COMMUNICATING NON-NORMATIVE STATUS THROUGH ASYMMETRICAL GENDER-MARKING: CONSEQUENCES AND IMPLICATIONS

A Dissertation in
Psychology and Women’s Studies

by
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Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Philosophy

August 2013
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ABSTRACT

Asymmetrical gender-marking, or referencing the gender of one group (typically women) but not the other group (typically men), is common. Although such linguistic practices may seem relatively harmless or even positive, given the potential benevolent intentions that may motivate its use, results across four studies suggest that asymmetrical gender-marking has some unintended and potentially harmful consequences. Consistent with predictions, asymmetrical gender-marking influenced perceptions of the gendered nature of a given context and aroused concerns of stigma for members of the marked group. When women were asymmetrically marked (compared to not marked), the context was perceived as more male-dominated and stereotypically masculine (Preliminary Study, Studies 1-2). In addition, in contexts where women were asymmetrically marked (vs. not marked), women reported greater concerns about being treated and/or judged in terms of their gender (Study 2) and exhibited more nervous movements during an interview (Study 3). Together, these results suggest that asymmetrically marking women may have unintended negative effects that can contribute to gender disparities within a domain.
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ACKNOWLEDGMENTS

This research was supported by a Department of Psychology Research Grant awarded to Jessica L. Cundiff. I wish to thank my advisor, Terri Vescio, for her mentorship, guidance, and support during my graduate career and during the development and completion of this dissertation. I also wish to thank Stephanie Shields for her valuable feedback and encouragement throughout my development as a feminist scholar. I am also grateful to the other members of my doctoral committee, Janet Swim and Eric Loken, for their thoughtful feedback and support over the course of the thesis. Many sincere thanks to the dedicated research assistants who tirelessly acted as interviewers, edited and coded videos, collected and entered data, and ran experiments: Elaine Arsenault, Sydney Bickford, Taryn Codner, Kathryn Dlugos, Alicia Doorey, Ryan Fitzgerald, Justin Gawthrop, Kiauhna Haynes, Nathan Kutz, Colleen McLinden, Jordan Reinke, Rachel Robinson, Thomas Schaller, Courtney Sellani, Bryn Spielvogel, and Dana Thau. Finally, I am indebted to my friends and family for their continued support and encouragement.
Chapter 1. INTRODUCTION

"In my school they always put the modifier 'lady' before any team or event concerning girls. I never understood it. It would be ridiculous to cheer the 'gentlemen Chargers', so why use 'lady'? Putting the modifier on the team name negated the team itself."

– Recent female high school graduate (Braun & Maniaci, 2011)

Language is an important mechanism through which power relations between groups are established, maintained, and reproduced (Bodine, 1975; Cameron, 1992; Crawford, 2001; Mills, 2008; Reid & Ng, 1999; Ruscher, 2001; Schultz, 1975; Spender, 1985; Sue, 2010; Wetherell & Potter, 1993). Language contributes to social inequalities by, for example, maintaining and transmitting stereotypes (Graumann & Wintemantel, 1989; Maass & Arcuri, 1996; Wigboldus, Semin, & Spears, 2000), conveying implicit assumptions about who is included and valued (Gaucher, Friesen, & Kay, 2011; Pratto, Hegarty, & Korchmaros, 2008; Smith, 2002; Sniezek & Jazwinski, 1986; Stout & Dasgupta, 2011), and giving legitimacy to particular perspectives but not others (Cohn, 1987; Ehrlich & King, 1994; Spender, 1985). The present research focuses on a particular form of language use – asymmetrical gender-marking – and examines its role in maintaining and reproducing gender inequalities.

Asymmetrical gender-marking occurs within a given context when gender is marked or referenced for members of one gender but not the other. The names for sports teams, for example, often follow the pattern of asymmetrical gender-marking; women’s teams are often marked, as noted in the epigraph to this proposal, whereas men’s teams are often unmarked (Pelak, 2008). Asymmetrical gender-marking also appears in the titles of research articles, where gender is more likely to be marked for female participants than for male participants (Cundiff, 2012). In addition, it is common for gender to be asymmetrically marked in occupations, such as referencing the gender of women (but not men) in male-dominated occupations and the gender of
men (but not women) in female-dominated occupations (Romaine, 2001). In engineering, for example, women may be referred to as “female engineers” whereas men may be referred to simply as “engineers”. Although asymmetrical marking occurs for other social identities as well, such as race-ethnicity (e.g., Cundiff, 2012; Pratto, Korchmaros, & Hegarty, 2007), the present research focuses on asymmetrical gender-marking.

Asymmetrical gender-marking may contribute to the maintenance of gender inequalities. Whereas prior research has focused on the factors that determine who gets marked and why (e.g., Pratto et al., 2008), the present theory and research focuses on the consequences of asymmetrical gender-marking. In particular, the goal of the present theory and research was to examine the extent to which asymmetrical gender-marking communicates who is considered normative (and by implication, who is considered deviant) in a given context, subsequently influencing individuals’ thoughts, feelings, and behavior in ways that contribute to gender disparities. To consider these possibilities and to derive testable hypotheses, I first review research examining who tends to be marked and why. I then set forth hypotheses regarding whether asymmetrical gender-marking contributes to gender disparities by influencing perceptions and behavior, which the present studies were designed to examine.

**Who tends to be marked and why?**

“Whoever has the power takes over the noun – and the norm – while the less powerful get an adjective.”

– *Gloria Steinem* (*Sandberg & Scovell, 2013*)

Prior research indicates that who gets marked is a function of who is considered normative and who is considered deviant from those norms. Within a given context, perceived normativity is informed by both social structure (e.g., numerical representation) and power relations. Social groups who constitute the numeric majority within a specific context are likely
to be recruited as exemplars and, consequently, are likely to be perceived as typical and normative for the context (e.g., men in engineering; women in nursing; Kahneman & Miller, 1986). However, in contexts where neither gender constitutes a large majority (e.g., voters; people in general), power relations inform perceptions such that men rather than women tend to be perceived as typical and normative (Eagly & Kite, 1987; Hamilton, 1991 Miller, Taylor, & Buck, 1991). Indeed, dominant groups (e.g., people who are male, White, or heterosexual) tend to represent the implicit universal standard from which marginalized groups (e.g., people who are female, of color, or homosexual) are viewed as deviations (Bem, 1993; Butler, 1990, 1993; Devos & Banaji, 2005; Hegarty, Pratto, & Lemieux, 2004; Purdie-Vaughns & Eibach, 2008; Smith & Zarate, 1992; Stroessner, 1996; Zarate & Smith, 1990).

Who gets marked follows systematic patterns that can be predicted from norm theory (Kahneman & Miller, 1986). According to norm theory, non-normative members of a category violate implicit category norms (i.e., implicit expectations about who constitutes the typical member) and, as a result, create surprise and draw attention (Miller & Prentice, 1996; Stroessner, 1996; Zarate & Smith, 1990). For example, the non-normative gender of a female engineer violates implicit assumptions that engineers are male and grabs attention. Because non-normative social groups within a category draw more attention than normative social groups (Smith & Zarate, 1992; Stroessner, 1996; Zarate & Smith, 1990), non-normative groups tend to be marked whereas normative groups remain unmarked (Pratto et al., 2007).

In sum, social groups who comprise the numeric majority in a given context (e.g., men in engineering) and social groups who are dominant in society more generally (e.g., white men in Western cultures) tend to be considered normative, whereas minority groups within a given context (e.g., women in engineering) and marginalized groups in society more generally (e.g.,

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Although historical context may provide a possible explanation for why men are perceived as the normative member of the category voter (women were excluded from voting in the U.S. until 1920), this reasoning does not explain why men are perceived as the normative member of the category people.
women in general) tend to be considered non-normative (Bruckmuller, Hegarty, & Abele, 2012; Kahneman & Miller, 1986; Miller et al., 1991). Asymmetrical gender-marking reflects the normative assumptions that are informed by existing gender structures, such that for most categories (except for those that are female-dominated) the gender of women tends to be marked, whereas the normative gender of men remains unmarked (Pratto et al., 2007). Beyond the fact that asymmetrical gender-marking reflects existing gender structures, asymmetrical gender-marking might also reinforce those structures.

**Consequences of Asymmetrical Gender-Marking**

The notion that language and social reality reinforce one another is a common theme in feminist theories of language (cf. Black & Coward, 1981; Crawford, 1995, 2001; Eckert & McConnell-Ginet, 2003; Gibbon, 1999; McLaren, Carillo-Rowe, Clark, & Craft, 2001; Pelak, 2008; Schur, 1984; Shapiro, 1982; Trechter, 2003). Building from this theme, I suggest that asymmetrical gender-marking is part of a dynamic process through which linguistic practices and current gender structures reinforce one another. As stated above, asymmetrical gender-marking reflects who is considered normative in a particular context, such that the minority gender in a particular domain is marked (e.g., women in engineering, men in nursing) and the lower status gender in society is marked (Pratto et al., 2008). Over time people may learn, consciously or nonconsciously, to use asymmetrical gender-marking as a cue to infer who is considered normative in novel contexts. I examine the possibility that these normative assumptions reproduce the gender structure conveyed by asymmetrical gender-marking by deterring members of the marked (i.e., presumed non-normative) gender from pursuing the novel domain. In particular, I set forward five hypotheses. The first two hypotheses specify how asymmetrical gender-marking informs perceptions of the gendered nature and status of the domain. The final three hypotheses articulate the consequences of asymmetrical gender-marking on feelings of
belonging and concerns of stigmatization, which have implications for desires to pursue domains.

**Hypothesis 1:** Asymmetrical gender-marking will influence perceptions of the **gendered nature of the domain in which the marking occurs.** I propose that, by positioning the unmarked group as the normative gender group, asymmetrical gender-marking will influence the perceived gendered nature of the domain, making it seem as though the unmarked gender represents the majority, represents the typical member, and is stereotypically associated with the domain. Specifically, I predict that a domain will be perceived as more male-dominated and stereotypically masculine when women are marked compared to when men are marked.

**Hypothesis 2:** Asymmetrical gender-marking will influence perceptions of the **status of the domain.** Occupations are perceived as having higher status when they are associated with men compared to women (Cejka & Eagly, 1999; Glick, 1991; Liben, Bigler, & Krogh, 2001). If asymmetrical gender-marking communicates information about the gendered nature of the domain (Hypothesis 1), then I would also predict that the domain will be perceived as more prestigious and higher paying when women are marked compared to when men are marked.

**Hypothesis 3:** Asymmetrical gender-marking will influence feelings of belonging in the **domain.** Much prior research suggests that women and men feel a greater sense of belonging (Walton & Cohen, 2007) in domains that are portrayed as congruent with one’s gender (Cheryan, Plaut, Davies, & Steele, 2009; Gaucher et al., 2011; Nosek, Banaji, & Greenwald, 2002). Gender congruency is conveyed by the gendered nature of the domain; domains that are male-dominated and stereotypically associated with men, for instance, are gender-congruent for men but gender-incongruent for women. Therefore, to the extent that asymmetrical gender-marking conveys the gendered nature of the domain, then I would expect women and men to feel a greater sense of
belonging when their gender is unmarked and perceived as normative compared to when their gender is marked.

**Hypothesis 4: Asymmetrical gender-marking will influence concerns of stigmatization for participating in the domain.** I hypothesize that, by conveying the gendered nature of the domain, asymmetrical gender-marking will serve as a cue of how one may be viewed and treated by others for participating in the domain. In particular, I hypothesize that having one’s gender asymmetrically marked within a domain will arouse concerns of stigmatization, or fears of being devalued, stereotyped, or treated negatively based on one’s non-normative social identity (Crocker, Major, & Steele, 1998; Major & O’Brien, 2005). Importantly, however, there is reason to suspect that the experience of being marked within a domain may arouse different types of stigma-based concerns for women and men.

Among women, I predict that having one’s gender asymmetrically marked will arouse concerns of *gender-based stigma*, or fears of being devalued, stereotyped, and discriminated against *based on one’s gender* (Crocker et al., 1998; Murphy, Steele, & Gross, 2007; Steele, Spencer, & Aronson, 2002). This prediction is consistent with prior work showing that women in male-dominated domains tend to experience marginalization, social isolation, negative stereotyping, and sexual harassment (Kanter, 1977; Krimmel & Gormley, 2003; Konrad, Winter, & Gutek, 1992; Spangler, Gordon, & Pipkin, 1978; Yoder, 2002). For example, women law students in male-majority programs felt more performance pressure, were less engaged in the classroom, and thought more about quitting compared to women in more gender-balanced programs (Spangler et al., 1978). Similarly, women police officers reported less satisfaction, greater job-related depression, lower self-esteem, and more instances of sex-stereotyping and sexual harassment when women represented less than (vs. more than) 15% of police officers within a department (Krimmett & Gormley, 2003; Ott, 1989). In route to senior-level
management positions that are traditionally held by men, women report more exclusion from social networks and difficulty getting assignments that would lead to career development and promotion than do men (Lyness & Thompson, 2000). Thus, to the extent that being asymmetrically marked within a domain indicates women’s non-normative status and cues the masculine nature of the domain (Hypothesis 1), women may be concerned about being the target of gender-based stigma within the domain.

Importantly, however, I expect the experience of having one’s gender asymmetrically marked to arouse concerns of gender-based stigma among women but not men. This is because, for men, being the non-normative gender group has tended to result in positive outcomes stemming from their male privilege, including preferences in hiring and promotion (Cross & Bagilhole, 2002; Simpson, 2004; Williams, 1992). For example, men in traditionally female domains tend to experience a glass escalator effect that propels them into high-status positions within those fields (Williams, 1992).

By contrast, among men, I predict that having one’s gender asymmetrically marked may arouse domain-based stigma, or fears of being devalued, stereotyped, and discriminated against by people in society based on one’s participation in the domain. This prediction is consistent with theoretical suggestions and empirical findings showing that men face a greater burden to ‘prove’ their masculinity than women do to prove their femininity (Gilmore, 1990; Kimmel, 1996; Pleck, 1981; Vandello, Bosson, Cohen, Burnaford, & Weaver, 2008). A primary way that men validate their masculinity is by achieving economic status and power through their work roles (Cockburn, 1991; Collinson & Hearn, 2005). When men work in feminized domains, they risk being stigmatized for failing to be ‘real’ men (Bosson, Prewitt-Freilino, & Taylor, 2005; Lupton, 2000; Simpson, 2004; Vandello et al., 2008). Indeed, men working in female-dominated occupations tend to experience negative treatment from people outside those occupations who
question their masculinity and misclassify them as gay, wimpy, asexual, and pedophiles (Cross & Bagilhole, 2002; Simpson, 2004; Williams, 1992). To the extent that asymmetrically marking men conveys the feminine nature of the domain (Hypothesis 1), I predict that men will experience greater concerns of domain-based stigma when their gender is marked vs. unmarked. Asymmetrical gender-marking should not, however, predict concerns of domain-based stigma among women, given that women do not face a burden to ‘prove’ their femininity in the same way that men do to prove their masculinity (Gilmore, 1990; Kimmel, 1996; Pleck, 1981; Vandello et al., 2008).

Hypothesis 5: Asymmetrical gender-marking will influence the appeal of the domain. I predict that both women and men will find domains more appealing when their gender is unmarked versus marked. Importantly, I predict that this relationship will be mediated by the perceived gendered nature of the domain (Hypotheses 1), as well as feelings of belonging and concerns of stigma (Hypotheses 3 and 4). The predicted pathways are depicted in Figure 1.

As Figure 1 depicts, for both women and men, asymmetrical gender-marking may portray the domain as gender-incongruent and, consequently, signal that one does not belong in the domain. Diminished feelings of belonging, in turn, may make the domain seem less appealing, which is consistent with prior findings showing that gender congruency and feelings of belonging are strong predictors of interest and engagement in a domain (Cheryan et al., 2009; Cundiff, Vescio, Loken, & Lo, in press; Gaucher et al., 2011; Murphy et al., 2007; Nosek et al., 2002; Oyserman, Bybee, & Terry, 2006; Walton & Cohen, 2007). For example, Cheryan et al. (2009) showed the more that women perceived a setting to be stereotypically masculine, the less belonging they felt, and consequently, the less interested they were in participating in the setting. Whereas Cheryan and colleagues conveyed the gendered nature of the domain by manipulating the stereotypicality of objects in the setting (e.g., objects hanging on walls and placed on desks),
the proposed theory and research extend prior work by suggesting that similar portrayals may be linguistically and subtly conveyed by asymmetrical gender-marking.

Asymmetrical gender-marking may also influence the appeal of a domain by arousing concerns of stigma, in addition to informing one’s sense of belonging (see Figure 1). To the extent that asymmetrical gender-marking portrays the domain as gender-incongruent for the marked group, members of the marked group may be concerned about being the target of stigma which, in turn, may decrease the appeal of the domain. Prior research indicates that people feel uncomfortable and avoid engaging in behaviors and settings that would position them as targets of stigmatization (Crocker & Major, 1989; Crocker et al., 1998; Bosson et al., 2005; Bosson, Taylor, & Prewitt-Freilino, 2006; Davies, Spencer, Quinn, & Gerhardstein, 2002; Rudman & Fairchild, 2004; Steele, 1997; Steele et al., 2002). For example, Rudman and Fairchild (2004) found that people who expected to be stigmatized for gender-incongruent behavior subsequently showed less interest in gender-incongruent activities. In addition, Davies and colleagues (2002; Davies, Spencer, & Steele, 2005) showed that women who were exposed to traditional female stereotypes subsequently showed less interest in domains where women have been historically stigmatized and negatively stereotyped as lacking the skills necessary for success (e.g., leadership positions, quantitative fields). These prior findings are consistent with the hypothesis that a domain will appear less appealing to the extent that one is concerned about being stigmatized in the domain. The present theory and research extend prior work, however, by highlighting the different forms of stigma that women and men may expect as a function of the gendered nature of the domain (gender-based stigma among women and domain-based stigma among men).

In sum, as shown in Figure 1, I predict that asymmetrical gender-marking will convey the gendered nature of the domain and, as a result, will signal important social consequences in
terms of belonging, gender-based stigma, and domain-based stigma. These expected social consequences, in turn, will predict domain appeal.

Importantly, from the perspective of those who are speaking, asymmetrical gender-marking does not imply malevolent intentions. By contrast, asymmetrical gender marking may often follow from benevolent intentions to highlight the presence and/or accomplishments of previously excluded and/or currently underrepresented groups. For example, from the perspective of the person doing the asymmetrical marking, identifying an engineer as female can be construed as potentially helpful by providing evidence that counters the normative assumption that engineers are men and/or suggests the possibility for female success in a traditionally male domain. Indeed, research on female role models indicates that highlighting women’s achievements can positively influence the performance and career aspirations of women and girls (Dasgupta, 2011). Importantly, however, asymmetrical gender marking highlights women’s achievements in a way that reinforces the notion that women are non-normative in a given context, which may have unintended negative consequences that the present studies were designed to examine.

**Overview of Studies**

The present studies were designed to test the notion that asymmetrical gender-marking within a novel domain contributes to the creation of gender disparities by conveying the gendered nature of the domain. Importantly, I predicted that information about the gendered nature of novel domains would subsequently influence expectations, behavior, and interest in ways that reinforce the status quo. Across four studies, I examined these possibilities within the context of novel domains. The use of novel domains is ecologically valid given that it is common for people to encounter novel domains, especially when exploring new career options as undergraduates. In addition, if asymmetrical gender-marking communicates information about
the gendered nature of a domain, then this effect should occur most powerfully for novel domains.
Chapter 2. PRELIMINARY STUDY

I conducted a Preliminary Study to examine whether asymmetrical gender-marking influences impressions of an unfamiliar domain – the occupation of limning. Limners are a type of visual artist who create paintings or drawings to illuminate manuscripts. Past research indicates that this occupation is unfamiliar to most people (Liben et al., 2001), and so perceptions about the occupation should not be constrained by previous knowledge. Rather, impressions should be influenced only by the experimental materials provided to participants, as predicted by hypotheses. In particular, I expected the occupation to be perceived as more male-dominated, stereotypically masculine, and higher status when women are asymmetrically marked compared to when men are asymmetrically marked. In addition, I expected feelings of belonging and occupation appeal to be greater among members of the unmarked vs. marked group. The asymmetrically-marked conditions were each expected to differ from the two control conditions (described below) on these variables, although the two control conditions were not expected to differ from each other.

Method

Participants. One hundred thirty-one undergraduate students of The Pennsylvania State University (67 women, 64 men) participated in exchange for partial course credit. The racial-ethnic composition of participants reflected that of the university: most identified as White or Caucasian (73.3%), followed by Asian (7.6%), Latina/o or Hispanic (7.6%), Black or African American (4.6%), Middle Eastern (3.1%), multiple racial-ethnic groups (1.5%), Native American or Alaska Native (0.8%), and 1.5% identified with racial-ethnic groups that were not listed on the survey. Participants ranged in age from 18 to 23 (M = 18.88, SD = 1.08).

Procedure and materials. Participants were told that the purpose of the study was to examine how people form impressions about occupations. Participants read information about
the unfamiliar occupation of limning and brief descriptions of a female and male limner. The descriptions were designed to give participants the sense that they had a basis for making judgments about the occupation without actually giving them information of relevance. The description of the occupation follows:

Limning is an occupation that can be highly rewarding. Limners spend some of their time at their workplace and some of their time outside their workplace meeting with clients. Limners typically have a bachelor’s degree before completing a two-year internship. Limning is a gratifying occupation, but can be challenging at times.

The descriptions of the two limners followed the occupation description. Each limner description included demographic information (e.g., name, age, hometown), answers to job-related questions (e.g., favorite aspect of occupation), and feedback from clients. Importantly, the feedback from clients provided the context for the marking manipulation (see Appendix A). Specifically, gender-marking was manipulated by altering mention of each limner’s gender to create four marking conditions to which participants were randomly assigned:

(1) female-marked condition: the gender of only the female limner was marked.
(2) male-marked condition: the gender of only the male limner was marked.
(3) both-marked condition: the gender of both limners was marked.
(4) no-marking condition: gender was not marked for either limner.

The order in which the limner descriptions were presented was counterbalanced. The content of the descriptions was also counterbalanced across target gender. No order or content effects emerged on any of the variables and so will not be discussed further.
After reading the descriptions, participants completed the dependent measures. Participants then indicated their gender, ethnicity, and age before being debriefed and thanked for their participation.

**Dependent measures.** Participants reported their perceptions of the gender composition, gender stereotypicality, and status of the occupation. Participants also reported their sense of belonging and interest in the occupation.

**Gender composition.** The perceived gender composition of the limning occupation was measured with two items – a *gender proportion* variable and a *typical gender* variable. Participants estimated the *gender proportions* within the limning occupation using an 11-point scale with 10% increments (endpoints labeled “100% men; 0% women” and “0% men; 100% women”). Participants also indicated the *typical gender* in the occupation by guessing the gender of a new limner who had just been hired. Scores were centered on the midpoint of each scale so that positive values indicated a greater perceived proportion of men than women whereas negative values indicated a greater perceived proportion of women than men.

**Gender stereotypicality of the occupation.** The perceived gender stereotypicality of the limning occupation was assessed with two measures – a single item assessing *gender stereotypicality* and a multiple-item measure of *relative trait ratings*. Participants rated the *gender stereotypicality* of the occupation on a 7-point scale (endpoints labeled “extremely feminine” and “extremely masculine”). Scores were centered on the midpoint of the scale so that positive scores indicated greater perceived masculinity whereas negative scores indicated greater perceived femininity. Next, participants completed *relative trait ratings*. Using 5-point scales (endpoints labeled “not at all necessary” and “extremely necessary”), participants indicated the extent to which six stereotypically masculine traits, six stereotypically feminine traits, and four gender neutral traits were perceived as necessary attributes of a successful limner. All traits had
been pilot-tested for stereotypicality by an independent sample of 16 women and 15 men who rated traits on a 7-point scale (endpoints labeled “stereotypically masculine” and “stereotypically feminine”). Traits were considered gender stereotypic if they significantly differed from the midpoint of the scale. Based on a factor analysis, two masculine traits (scientific, mechanical) and two feminine traits (conscientious, people-oriented) were excluded from analyses because they did not load well on the expected masculine and feminine trait factors (factor loadings < .30). The remaining four stereotypically masculine traits (leader-like, rational, action-oriented, straightforward communicator) and four stereotypically feminine traits (empathetic, compassionate, understanding, caring) were included in analyses. To create a relative trait rating variable, the average stereotypic feminine trait ratings (α = 0.84) were subtracted from the average stereotypic masculine trait ratings (α = 0.72)\(^2\). Thus, positive scores reflected relatively more stereotypic masculinity than femininity whereas negative scores reflected relatively more stereotypic femininity than masculinity.

**Occupation status.** The perceived status of the limning occupation was measured with two items. First, using a 9-point scale with $10,000 increments (endpoints at $30,000 and $110,000), participants estimated the average salary of a limner. Second, participants rated the prestige of the occupation using a 5-point scale (endpoints “not at all prestigious” and “extremely prestigious”).

**Belonging.** Sense of belonging was assessed with items adapted from Cheryan et al. (2009), Murphy et al. (2007), and Walton and Cohen (2007). Specifically, using an 8-point scale (endpoints “disagree extremely” and “agree extremely”), participants indicated their agreement with four statements: (1) “I feel like I would fit in with other limners”, (2) “I would feel comfortable working in the limning occupation”, (3) “I don’t think I am very similar to limners” (reverse-scored), and (4) “I feel like I could belong in the limning occupation”. After reverse

\(^2\) Results do not differ if feminine traits and masculine traits are analyzed separately.
scoring appropriate items, I averaged across items to create an index of belonging ($\alpha = .87$). Higher scores indicated greater belonging.

**Occupation appeal.** Interest was assessed with items adapted from Gaucher et al. (2011). Using an 8-point scale (endpoints “disagree extremely” to “agree extremely”), participants indicated their agreement with four statements: (1) “The limning occupation is appealing”, (2) “I think I could enjoy being a limner”, (3) “Limning is not a job I would want” (reverse-scored), and (4) “A career in limning seems interesting”. After reverse scoring appropriate items, I averaged across items to create an index of interest in the domain ($\alpha = .90$). Higher scores indicated greater occupation appeal.

**Results**

I predicted that the occupation would be perceived as more male-dominated, stereotypically masculine, and higher status when women were asymmetrically marked (vs. unmarked). By contrast, I predicted that the occupation would be perceived as more female-dominated, stereotypically feminine, and lower status when men were asymmetrically marked (vs. unmarked). I also predicted that members of the asymmetrically marked group would report less belonging and less occupation appeal compared to members of the unmarked group. Therefore, participant gender was expected to interact with marking condition to influence feelings of belonging and occupation appeal, but not perceptions of the occupation. Post-hoc analyses using Tukey’s HSD (honestly significant differences) test were conducted to decompose any main or interactive effects involving marking condition. Means and standard deviations for all variables are reported in Table 1.

**Gender composition.** The two items assessing perceived gender composition (*gender proportions* and *typical gender*) were submitted to a Marking Condition (female-marked, male-marked, no-marking, both-marked) x Participant Gender (female, male) between-participant
Multivariate Analysis of Variance (MANOVA). Overall, the predicted main effect emerged on marking condition, $F(6, 244) = 7.90, p < .001$, Wilk’s $\lambda = 0.70, \eta_p^2 = 0.16$, which was significant on both the gender proportion variable, $F(3, 123) = 14.48, p < .001, \eta_p^2 = 0.26$, and the typical gender variable, $F(3, 127) = 9.00, p < .001, \eta_p^2 = 0.18$. The means are reported in Table 1. As predicted, on each variable limning was perceived as being composed of more women in the male-marked condition compared to the female-marked condition, $ps < .001, ds > .133$, and compared to the control conditions, $ps < .05, ds > .61$. By contrast, limning was perceived as being composed of more men in the female-marked condition than the no-marking condition. However, this difference was only significant for the gender proportion variable, $p < .01, d = 1.12$, and not for the typical gender variable, $p = .36, d = .58$. Contrary to predictions, there were no differences on either variable between the female-marked and both-marked conditions, $ps > .11$, although the means were in the predicted direction (see Table 1). There were also no differences on either variable between the two control conditions, $ps > .53$, which is consistent with predictions. There were no significant main or interactive effects for participant gender.

**Gender-stereotypicality.** The two measures assessing perceived gender-stereotypicality of the occupation (gender stereotypicality and relative trait ratings) were submitted to a Marking Condition x Participant Gender between-participant MANOVA. Overall, the predicted main effect emerged for marking condition, $F(6, 232) = 7.50, p < .001$, Wilk’s $\lambda = 0.70, \eta_p^2 = 0.16$. Specifically, the predicted pattern of results emerged on the gender stereotypicality item, $F(3, 117) = 15.97, p < .001, \eta_p^2 = 0.29$, but not the relative trait ratings, $F(3, 121) = 1.16, p = .33, \eta_p^2 = 0.03$. Means are reported in Table 1. Consistent with predictions, on gender stereotypicality, limning was perceived as more stereotypically feminine in the male-marked condition than the female-marked condition, $p < .001, d = 1.63$, and the control conditions, $ps < .05, ds > .60$. By contrast, limning was perceived as more masculine in the female-marked condition than the no-
marking condition, \( p < .01, d = 1.05 \), and the both-marked condition, \( p = .052, d = .93 \). In addition, consistent with predictions, stereotypicality ratings did not differ between the two control conditions, \( p = .63 \). Contrary to predictions, there were no significant differences between conditions on the relative trait ratings. There was, however, a non-significant trend for masculine (relative to feminine) traits to be perceived as more necessary for limning success in the female-marked condition than the other conditions, \( ps < .16, ds > .33 \). No significant main or interactive effects of participant gender emerged.

**Occupation status.** The two items assessing perceived status of the occupation (estimated salary and prestige) were submitted to a Marking Condition x Participant Gender between-participant MANOVA. The predicted main effect for marking condition was not significant, \( F(6, 244) = 1.05, p = .39 \), Wilk’s \( \lambda = 0.95, \eta_p^2 = 0.03 \). Instead, the only significant effect to emerge from this analysis was a theoretically-irrelevant main effect of participant gender, \( F(2, 122) = 8.38, p < .001 \), Wilk’s \( \lambda = 0.88, \eta_p^2 = 0.12 \), which was significant on the prestige item, \( F(1, 123) = 16.89, p < .001, \eta_p^2 = 0.12 \), but not on the estimated salary item, \( F(1, 123) = 2.05, p = .16, \eta_p^2 = 0.02 \). Limning was perceived as more prestigious by female participants (\( M = 2.85, SD = 0.66 \)) than male participants (\( M = 2.36, SD = 0.75 \)).

**Belonging.** Belonging ratings were submitted to a Marking Condition x Participant Gender between-participant Analysis of Variance (ANOVA). The predicted Marking Condition x Participant Gender interaction emerged, \( F(3, 123) = 3.06, p < .04, \eta_p^2 = 0.07 \). To decompose the interaction, I first examined gender differences within each condition. As predicted, in the male-marked condition, men anticipated less belonging than women, \( F(1, 123) = 8.49, p < .01, \eta_p^2 = 0.07 \) (see Figure 2). In addition, as predicted, there were no gender differences in either of the two control conditions, \( Fs < 1.76, ps > .18 \). Contrary to predictions, however, belonging ratings did not reliably differ as a function of gender in the female-marked condition, \( p > .65 \).
Next, I examined differences between conditions within each gender. As predicted, women anticipated greater belonging whereas men anticipated less belonging in the male-marked condition compared to the no-marking condition, $ps < .05$, $ds > .73$. Contrary to predictions, however, there were no significant differences between any of the other conditions, $ps > .10$.

**Occupation appeal.** Occupation appeal was submitted to parallel analyses. The only effect to approach significance was a marginally significant main effect for participant gender, $F(1, 122) = 3.33, p < .08, \eta_p^2 = 0.03$; overall, liming was more appealing to women ($M = 4.54$, $SD = 1.32$) than men ($M = 4.11$, $SD = 1.29$). The predicted Participant Gender x Marking Condition interaction was not significant, $F(3, 122) = 2.05, p = .11, \eta_p^2 = 0.05$.

**Discussion**

The Preliminary Study provides initial evidence that asymmetrical gender-marking within an occupation influences some impressions of the occupation. Namely, results suggest that asymmetrical gender-marking informs perceptions of the gendered nature of the occupation and, in some instances, feelings of belonging. The results do not, however, provide evidence that asymmetrical gender-marking informs perceptions of occupation status or the appeal of the occupation. I describe these results in more detail below.

Consistent with predictions, asymmetrical gender-marking influenced perceptions of the gendered nature of the occupation. The occupation was perceived as more male-dominated and stereotypically masculine when women were asymmetrically marked (vs. unmarked). By contrast, the occupation was perceived as more female-dominated and stereotypically feminine when men were asymmetrically marked (vs. unmarked). Results also indicate that, in some instances, asymmetrical gender-marking influenced expectations of belonging. Consistent with predictions, in the male-marked condition (compared to the no marking control condition) women anticipated more belonging and men anticipated less belonging. Asymmetr
women, however, did not produce the parallel pattern of predicted results; feelings of belonging did not reliably differ between the female-marked condition and the other conditions for either women or men.

Results also failed to support the predictions that asymmetrical gender-marking informs perceived status and occupation appeal. The absence of the predicted pattern of findings on occupational status may have been due to the use of a poor measure of occupational status. Recall that occupation status was measured with just two items: salary estimates and prestige ratings. Undergraduate students may not have enough real-world experience to anchor salary judgments. A $40,000 annual salary may have seemed high to some respondents but low to others, resulting in the larger variances within than between conditions observed in the study. In addition, the single prestige item (i.e., “How prestigious is the limning occupation?”) may have been too broad, allowing for too many interpretations of what “prestigious” means. A more specific set of items may better capture the construct of prestige. Study 1 addresses these measurement issues by revising the measure of perceived occupation status.

There was also an absence of the predicted pattern of findings on occupation appeal, which may be due to three possible reasons. It is possible that the hypothesis that asymmetrical gender-marking should influence the appeal of novel occupations is wrong. However, prior to rejecting the veracity of a hypothesis, I must rule out two alternative possible explanations for the lack of predicted effects on occupation appeal. First, the occupation appeal measure may have been a poor measure. Recall that the measure consisted of four items that were adapted from Gaucher et al. (2011). After careful reexamination of Gaucher et al.’s methods, I realized that their measure included six items rather than four. It is possible that the additional two items may have been critical components of the scale, and so I add these two items to the occupation appeal measure in Study 1. Second, the effect of asymmetrical gender-marking on occupation
appeal may be explained by multiple mechanisms that operate in opposing directions. For example, asymmetrically marking women may, on the one hand, increase the perceived status of the occupation but, on the other hand, decrease women’s sense of belonging in the occupation. These two mechanisms (perceived status and anticipated belonging) may pull in opposing directions cancelling one another out. The sample size of the Preliminary Study, however, was too small to reasonably test for multiple mediators. Therefore, Study 1 includes a larger sample size to allow for analyses of the multiple mechanisms through which asymmetrical gender-marking may affect occupation appeal.

Finally, it is important to note that although asymmetrical gender-marking influenced the perceived gender-stereotypicality of the occupation, it did not significantly influence the extent to which masculine and feminine traits were perceived as necessary for success in that occupation. Instead, participants rated masculine and feminine traits as “moderately” to “quite a bit” necessary across conditions (means ranged between 3.51 and 3.97 on a 5-point scale with all means significantly above the midpoint, $p < .001$). In addition, more than 70% of participants scored above the midpoint on each scale. These high ratings across conditions may represent a ceiling effect that limited the variance in responses. Study 1 attempts to address this issue by revising the trait items.

In addition to the extensions described above, Study 1 also extends the Preliminary Study by testing the hypothesis that having one’s gender asymmetrically marked within an occupation arouses different types of stigma among women and men. As discussed previously, having one’s gender asymmetrically marked within a domain is expected to arouse concerns about being the target of gender-based stigma among women and domain-based stigma among men.
Chapter 3. STUDY 1

Study 1 was designed to provide a more critical test of the hypothesized effects of asymmetrical gender-marking. Toward that end, Study 1 used the same design and experimental materials used in the Preliminary Study. However, Study 1 used revised measures of perceived occupation status, trait ratings, and occupation appeal. In addition, Study 1 assessed participants’ concerns about being the target of gender-based stigma and domain-based stigma. Finally, Study 1 used a larger sample size, permitting tests of indirect effects with multiple potential mediators, including belonging and concerns of gender-based and domain-based stigma (see Figure 1).

Given the aforementioned points, Study 1 provides a critical test of the comprehensive set of hypotheses set forth in the introduction. Specifically, when women (vs. men) are asymmetrically marked, I expected the limning occupation to be perceived as more male-dominated, stereotypically masculine, and higher status. In addition, I expected that having one’s gender asymmetrically marked would arouse concerns of belonging and stigma, with women reporting concerns of gender-based stigma and men reporting concerns of domain-based stigma. Regardless of participant gender, I expected members of the asymmetrically marked group to find the occupation less appealing than are members of the unmarked group. Thus, when belonging to the gender group that is asymmetrically marked in a given context, I expected both women and men to be less interested in the occupation but for different reasons.

Method

Participants, design, and procedure. Undergraduate students (136 women, 119 men) from The Pennsylvania State University participated in exchange for partial course credit. The racial-ethnic composition of participants reflected that of the university: most identified as White or Caucasian (63.9%), followed by Asian (12.9%), Black or African American (10.6%), Latina/o or Hispanic (7.1%), multiple racial-ethnic groups (2.4%), Middle Eastern (0.8%), Native
Hawaiian or other Pacific Islander (0.4%), and 2.0% identified with racial-ethnic groups that were not listed on the survey (e.g., Indian). Participants ranged in age from 18 to 39 ($M = 19.70, SD = 1.81$).

The experimental design was identical to the Preliminary Study, with one exception. Because there were no meaningful differences between the both-marked and no-marking control conditions in the Preliminary Study, the both-marked control condition was excluded from Study 1. Therefore, Study 1 employed a Marking Condition (female-marked, male-marked, no-marking) x Participant Gender (female, male) between-participant design. Participants read the same descriptions of the limning occupation and the two limners as in the Preliminary Study before reporting their impressions of the limning occupation.

**Dependent measures.** Participants reported their perceptions of the gender composition, gender stereotypicality, and status of the occupation. Participants also reported their sense of belonging, concerns of stigma, and appeal of the occupation.

**Gender composition.** The perceived gender composition of the limning occupation was measured using the same two items (*gender proportion* and *typical gender*) from the Preliminary Study.

**Gender stereotypicality of the occupation.** The perceived gender stereotypicality of the limning occupation was assessed with the two measures used in the Preliminary Study (*gender stereotypicality* and *relative trait ratings*). Some of the trait terms for the *relative trait ratings* were, however, revised. Specifically, two items that had loaded poorly on the masculine factor in the Preliminary Study (mechanical, scientific) were omitted and replaced with “self-reliant”, identified by pilot testing to be stereotypically perceived as associated with men more so than women. One item that had loaded poorly on the feminine factor (conscientiousness) was also omitted. Factor analysis of the five masculine traits (straightforward communicator, self-reliant,
leader-like, rational, and action-oriented) and five feminine traits (empathetic, compassionate, understanding, caring, and people-oriented) revealed the expected two-factor solution, which accounted for 53% of the variance. The trait “people-oriented”, however, loaded on both factors and so was dropped from further analyses\(^3\). As in the Preliminary Study, the average stereotypic feminine trait ratings ($\alpha = 0.83$) were subtracted from the average stereotypic masculine trait ratings ($\alpha = 0.68$) to create the *relative trait rating* variable\(^4\).

**Occupation status.** The perceived status of the limning occupation was measured with five items. First, participants rated the salary of limners in general on an 8-point scale ranging from “much lower than the national average salary” to “much higher than the national average salary”. Second, participants rated the prestige of the limning occupation on an 8-point scale ranging from “extremely less prestigious than average” to “extremely more prestigious than average”. Finally, using 6-point scales (endpoints “not at all” and “very”), participants answered the following three questions: (1) “To what extent do you think limners are respected in society?” (2) “How impressive is it to be a limner?” and (3) “How competitive is it to become a limner?” Because rating scales varied, scores for each item were standardized and then averaged ($\alpha = 0.82$). Higher scores indicated greater perceived status of the occupation.

**Belonging.** Using an 8-point scale (endpoints “disagree extremely” and “agree extremely”), participants indicated their agreement with the same four statements from the Preliminary Study. Items were averaged to create an index of belonging, with higher numbers indicating greater belonging ($\alpha = .85$).

**Occupation appeal.** Using an 8-point scale (endpoints “disagree extremely” and “agree extremely”), participants indicated their agreement with the same four statements used in the Preliminary Study. Participants also indicated their agreement with two additional items:

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\(^3\) The pattern of results does not change if the trait *people-oriented* is included in analyses.

\(^4\) Feminine and masculine traits were also analyzed separately, as noted in the results section, footnote 5.
“Limning seems like a great career for someone like me” and “I would be interested in learning more about how to become a limner”. The six items were averaged to create an index of occupation appeal, with higher numbers indicating greater appeal ($\alpha = .94$).

**Concerns of gender-based stigma.** Concerns of gender-based stigma, or the concern that one will be devalued or treated negatively based on one’s gender, was assessed with items adapted from Pinel’s (1999) Stereotype Consciousness Scale and Cohen and Garcia’s (2005) Threat of Being Stereotyped Scale. Using 8-point scales (endpoints “disagree extremely” and “agree extremely”), participants considered how they would feel if they were in the limning occupation and indicated their agreement with the following statements: (1) “I would worry that my behaviors in the limning occupation would be interpreted in terms of my gender”, (2) “I feel like my gender might influence how clients and others in the limning occupation would act with me”, (3) “I would worry that other limners would have a problem viewing me as their equal because of my gender”, and (4) “I feel like I would have to continually ‘prove’ myself in the limning occupation because of my gender”. I averaged across items to create an index of concerns of gender-based stigma ($\alpha = 0.90$); higher scores indicated greater concerns of gender-based stigma.

**Concerns of domain-based stigma.** Concerns of domain-based stigma, or concern that one will be devalued or treated negatively based on one’s participation in a domain, was assessed with items adapted from Rudman and Fairchild’s (2004) Fear of Backlash Scale. While imagining that they have chosen limning as a career, and using a 6-point scale (endpoints “not at all” and “very much so”), participants indicated the extent to which they: (1) would feel like others would tease them for their career choice, (2) would be hesitant to disclose their career choice to others, (3) would be afraid that others would respond negatively to their career choice, (4) would worry that others would label them negatively for their career choice, (5) would think
that others would try to discourage them from being a limner, (6) would be concerned that they might be disliked because of their career choice, and (7) would worry that people would question whether they are a ‘real’ man/woman for being a limner. I averaged across items to create an index of concerns of domain-based stigma (α = 0.94); higher scores indicated greater concerns of domain-based stigma.

**Results**

Data were analyzed in two steps. First, I analyzed the direct effects of marking condition on each variable. Next, I analyzed the indirect effect of marking condition on domain appeal through the predicted pathways (see Figure 1).

**Direct Effects.** Consistent with the Preliminary Study, I predicted that the occupation would be perceived as more male-dominated, stereotypically masculine, and higher status when women were asymmetrically marked, but more female-dominated, stereotypically feminine, and lower status when men were asymmetrically marked, compared to when gender was not marked. I also predicted that members of the asymmetrically marked group would report less belonging, greater concerns of stigma (gender-based stigma among women and domain-based stigma among men), and less occupation appeal compared to members of the unmarked group. In other words, participant gender was expected to interact with marking condition to influence feelings of belonging, concerns of stigma, and occupation appeal, but not perceptions of the occupation. To test these predictions, the gender composition variables (*gender proportions* and *typical gender*) and gender stereotypicality variables (*gender stereotypicality* and *relative trait ratings*) were submitted to separate Marking Condition (female-marked, male-marked, no-marking) x Participant Gender (female, male) between-participant MANOVAs. Occupation status, belonging, concerns of stigma, and occupation appeal were submitted to separate Marking Condition (female-marked, male-marked, no-marking) x Participant Gender (female, male)
between-participant ANOVAs. Post-hoc analyses using Tukey’s HSD (honestly significant differences) test were conducted to decompose any main or interactive effects involving marking condition. Means and standard deviations for all variables are reported in Table 2.

**Gender composition.** Overall, the 3 x 2 MANOVA revealed the predicted main effect for marking condition, \( F(4, 490) = 19.88, p < .001 \), Wilk’s \( \lambda = 0.74 \), \( \eta_p^2 = 0.14 \), which was significant on both the *gender proportion* variable, \( F(2, 246) = 41.74, p < .001 \), \( \eta_p^2 = 0.25 \), and the *typical gender* variable, \( F(2, 246) = 12.07, p < .001 \), \( \eta_p^2 = 0.09 \). Replicating the findings of the Preliminary Study, on each variable limning was perceived as being composed of more women in the male-marked condition compared to the female-marked, \( ps < .001 \), \( ds > .75 \), and the no-marking conditions, \( ps < .001 \), \( ds > .50 \). By contrast, limning was perceived as being composed of more men in the female-marked condition than the no-marking condition, but this difference was only significant for the *gender proportion* variable, \( p < .01 \), \( d = .83 \), and not for the *typical gender* variable, \( p = .18 \), \( d = .23 \). Means are reported in Table 2. Again, participant gender did not exert any significant main or interactive effects.

**Gender stereotypicality.** The 3 x 2 MANOVA revealed the predicted main effect of marking condition, \( F(4, 478) = 14.23, p < .001 \), Wilk’s \( \lambda = 0.80 \), \( \eta_p^2 = 0.11 \), which was significant on the *gender stereotypicality* item, \( F(2, 240) = 28.77, p < .001 \), \( \eta_p^2 = 0.19 \), but only marginally significant on the *relative trait ratings*, \( F(2, 240) = 2.46, p = .088 \), \( \eta_p^2 = 0.02 \). Means are reported in Table 2. Replicating the findings of the Preliminary Study, on *gender stereotypicality*, limning was perceived as more stereotypically masculine in the female-marked condition than the male-marked, \( p < .001 \), \( d = 1.03 \), and no-marking conditions, \( p < .03 \), \( d = .50 \). By contrast, limning was perceived as more stereotypically feminine in the male-marked
condition than the no-marking condition, \( p < .001, d = .73 \). On relative trait ratings\(^5\), masculine (relative to feminine) traits were perceived as more necessary for limning success in the no-marking condition than in the male-marked condition, \( p < .03, d = .35 \). Contrary to predictions, however, relative trait ratings did not differ between the female-marked condition and the other two conditions, \( ps > .15 \). Again, no significant main or interactive effects emerged for gender.

**Occupation status.** As in the Preliminary Study, no significant effects emerged from the 3 x 2 ANOVA, \( Fs < 1 \).

**Belonging.** Whereas a significant Marking Condition X Participant Gender interaction emerged on belonging in the Preliminary Study, no significant effects emerged from the 3 x 2 ANOVA on belonging in Study 1, \( Fs < 1 \).

**Occupation appeal.** As in the Preliminary Study, no significant effects emerged from the 3 x 2 ANOVA, \( Fs < 1 \).

**Concerns of gender-based stigma.** The 3 x 2 ANOVA revealed a main effect of gender, \( F(1, 246) = 14.31, p < .001, \eta^2_p = 0.06 \); women were more concerned about gender-based stigma \((M = 4.33, SD = 1.55)\) than were men \((M = 3.59, SD = 1.46)\). There was also a predicted Marking Condition X Participant Gender interaction, \( F(2, 246) = 4.35, p < .02, \eta^2_p = 0.03 \). To decompose

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\(^5\) I also submitted the feminine and masculine trait ratings to a Marking Condition (female-marked, male-marked, no-marking) x Participant Gender (female, male) x Trait Type (feminine, masculine) mixed-model ANOVA. Trait type was a within-participant factor whereas marking condition and participant gender were between-participant factors. Two main effects emerged. A main effect of participant gender, \( F(1, 240) = 7.66, p < .01, \eta^2_p = 0.03 \), showed that women rated the traits as more necessary \((M = 3.79, SE = 0.05)\) than did men \((M = 3.58, SE = 0.05)\). A main effect of trait type, \( F(1, 240) = 7.33, p < .01, \eta^2_p = 0.03 \), showed that masculine traits \((M = 3.76, SD = 0.60)\) were rated as more necessary than feminine traits \((M = 3.61, SD = 0.83)\). The main effect for trait type was, however, qualified by a marginally significant Trait Type x Marking Condition interaction, \( F(2, 240) = 2.46, p = .088, \eta^2_p = 0.02 \), identical to the main effect for the MANOVA reported above. Masculine traits were perceived as more necessary than feminine traits in the female-marked condition \((M = 3.71, SD = 0.63)\); feminine traits were perceived as more necessary than feminine traits in the female-marked condition \((M = 3.56, SD = 0.87)\), \( F(1, 240) = 3.72, p = .055, \eta^2_p = 0.02 \), and in the no-marking condition \((M = 3.76, SD = 0.55)\); feminine traits: \( F(1, 240) = 8.61, p < .01, \eta^2_p = 0.04 \), but not in the male-marked condition \((M = 3.80, SD = 0.61)\); feminine traits: \( F(1, 240) = 3.80, SD = 0.75 \). In addition, the perceived necessity of the feminine traits differed across marking conditions, \( F(2, 240) = 3.12, p < .05, \eta^2_p = 0.03 \); feminine traits were perceived as more necessary for limning success in the male-marked condition than the other two conditions, \( ps < .05, ds > .31 \). In contrast to the feminine traits, perceived necessity of the masculine traits did not differ across marking conditions, \( F(2, 240) < 1 \). Means are displayed in Figure 3.
the interaction, I first examined gender differences within each marking condition. As shown in Figure 4, and as predicted, women were more concerned about gender-based stigma than were men in the female-marked condition, $F(1, 246) = 19.08, p < .001, \eta^2_p = 0.07$, and the no-marking condition, $F(1, 246) = 4.28, p < .04, \eta^2_p = 0.02$. Women and men did not, however, differ in concerns about gender based stigma in the male-marked condition, $F < 1$. Next, I examined differences between conditions within each gender. Interestingly, concerns about gender-based stigma varied as a function of marking condition among men, $F(2, 246) = 5.46, p < .01, \eta^2_p = 0.04$, but not women, $F(2, 246) = 1.23, p = .29, \eta^2_p = 0.01$. Men were more concerned about gender-based stigma in the male-marked condition compared to the female-marked condition, $p < .01, d = .79$, and the no-marking condition, $p = .01, d = .59$. Concerns of gender-based stigma among men did not, however, differ between the female-marked and no-marking conditions, $p = .60$.

**Concerns of domain-based stigma.** No significant effects emerged from the 3 x 2 ANOVA.

**Indirect Effects.** Results indicate that asymmetrical gender-marking directly influences perceptions of the gendered nature of the occupation, but does not directly influence feelings of belonging or occupation appeal, replicating the findings from the Preliminary Study. However, consistent with the hypotheses set forth in the introduction, asymmetrical gender-marking may *indirectly* influence belonging and appeal through perceptions of the gendered nature of the occupation (see Figure 1). Specifically, to the extent that asymmetrical gender-marking portrays the domain as gender-incongruent for the marked group, I predicted that members of the marked group would feel less belonging and be more concerned about being the target of stigma (gender-based stigma among women and domain-based stigma among men). I predicted that these expectations would, in turn, decrease the appeal of the domain (see Figure 1).
I used AMOS statistical software to test the indirect effects depicted in Figure 1. I analyzed two separate models. In the first model, I compared the female-marked condition to the control condition. In the second model, I compared the male-marked condition to the control condition. I tested these models separately in order to examine the different pattern of results that emerges for marking women vs. marking men. All direct effects were included in the analysis; therefore, fit statistics are not provided because the model was saturated (Kline, 2011). Indirect effects were estimated using 1,000 bias-corrected bootstrapped samples.

In all analyses, the perceived gendered nature of the occupation was composed of the three variables on which significant effects had emerged in the above analyses. Specifically, the variables of gender proportions, typical gender, and gender stereotypicality were standardized and averaged together to form a composite score ($\alpha = .86$).

To examine whether the parameter estimates for specific pathways differed between women and men, I used a two-group model analysis with chi-square difference tests. This analysis allows researchers to examine whether theoretically interesting paths differ across groups. As implied above, the strength of the pathways between the perceived gendered nature of the occupation, on the one hand, and the various consequences of belonging, gender-based stigma, and domain-based stigma, on the other hand were expected to differ by gender. Recall that having one’s gender asymmetrically marked is predicted to arouse concerns of belonging among women and men, as well as gender-based stigma among women and domain-based stigma among men. Thus, for the female-marked vs. control condition contrast, perceiving the occupation as more masculine was expected to predict less belonging and greater concerns of

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6 The direct effect of marking condition on belonging, expectations of stigma, and occupation appeal were also expected to differ by gender. As a result, these pathways were also allowed to be freely estimated in the two-group analysis. However, I do not discuss these variables in the main text because, in the case of complete mediation, these direct effects are expected to equal zero after accounting for the relationship between the perceived gendered nature and expectations of interpersonal consequences. Therefore, it would not be surprising to find no gender differences for these direct effects. In other words, these direct effects are not the primary focus of the gender difference analysis.
gender-based stigma among women than men. No gender differences were expected for domain-based stigma because the female-marked condition is not expected to arouse domain-based stigma among either women or men. By contrast, for the male-marked vs. control condition contrast, perceiving the domain as more feminine was expected to predict less belonging and greater concerns of domain-based stigma among men than women. Again, no gender differences were expected for gender-based stigma because the male-marked condition is not expected to arouse gender-based stigma among either women or men.

**Female-marked vs. no marking.** I first tested the model comparing the female-marked condition to the control condition. Table 3 displays the zero-order correlations among variables separately for women (below the diagonal) and men (above the diagonal). Figure 5 displays the standardized regression coefficients for the direct effects; non-significant pathways are excluded for ease of interpretation, unless the pathway significantly differed by gender. Table 4 displays the standardized indirect effects.

As indicated in Table 4, asymmetrically marking women indirectly decreased the appeal of the occupation for women, but marginally increased the appeal of the occupation for men. As shown in Figure 5, consistent with predictions and replicating the results reported above, when the gender of the female limner was asymmetrically marked (vs. not marked), the limning occupation was perceived as more male-dominated and stereotypically masculine. As predicted, among men, greater perceptions of the occupation as male predicted greater belonging, which in turn predicted greater appeal of the occupation. By contrast, among women, greater perceptions of the occupation as male predicted less belonging and greater concerns of gender-based stigma. Less belonging, in turn, predicted less occupation appeal among women. Contrary to predictions, however, greater concerns of gender-based stigma predicted greater occupation appeal among women. I address possible explanations for this unexpected finding in the discussion section.
Gender differences were directly tested for the pathways between the perceived maleness of the occupation, on the one hand, and the various consequences of belonging, gender-based stigma, and domain-based stigma, on the other hand. These gender differences were tested in two steps. In the first step, a model in which all parameters were freely estimated (Model 1) was compared to a model where pathways hypothesized to differ by gender were freely estimated but all other pathways were constrained to be equal (Model 2). The chi-square statistic for the difference between the two models was not significant, $\chi^2 (df = 7) = 9.64$, $p > .20$, indicating that the constrained pathways did not differ across gender. In the second step, each of the hypothesized pathways was constrained in separate models (Models 2a, 2b, and 2c) and compared to Model 2 in which these hypothesized pathways were freely estimated. As shown in Table 5, the chi-square difference tests were all significant, indicating that each of the hypothesized pathways significantly differed by gender. More specifically, and consistent with predictions, perceiving the occupation as male predicted less belonging and greater concerns of gender-based stigma among women than men. Interestingly, perceiving the occupation as male also predicted greater domain-based stigma among women than men, although the individual pathways for women and men did not significantly differ from zero (see Figure 5).

*Male-marked vs. no marking.* I next tested the model comparing the male-marked condition to the control condition. Table 6 displays the zero-order correlations among variables separately for women (below the diagonal) and men (above the diagonal). Figure 6 displays the standardized regression coefficients for the direct effects; non-significant pathways are excluded for ease of interpretation, unless the pathway significantly differed by gender. Table 7 displays the standardized indirect effects.

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7 The direct effects of marking condition on belonging, expectations of stigma, and occupation appeal were also tested for gender differences, but results revealed a lack of significant differences. This is not surprising, however, considering complete mediation requires that the direct effect of marking condition on the outcome variable (i.e., belonging, expectations of stigma, occupation appeal) be zero when controlling for the mediating variables (i.e., perceived gendered nature, belonging, expectations of stigma).
As indicated in Table 7, asymmetrically marking men indirectly decreased the appeal of the occupation for men, but marginally increased the appeal of the occupation for women. As shown in Figure 6, consistent with predictions and paralleling the results reported above, when the gender of the male limner was asymmetrically marked (vs. not marked), the limning occupation was perceived as more female-dominated and stereotypically feminine. As predicted, among men, greater perceptions of the occupation as female predicted less belonging and greater concerns of stigma (both domain-based and gender-based stigma). Less belonging and greater domain-based stigma, in turn, predicted less occupation appeal among men. By contrast, among women, greater perceptions of the occupation as female predicted greater belonging and fewer concerns of gender-based stigma. Greater feelings of belonging, in turn, predicted greater occupation appeal among women. Interestingly, and opposite of predictions, greater concerns of gender-based stigma among women again predicted greater occupation appeal. I address possible explanations for this unexpected finding in the discussion section.

Gender differences were tested for the pathways between the perceived femaleness of the occupation, on the one hand, and the various consequences of belonging, gender-based stigma, and domain-based stigma, on the other hand, using the same method described above. In the first step, a chi-square difference test comparing Model 1 (the unconstrained model) to Model 2 (the model where pathways hypothesized to differ by gender were freely estimated but all other pathways were constrained to be equal) indicated that the constrained pathways did not differ across gender, $\chi^2 (df = 7) = 6.30, p > .50$. In the second step, each of the pathways hypothesized to differ by gender was constrained in separate models (Models 2a, 2b, and 2c) and compared to Model 2 in which these hypothesized pathways were freely estimated. As shown in Table 8, the chi-square difference tests were all significant, indicating that each of the hypothesized pathways significantly differed by gender. More specifically, and consistent with predictions, perceiving
the occupation as female predicted less belonging, greater concerns of gender-based stigma, and
greater concerns of domain-based stigma among men than women.

**Discussion**

Study 1 examined whether asymmetrical gender-marking influences the perceived
gendered nature and status of a domain, concerns of belonging and stigma, and the appeal of the
domain. Importantly, Study 1 extended the Preliminary Study by revising measures of
occupation status and appeal and by adding measures to assess concerns of stigma. Study 1 also
extended the Preliminary Study by testing whether the perceived gendered nature of the domain
operated as a critical link to the outcomes of interest (belonging, stigma, and domain appeal; see
Figure 1).

Consistent with predictions and replicating the findings of the Preliminary Study,
asymmetrical gender-marking informed perceptions of the gendered nature of the occupation.
When the gender of the female limner was marked (vs. unmarked), limning was perceived as
more male-dominated and stereotypically masculine. By contrast, when the gender of the male
limner was marked (vs. unmarked), limning was perceived as more female-dominated and
stereotypically feminine. In addition, consistent with predictions but in contrast to the findings of
the Preliminary Study, limning was perceived as requiring more feminine traits when the gender
of the male limner was marked than the other two conditions. Contrary to predictions, however,
the degree to which limning was perceived as requiring masculine traits did not vary as a
function of marking condition. Masculine traits seemed to be required regardless of condition, as
indicated by the fact that all means were above the midpoint of the scale, perhaps reflecting that
masculine traits are generally perceived as critical to success in the workplace (Koenig, Eagly,
Mitchell, & Ristikari, 2011). Together, these results provide evidence that asymmetrical gender-
marking communicates information about who is considered normative in the occupation and
some evidence that asymmetrical gender-marking communicates the attributes needed for success in a domain.

Asymmetrical gender-marking also aroused concerns of gender-based stigma, but only among men. Men were more concerned about gender-based stigma when the gender of the male limner was marked than when the gender of the female limner was marked or no gender was marked. This suggests that men expect to be the target of gender-based stigma in domains where their gender is portrayed as non-normative, despite the fact that men tend to experience positive outcomes in traditionally female domains (Cross & Bagilhole, 2002; Simpson, 2004; Williams, 1992). By contrast and contrary to predictions, women’s concerns of gender-based stigma did not vary as a function of marking condition.

Although results indicate that asymmetrical gender-marking directly influenced perceptions of the gendered nature of the occupation and, among men, concerns of gender-based stigma, results suggest that asymmetrical gender-marking indirectly (rather than directly) affected other critical outcomes of interest, including feelings of belonging, concerns of stigma, and occupation appeal. Specifically, asymmetrical gender-marking indirectly influenced occupation appeal via perceptions of the gendered nature of the occupation, feelings of belonging, and concerns of gender-based and domain-based stigma. I discuss each of these pathways below.

Consistent with predictions, perceiving the occupation as gender-incongruent – as informed by asymmetrical gender-marking – predicted less belonging and less subsequent occupation appeal for both women and men. At the same time, perceiving the occupation as gender-congruent predicted greater belonging and greater subsequent occupation appeal. Importantly, extending prior theory and research showing that feelings of belonging are important predictors of domain appeal and engagement (e.g., Cheryan et al., 2009; Gaucher et
al., 2011; Murphy et al., 2007; Walton & Cohen, 2007), these are the first findings to show that asymmetrical gender-marking may indirectly undermine feelings of belonging via perceptions that a domain is gender-incongruent.

In addition to predicting feelings of belonging, perceiving the occupation as gender-incongruent also predicted concerns of stigma, which operated in different capacities for women and men. Specifically, consistent with predictions, perceiving the occupation as gender-incongruent predicted greater domain-based stigma among men but not women, which in turn predicted lower appeal of the occupation for men. Extending prior theory and research showing that men avoid feminine behaviors because of fear of backlash (Rudman & Fairchild, 2004), these are the first findings to show that female-dominated occupations may be less appealing to men due to concerns about being stigmatized for participating in the occupation.

By contrast, findings pointed to an ironic pattern of relations among stigma concerns and occupation appeal for women. For women, perceiving the occupation as gender-incongruent predicted greater gender-based (rather than domain-based) stigma that, in turn, predicted greater occupation appeal. This unexpected positive relationship between gender-based stigma and occupation appeal led me to wonder whether an extraneous third variable was correlated with occupation appeal, namely, perceived status of the occupation. If this was the case, controlling for perceived status would eliminate the relationship between gender-based stigma and occupation appeal. However, this was not the case in the present data, \( \beta = 0.18, p < .02 \). Another possibility is that gender-based stigma may be perceived as a challenge to women rather than a threat, thereby increasing approach (vs. withdrawal) motivations in women (Alter, Aronson, Darley, Rodriguez, & Ruble, 2010). For example, stigma-relevant stressors are appraised as challenging rather than threatening when they are perceived as surmountable rather than as exceeding one’s coping resources (Cohen & Garcia, 2008; Major & O’Brien, 2005). Future
research should examine the factors that contribute to appraisals of gender-based stigma as challenging vs. threatening.

Together, these results are consistent with the notion that marking gender asymmetrically within a domain not only reflects gender disparities that exist in the domain, but may also reinforce those disparities by indirectly influencing the occupational preferences of women and men. Importantly, the different mechanisms through which asymmetrical marking indirectly influences occupation appeal for women and men highlight the notion that being a member of an asymmetrically-marked group has different meanings and psychological consequences for women and men.

**Limitations.** Although results provide evidence for indirect effects of asymmetrical gender-marking, results failed to provide evidence that asymmetrical gender-marking *directly* influences feelings of belonging, concerns of stigma, and occupation appeal. It is possible that asymmetrical gender-marking only indirectly (rather than directly) influences these critical outcomes of interest. Before reaching firm conclusions about the lack of direct effects, however, it is necessary to rule out alternative explanations.

First, the occupation description may have been too vague for participants to feel like they could make informed judgments about belonging, stigma, or occupation appeal. Indeed, many participants commented that the description did not provide enough information about the occupation. For example, one participant commented, “I still have NO idea what a ‘limner’ is. The description was very vague. I felt I couldn’t really answer the questions truly because I am unsure what exactly they do”. Studies 2 and 3 address this limitation by testing hypotheses within a novel context of greater relevance to undergraduates: an unfamiliar college major (Study 2) and an unfamiliar undergraduate fellowship program (Study 3).
Second, the predicted direct effects of asymmetrical gender-marking on feelings of belonging, concerns of stigma, and occupation appeal may be obscured by an unmeasured moderator variable. For instance, members of stigmatized groups vary in their expectations and concerns about being the target of prejudice and discrimination (London, Downey, Romero-Canyas, Rattan, & Tyson, 2012; Pinel, 1999; see also Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002). Thus, women who are concerned about and attuned to gender-based rejection may be particularly aware of subtle situational cues, such that asymmetrical gender-marking may be particularly detrimental. If this is the case, asymmetrical gender-marking may influence feelings of belonging, concerns of stigma, and occupation appeal more so for women who are vigilant toward cues that signal the possibility of gender-based rejection. I examine this possibility in Study 2.

Finally, concerns of stigma and belonging may be better captured by indirect measures rather than self-report measures. Researchers have long acknowledged that people may be unwilling or unable to report their internal cognitive or affective states (Nisbett & Wilson, 1977). Concerns of stigma and belonging are no exception. Individuals may be unwilling to report feeling a lack of belonging or concerns about being devalued or negatively stereotyped because such views are threatening to one’s self-integrity (Crocker & Garcia, 2009; Crocker, Major, & Steele, 1998; Major & O’Brien, 2005). Concerns of belonging and stigma may, however, leak out through channels that are involuntary and difficult to control, such as nonverbal reactions (Major & O’Brien, 2005). For example, stereotype threat is linked to nonverbal displays of anxiety even in the absence of self-reported anxiety (Bosson, Haymovitz, & Pinel, 2004). To address the possibility that concerns of stigma and belonging are better captured by nonverbal rather than self-report measures, Study 3 examines nonverbal reactions to asymmetrical gender-marking.
Chapter 4. STUDY 2

Study 2 was designed to extend the Preliminary Study and Study 1 in three primary ways. First, Study 2 was designed to examine the predicted effects of asymmetrical gender-marking within a field of study that is both novel but more meaningful to undergraduates – an unfamiliar major, here media studies. This modification addresses the possibility that the Preliminary Study and Study 1 used a description of a novel occupation that may have been too vague for participants to make judgments about social consequences and domain appeal. Media studies was chosen as the target domain because undergraduate psychology students are generally familiar with academic domains, but they are not familiar with the gendered nature of media studies, as established by pilot testing on an independent sample. More specifically, using 5-point scales (endpoints very stereotypic of men and very stereotypic of women), 37 undergraduates indicated the gender-stereotypicality of various college majors, including media studies. The mean rating of media studies ($M = 3.03, SD = 0.44$) did not differ from the midpoint of the scale, $t(36) = 0.37, p = .711$, indicating that media studies was perceived as neither stereotypically masculine nor feminine, allowing for the manipulation of perceptions regarding the gendered nature of the domain.

Second, Study 2 examined the possibility that the effects of asymmetrical gender-marking vary as a function of gender-based rejection sensitivity (London et al., 2012). Prior findings suggest that women who anxiously expect gender-based rejection more readily perceive gender-based rejection cues and, as a result, experience a lower sense of belonging and lower engagement in settings where those rejection cues are present (London et al., 2012; see also Mendoza et al., 2002). Following this logic, I predicted that women high in gender-based rejection sensitivity would be particularly vigilant to asymmetrical gender-marking as a cue of gender-based rejection and, as a result, would report lower belonging, greater concerns of
gender-based stigma, and less interest in the domain compared to women low in gender-based rejection sensitivity. Although I expected that women high in gender-based rejection sensitivity would be particularly influenced by asymmetrical gender-marking as a cue of gender-based rejection, I expected that all individuals would extract information about the gendered nature of the domain from asymmetrical gender-marking, consistent with findings from the Preliminary Study and Study 1.

Finally, Study 2 employed a different manipulation of asymmetrical gender-marking. In Study 1, as well as the Preliminary Study, the gender of an individual woman or man was marked within a domain. By contrast, in Study 2 women as a collective were marked within a domain. This is an important distinction because the marking of individuals versus a collective may have different implications and meanings as a function of the dominant versus minority group status of the marked gender.

At the individual level, female-marking and male-marking seem to have similar implications. As shown in the Preliminary Study and Study 1, marking the gender of individuals within a domain conveys that the marked gender is non-normative for the domain and indirectly deters members of the marked gender from pursuing the domain. In other words, gender-marking at the individual level seems to be interpreted similarly for both the female-marked and male-marked conditions.

At the collective level, however, it is reasonable to wonder whether female-marking and male-marking may have different implications. Asymmetrical gender-marking is a subtle linguistic cue that marks non-normative categories, and the meaning of having one’s entire group marked as non-normative may qualitatively differ for members of historically stigmatized versus non-stigmatized social groups.
When targeted toward women as a collective, for example, asymmetrical gender-marking may be perceived positively as a special honor or an attempt at inclusion, particularly from the perspective of people doing the marking (Jackman, 1994). However, marking women as a collective may be experienced less than positively by women because it may signal that their group is stereotypically perceived as lacking the traits necessary for success in the domain (Gervais & Vescio, 2012; McLoughlin, 2005; Vescio, Gervais, Synder, & Hoover, 2005). Thus although marking women may seem positive, and follow from benevolent motives, Study 2 examined whether marking women as a collective may also have unintended negative effects.

In contrast to women, men are rarely marked as a collective, and so the meaning of marking men may be less clear. Men are undoubtedly marked informally at the individual level (e.g., male nurse, male cheerleader); however, examples of male-marking at the collective level (e.g., achievements of great male nurses) are scarce. In addition, given that men are the dominant gender in society and are stereotypically perceived as more competent than women (Ridgeway, 2001; Eagly & Mladinic, 1994; Eagly & Karau, 2002), marking men as a collective may have positive (rather than negative) implications by making men appear particularly competent or important in the field.

In sum, whereas similar processes may be at play for marking women vs. men as individuals, different processes may be at play for marking women vs. men as a collective. Because predictions are less clear for marking men as a collective and because the lack of effects of marking men is not particularly informative to hypotheses, Study 2 omitted a male-marked condition.

Method

Participants. Undergraduate students who completed the Gender-Based Rejection Sensitivity Questionnaire (described below) during a mass screening were invited to participate
in the study. Of those contacted (N = 729), 180 participated. The responses of six non-native English speaking participants were omitted from the working data set, given the assumption that non-native English speakers may not extract such nuanced meaning from subtle asymmetries in gender-marking. In addition, the responses of six participants who failed an attention check (i.e., did not select the response directly requested) were also omitted from the working data set.

The working dataset consisted of 105 women and 63 men ($M_{age} = 19.43, SD = 1.93$). The racial-ethnic composition of the sample reflected that of the university: most identified as White or Caucasian (79.8%), followed by Black or African American (6.0%), bi- or multi-racial-ethnic (5.4%), Asian (5.4%), Latina(o) or Hispanic (3.0%), and Native Hawaiian or Pacific Islander (0.6%).

**Procedure and materials.** Participants were randomly assigned to read one of two articles describing the achievements of successful media scholars (see Appendix B). The article provided a brief overview of the field of media studies as well as descriptions of the achievements of four women and four men scholars of media studies. Whereas the content and quantity of information provided did not vary in meaningfully ways between the women and men scholars, the presentation of the information varied between conditions. In the no-marking condition, the information about women and men scholars was integrated and presented together under the heading “Great Scholars of Media Studies”; gender was not marked for either women or men scholars in this condition. By contrast, the female-marking condition was designed to reflect the way in which women’s achievements are often depicted in traditionally male domains, with men’s achievements unmarked and women’s achievements marked. For instance, books depicting notable mathematicians and scientists often feature a separate series for female mathematicians and scientists (Cundiff, 2013). Even the popular informational website

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8 Consistent with this suggestion, when non-native English speakers were included in the data set, the same general patterns emerged but were less robust and in places marginally significant.
Wikipedia includes instances of asymmetrical gender-marking; American women novelists were recently removed from the page of “American novelists” and recategorized as “American women novelists”, whereas American men novelists remained on the main page (Filipacchi, 2013). Reflecting these instances of asymmetrical gender-marking found in the real world, the female-marked condition presented information about men scholars under the main heading “Great Scholars of Media Studies”, whereas the information about women scholars was presented in a separate section under the heading “Great Women Scholars of Media Studies”. To strengthen the manipulation, the gender of the women scholars (but not men scholars) was also marked within the individual biographies. Importantly, the section depicting men and the section depicting women were equivalent in terms of font size, amount of text, and amount of space devoted to each section. Thus, the study employed a Marking Condition (no-marking, female-marked) x Participant Gender (female, male) between-participants design.

Participants were instructed to form an impression of media studies as they read the article. After reading the article, participants completed filler items related to the layout, readability, and visual appeal of the article. These items were designed to ensure that, in addition to reading the article, participants also attended to the overall layout of the article to assure attention to the marking manipulation. Participants then completed the dependent measures. Finally, participants completed demographic questions and were probed for suspicion, fully debriefed, and thanked for their participation.

**Measures.** Participants first indicated their baseline interest in media studies and then completed the other measures in one of two orders: (1) perceived gendered nature of the domain, followed by belonging, appeal, and concerns of stigma, or (2) belonging, appeal, and concerns of stigma, followed by perceived gendered nature of the domain. Order did not moderate any of the results and, therefore, will not be mentioned further. These measures are described below.
**Gender-based rejection sensitivity.** During a mass screening session, participants completed the Gender-Based Rejection Sensitivity Questionnaire (GRS; London et al., 2012). The measure assesses individual differences regarding expectations and anxieties about the possibility of gender-based rejection across 11 hypothetical scenarios (e.g., “Imagine that you have just completed the first round of interviews for a high-paying corporate job. Your interviewer informs you that they will let you know about their decision after they have interviewed a few more applicants. How concerned/anxious would you be that you might be hired because of your gender? How much would you expect to be hired?”). Responses were scored according to the questionnaire instructions, with higher numbers indicating greater gender-based rejection sensitivity ($\alpha = 0.90$; London et al., 2012). Because the distribution of scores was non-normally distributed, with skewness of 1.64 ($SE = 0.19$) and kurtosis of 2.78 ($SE = .38$), scores were log-transformed.

**Baseline interest in media studies.** To control for baseline interest in media studies, participants indicated their major and, using a 5-point scale (endpoints “not at all” and “very much”) indicated how much they were interested in (or interested in learning about) each of eight different academic disciplines, including media studies. No participants reported majoring in media studies. Scores for the single item measuring interest in media studies was used as a control variable in all analyses.

**Perceived gendered nature of the domain.** The perceived gendered nature of the domain was assessed with three items, similar to items from the Preliminary Study and Study 1. First, participants estimated the *gender proportions* of scholars in media studies using an 11-point scale with 10% increments (endpoints labeled “100% men; 0% women” and “0% men; 100% women”). Second, participants were asked to imagine a typical scholar in media studies and then indicated whether the person they imagined was male or female (i.e., *typical gender* variable).
Third, participants rated the gender stereotypicality of media studies on a 7-point scale (endpoints “extremely feminine” and “extremely masculine”). Scores were standardized and averaged together; higher scores indicated perceptions of a more masculine nature ($\alpha = 0.70$).

**Belonging.** Using an 8-point scale (endpoints labeled “disagree extremely” and “agree extremely”), participants indicated their agreement with four items similar to those used in the Preliminary Study and Study 1: (1) “I feel like I would fit in with others in media studies”, (2) “I would feel comfortable in media studies”, (3) “I don’t think I am very similar to people in media studies” (reverse-scored), and (4) “I feel like I could belong in media studies”. Items were averaged to create an index of belonging; higher scores indicated greater belonging ($\alpha = 0.87$).

**Domain appeal.** Similar to Study 1, using an 8-point scale (endpoints labeled “disagree extremely” and “agree extremely”), participants indicated their agreement with six statements: (1) “Media studies seems appealing to me”, (2) “I think I could enjoy being in media studies”, (3) “I would not want to major in media studies” (reverse-scored), (4) “A degree in media studies seems interesting”, (5) “Media studies seems like a great major for someone like me”, and (6) “I would be interested in learning more about media studies”. Items were averaged to create an index of domain appeal; higher scores indicated greater appeal ($\alpha = 0.93$).

**Concerns of gender-based stigma.** Using an 8-point scale (endpoints labeled “disagree extremely” and “agree extremely”), participants indicated their agreement with seven items similar to those used in Study 1: (1) “If I were in media studies, I would worry that my behaviors and performance would be interpreted in terms of my gender”, (2) “If I were in media studies, I feel like I would have to continually ‘prove’ myself because of my gender”, (3) If I were in media studies, I feel like I would be treated equally on the basis on my gender” (reverse-scored), (4) “If I were in media studies, I would be concerned that others in media studies might expect less of me because of my gender”, (5) “If I were in media studies, I would worry that my
achievements might be trivialized because of my gender”, (6) “If I were in media studies, I would worry that my shortcomings would be attributed to my gender”, and (7) “If I were in media studies, I feel like my ideas might be discounted because of my gender”. Items were averaged to create an index of concerns of gender-based stigma; higher scores indicated greater concerns of stigma $(\alpha = 0.94)$.

**Results**

Data were analyzed in two steps. First, I analyzed the direct effects of marking condition, gender, and/or GRS on each variable. Next, I analyzed the indirect effects of marking condition on domain appeal through the predicted pathways (see Figure 1).

**Direct effects.** I expected a main effect to emerge for the perceived gendered nature of the domain, such that all individuals (regardless of gender or GRS score) would extract information about the gendered nature of the domain from asymmetrical gender-marking, consistent with findings from the Preliminary Study and Study 1. By contrast, I expected a three-way interaction between marking condition, participant gender, GRS scores to emerge for belonging, gender-based stigma, and domain appeal. Specifically, I expected that women high (but not low) in gender-based rejection sensitivity would interpret asymmetrical gender-marking as a cue of gender-based rejection and, as a result, would report less belonging, greater concerns of gender-based stigma, and less domain appeal in the female-marked compared to no-marking condition. No differences between conditions were expected for men.

To test these predictions, hierarchical linear regression analyses were performed for each variable. Baseline interest in media studies was entered at Step 1 as a control variable; marking condition, participant gender, and gender-based rejection sensitivity (GRS) scores were entered at Step 2; all two-way interactions between marking condition, participant gender, and GRS scores were entered at Step 3; and the three-way interaction between these variables were entered.
at Step 4. GRS scores were mean-centered prior to analyses. Means and standard deviations for all outcome variables are reported in Table 9.

As shown in Step 1 in the top row of Table 10, media studies was a significant covariate only in the analyses on belonging and domain appeal. In Step 2 of Table 10, the predicted main effect for marking condition emerged on the perceived gendered nature of the domain; media studies was perceived as more male in the female-marked than the no-marking condition, $d = 0.48$, consistent with findings from the Preliminary Study and Study 1. Main effects also emerged in Step 2 on concerns of gender-based stigma for marking condition, gender, and GRS scores; more concern about gender-based stigma was reported by women than men, high GRS than low GRS people, and participants in the female-marked than no-marking condition.

Step 3 (see bottom row of Table 10) additionally revealed a Marking Condition x Gender interaction on concerns of gender-based stigma, (see Figure 7). To decompose the interaction, I first examined differences between conditions within each gender. Consistent with predictions, women reported greater concerns of gender-based stigma in the female-marked condition compared to the no-marking condition, $\beta = 0.24$, $t = 2.88$, $p = .005$, $d = 0.32$. Among men, by contrast, there were no differences in concerns of gender-based stigma between the two marking conditions, $\beta = .04$, $t = 0.34$, $p = .73$, $d = 0.01$. Next, I examined gender differences within each marking condition. In the female-marked condition, concerns of stigma were greater among women than men, $\beta = .33$, $t = 3.36$, $p = .001$, $d = 0.99$, whereas there were no gender differences in the no-marking condition, $\beta = .06$, $t = 0.63$, $p = .53$, $d = 0.58$.

Together, the foregoing findings indicate that asymmetrical gender-marking directly influenced perceptions of the gendered nature of the occupation, but not domain appeal. These findings replicate the findings of the Preliminary Study and Study 1. As noted previously, asymmetrical gender-marking may, however, indirectly influence appeal through perceptions of
the gendered nature of the occupation (see Figure 1). Below I turn attention to tests of the predictions that to the extent that asymmetrical gender-marking portrays the domain as gender-incongruent for the marked group, members of the marked group would feel less belonging and be more concerned about being the target of stigma. I predicted that these expectations would, in turn, decrease the appeal of the domain (see Figure 1).

**Indirect effects.** I again used AMOS statistical software to test the indirect effects depicted in Figure 1. Baseline interest in media studies and GRS scores were included as covariates in the model. I included GRS scores as a covariate rather than a moderator because the above analyses indicated that GRS scores did not moderate any of the results. All direct effects were included in the analysis; therefore, fit statistics are not provided because the model was saturated (Kline, 2011). I first tested for gender differences and then I examined the individual pathways and indirect effects. Indirect effects were estimated using 5,000 bias-corrected bootstrapped samples.

I used a two-group model analysis with chi-square difference tests to examine the predicted gender differences, namely that perceiving the occupation as more masculine would predict less belonging and greater concerns of gender-based stigma among women than men, as in Study 1. I tested for gender differences in two steps. In the first step, a model in which all parameters were freely estimated (Model 1) was compared to a model where pathways hypothesized to differ by gender were freely estimated but all other pathways were constrained to be equal (Model 2). The chi-square statistic for the difference between the two models was not significant, $\chi^2 (df = 15) = 11.11, p = .75$, indicating that the constrained pathways did not differ across gender. In the second step, each of the hypothesized pathways was constrained in separate models (Models 2a and 2b) and compared to Model 2 in which these hypothesized pathways were freely estimated. As shown in Table 11, the pathway between perceived maleness and
belonging significantly differed between women and men, with greater perceived maleness predicting less belonging among women than men. The pathway between perceived maleness and concerns of gender-based stigma, by contrast, did not differ between women and men.

I next examined the individual pathways and indirect effects. Table 12 displays the partial correlations (controlling for baseline interest in media studies and GRS scores) separately for women (below the diagonal) and men (above the diagonal). Figure 8 displays the significant standardized regression coefficients for each pathway; unless the pathway significantly differed by gender, non-significant pathways were excluded for ease of interpretation. Consistent with predictions, the female-marked condition predicted greater perceived maleness of media studies; however, this pathway was only significant among women and not men. Greater perceived maleness in turn predicted greater belonging for men, but did not predict belonging for women and did not predict gender-based stigma for either women or men. Greater belonging in turn predicted greater appeal of media studies for both women and men, whereas greater concerns of stigma predicted less appeal of media studies for men but not women. In addition to these pathways, marking condition directly (rather than indirectly) predicted gender-based stigma among women, paralleling the regression analyses reported above; perceived maleness did not mediate this relation. Although pathways were in the predicted directions, the indirect effects of marking condition on appeal through belonging and/or concerns of stigma failed to reach statistical significance for either women or men (see Table 13). Thus, in contrast to the findings of Study 1, asymmetrical gender-marking did not indirectly influence domain appeal in Study 2.

Discussion

Study 2 extended the Preliminary Study and Study 1 in two important ways. First, Study 2 examined the possibility that marking effects are moderated by individual differences in gender-based rejection sensitivity (London et al., 2012). Contrary to predictions, gender-based
rejection sensitivity did not moderate any of the results. The only significant effect to emerge for gender-based rejection sensitivity was on concerns of gender-based stigma: Higher levels of gender-based rejection sensitivity predicted greater concerns of gender-based stigma, consistent with prior research and theorizing on gender-based rejection sensitivity (London et al., 2012). Because gender-based rejection sensitivity predicted concerns of gender-based stigma and did not interact with marking condition, these results suggest that GRS may be an important covariate in analyses of concerns of gender-based stigma, but contrary to hypotheses, it does not moderate the effects of asymmetrical gender-marking.

Study 2 also examined the generalizability of the marking effects found in the prior studies to a marking context of greater relevance to undergraduates, namely the academic discipline of media studies, as well as to a different type of marking, namely the marking of women as a collective rather than as individuals. Specifically, marking was manipulated in Study 2 by highlighting the achievements of women, a seemingly positive endeavor, but with seeming unintended consequences. Consistent with predictions, and replicating the findings of the Preliminary Study and Study 1, asymmetrically marking women in Study 2 communicated the male-dominated and stereotypically masculine nature of the domain. This finding suggests that, although it is important to recognize women’s achievements (Dasgupta, 2011), doing so in a way that asymmetrically marks women’s gender may unintentionally communicate that women are considered non-normative in the domain.

Also consistent with predictions, results suggest that asymmetrically marking women arouses concerns of gender-based stigma among women but not men. This predicted result emerged in the data of Study 2, but not Study 1. The different findings across studies could be due to the more realistic and familiar academic context of Study 2 versus Study 1. Alternatively, Study 2 included an additional variable - gender-based rejection sensitivity, which accounted for
additional variance. In effect, GRS acted as a statistical control in Study 2, helping to clarify the effect of marking on concerns of stigma. Supporting this notion, when GRS was excluded from the analysis, differences between marking conditions among women became unreliable. GRS may thus be an important covariate to include when examining concerns of stigma in future research.

Importantly, asymmetrically marking women directly influenced the perceived gendered nature of a domain and concerns of gender-based stigma, but not feelings of belonging and domain appeal. This was also the case in Study 1. However, the findings of Study 1 suggested that asymmetrical gender-marking *indirectly* influenced feelings of belonging and appeal. That effect did not replicate in the present data. There are several possible explanations for the lack of replication across studies. The lack of replication across contexts may suggest that the indirect effects found in Study 1 are limited to the asymmetrical marking of individual women rather than women as a collective. Perhaps the asymmetrical marking of individuals draws additional attention to the fact that oneself as an individual is non-normative, with clearer implications for belonging and appeal. Alternatively, the indirect effects found in Study 1 may emerge in vague and completely novel contexts about which one truly has no information, with the modest addition of a familiar context (e.g., academics in Study 2) overriding such effects. Of course, it is also possible that the indirect effects found in Study 1 may represent a chance finding or a small effect that does not easily replicate. The indirect effects found in Study 1 should thus be interpreted with caution give the lack of replication, the plausibility of alternative path models, and the absence of a total effect of asymmetrical marking on domain appeal.

Although asymmetrical gender-marking did not influence self-reported belonging and interest, the effects of asymmetrical gender-marking may be better captured via an examination of the nonverbal behavior of asymmetrically marked group members than via self-report
measures. Individuals may be unwilling to report concerns of belonging or stigma because such views are threatening to one’s self-integrity (Crocker & Garcia, 2009; Crocker, Major, & Steele, 1998; Major & O’Brien, 2005). Concerns of belonging and stigma may, however, leak out through nonverbal channels that are involuntary and difficult to control (Major & O’Brien, 2005; Bosson et al., 2004). Study 3 was designed to examine this possibility by measuring the nonverbal behaviors that are associated with concerns of belonging and stigma, in particular, more tense body posture, nervous movement, and anxiousness and less expressiveness and involvement (Bosson et al., 2004; Hyers & Swim, 1998; Shelton, 2003; Stout & Dasgupta, 2011).
Chapter 5. STUDY 3

Study 3 was designed to test the specific predictions that women who were exposed to asymmetrical gender-marking (compared to no gender-marking) would exhibit more nonverbal displays of belonging and stigma concerns (more tense body posture, nervous movements, and anxiousness and less expressiveness and involvement) and, as a result, would be evaluated more negatively. Specifically, female undergraduates participated in a mock interview for a prestigious university fellowship that was described in a way that either asymmetrically marked women or did not mark gender. I also included self-report measures of negative affect and concerns of belonging and stigma in order to compare the nonverbal measures to self-report measures.

Method

Participants. Participants included 71 female undergraduate students who participated in exchange for partial course credit. Video recordings were missing for two participants due to experimenter error; these two participants were excluded from analyses. Four additional participants were excluded because they were non-native English speakers, given the assumption that non-native English speakers may not detect the nuanced meaning of asymmetrical gender-marking. Three additional participants were excluded because they expressed suspicion about the veracity of the fellowship program.

The working dataset consisted of 62 women ranging in age from 18 to 21 ($M_{age} = 18.94$, $SD = 0.72$). Most participants identified as White or Caucasian (67.7%), followed by Black or African American (16.1%), Asian (6.5%), bi- or multi-racial-ethnic (5.2%), Latina(o) or Hispanic (4.8%), Native Hawaiian or Pacific Islander (1.6%), and Turkish (1.6%). The racial-ethnic composition of participants did not differ across the two experimental conditions, $\chi^2 (N = 62) = 1.59$, $p = .207$. 
Procedure and materials. Each participant was run individually. Upon entering the lab, a female experimenter greeted the participant and informed her that the study was being conducted in collaboration with a fellowship program at the university. The experimenter explained that the purpose of the study was to train and prepare interviewers, as well as identify stellar applicants, for a prestigious university fellowship. Participants were asked to act as an actual applicant, be honest, and really compete for the fellowship in order to give the interviewer real, life-like practice. In addition, participants learned that their performance would be evaluated and that the best interview performances would earn participants both $50 and advancement to the second round of interviews for the prestigious fellowship. In reality, $50 was awarded to one randomly selected participant.

Participants were then asked to read through a brochure describing the fellowship (see Appendix C) so that they could prepare for the interview. The brochure described the benefits of the fellowship, eligibility, and the success of past fellows. The description was designed to make the fellowship both appealing (in terms of rewards and benefits) and attainable (e.g., not based on a specific GPA) so that participants would be motivated to perform well in the interview. Importantly, the inside of the brochure provided the context for the marking manipulation (see Appendix C). Whereas the content and quantity of information provided did not vary in meaningfully ways between the two marking conditions, the presentation of the information varied. In the no-marking condition, information about two female and two male former fellows was integrated and presented together under the heading “Former Fellows”; gender was not marked for either female or male fellows in this condition. In the female-marked condition, the information about the male fellows was presented under the main heading “Former Fellows”, whereas the information about the female fellows was presented in a separate section clearly marked as “Former Female Fellows”. To strengthen the manipulation, the 200-word description
of benefits made reference to “Marshall fellows and female fellows” five times, including mention of special benefits available to female fellows (e.g., access to female faculty mentoring).

After reading the brochure, participants were led to a separate room for the interview. The interview was recorded with a video camera positioned on a tripod and angled toward the participant to record their nonverbal behaviors. Following Institutional Review Board requirements, participants were informed that they would be videotaped. Specifically, they were told that the interview would be videotaped for quality assurance and training purposes.

Interviews were conducted by one of three male confederates. Interviewers were dressed in business casual attire, with interviewers wearing black dress pants and shoes and the same white dress shirt and dark tie. Interviewers sat behind a table in the interview room and were trained to perform a script verbatim (see Appendix D). After greeting the participant, the interviewer explained that the interview would be done in two parts: the first part would be done with him and the second part would be done in a separate room where the participant would complete a survey on the computer. The interviewer then briefly mentioned the rewards for performing well (e.g., top performers will receive $50) and the benefits of the fellowship. In addition, depending on the experimental condition, the interviewer either briefly mentioned the special benefits offered to women (i.e., female-marked condition) or did not (i.e., no-marking condition).

Next, the interviewer asked the participant five interview questions. Depending on the condition to which participants were assigned, the interview questions were interspersed with comments that either marked or did not mark the gender of women (see Appendix D). Specifically, in the female-marked condition, the interviewer marked the gender of women in the first, third, and fifth questions. The interviewer also marked the gender of women in responding
to participants’ answers to those same three questions. In the no-marking condition, the interviewer did not mark gender in any of the questions or responses.

After the interview, participants were escorted by the female experimenter to a separate room to complete the self-report measures and demographic questions. After completing the questions on the computer, participants were probed for suspicion, fully debriefed, and thanked for their participation.

**Behavioral measures.** Participants’ nonverbal expressions and performance during the interview were coded by trained research assistants. All coders were blind to the study hypotheses and experimental conditions.

**Nonverbal behaviors.** Two measurement approaches were used to measure nonverbal behaviors. The first approach measured distal indicator cues, or specific behaviors, whereas the second approach measured proximal perceptions, or gestalt impressions of behavior. Both of these approaches (measuring distal indicator cues and proximal perceptions) have been used together in prior assessments of nonverbal behavior (Burgoon & Baesler, 1991; Burgoon et al., 1989; Coker & Burgoon, 1987; Guerrero, 1996, 1997; Hyers & Swim, 1998; Monti, Kolko, Fingeret, & Zwick, 1984).

To measure distal indicator cues, two coders rated specific behaviors associated with concerns of belonging and stigma (for reviews, see Dovidio et al., 2006; Major & O’Brien, 2005; Steele et al., 2002; Williams & Carter-Sowell, 2009). These behaviors fell into three categories: *body tension, expressiveness*, and *nervous movements*. Each category was assessed with multiple items, and coders were provided with definitions of each item, based on prior work (for review, see Guerrero, 2005). All ratings were made on 7-point scales with endpoints noted below.
Body tension was assessed with two items: tense/relaxed (ICC\(^9 = .74\)) and closed/open (ICC = .73)\(^10\). A tense posture was defined as sitting in a stiff, erect position and having clenched limbs and lack of expressive movement. Closed posture was defined as a defensive or on-guard stance, arms and/or legs stiffly crossed, contractive posture, and taking up little space. I averaged across the two items to create a composite score of body tension; higher numbers indicated more open/relaxed (less tense) body posture (\(\alpha = .60;\) ICC = .79).

Expressiveness was assessed with three items: little gesturing/a lot of gesturing (ICC = .80), very little facial expression/a lot of facial expression (ICC = .87), and little kinesic expression/a lot of kinesic expression (ICC = .78). Gesturing was defined as using many emblems (nonverbal signals that can generally stand in for verbal language, e.g., giving a thumbs up to indicate “job well done”), illustrators (gestures that enhance or reinforce the verbal message, e.g., pointing while giving directions), and other expansive gestures. Facial expression was defined as both positive and negative expressions, with more expressions receiving a higher rating (regardless of valence). Overall kinesic animation was defined in terms of the overall degree of coordinated body movement (i.e., gestures and facial expressions), but excluding random or nervous movements. I averaged across the three items to create a composite score of expressiveness; higher numbers indicated more expressiveness (\(\alpha = .85;\) ICC = .82).

Nervous movement was assessed with three items. First, coders rated the amount of trunk or limb movement (a lot/very little; ICC = .80), defined as shaking, tapping one’s fingers or toes, and other forms of fidgeting. Second, coders rated the frequency of self-adaptors (frequent/infrequent; ICC = .86), defined as self-touches such as twisting one’s hair, licking

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\(^9\) ICC represents the intraclass correlation coefficient used to assess interrater reliability.

\(^10\) Two other items were also coded: erect/slumped (ICC = .76) and leaning forward a lot/leaning backward a lot (ICC = .82). However, the meaning of these items was unclear and so they were dropped from analyses. For instance, erect posture could indicate either confidence or tension whereas slumped posture could indicate either relaxed or insecure; similarly, backward lean could indicate either relaxed or disengaged. Furthermore, including these two items with the other two items (tense/relaxed, closed/open) produced an unreliable scale (\(\alpha = .17\)).
one’s lips, scratching, picking at one’s nails, etc. Third, coders rated the frequency of rocking or twisting (frequent/infrequent; ICC = .90), defined as rocking from side to side, twisting one’s hands in one’s lap, twisting one’s angle, rocking one’s foot back and forth, etc. Reliability analysis of the three nervous movement items indicated that rocking/twisting had a poor item-total correlation (r = .13), and removing it from the scale improved inter-item reliability by a nontrivial amount (from α = .39 to α = .50). Therefore, I averaged across trunk movement and self adaptors to create a composite score of nervous movement; higher numbers indicated less nervous body movement (α = .50; ICC = .85).

To measure proximal perceptions, two different coders rated participants’ general anxiety and three other coders rated participants’ general involvement. Coders were instructed to focus on the totality of the target’s nonverbal behavior in order to assess global impressions of anxiety or involvement (see Coker & Burgoon, 1987; Guerrero, 1996, 1997, 2005). All ratings were made on 7-point scales. General anxiety was measured with four items: awkward/confident (ICC = .54), anxious/calm (ICC = .68), restless/still (ICC = .64), and flustered/composed (ICC = .68). General involvement was assessed with six items: inattentive/attentive (ICC = .47), distracted/focused (ICC = .40), unalert/alert (ICC = .39), bored/interested (ICC = .66), detached/involved (ICC = .70), and engaged/disengaged (ICC = .72). I averaged across the four items of the anxiety measure to create a general anxiety variable (α = .89; ICC = .69), with higher numbers indicating less anxiety. I also averaged across the six items of the involvement measure to create a general involvement variable (α = .91; ICC = .64), with higher numbers indicating greater involvement.

All ratings were made using silent videotapes of participants’ nonverbal behaviors during the interview. To help coders remain focused and increase accuracy, coders made ratings at each

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11 Interrater reliability for the general involvement measure was low with only two coders (ICC = .49). Therefore, a third coder was added to increase reliability.
of six event-related intervals during each video (Guerrero, 2005). Specifically, coders watched
the first interval and then coded that interval for nonverbal behaviors. Then they watched the
second interval and coded nonverbal behaviors for that interval, and so on. There were six
intervals, divided based on events within the interview. The first interval extended from the point
at which the participant sat in the chair until right before the interviewer asked the first interview
question; the next five intervals began with the interviewer question and stopped at the end of the
participant’s response for each of the five interview questions. Event-related intervals were used
rather than specific time intervals (e.g., every 60 seconds) because, given that the interviews
could vary in length depending on the length of participant responses, this approach kept the
content of each interval consistent across participants. To obtain a single score on each measure
(body tension, expressiveness, nervous movements, general anxiety, and general involvement), I
averaged across items within each interval and then averaged across intervals and across coders.

Coders underwent extensive training. As recommended by nonverbal researchers (e.g.,
Guerrero, 2005), in addition to the definitions described above, coders were provided with
examples of what constitutes behavior at the high and low ends of each scale. Coders practiced
their ratings using sample videos. Coders were instructed to stop and review the videos if they
were unsure of their ratings. Large between-coder discrepancies (i.e., three or more points
difference on multiple intervals for the same participant) were resolved through discussion.

**Performance ratings.** Two different coders rated each videotape for participant
performance. Coders were informed that the purpose of the interview was to identify stellar
applicants for a prestigious university fellowship and were asked to imagine themselves as the
interviewer. The videotapes included audio for the participant but not for the interviewer so that
coders remained blind to condition. Instead, coders were provided with a written script of the
interview questions (void of marking). After watching each videotape, and using 7-point scales,
each coder rated participant performance on the following items (adapted from Cuddy, Wilmuth, & Carney, 2012, and Word, Zanna, & Cooper, 1974): (1) “What is your overall impression of the applicant?” (endpoints very negative/very positive; ICC = .77), (2) “Overall, how competent does the applicant seem?” (endpoints not at all/extremely; ICC = .83), (3) “Overall, how well did the applicant perform?” (endpoints awful/amazing; ICC = .81), and (4) “How much do you think this applicant should advance to the next level of competition?” (endpoints not at all/definitely; ICC = .82). Performance scores were calculated by first averaging across items and then averaging across the two coders. Higher scores indicated higher performance (α = .98; ICC = .90).

**Self-report measures.** After the interview, participants completed self-report measures. Participants indicated how they felt during the interview, sense of belonging, interest in the fellowship, and concerns of gender-based stigma. Participants also indicated their perceptions of the gendered nature of the fellowship program; participants completed this measure after the other dependent measures so as to not draw attention to gender and/or arouse suspicion about the true nature of the study. Finally, participants completed the Gender-Based Rejection Sensitivity Questionnaire (London et al., 2012); scores were used as a covariate in all analyses, as suggested by the findings of Study 2. Unless otherwise indicated, participants rated items using 8-point scales (endpoints disagree extremely/agree extremely).

**Affect during the interview.** Using a 5-point scale (endpoints not at all/extremely), participants rated the extent to which they felt different emotions during the interview related to anxiety (anxious, worried, distressed, jittery, nervous, relaxed, at ease, calm – the last three items were reverse-scored), powerlessness (self-doubt, powerless, passive, small, strong, confident – the last two items were reverse-scored), and disengagement (disengaged, uninterested, bored, enthusiastic, eager – the last two items were reverse-scored). These items of interest were
interspersed with filler items (e.g., happy, kind, joy, pleasant). Each set of items was averaged across to create indices of anxiety ($\alpha = .87$), powerlessness ($\alpha = .72$), and disengagement ($\alpha = .62$); higher scores indicated higher levels of self-reported anxiety, powerlessness, and disengagement.

**Belonging.** Belonging was assessed with four items similar to those used in the prior studies: (1) “I feel like I would fit in with others in the fellowship program”, (2) “I would feel comfortable in fellowship program”, (3) “I don’t think I am very similar to people in the fellowship program” (reverse-scored), and (4) “I feel like I could belong in the fellowship program”. Items were averaged together to create an index of belonging; higher scores indicated greater belonging ($\alpha = .92$).

**Interest.** Similar to the prior studies, participants indicated their agreement with six statements: (1) “The fellowship is appealing to me”, (2) “I would enjoy being in the fellowship program”, (3) “I do not want to be in the fellowship program” (reverse-scored), (4) “I would like to apply for the fellowship”, (5) “The fellowship program seems like a great opportunity for someone like me”, and (6) “I am interested in becoming a fellow”. Items were averaged together to create an index of interest in the fellowship; higher scores indicated greater interest ($\alpha = .93$).

**Concerns of gender-based stigma.** Similar to the prior studies, participants indicated their agreement with the following statements: (1) “I am concerned that the fellowship program might interpret my behaviors and performance in terms of my gender”, (2) “If I were in the fellowship program, I feel like I would have to continually ‘prove’ myself because of my gender”, (3) “I feel like I would be treated fairly by the program on the basis of my gender” (reverse-scored), (4) “I am concerned that others in the fellowship program might expect less of me because of my gender”, (5) “If I were in the fellowship program, I would worry that my achievements might be trivialized because of my gender”, (6) “I am concerned that people in the
program might attribute my shortcomings to my gender”, and (7) “If I were in the program, I feel like my ideas might be discounted because of my gender”. Items were averaged to create an index of concerns of gender-based stigma; higher scores indicated greater concerns ($\alpha = .91$).

**Perceived gendered nature.** The perceived gendered nature of the fellowship program was assessed with three items (gender proportions, typical gender, and gender stereotypicality), similar to items from the prior studies. Participants estimated the gender proportions of participants in the program using an 11-point scale with 10% increments (endpoints labeled “100% men; 0% women” and “0% men; 100% women”). Next, participants were asked to imagine a typical fellow in the program and then indicated whether the person they imagined was male or female (i.e., typical gender variable). Finally, participants rated the gender stereotypicality of the fellowship program on a 7-point scale (endpoints “extremely feminine” and “extremely masculine”). Scores were standardized and averaged together; higher scores indicated perceptions of a more masculine nature ($\alpha = .68$).

**Gender-based rejection sensitivity.** The findings of Study 2 indicated that GRS does not moderate the effects of asymmetrical marking, but instead may be an important covariate to include in analyses. Thus to control for gender-based rejection sensitivity, as suggested by the findings of Study 2, participants completed the Gender-Based Rejection Sensitivity Questionnaire (GRS; London et al., 2012), described in Study 2. Higher numbers indicated greater gender-based rejection sensitivity ($\alpha = 0.89$). Because the distribution of scores was non-normally distributed, with skewness of 1.28 ($SE = 0.31$) and kurtosis of 1.17 ($SE = .61$), scores were log-transformed.

**Results**

**Preliminary analyses.** I first examined whether effects of asymmetrical gender-marking varied across the three interviewers. I submitted each dependent variable to separate 2 (marking
condition) x 3 (interviewer) ANCOVAs with GRS scores entered as a covariate. Interviewer did not interact with marking condition on any of the dependent measures, $ps \geq .09$. As a result, I collapsed across interviewer for all subsequent analyses.

**Behavioral measures.** I expected women to express more negative nonverbal behavior (more tense body posture, nervous movement, and anxiety and less expressiveness and involvement) and to receive lower performance ratings in the female-marked condition compared to the no-marking condition. To test predictions, I submitted each behavioral measure to separate one-way (marking condition) ANCOVAs with GRS scores entered as a covariate. Means and standard deviations are reported in the top rows of Table 1.

The only significant effect to emerge was a main effect for condition on the analysis of nervous movements, $F(1, 56) = 8.87, p = .004, \eta_p^2 = 0.14$. Consistent with predictions, women exhibited more nervous movements in the female-marked compared to the no-marking condition. No other significant effects emerged from analyses.

**Self-reported measures.** I next analyzed the self-reported measures. I submitted each self-report measure to separate one-way (marking condition) ANCOVAs with GRS scores entered as a covariate. Means and standard deviations for the self-reported measures are reported in bottom rows of Table 1.

As in Study 2, GRS was a significant covariate in analyses of concerns of gender-based stigma, $F(1,55) = 5.44, p = .023, \eta_p^2 = 0.09$, as well as belonging, $F(1,55) = 6.14, p = .016, \eta_p^2 = 0.10$, and interest, $F(1,56) = 4.99, p = .029, \eta_p^2 = 0.08$. Higher GRS predicted less belonging, less interest, and greater concerns of gender-based stigma. No other significant effects emerged from analyses on the self-reported measures.

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12 The same results emerge if GRS scores are excluded from analyses.
**Discussion**

Study 3 examined the effects of asymmetrical gender-marking on nonverbal displays in a mock interview setting. Consistent with predictions, women displayed more nervous movements (e.g., fidgeting) during the interview when women were asymmetrically marked vs. not marked. Ratings of other nonverbal behaviors, however, did not produce parallel effects; marking condition did not reliably influence body tension, expressiveness, general anxiety or general involvement. It is unclear why effects emerged for nervous movements but not other nonverbal behaviors. One possibility is that the other nonverbal measures may tap constructs that differ from the construct tapped by nervous movements. Nervous movements may distinctly tap anxiety whereas body tension, expressiveness, and general anxiety and involvement may tap not only anxiety but other emotional states as well, such as joy or anger. For instance, a tense and closed body posture could indicate anxiousness but it could also indicate anger. Similarly, general anxiety may tap confidence in addition to anxiety, or may tap trait anxiety rather than anxiety that is situationally derived. Perhaps effects emerged for nervous movements because this was a more precise measure of anxiety than were the other measures.

In contrast to the findings for nonverbal behaviors, but consistent with the findings of Study 1 and Study 2, effects of asymmetrical gender-marking did not emerge on any of the self-reported measures. Again, asymmetrical gender-marking did not predict self-reported feelings of belonging or interest. In contrast to Study 2, asymmetrical gender-marking also failed to predict self-reported concerns of gender-based stigma.

Interestingly, and contrary to predictions, performance did not vary as a function of marking condition. I had reasoned that if women exhibited more nervous behaviors in the asymmetrical marking conditions, then external perceivers would interpret those behaviors as reflecting poorer performance. Instead, participants’ performance was evaluated similarly in the
female-marked and no-marking conditions. There may have been too much variance between participants in terms of baseline performance for the marking manipulation to show an effect. Baseline performance, or proxies such as GPA or SAT scores or measures of introversion/extraversion, may be important covariates to include in future research examining performance.

The most striking difference between the findings of Study 3 and the prior three studies is the finding that asymmetrical gender-marking did not here predictably influence perceptions of the gendered nature of the fellowship program. It is possible that some participants may have interpreted the female-marking as indicating a female-specific division of a larger program, such as Women in Engineering is a female-specific division of engineering. Thus some participants may have reported their perceptions of an assumed female-specific division rather than their perceptions of the broader program. Alternatively, asymmetrical gender-marking that occurs in the context of a friendly interpersonal interaction may fail to convey the gendered nature of the context.
Chapter 6. GENERAL DISCUSSION

“Labeling is largely a matter of some persons or groups imposing their rules on others. Ultimately, then, who will be defined as deviant, and for what, is a question of political and economic power” (Schur, 1984, pg. 6).

Feminist scholars have argued that asymmetrical gender-marking can have harmful effects for members of marked relative to unmarked groups, but such claims had yet to be empirically tested. The present research provides an initial examination of the cognitive, affective, and behavioral consequences of asymmetrical gender-marking. In particular, the present theory and research examined the extent to which asymmetrical gender-marking communicates who is considered normative (and who is considered deviant and, perhaps, problematic) in a given context and whether these normative assumptions subsequently influence individuals’ attitudes and behavior in ways that contribute to gender disparities.

Together, results across four studies provide evidence that asymmetrical gender-marking has some unintended and potentially harmful consequences. The first three studies provided evidence that asymmetrical gender-marking communicates information about who is considered normative in a given context. Specifically, asymmetrically marking women made the domain appear more male-dominated and stereotypically masculine (Preliminary Study, Studies 1-2), whereas asymmetrically marking men made the domain appear more female-dominated and stereotypically feminine (Preliminary Study, Study 1), compared to not marking gender. This effect replicated across three of the four studies, with medium to large effect sizes (Cohen’s $d$ effect sizes ranging from 0.46 to 0.95 across the three studies for the three-item composite).

Notably, perceptions of the gendered nature of the domain predicted important consequences for women and men’s interest in the domain. Perceiving the domain as masculine indirectly predicted reduced interest among women but greater interest among men, whereas
perceiving the domain as feminine indirectly predicted reduced interest among men but greater interest among women (Study 1). The indirect effect of asymmetrical gender-marking on interest should, however, be interpreted with caution as this effect, although in the predicted direction, did not replicate across marking contexts (Study 2). Additionally, I gave priority to the path model depicted in Figure 1 only because the model is consistent with prior theory. However, alternative path models are plausible and should be explored in future research.

Studies 2 and 3 were designed to more critically examine and fully explain the effects of asymmetrical gender-marking, in particular, the asymmetrical gender-marking of women. Across Studies 2 and 3, asymmetrically marking women aroused concerns of gender-based stigma among women, as assessed by both self-report measures (Study 2) and nonverbal behaviors, namely nervous movements (Study 3). Importantly, there was no evidence across the present studies suggesting that asymmetrically marking women produces positive effects on belonging and stigma concerns or interest. At best, asymmetrically marking women is no more consequential than not marking gender; at worst, however, asymmetrically marking women may arouse stigma concerns and elicit nervous movements among women.

Who tends to be marked vs. unmarked reflects social reality (in terms of numeric representation and/or power relations). Beyond reflecting reality, though, the results of the present studies suggest that asymmetrical gender-marking may also be consequential in reproducing that reality. In particular, asymmetrical gender-marking may contribute to existing gender disparities within a domain by creating unequal psychological experiences for women and men. The notion that language and social reality mutually reconstruct one another is consistent with feminist theories of language (e.g., Black & Coward, 1981; Crawford, 1995, 2001; Eckert & McConnell-Ginet, 2003; Gibbon, 1999; McLaren, Carillo-Rowe, Clark, & Craft, 2001; Pelak, 2008; Schur, 1984; Shapiro, 1982; Trechter, 2003). As articulated in the quote at the
beginning of this section, language is theorized to be a powerful tool through which power relations are maintained. The present work provides initial empirical evidence that a particular form of language use – asymmetrical gender-marking – may indeed be consequential in maintaining existing social realities. Bringing attention to subtle linguistic biases, such as asymmetrical gender-marking, is an important first step toward changing communication practices so that they do not unintentionally reproduce gender inequalities.

Limitations and Future Directions

There are important limitations to the present research. In the present research, gender was marked asymmetrically within a single context for each study. In the real world, however, the gender of women is asymmetrically marked across a variety of contexts, including male-dominated occupations (Romaine, 2001), peer-reviewed research articles (Cundiff, 2012), sports teams (Pelak, 2008), academic programs (e.g., Women in Engineering; McLoughlin, 2005), and consumer products (e.g., BIC’s line of pens “for her”). The cultural repetition of positioning women as non-normative humans may have broader implications that are not captured by the present studies. It may be the array of varied contexts of asymmetrical marking that come together to each exert small but meaningful effects that accumulate over time and combine to more potently reinforce and maintain gender inequities.

Relatedly, asymmetrical gender-marking may interact with other cues in the environment to affect outcomes over time. If asymmetrical gender-marking arouses concerns of gender-based stigma among women, as results suggest, such concerns may influence how a setting is psychologically experienced. For instance, stigma concerns can lead individuals to enter a setting “on guard” and vigilant for cues that hold relevance for how one might be treated and evaluated in the setting. Such vigilance may influence the interpretation of daily events, for example, increasing the likelihood that daily stressors will be perceived as diagnostic of a general lack of
belonging and acceptance (Cohen et al., 1999; Crocker & Major, 1989; Crocker et al., 1991; Walton & Cohen, 2007, 2011). Over time, stigma concerns can lead to a negative cyclical process that further heightens vigilance and stigma concerns, eventually undermining well-being, motivation, and achievement (Cohen & Garcia, 2008; Walton & Carr, 2012). Importantly, asymmetrical gender-marking may be one of several potential cues of identity threat that together contribute to this negative recursive process that over time undermines well-being, motivation, and achievement. Future work should examine the effects of asymmetrical gender-marking on psychological vigilance toward identity-relevant cues and how asymmetrical gender-marking may work in concert with other situational cues of identity threat to undermine motivation and belonging over time.

Importantly, asymmetrical gender-marking may have different effects depending on whether it occurs within novel contexts or within familiar contexts where gender information is already known. In novel contexts, the first three studies provide evidence that asymmetrical gender-marking informs inferences about the gendered nature of the context. In familiar contexts where culturally shared category norms already exist, however, asymmetrical gender-marking may have different consequences. Asymmetrically marking non-normative groups (e.g., women in engineering) should not arouse attention because this pattern is consistent with category norms. Asymmetrically marking normative groups (e.g., men in engineering), however, should draw attention because this pattern is inconsistent with category norms and, as a result, may elicit critical examination of gender relations within the context. For example, individuals are less likely to legitimize existing gender relations when exposed to articles that linguistically position men (rather than women) as non-normative (Bruckmuller et al., 2012). In effect, asymmetrical gender-marking that is consistent with category norms (e.g., marking women but not men) may allow unmarked groups and the privilege they experience to remain unexamined and presumed
natural and unproblematic. Asymmetrical gender-marking that is *inconsistent* with category norms, by contrast, may disrupt current modes of thinking and spur critical examination of existing power relations. Future research should examine the effects of asymmetrically marking normative groups.

Another limitation to the present work is that although there was no evidence that asymmetrical gender-marking produces positive effects, it is possible that asymmetrical gender-marking may have positive effects that were not measured in the present studies. In some instances, asymmetrical gender-marking may be empowering by ensuring that the voices of the marked group are heard and their contributions recognized. Women’s History Month, for instance, recognizes the contributions of notable women across history, and groups such as Women in Engineering are designed to address the needs of women. These instances of asymmetrical gender-marking may be important for empowering women and creating safe havens and/or support systems within male-dominated fields that may increase women’s persistence and retention in those fields. Future work should explore these potential positive effects of asymmetrical gender-marking. Importantly, although initiatives that utilize asymmetrical gender-marking may have positive effects, these effects may not be sustainable over time because asymmetrical gender-marking continues to relegate marked groups to the margin rather than fully integrating all groups into the mainstream. For example, the relegation of women’s experiences to Women’s History Month, although empowering at first, may also mean that women’s experiences are not being fully integrated into mainstream historical perspectives during the rest of the year. Thus, future work should identify the boundary conditions for when and under what conditions asymmetrical gender-marking may produce positive vs. negative effects.
Notably, the question of whether the effects of asymmetrical gender-marking generalize to diverse groups of women and men is an open question. Asymmetrical gender-marking may signal how one will be treated based on one’s gender, but it does not signal how one will be treated based on other intersecting social identities. For women and men with multiply oppressed social identities, other cues in the setting in addition to asymmetrical gender-marking, such as numeric representation or cultural ideologies, may inform inferences about how one will be treated. For example, Latina women may not find a particular occupation appealing, regardless of whether asymmetrical gender-marking is present or not, if the only women and men who are represented in the occupation are white. Furthermore, asymmetrical gender-marking may have different meanings for different groups of women based on intersecting systems of inequality. For example, marking women’s sports teams with the word “Lady” may have positive political meanings for black women, who may embrace the term as a way to resist negative stereotypes of black women as hypersexual and promiscuous (Pelak, 2008). For white women, however, the term may have negative political meanings due to “lady” being used as a mechanism to control white women’s behavior (Pelak, 2008). Because the word “lady” is a specific type of gender marking with distinct historical and racialized connotations, however, these differences in experience may not generalize to other forms of gender-marking (e.g., “woman”, “female”).

Despite the aforementioned limitations, the present theory and research have broader implications. First, although the present research focused on asymmetrical gender-marking, the theory is applicable to the asymmetrical marking of other social identities. That is, asymmetrical marking occurs not only in the context of gender, but also in the context of other social identities where one group is considered normative and another is considered non-normative. Within the category women, for example, heterosexuality and whiteness tend to be unmarked whereas homosexuality and the race-ethnicity of women of color tend to be marked. As a result,
privileged positions within marginalized categories remain invisible through linguistic practices that render privileged identities as normative and unproblematic. Future research should examine the consequences of asymmetrical marking within marginalized categories.

In addition, the effects of asymmetrical gender-marking may extend to any type of linguistic practice that positions women as non-normative and men as normative. Such practices include making women (rather than men) the effect to be explained when explaining gender differences (Bruckmuller et al., 2012) or positioning “men” before “women” in everyday speech (e.g., saying “men and women” rather than “women and men”; Bruckmuller & Abele, 2010; Hegarty, Watson, Fletcher, & McQueen, 2010). Future work should continue to examine the consequences of gendered linguistic practices.

**Conclusion**

The present research highlights the potential negative side effects of asymmetrically marking women. The asymmetrical marking of women is most likely motivated by either neutral intentions (with no intended consequences) or by benevolent intentions to highlight the presence and achievements of women (with intended positive effects). However, across four studies, there was no indication that asymmetrically marking women had positive effects on women in terms of increasing belonging and interest in a domain or decreasing concerns of gender-based stigma. At best, asymmetrically marking women had no consequences. At worst, however, asymmetrically marking women aroused concerns of gender-based stigma and deterred women from the domain. Given these potential negative side effects, efforts aimed at recruiting women should critically examine strategies that asymmetrically mark women. By highlighting the potential negative consequences of asymmetrical gender-marking, the present work aims to raise awareness of subtle linguistic biases so they do not continue to unintentionally contribute to gender inequalities.
References


Pratto, F., Hegarty, P. J., & Korchmaros, J. D. (2008). How communication practices and category norms lead people to stereotype particular people and groups. In Y. Kashima, K. Fiedler, & P. Freytag (Eds.), *Stereotype dynamics: Language-based approaches to the


Appendix A

Descriptions of the two limners (Preliminary Study and Study 1)

Description 1

Name: John Benson  Occupation: Limner
Age: 33  Hometown: Boulder, CO
Internship Site: Denver, CO  Current Residence: Phoenix, AZ

Feedback from three most recent clients:

• “John is a great [male] limner and I will be using his services again in the future.”
• “I most recently worked with the [male] limner John. He was very professional and provided great service.”
• “I have worked with John on multiple occasions and I know I can always count on him to do a good job. He is an excellent [male] limner.”

Favorite Aspect of Occupation: Each day is different and interesting
Job Aspirations: Own and manage my own limning business

Description 2

Name: Sarah Thoren  Occupation: Limner
Age: 37  Hometown: Erie, PA
Internship Site: Baltimore, MD  Current Residence: Philadelphia, PA

Feedback from three most recent clients:

• “This time I worked with the [female] limner, Sarah. She was responsive to my concerns and I was very happy with the service I received.”
• “Sarah is an excellent [female] limner, and I will definitely use her again.”
• “I worked with a [female] limner named Sarah; she was very knowledgeable and I enjoyed working with her.”
Favorite Aspect of Occupation: The new challenges that keep me on my toes

Job Aspirations: Become a limning instructor so I can train and mentor the next generation of limners
Appendix B

Media studies article for the no-marking condition (Study 2):

Media studies is an academic discipline and field of study that focuses on the history, content, and effects of various media, with particular emphasis on the mass media. Media scholars have been influential in informing policies regarding various forms of media, and their research has increased our understanding of the effects of media on public opinion, beliefs, attitudes, and behavior. This article highlights the achievements of some of the most renowned media scholars of our time.

Karen Gerbner is a prominent scholar in media studies. She is best known for her cultivation theory, which posits that the more time people spend watching television, the more they tend to believe the social reality portrayed on TV. She coined the phrase "mean world syndrome" to describe the fact that people who watch large amounts of television are more likely to perceive the world as a dangerous and frightening place.

Amanda Fiske is an influential media scholar who introduced the theory that viewers actively construct their own meanings of the shows they watch, rather than passively absorbing the information presented. This viewpoint has been influential for modern conceptualizations of the effects of media as being a two-way process whereby media affects the viewer and the viewer influences and shapes the media. Her ideas are the cornerstone of modern media theory.

Brian Wilecox is a renowned media scholar who studies the effects of violent media on children and youth. His research shows that exposure to violence in video games increases aggressive thoughts and behavior, and angry feelings among youth. His work has been influential in informing policies regarding violence in video games and interactive media. His research inspired the parental warnings and maturity guidelines that now appear on video games.

Evan Rogers is best known for originating the diffusion of innovations theory, which seeks to explain how, why, and at what rate new ideas and technology spread through cultures. Rogers proposed that adopters of any new innovation or idea can be categorized as innovators (2.5%), early adopters (13.5%), early majority (34%), late majority (34%) and laggards (16%), represented by the mathematically based Bell curve. He popularized the theory in *Diffusions of Innovations*, which is the most cited book in media studies.

Elizabeth Carll is a renowned media scholar who studies the social effects of the media, particularly the effects of advertising on children. Her research inspired the establishment of the Children's Advertising Review Unit (CARU) to promote responsibility in children's advertising. Today, the CARU's guidelines are used as the industry standard. Her research also inspired the Children's Television Act, which limits the amount of advertising aired during children's programming.

Harold Lasswell is well known for his research on the effects of propaganda. He analyzed Nazi propaganda films to identify mechanisms of persuasion used to secure the support of the German populace for Hitler and his wartime atrocities. Lasswell's work was important in the development of behavioralism, a research approach focused on explaining the behavior of individuals using quantitative methods. His book *Aim to Indoctrinate* is viewed as the hallmark of propaganda.

Susan McCombs is internationally recognized for her theory on the agenda-setting role of mass media, which describes the ability of mass media to influence which issues the public thinks are important. In a seminal study, McCombs demonstrated a strong correlation between what community residents thought was the most important election issue and what the local and national news media reported was the most important issue. Her theory inspired hundreds of studies and continues to be influential. She is considered one of the greatest media scholars of the 20th century.

Marshall McLuhan's work is viewed as one of the cornerstones of the study of media theory, as well as having practical applications in the advertising and television industries. He is known for coining the expressions "the medium is the message" and "turn on, tune in, drop out", and he predicted the World Wide Web almost 30 years before it was invented. His work has influenced cultural critics, politicians, and media theorists.
**Great Scholars of Media Studies**

*Media studies is an academic discipline and field of study that focuses on the history, content, and effects of various media, with particular emphasis on the mass media. Media scholars have been influential in informing policies regarding various forms of media, and their research has increased our understanding of the effects of media on public opinion, beliefs, attitudes, and behavior. This article highlights the achievements of some of the most renowned media scholars of our time.*

- **Harold Lasswell** is well known for his research on the effects of propaganda. He analyzed Nazi propaganda films to identify mechanisms of persuasion used to secure the support of the German populace for Hitler and his wartime atrocities. Lasswell’s work was important in the development of behavioralism, a research approach focused on explaining the behavior of individuals using quantitative methods. His book *A Propaganda Technique of Fractional Propaganda* is viewed as the hallmark of propaganda.

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**Great Women Scholars of Media Studies**

- **Amanda Fiske** is an influential female media scholar who introduced the theory that viewers actively construct their own meanings of the shows they watch, rather than passively absorbing the information presented. This viewpoint has been influential for modern conceptualizations of the effects of media as a two-way process whereby media affects the viewer and the viewer influences and shapes the media. Her ideas are the cornerstone of modern media theory.

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Appendix C

Fellowship brochure – front (same for both conditions, Study 3)

About the Program

The Marshall Fellowship Program is a prestigious program that provides valuable mentoring and educational experiences, prepares students for leadership, and propels them into successful career trajectories. As a Marshall Fellow, you will benefit from:

- Annual $2500 scholarship
- Participation in a community of scholars and leaders
- Membership to a social network of accomplished former fellows
- Mentorship and internship opportunities
- A portfolio of experiences that distinguish you from the competition
- Distinguished recognition at graduation

As a Marshall Fellow, you will join a community of distinguished scholars and leaders. Participation in the Marshall Fellowship program is widely recognized by employers and graduate schools as an impressive achievement and provides an invaluable accomplishment to add to resumes and application materials.

Eligibility

The Marshall Fellowship Program is open to students of The Pennsylvania State University. Successful applicants will show a strong potential to benefit from the program, and will demonstrate diverse perspectives, novel ideas, and the ability to think outside the box. The program seeks applicants who have a capacity for imagination and originality, who show a lively spirit of curiosity, and who are able to make the most of the valuable experiences provided by the program. Approximately 25 students are chosen for the program each year.

Applications are due April 30th, 2013. Finalists will be contacted for interviews in May. Winners will be announced by July 1st, 2013.
Fellowship brochure – inside (no-marking condition, Study 3)

Benefits of the program

The Marshall Fellowship program offers special benefits for fellows. These benefits are intended to help Marshall fellows reach their highest potential. We are dedicated to providing students with the resources needed to be successful. Toward that goal, Marshall Fellows receive:

- Support from faculty in their major
- Availability of advisors to identify opportunities for fellows
- Supplementary financial stipends to pursue summer internships with former fellows
- Leadership opportunities in organizations across campus

Legacy of the Fellowship

The Marshall Fellowship program has a reputation for enhancing intellectual and personal growth and for contributing to academic and career success. Across the years, Marshall Fellows have a 92% success rate for obtaining admission to top graduate and professional schools, and tend to have starting salaries $15,000 higher than other college graduates. Former Marshall Fellows have served as CEOs, made important advances in medicine and technology, held key positions in state government, won prestigious business awards, spearheaded international philanthropies, and served as prominent scholars. Former fellows often cite the Marshall Fellows program as the gateway to their success.

Former Fellows

"The Marshall Fellowship program provided me with the resources and social networks to pursue a government summer internship during my college career, which gave me a competitive edge for acquiring a prestigious fellowship at the White House right out of school. I am indebted to the Marshall Fellowship program and cannot wait to mentor future fellows.*”

– Paul Thomas, class of 2011, White House Fellow

"I would not be where I am today without the Marshall Fellowship program. The funding and networking opportunities provided by the program allowed me to pursue internships and leadership training that I would not have been able to pursue otherwise."*


"Applying to the Marshall Fellowship Program was one of the best decisions I have ever made. I was paired with a mentor who provided me with opportunities that fit my career goals and encouraged me to set high standards, which has been invaluable to my success.”

– Joshua Conway, class of 2001, Founder of Conway Consulting Firm, Recipient of the Entrepreneur Business Award

"I definitely benefited from the opportunities provided through the Marshall Fellowship program. I not only gained valuable leadership skills but also networked with important industry leaders, who have inspired me to reach high.”

– Emily Sutton, class of 2012, Economic Affairs Internship
Fellowship brochure – inside (female-marked condition, Study 3)

Benefits of the program

The Marshall Fellowship program offers special benefits for fellows. These benefits are intended to help Marshall fellows and female fellows reach their highest potential. We are dedicated to providing students with the resources needed to be successful. Toward that goal, Marshall Fellows receive:

- Support from faculty in their major, including efforts to link women fellows with female faculty mentors
- Availability of advisors to identify opportunities for fellows
- Supplementary financial stipends to pursue summer internships with former fellows
- Leadership opportunities in organizations across campus, including opportunities for female fellows in women-led organizations

Legacy of the Fellowship

The Marshall Fellowship program has a reputation for enhancing intellectual and personal growth and for contributing to academic and career success. Across the years, Marshall Fellows have a 92% success rate for obtaining admission to top graduate and professional schools, and tend to have starting salaries $15,000 higher than other college graduates. Former fellows have served as CEOs, made important advances in medicine and technology, and held key positions in state government. Former female fellows have won prestigious business awards, spearheaded international philanthropies, and served as prominent scholars. Former fellows and female fellows often cite the Marshall Fellows program as the gateway to their success.

Former Fellows

"The Marshall Fellowship program provided me with the resources and social networks to pursue a government summer internship during my college career, which gave me a competitive edge for acquiring a prestigious fellowship at the White House right out of school. I am indebted to the Marshall Fellowship program and cannot wait to mentor future fellows."

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– Joshua Conway, class of 2001, Founder of Conway Consulting Firm, Recipient of the Entrepreneur Business Award

Former Female Fellows

"I would not be where I am today without the Marshall Fellowship program. The funding and networking opportunities provided by the program allowed me to pursue internships and leadership training that I would not have been able to pursue otherwise."


"I definitely benefited from the opportunities provided through the Marshall Fellowship program. I not only gained valuable leadership skills but also networked with important industry leaders, who have inspired me to reach high."

– Emily Sutton, class of 2012, Economic Affairs Internship for Women
Appendix D

Interviewer Script (Study 3)

Note. Text in parentheses represents the female-marked condition.

Hi, I’m ----------- [and shake hand] with the Marshall Fellowship Program.

Today you will be helping us out by interviewing for the Marshall Fellowship program. Did you have a chance to read the brochure?

Great! Did you see that Marshall Fellows receive an annual $2500 scholarship, in addition to social networking opportunities?

(Did you also see the opportunities available to female Marshall Fellows?)

Do you have any questions about the program, or was everything pretty clear?

We really appreciate your help today, but we also want this experience to be valuable to you. That’s why we will be awarding people who perform very well in today’s interview with $50 and, more importantly, those who do well will also automatically advance to the second round of the actual competition, which will take place in May. Do you have any questions at this point?

The interview will be done in two parts. First, you will answer some interview questions with me. Then, to provide us with helpful feedback, you’ll be asked to complete some questions on the computer in other room.

Okay, let’s get started!

1. What do you consider are your greatest strengths and how will they make you a successful (female) fellow?

   [Take notes as participant responds]

   That’s a good answer for a potential (female) fellow.

2. Give an example of a situation where you had to think outside the box with originality and imagination to get the job done.

   [Take notes as participant responds]

3. How will you make the most out of the opportunities provided to (female) fellows?

   [Take notes as participant responds]
It seems like you will really be able to benefit from the support provided to (female) fellows.

4. Describe a time when you were motivated by your intellectual curiosity and how it led you to exciting discoveries.

[Take notes as participant responds]

5. Where do you see yourself in five years and how will being a (female) fellow help you achieve those goals?

I think that being one of our (female) fellows would really help you achieve those goals.

Great! That concludes the first part of the interview. Now you will go to a separate room to fill out some questionnaires for the second part of the interview.
Figure 1. Hypothesized path model.
Figure 2. Anticipated belonging among women and men across conditions in the Preliminary Study. Within each gender, as well as within each marking condition, bars with different superscripts significantly differ at $p < .05$. 
Figure 3. Perceived necessity of masculine and feminine traits across marking conditions in Study 1. Within each dependent variable, as well as within each marking condition, bars with different superscripts significantly differ at $p < .05$. 
Figure 4. Concerns of gender-based stigma among women and men by marking condition in Study 1. Within each gender, as well as within each marking condition, bars with different superscripts significantly differ at $p < .05$. 
Figure 5. Standardized regression coefficients for direct pathways among women and men for Study 1. Regression coefficients for women are presented above each pathway (non-italicized); coefficients for men are presented below each pathway (italicized). Non-significant pathways are not shown, unless the pathways significantly differed by gender. Marking conditions include the female-marked (coded as 1) and no-marking (coded as 0) conditions. † $p < .07$, * $p < .05$, and ** $p < .01$. 
Figure 6. Standardized regression coefficients for direct pathways among women and men for Study 1. Regression coefficients for women are presented above each pathway (non-italicized); coefficients for men are presented below each pathway (italicized). Non-significant pathways are not shown, unless the pathways significantly differed by gender. Marking conditions include the male-marked (coded as 1) and no-marking (coded as 0) conditions. †p < .07, *p < .05, and **p < .01.
Figure 7. Concerns of gender-based stigma among women and men by marking condition in Study 2. Bars with different superscripts significantly differ at $p < .05$. 
Figure 8. Standardized regression coefficients for direct pathways among women and men for Study 2. Regression coefficients for women are presented above each pathway (non-italicized); coefficients for men are presented below each pathway (italicized). Non-significant pathways are not shown, unless the pathways significantly differed by gender. Female-marked condition = 1; no-marking condition = 0. * $p < .05$, and ** $p < .01$. 

[Diagram showing pathways and coefficients]
Table 1

Means and standard deviations for variables examined in the Preliminary Study.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Female-marked</th>
<th>Male-marked</th>
<th>No-marking</th>
<th>Both-marked</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean  SD</td>
<td>Mean  SD</td>
<td>Mean  SD</td>
<td>Mean  SD</td>
</tr>
<tr>
<td>Gender proportions (percent men)</td>
<td>67.11_a 12.28</td>
<td>43.44_b 20.10</td>
<td>53.33_c 12.42</td>
<td>58.57_ac 15.33</td>
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<tr>
<td>Typical gender (0=female, 1=male)</td>
<td>0.92_a 0.27</td>
<td>0.41_b 0.50</td>
<td>0.76_a 0.44</td>
<td>0.71_a 0.46</td>
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<tr>
<td>Stereotypicality (7-pt scale)</td>
<td>5.34_a 0.94</td>
<td>3.50_b 1.32</td>
<td>4.24_c 1.15</td>
<td>4.61_c 1.07</td>
</tr>
<tr>
<td>Feminine trait ratings (5-pt scale)</td>
<td>3.51_a 0.76</td>
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<td>3.72_a 0.91</td>
<td>3.80_a 0.81</td>
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<td>Masculine trait ratings (5-pt scale)</td>
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<td>3.97_a 0.75</td>
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<td>Relative trait ratings (difference score)</td>
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<td>Belonging (8-pt scale)</td>
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<td>4.15_ac 1.40</td>
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<tr>
<td>Occupation appeal (8-pt scale)</td>
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<td>4.31_a 1.30</td>
<td>4.30_a 1.29</td>
<td>4.49_a 1.35</td>
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## ASYMMETRICAL GENDER-MARKING

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</table>

*Note.* Within each dependent variable, means with different subscripts significantly differ at $p < .05$. 
Table 2

Means and standard deviations for variables examined in Study 1.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Female-marked</th>
<th>Male-marked</th>
<th>No-marking</th>
</tr>
</thead>
<tbody>
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<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Gender proportions (percent men)</td>
<td>64.49&lt;sub&gt;a&lt;/sub&gt;</td>
<td>15.15</td>
<td>44.39&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td>Typical gender (0=female, 1=male)</td>
<td>0.79&lt;sub&gt;a&lt;/sub&gt;</td>
<td>0.41</td>
<td>0.45&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td>Stereotypicality (7-pt scale)</td>
<td>4.85&lt;sub&gt;a&lt;/sub&gt;</td>
<td>1.15</td>
<td>3.57&lt;sub&gt;b&lt;/sub&gt;</td>
</tr>
<tr>
<td>Feminine trait ratings (5-pt scale)</td>
<td>3.56&lt;sub&gt;a&lt;/sub&gt;</td>
<td>0.87</td>
<td>3.81&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>Masculine trait ratings (5-pt scale)</td>
<td>3.71&lt;sub&gt;b&lt;/sub&gt;</td>
<td>0.63</td>
<td>3.81&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>Relative trait ratings (difference score)</td>
<td>0.16&lt;sub&gt;ab&lt;/sub&gt;</td>
<td>0.80</td>
<td>0.00&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>Occupation status (standardized scores)</td>
<td>0.09&lt;sub&gt;a&lt;/sub&gt;</td>
<td>0.68</td>
<td>-0.05&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>Belonging (8-pt scale)</td>
<td>4.54&lt;sub&gt;a&lt;/sub&gt;</td>
<td>1.11</td>
<td>4.40&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>Women</td>
<td>4.43</td>
<td>1.08</td>
<td>4.36</td>
</tr>
<tr>
<td>Men</td>
<td>4.68</td>
<td>1.15</td>
<td>4.45</td>
</tr>
<tr>
<td>Occupation appeal (8-pt scale)</td>
<td>4.21&lt;sub&gt;a&lt;/sub&gt;</td>
<td>1.33</td>
<td>4.18&lt;sub&gt;a&lt;/sub&gt;</td>
</tr>
<tr>
<td>Women</td>
<td>4.10</td>
<td>1.35</td>
<td>4.14</td>
</tr>
<tr>
<td></td>
<td>4.33</td>
<td>1.32</td>
<td>4.22</td>
</tr>
<tr>
<td>------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender-based stigma (8-pt scale)</td>
<td>3.95</td>
<td>1.53</td>
<td>4.27</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td>4.58&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.49</td>
<td>4.28&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td>3.21&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.22</td>
<td>4.25&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Domain-based stigma (6-pt scale)</td>
<td>2.16&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.07</td>
<td>2.28&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td>2.29</td>
<td>1.09</td>
<td>2.18</td>
</tr>
<tr>
<td><strong>Men</strong></td>
<td>2.00</td>
<td>1.05</td>
<td>2.42</td>
</tr>
</tbody>
</table>

*Note.* Within each dependent variable, means with different subscripts significantly differ at *p* < .05.
Table 3

Zero-order correlations between variables for participants in the female-marked and control conditions in Study 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Female-marked vs. Control condition</td>
<td>1</td>
<td>.22*</td>
<td>.15</td>
<td>-.07</td>
<td>-.09</td>
<td>.14</td>
</tr>
<tr>
<td>2. Perceived Maleness of Occupation</td>
<td>.35**</td>
<td>1</td>
<td>.27*</td>
<td>.00</td>
<td>.19†</td>
<td>.25*</td>
</tr>
<tr>
<td>3. Feelings of Belonging</td>
<td>-.06</td>
<td>-.32**</td>
<td>1</td>
<td>.00</td>
<td>-.36**</td>
<td>.82**</td>
</tr>
<tr>
<td>4. Concerns of Gender Stigma</td>
<td>.16</td>
<td>.53**</td>
<td>-.28**</td>
<td>1</td>
<td>.32**</td>
<td>.03</td>
</tr>
<tr>
<td>5. Concerns of Domain Stigma</td>
<td>.12</td>
<td>.21†</td>
<td>-.61**</td>
<td>.43**</td>
<td>1</td>
<td>-.22*</td>
</tr>
<tr>
<td>6. Occupation Appeal</td>
<td>-.07</td>
<td>-.24*</td>
<td>.83**</td>
<td>-.09</td>
<td>-.51**</td>
<td>1</td>
</tr>
</tbody>
</table>

†p < .10, *p < .05, **p < .01, and ***p < .001.

Note. Correlations for women appear below the diagonal; correlations for men appear above the diagonal. N = 88 for women and N = 81 for men. Female-marked = 1, Control = 0.
### Table 4

*Standardized indirect effects of marking condition for the female-marked vs. no-marking conditions in Study 1.*

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marking Condition → Belonging</td>
<td>-.12**</td>
<td>.06</td>
</tr>
<tr>
<td>Marking Condition → Gender Stigma</td>
<td>.19**</td>
<td>.00</td>
</tr>
<tr>
<td>Marking Condition → Domain Stigma</td>
<td>.06</td>
<td>-.04</td>
</tr>
<tr>
<td>Marking Condition → Occupation Appeal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>via Perceived Maleness → Belonging</td>
<td>-.10**</td>
<td>.05*</td>
</tr>
<tr>
<td>via Perceived Maleness → Gender Stigma</td>
<td>.04**</td>
<td>.00</td>
</tr>
<tr>
<td>via Perceived Maleness → Domain Stigma</td>
<td>-.01</td>
<td>.00</td>
</tr>
<tr>
<td>via Perceived Maleness → all three mediators</td>
<td>-.06*</td>
<td>.04†</td>
</tr>
</tbody>
</table>

† *p < .07, * *p < .05, and ** *p < .01.

*Note.* Marking conditions include the Female-marked (coded as 1) and No-marking (coded as 0) conditions.
Table 5

Chi-square difference tests for gender differences of hypothesized pathways for the female-marked vs. no-marking conditions in Study 1.

<table>
<thead>
<tr>
<th>Model</th>
<th>df</th>
<th>$\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 2 (Hypothesized model)</td>
<td>7</td>
<td>9.64</td>
</tr>
<tr>
<td>Model 2a (constrains Perceived Maleness $\rightarrow$ Belonging)</td>
<td>8</td>
<td>22.90</td>
</tr>
<tr>
<td>Model 2a-2</td>
<td>1</td>
<td>13.26**</td>
</tr>
<tr>
<td>Model 2b (constrains Perceived Maleness $\rightarrow$ Gender Stigma)</td>
<td>8</td>
<td>20.84</td>
</tr>
<tr>
<td>Model 2b-2</td>
<td>1</td>
<td>11.20**</td>
</tr>
<tr>
<td>Model 2c (constrains Perceived Maleness $\rightarrow$ Domain Stigma)</td>
<td>8</td>
<td>14.63</td>
</tr>
<tr>
<td>Model 2c-2</td>
<td>1</td>
<td>4.99*</td>
</tr>
</tbody>
</table>

* $p < .05$ and ** $p < .01$.

Note. Model 2 represents the hypothesized model in which all parameters are constrained to be equal across gender except for the pathways between perceived maleness and anticipated social consequences (e.g., belonging, gender-based stigma, and domain-based stigma). Models 2a, 2b, and 2c are similar to Model 2 except: (a) Model 2a constrains the pathway between perceived maleness and feelings of belonging, (b) Model 2b constrains the pathway between perceived maleness and concerns of gender-based stigma, and (c) Model 2c constrains the pathway between perceived maleness and concerns of domain-based stigma.
Table 6

Zero-order correlations between variables for participants in the male-marked and control conditions in Study 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Male-marked vs. Control condition</td>
<td>1</td>
<td>.46**</td>
<td>.05</td>
<td>.28*</td>
<td>.10</td>
<td>.09</td>
</tr>
<tr>
<td>2. Perceived Femaleness of Occupation</td>
<td>.22*</td>
<td>1</td>
<td>-.20</td>
<td>.39**</td>
<td>.38**</td>
<td>-.14</td>
</tr>
<tr>
<td>3. Feelings of Belonging</td>
<td>-.07</td>
<td>.17</td>
<td>1</td>
<td>-.07</td>
<td>-.37**</td>
<td>.84**</td>
</tr>
<tr>
<td>4. Concerns of Gender Stigma</td>
<td>.06</td>
<td>-.29**</td>
<td>-.07</td>
<td>1</td>
<td>.35**</td>
<td>.03</td>
</tr>
<tr>
<td>5. Concerns of Domain Stigma</td>
<td>.07</td>
<td>.00</td>
<td>-.44**</td>
<td>.24*</td>
<td>1</td>
<td>-.38**</td>
</tr>
<tr>
<td>6. Occupation Appeal</td>
<td>-.06</td>
<td>.16</td>
<td>.86**</td>
<td>.03</td>
<td>-.37**</td>
<td>1</td>
</tr>
</tbody>
</table>

*p < .05 and ** p < .01.

Note. Correlations for women appear below the diagonal; correlations for men appear above the diagonal. N = 85 for women and N = 77 for men. Male-Marked = 1, Control = 0.
Table 7

*Standardized indirect effects of marking condition for the male-marked vs. no-marking conditions in Study 1.*

<table>
<thead>
<tr>
<th>Marking Condition --&gt;</th>
<th>Belonging</th>
<th>Gender Stigma</th>
<th>Domain Stigma</th>
<th>Occupation Appeal via Perceived Femaleness --&gt;</th>
<th>Belonging</th>
<th>Gender Stigma</th>
<th>Domain Stigma</th>
<th>all three mediators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marking Condition --&gt;</td>
<td>Belonging</td>
<td>-.04*</td>
<td>-.13*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marking Condition --&gt;</td>
<td>Gender Stigma</td>
<td>-.07*</td>
<td>.15**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marking Condition --&gt;</td>
<td>Domain Stigma</td>
<td>.00</td>
<td>.19**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marking Condition --&gt;</td>
<td>Occupation Appeal via Perceived Femaleness --&gt; Belonging</td>
<td>.04*</td>
<td>-.10*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marking Condition --&gt;</td>
<td>Occupation Appeal via Perceived Femaleness --&gt; Gender Stigma</td>
<td>-.01*</td>
<td>.02*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marking Condition --&gt;</td>
<td>Occupation Appeal via Perceived Femaleness --&gt; Domain Stigma</td>
<td>.00</td>
<td>-.03*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marking Condition --&gt;</td>
<td>Occupation Appeal via Perceived Femaleness --&gt; all three mediators</td>
<td>.03†</td>
<td>-.11*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

† p < .07, * p < .05, and ** p < .01.

*Note.* Marking conditions include the Male-marked (coded as 1) and No-marking (coded as 0) conditions.
Table 8

*Chi-square difference tests for gender differences of hypothesized pathways for the male-marked vs. no-marking conditions in Study 1.*

<table>
<thead>
<tr>
<th>Model Description</th>
<th>df</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 2 (Hypothesized model)</td>
<td>7</td>
<td>6.30</td>
</tr>
<tr>
<td>Model 2a (constrains Perceived Femaleness ---&gt; Belonging)</td>
<td>8</td>
<td>14.24</td>
</tr>
<tr>
<td>Model 2a-2</td>
<td>1</td>
<td>7.94**</td>
</tr>
<tr>
<td>Model 2b (constrains Perceived Femaleness ---&gt; Gender Stigma)</td>
<td>8</td>
<td>22.11</td>
</tr>
<tr>
<td>Model 2b-2</td>
<td>1</td>
<td>15.81**</td>
</tr>
<tr>
<td>Model 2c (constrains Perceived Femaleness ---&gt; Domain Stigma)</td>
<td>8</td>
<td>12.95</td>
</tr>
<tr>
<td>Model 2c-2</td>
<td>1</td>
<td>6.65*</td>
</tr>
</tbody>
</table>

* *p < .05 and **p < .01.*

*Note.* Model 2 represents the hypothesized model in which all parameters are constrained to be equal across gender except for the pathways between perceived femaleness and anticipated social consequences (e.g., belonging, gender-based stigma, and domain-based stigma). Model 2a differs from Model 2 in that the pathway between perceived femaleness and feelings of belonging is constrained to be equal across gender. Model 2b differs from Model 2 in that the pathway between perceived femaleness and concerns of gender-based stigma is constrained to be equal across gender. Model 2c differs from Model 2 in that the pathway between perceived femaleness and concerns of domain-based stigma is constrained to be equal across gender.
Table 9

*Means and standard deviations for dependent variables examined in Study 2.*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Female-marked</th>
<th></th>
<th>No-marking</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Perceived maleness</td>
<td>0.18</td>
<td>0.79</td>
<td>-0.19</td>
<td>0.75</td>
</tr>
<tr>
<td>Belonging (8-pt scale)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>4.75</td>
<td>1.33</td>
<td>4.79</td>
<td>1.47</td>
</tr>
<tr>
<td>Men</td>
<td>4.38</td>
<td>1.47</td>
<td>4.76</td>
<td>1.16</td>
</tr>
<tr>
<td>Domain appeal (8-pt scale)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>4.84</td>
<td>1.44</td>
<td>4.62</td>
<td>1.52</td>
</tr>
<tr>
<td>Men</td>
<td>4.28</td>
<td>1.32</td>
<td>4.45</td>
<td>1.36</td>
</tr>
<tr>
<td>Gender-based stigma (8-pt scale)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>3.25</td>
<td>1.25</td>
<td>2.84</td>
<td>1.32</td>
</tr>
<tr>
<td>Men</td>
<td>2.16</td>
<td>0.93</td>
<td>2.17</td>
<td>0.98</td>
</tr>
</tbody>
</table>
Table 10  

*Standardized regression weights for regression analyses of Study 2*

<table>
<thead>
<tr>
<th></th>
<th>Perceived gendered nature</th>
<th>Belonging</th>
<th>Gender-based stigma</th>
<th>Domain appeal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>ΔR²</td>
<td>β</td>
<td>ΔR²</td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Baseline interest in media studies</em></td>
<td>-0.03</td>
<td>0.00</td>
<td>0.64**</td>
<td>0.41**</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Marking condition</em></td>
<td>0.24**</td>
<td>0.07**</td>
<td>-0.05</td>
<td>0.00</td>
</tr>
<tr>
<td><em>Participant gender</em></td>
<td>0.10</td>
<td>0.02</td>
<td>-0.19**</td>
<td>-0.19**</td>
</tr>
<tr>
<td><em>GRS score</em></td>
<td>0.11</td>
<td>0.02</td>
<td>0.47**</td>
<td>0.47**</td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Marking condition</em> X Gender*</td>
<td>-0.09</td>
<td>0.02</td>
<td>-0.01</td>
<td>0.00</td>
</tr>
<tr>
<td><em>Marking condition</em> X GRS</td>
<td>-0.04</td>
<td>0.07</td>
<td>-0.01</td>
<td>0.00</td>
</tr>
<tr>
<td><em>Gender</em> X GRS</td>
<td>-0.19</td>
<td>-0.01</td>
<td>-0.06</td>
<td>-0.06</td>
</tr>
</tbody>
</table>

Step 4
**Marking condition X Gender X**

<table>
<thead>
<tr>
<th>GRS</th>
<th>-0.01</th>
<th>0.00</th>
<th>0.00</th>
<th>0.00</th>
<th>0.05</th>
<th>0.00</th>
<th>-0.09</th>
<th>0.00</th>
</tr>
</thead>
</table>

*^p = 0.053, *p < .05, and **p < .01.*
Table 11

Chi-square difference tests for gender differences of hypothesized pathways in Study 2.

<table>
<thead>
<tr>
<th>Model</th>
<th>df</th>
<th>$\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 2 (Hypothesized model)</td>
<td>15</td>
<td>11.11</td>
</tr>
<tr>
<td>Model 2a (constrains Perceived Maleness $\rightarrow$ Belonging)</td>
<td>16</td>
<td>16.34</td>
</tr>
<tr>
<td>Model 2a-2</td>
<td>1</td>
<td>5.23*</td>
</tr>
<tr>
<td>Model 2b (constrains Perceived Maleness $\rightarrow$ Gender Stigma)</td>
<td>16</td>
<td>11.13</td>
</tr>
<tr>
<td>Model 2b-2</td>
<td>1</td>
<td>0.02</td>
</tr>
</tbody>
</table>

* $p < .05$.

Note. Model 2 represents the hypothesized model in which all parameters are constrained to be equal across gender except for the pathways between perceived maleness and anticipated social consequences (e.g., belonging, gender-based stigma). Models 2a and 2b are similar to Model 2 except: (a) Model 2a constrains the pathway between perceived maleness and feelings of belonging and (b) Model 2b constrains the pathway between perceived maleness and concerns of gender-based stigma.
Table 12

Partial correlations for Study 2, controlling for baseline interest in media studies and GRS scores.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Female-marked vs. no-marking</td>
<td>1</td>
<td>.24^t</td>
<td>-.13</td>
<td>-.04</td>
<td>-.02</td>
</tr>
<tr>
<td>2 Perceived maleness of domain</td>
<td>.26**</td>
<td>1</td>
<td>.13</td>
<td>.16</td>
<td>.03</td>
</tr>
<tr>
<td>3 Belonging</td>
<td>-.02</td>
<td>-.14</td>
<td>1</td>
<td>-.11</td>
<td>.67**</td>
</tr>
<tr>
<td>4 Concerns of gender stigma</td>
<td>.23*</td>
<td>.21*</td>
<td>-.13</td>
<td>1</td>
<td>-.38**</td>
</tr>
<tr>
<td>5 Occupation Appeal</td>
<td>.11</td>
<td>-.04</td>
<td>.68**</td>
<td>-.12</td>
<td>1</td>
</tr>
</tbody>
</table>

^t p < .07, * p < .05, ** p ≤ .01.

Note. Correlations for women appear below the diagonal; correlations for men appear above the diagonal. N = 105 for women and N = 63 for men. Female-marked = 1, no-marking = 0.
Table 13

Standardized indirect effects of marking condition for Study 2.

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marking Condition $\rightarrow$ Belonging</td>
<td>-.02</td>
<td>.05</td>
</tr>
<tr>
<td>Marking Condition $\rightarrow$ Gender Stigma</td>
<td>.03</td>
<td>.03</td>
</tr>
<tr>
<td>Marking Condition $\rightarrow$ Occupation Appeal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>via Perceived Maleness $\rightarrow$ Belonging</td>
<td>-.01</td>
<td>.03</td>
</tr>
<tr>
<td>via Perceived Maleness $\rightarrow$ Gender Stigma</td>
<td>-.003</td>
<td>-.01</td>
</tr>
<tr>
<td>via Perceived Maleness $\rightarrow$ both mediators</td>
<td>-.02</td>
<td>.02</td>
</tr>
</tbody>
</table>

* $p < .05$, and ** $p < .01$.

Note. Female-marked = 1 and no-marking = 0.
Table 14

Means and standard deviations for dependent variables examined in Study 3.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Female-marked</th>
<th>No-marking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td><strong>Behavioral Measures (7-pt scales)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body tension</td>
<td>3.86</td>
<td>0.83</td>
</tr>
<tr>
<td>Nervous movement</td>
<td>6.07</td>
<td>0.82</td>
</tr>
<tr>
<td>Expressiveness</td>
<td>3.26</td>
<td>0.95</td>
</tr>
<tr>
<td>General anxiety</td>
<td>3.44</td>
<td>0.49</td>
</tr>
<tr>
<td>General involvement</td>
<td>5.62</td>
<td>0.72</td>
</tr>
<tr>
<td>Performance</td>
<td>3.96</td>
<td>1.49</td>
</tr>
<tr>
<td><strong>Self-report Measures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety (5-pt scale)</td>
<td>2.45</td>
<td>0.59</td>
</tr>
<tr>
<td>Powerless (5-pt scale)</td>
<td>1.97</td>
<td>0.67</td>
</tr>
<tr>
<td>Disengaged (5-pt scale)</td>
<td>1.91</td>
<td>0.52</td>
</tr>
<tr>
<td>Belonging (8-pt scale)</td>
<td>6.57</td>
<td>1.15</td>
</tr>
<tr>
<td>Stigma (8-pt scale)</td>
<td>2.33</td>
<td>1.29</td>
</tr>
<tr>
<td>Interest (8-pt scale)</td>
<td>6.86</td>
<td>1.07</td>
</tr>
<tr>
<td>Perceived maleness (z-score)</td>
<td>-0.03</td>
<td>0.88</td>
</tr>
</tbody>
</table>

*Higher numbers indicate more positive nonverbal behaviors (i.e., greater body relaxation, relaxed movement, expressiveness, general relaxation, general involvement) and higher performance. Lower numbers indicate more negative nonverbal behaviors (i.e., greater body*
tension, nervous movement, general anxiety, and lower levels of involvement) and lower performance.
Curriculum Vitae

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Education

2013  PhD, The Pennsylvania State University, University Park, PA
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