facial adornments, such as jewelry, glasses, or facial hair. Further, images were gray-scaled and standardized to 3" × 5" dimensions.

2.3. Procedure

Participants were told that they would be seeing a series of men's faces and that they would be asked to categorize each person as either gay or straight. They were instructed to make their decisions as quickly and accurately as possible via key-press, bas-

ing their judgments on their first impressions. Each photo was presented in random order at a self-placed rate and responses were collected using DirectRT software.

Given that accuracy here specifically refers to perceivers' ability to detect information signaling that a target is gay or straight from his face, independent of the number of gay and straight faces used or the distribution of gay and straight individuals in the real world, participants were not given any information about the number or proportion of gay and straight targets used in the experiment (see also Rule et al., 2011). After the categorization task, participants answered five questions assessing their familiarity with gay men (see Table 1) and reported the extent to which they believed they had been accurate in categorizing sexual orientation (1 = *not at all*; 7 = *very much*). Finally, participants were prompted to report their own sexual orientation with the option of no response.

3. Results

As a first step, a factor analysis using principal axis factoring with oblimin rotation on the familiarity items confirmed that they represented a single underlying construct that explained 55% of the variance in the individual items. Thus, we computed a familiarity index averaging all those items ($\alpha = .77$).

To test our main hypothesis, we analyzed the data using signal detection (Macmillan & Creelman, 2005), wherein categorizations of gay men as gay were counted as hits and categorizations of straight men as gay were counted as false alarms, permitting calculations of sensitivity (A') and response bias (B''). As the sensitivity measure A' is bounded by 0 and 1 with chance guessing at .50, it is functionally equivalent to a bias-corrected measure of accuracy by percent-correct; we thus use the terms "accuracy" and "sensitivity" interchangeably in the current work.

Over all, participants categorized the targets significantly better than chance: $M_{A'} = .60$, $SD = .10$; $t(83) = 8.90$, $p < .001$, $r = .69$ and showed a significant tendency toward categorizing targets as straight rather than gay: $M_{B''} = .08$, $SD = .11$; $t(83) = 5.24$, $p < .001$, $r = .49$.

Given that none of the participants' perceived accuracy, response bias, or familiarity scores were normally distributed (all Shapiro-Wilks W 's < .94, all p 's < .001), non-parametric Spearman correlations were used to analyze the relationships between the variables (see Table 2). The analyses revealed that participants' levels of familiarity with gay men were significantly correlated with their accuracy in categorizing men's sexual orientation, $r_s(82) = .21$, $p = .052$. However, response bias was unrelated to familiarity, $r_s(82) = .02$, $p = .85$. In addition, we observed an inverse relationship between participants' accuracy and their perceptions of accuracy: $r_s(82) = -.25$, $p = .02$. Notably, familiarity was also negatively correlated with perceived accuracy such that participants reporting higher levels of familiarity with gay men believed themselves to be less accurate, $r_s(82) = -.24$, $p = .03$. In a similar vein, as participants were more likely to categorize the faces as straight rather than gay, they believed themselves to be less accurate, $r_s(82) = -.30$, $p = .006$ —perhaps suggesting that participants

Table 2
Descriptive statistics and non-parametric (Spearman) correlations between variables.

	<i>M</i>	<i>SD</i>	1	2	3	4
1. Familiarity	2.08	.91	–	.21*	.02	–.24*
2. Accuracy (A')	.60	.10		–	.50**	–.25*
3. Response bias (B'')	.08	.11			–	–.30**
4. Perceived accuracy	4.19	1.51				–

Note: ** $p < .01$; * $p \leq .052$.

who were less confident about their judgments were more likely to categorize targets according to the heterosexual default.

4. Discussion

Familiarity appears to increase the accuracy of social categorization. More specifically, participants who self-reported greater familiarity with gay men were more accurate in judging sexual orientation from men's faces. Previous work in the domain of emotion recognition has reported similar effects. Elfenbein and Ambady (2003) found that greater familiarity with a cultural group led to greater accuracy in recognizing emotions expressed by individuals from that group. The present data extend these findings to social categorization. Unlike ingroup advantages in emotion recognition and the individuation of people within a group (e.g., Sporer, 2001), categorizing individuals' social group memberships cannot be explained by ingroup effects because the task is intergroup by nature.

We also observed that the less accurate participants were in judging sexual orientation, the more accurate they perceived themselves to be. Previous work (Rule et al., 2008) reported a positive relationship between actual and perceived accuracy in judging men's sexual orientations but only for an obvious cue (hairstyle). Accuracy based on other features, including the full face, were uncalibrated with participants' perceptions. Thus, the current participants were still uncalibrated in their perceptions of accuracy but this effect was stronger than that observed in previous work, showing that their perceptions were opposite of their actual ability. These results thus confirmed that individuals are able to infer information about a person's sexual orientation from faces even if it happens largely without the perceivers' awareness that they can make such judgments (Rule et al., 2008). In light of this finding, future research should explore the relationship between perceived and actual accuracy in judging sexual orientation in more detail. Similarly, the finding that greater familiarity with gay men decreased participants' confidence in their judgmental accuracy presents an interesting nuance that might also be worthy of further consideration.

The current findings provide a first step in understanding the role that familiarity may play in the acuity of social categorization. Additional work would be useful to examine the extent to which these effects generalize to groups other than gay men and to help uncover the processes involved in resolving others' group memberships. For example, previous work has suggested that sexual orientation is processed automatically upon perception (Rule et al., 2009). Therefore, an interesting future direction for this work would be to investigate how individuals' familiarity with gay and straight targets might influence implicit categorizations. Longitudinal work examining individuals' natural learning about sexual orientation may also provide interesting data for fully understanding the role that familiarity with a group exerts upon the accuracy of social categorization.

Interestingly, prior work found that sexual orientation could be accurately judged from faces across cultures (Rule et al., 2011). Thus, although cultural familiarity may not moderate accuracy in judging sexual orientation, the present findings showed that individual differences in perceivers' familiarity do play an important role. Along these lines, it is relevant to note that the present study was the first to test the accuracy of judging sexual orientation in Italy, thereby contributing to the previous research showing cross-cultural consistency in perceivers' capacity to accurately judge sexual orientation from faces.

Clearly, examination of other mechanisms, such as variations in perceivers' motivations or prejudice, may also prove fruitful for

understanding individual differences in perceptual accuracy. Previous research has shown mixed evidence for the role of prejudice in the categorization of targets as Jewish and non-Jewish (see Andrzejewski et al., 2009). As familiarity with a group and prejudice are typically inversely related (Sporer, 2001), our finding that familiarity is associated with greater accuracy may suggest that prejudice might be negatively related to accurately categorizing sexual orientation. However, given the heterogeneous role of prejudice in categorizing targets as Jewish and non-Jewish (see also Tskhay & Rule, 2013) and the differences in stereotype-content between gay and Jewish men (Fiske, Cuddy, Glick, & Xu, 2002), it is difficult to make a clear prediction about how homophobia might affect categorizations of sexual orientation. Thus, future research is needed and we hope that the present data will provide a first step on that path.

References

- Ambady, N., Bernieri, F. J., & Richeson, J. A. (2000). Toward a histology of social behavior: Judgmental accuracy from thin slices of the behavioral stream. *Advances in Experimental Social Psychology*, 32, 201–271.
- Ambady, N., Hallahan, M., & Conner, B. (1999). Accuracy of judgments of sexual orientation from thin slices of behavior. *Journal of Personality and Social Psychology*, 77, 538–547.
- Ambady, N., & Rosenthal, R. (1993). Half a minute: Predicting teacher evaluations from thin slices of nonverbal behavior and physical attractiveness. *Journal of Personality and Social Psychology*, 64, 431–441.
- Andrzejewski, S. A., Hall, J. A., & Salib, E. R. (2009). Anti-Semitism and identification of Jewish group membership from photographs. *Journal of Nonverbal Behavior*, 33, 47–58.
- Collins, M. A., & Zebrowitz, L. A. (1995). The contributions of appearance to occupational outcomes in civilian and military settings. *Journal of Applied Social Psychology*, 25, 129–163.
- Elfenbein, H. A., & Ambady, N. (2002). On the universality and cultural specificity of emotion recognition: A meta-analysis. *Psychological Bulletin*, 128, 203–235.
- Elfenbein, H. A., & Ambady, N. (2003). When familiarity breeds accuracy: Cultural exposure and emotional facial recognition. *Journal of Personality and Social Psychology*, 85, 276–290.
- Fiske, S. T., Cuddy, A. J., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology*, 82, 878–902.
- Johnson, K. L., & Ghavami, N. (2011). At the crossroads of conspicuous and concealable: What race categories communicate about sexual orientation. *PLoS One*, 6, e18025.
- Johnson, K. L., Gill, S., Reichman, V., & Tassinari, L. G. (2007). Swagger, sway, and sexuality: Judging sexual orientation from body motion and morphology. *Journal of Personality and Social Psychology*, 93, 321–334.
- Lieberman, M. D., & Rosenthal, R. (2001). Why introverts can't always tell who likes them: Multitasking and nonverbal decoding. *Journal of Personality and Social Psychology*, 80, 294–310.
- Macmillan, N. A., & Creelman, C. D. (2005). *Detection theory: A user's guide*. Mahwah, NJ: Lawrence Erlbaum.
- Rule, N. O. (2011). The influence of target and perceiver race in the categorisation of male sexual orientation. *Perception*, 40, 830–839.
- Rule, N. O., & Ambady, N. (2010). Democrats and Republicans can be differentiated from their faces. *PLoS One*, 5, e8733.
- Rule, N. O., Ambady, N., Adams, R. B., Jr., & Macrae, C. N. (2008). Accuracy and awareness in the perception and categorization of male sexual orientation. *Journal of Personality and Social Psychology*, 95, 1019–1028.
- Rule, N. O., Ishii, K., Ambady, N., Rosen, K. S., & Hallett, K. C. (2011). Found in translation: Cross-cultural consensus in the accurate categorization of male sexual orientation. *Personality and Social Psychology Bulletin*, 37, 1499–1507.
- Rule, N. O., Macrae, C. N., & Ambady, N. (2009). Ambiguous group membership is extracted automatically from faces. *Psychological Science*, 20, 441–443.
- Samochowiec, J., Wänke, M., & Fiedler, K. (2010). Political ideology at face value. *Social Psychological and Personality Science*, 1, 206–213.
- Sporer, S. L. (2001). Recognizing faces of other ethnic groups: An integration of theories. *Psychology, Public Policy, & Law*, 7, 36–97.
- Stillman, T. F., & Maner, J. K. (2009). A sharp eye for her SOI: Perception and misperception of female sociosexuality at zero acquaintance. *Evolution and Human Behavior*, 30, 124–130.
- Tskhay, K. O., & Rule, N. O. (2013). Accuracy in categorizing perceptually ambiguous groups: A review and meta-analysis. *Personality and Social Psychology Review*, 17, 72–86.
- Valentova, J., Rieger, G., Havlicek, J., Linsenmeier, J. A., & Bailey, J. M. (2011). Judgments of sexual orientation and masculinity–femininity based on thin slices of behavior: A cross-cultural comparison. *Archives of Sexual Behavior*, 40, 1145–1152.
- Zebrowitz, L. A. (1997). *Reading faces: Window to the soul?* Boulder, CO: Westview.