How Sex Puts You in Gendered Shoes: Sexuality-Primining Leads to Gender-Based Self-Perception and Behavior
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How Sex Puts You in Gendered Shoes: Sexuality-Priming Leads to Gender-Based Self-Perception and Behavior

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Scripts for sexual behavior dictate that women be submissive and tender and that men be assertive and dominant, reflecting the stereotypical view of women as communal and of men as agentic. Six experiments tested the hypothesis that exposure to sexuality cues causes men’s and women’s momentary self-perceptions and concomitant behavior to become more gender-typical. Using both pictorial and verbal prime materials that were presented both supraliminally and subliminally, we found that sex-priming strengthened gender-based self-perceptions (i.e., faster self-categorization as a woman or man; Study 1), heightened identification with one’s own gender (Study 2), increased gender self-stereotyping (Study 3), and elicited greater submissiveness in women’s behavior and greater assertiveness in men’s behavior (Studies 4 and 5). These findings indicate that sex-priming causes self-perception and social behavior to become “attuned” to gender stereotypes. Study 6 demonstrated that these sex-priming effects can be eliminated by modern gender role primes. The potentially detrimental effects of sex-priming and possible countermeasures are discussed.

Keywords: sex-priming, gender, self-perception, submissiveness, dominance

Sex sells! More than ever, commercial advertisements adhere to this slogan. Sexy catch-phrases, pictures of nudes, and inviting gestures and looks all try to lure us into buying a myriad of products—even products that are seemingly unrelated to sexuality. In addition to sex-loaded commercials, the entertainment industry also relies on sexual content as an integral part of their daily programming, from television series such as Sex and the City, to talk shows featuring sexual preferences and peculiarities, to erotic song lyrics. In 70% of all television programs in the United States, there is some form of sexual content (talking about sex, kissing, touching, and intercourse; Roberts, Henriksen, & Foehr, 2009).

The Internet abounds with websites related to sexuality as well: A Google (www.google.com) search for the keyword “Sex” returns approximately 3.7 billion hits. In short, throughout their daily routines, people are bombarded with stimuli that are directly or indirectly related to sex. But, to what effect? Does exposure to sexual stimuli influence how people see themselves? If so, does it shape the self-perceptions of men and women differently? Finally, and most importantly, what downstream behavioral consequences emerge from this exposure to sexual stimuli?

Despite the abundance of sexual stimuli in our daily lives, little empirical research has examined the effects of incidental sexual cues on psychological processes pertaining to the self. The goal of the present research was to fill this gap by examining how exposure to sexual stimuli influences the self-perceptions and behaviors of men and women. Previous research has established that social behavior is largely driven by how we think about ourselves and others (DeMarree, Wheeler, & Petty, 2005; Hull, Slone, Meteyer, & Matthews, 2002). Thus, if exposure to sexual stimuli changes how men and women perceive themselves, then it should also influence how they behave. Based on a review of the differences between women’s and men’s mental representations of sexuality, we hypothesized that activating the concept of sexuality (i.e., sex-priming) renders a person’s self-perception more consistent with gender stereotypes, which, in turn, influences social behavior in a gender-stereotypic fashion. Furthermore, if our reasoning is correct and sex-priming effects depend on temporary changes in self-perception, then activating gender counter-stereotypic self-knowledge before sex-priming should eliminate these effects.

(Sexual) Environmental Stimuli: Influences on Self-Perception and Behavior

How might exposure to sexual stimuli influence how people subsequently think and behave? In general, primes induce changes within the active-self (i.e., the subset of self-knowledge that is currently accessible in a given situation; Wheeler, DeMarree, & Petty, 2007). Primes highlight those aspects of one’s self-
knowledge that are associated with the respective prime (Linville & Carlston, 1994). Consequently, situational factors can determine which aspects of one’s vast self-knowledge become dominant in any given moment (for a review, see Bodenhausen & Macrae, 1998) and influence self-reports of psychological or even physical attributes accordingly (e.g., Gabriel & Young, 2011; Mussweiler, 2003). Moreover, because the self is an important guide for ongoing social behavior (Hull et al., 2002), prime-induced changes in the active-self often engender concomitant changes in social behavior (Wheeler et al., 2007). This reasoning suggests that sex cues may also affect social behavior.

### Sex Cues and Gender

The priming literature has established that priming a concept influences what people think and do in much the same way as experiencing the respective situation (Dijksterhuis & van Knippenberg, 1998). Priming “library,” for example, makes people shush (Aarts & Dijksterhuis, 2003). Exposing participants to sexual stimuli, hence, could influence self-perception just like sexual situations would. Which aspects of self-knowledge would a sex-prime activate? In general, we hypothesize that sexuality is a situation that increases the salience of one’s gender dramatically. Other contexts that have been shown to increase gender salience, like being in the minority gender (Cota & Dion, 1986) or fulfilling gender-typed tasks (Hannover, 1997; Markus, Crane, Bernstein, & Siladi, 1982), have been shown to lead to more gender-centered and more gender-stereotypic self-construals. For sex-priming, we also predict increased gender self-stereotyping.

Sexual situations have been shown to bring out very different behaviors in women and men and hence seem to be comparable to gender-typed tasks (e.g., Oliver & Hyde, 1993). Additionally, contemporary media imagery place a strong emphasis on gender differences in sexuality, often displaying women as more passive and submissive and men as more assertive and dominant (Schwartz & Rutter, 2000). An external emphasis on gender differences in a certain domain leads to stronger gender-related self-stereotyping for that domain (e.g., Hogg & Turner, 1987). Again, current media imagery may reinforce the accessibility of one’s own gender in sexual situations.

### The Self in Gendered Shoes

If people’s active-self is more strongly based on their gender, then they should be more likely to ascribe gender-typical characteristics to themselves. As self-categorization theory (SCT; Turner, Oakes, Haslam, & McGarty, 1994) proposes, the momentary self-concept can change quickly as one moves from the level of personal identity to the level of group identity, like one’s gender group. At the group level, “the self is defined and experienced as identical, equivalent, or similar to a social class” (Turner et al., 1994, p. 454). Hence, people who identify strongly with a specific group are more likely to self-stereotype (Jetten, Postmes, & McAuliffe, 2002) in that they show more overlap in the attributes they assign to the self and to the ingroup (Riketta, 2005) and are more inclined to conform to group norms (McAuliffe, Jetten, Horsey, & Hogg, 2003). Thus, if an environmental stimulus such as a sex-prime reminds people of their gender group identity and actually leads them to self-identify more strongly as a woman or a man, then people’s momentary self-concept should be defined primarily by this group identity, and they should self-stereotype more strongly on those attributes that are gender-typical.

Furthermore, if sex-priming alter self-perception in the hypothesized manner, then they should influence social behavior in much the same way. Current research (e.g., Bry, Follenfant, & Meyer, 2008) suggests that social construct primes (stereotypes, traits, etc.) affect behavior via changes in the self-concept (for an alternative perspective, see the ideomotor account of prime-to-behavior effects; Dijksterhuis & Bargh, 2001). More specifically, the active-self account (Wheeler et al., 2007) holds that because the self-concept is sensitive to contextual influences, primes may influence which contents of the self-concept are accessible and consequently shape behavior. We predict that sex-priming affects behavior in a way that is consistent with the shifts it produces in a person’s active-self.

### Sexual Scripts: Submissive Women and Assertive Men

On which attributes of the self and on which behaviors are these effects likely to occur? Previous research has shown that many of the beliefs people hold about the personality and social behavior differences between women and men can be boiled down to two dimensions (e.g., Deaux & Lewis, 1984; see Williams & Best, 1990, for cross-cultural evidence) termed agency and communion (Bakan, 1966). Agency and communion denote two basic orientations toward interpersonal behavior, with agency reflecting a priority concern for the self and communion a concern for others. These orientations have pervasive effects in all kinds of social interactions, from the workplace to the private and intimate (e.g., Sanchez, Crocker, & Boike, 2005). For example, they color how female leaders are perceived and form the standards against which female managers are judged, often providing a basis for discrimination (Scesny, Bosak, Neff, & Schyns, 2004).

It is indeed universally believed that men are more dominant, competitive, and assertive than are women, whereas women are more caring, concerned with others, and emotionally expressive than are men (Deaux & Lewis, 1984; Williams & Best, 1990). These beliefs influence self-perception and person perception alike (e.g., Bem, 1981; Feingold, 1994; Lippa, 1995; Swan & Wyer, 1997) and are reflected in actual gender differences in social behavior (Swim, 1994). Gender stereotypes also provide behavioral norms for all sorts of situations (Rudman & Glick, 2001; Wood, Christensen, Hebl, & Rothgerber, 1997). Research has shown that in all of these social realms, women are expected to be communal and to cater to the needs of others (Diekman & Eagly, 2000; Eagly & Mladinic, 1989; Rudman & Glick, 2001), whereas men are expected to be acentic and independent (Rudman & Glick, 2001; Wood et al., 1997).

In sexual situations, women and men feel especially compelled to act in accordance with behavioral expectations based on their respective gender stereotypes or “gender roles” (Coward, 1985; Rohlinger, 2002; Sanchez et al., 2005). These expectations emerge in the form of sexual scripts, which are specific prescriptions about how women and men should behave toward each other during sexual encounters. Echoing
gender stereotypes, women are expected to be submissive and communal sexual partners who cater to their male partner, whereas men are expected to be dominant and assertive sexual partners (Bernard, 1966; Gagnon & Simon, 1973; Sprecher & McKinney, 1993). Indeed, as women’s adherence to traditional gender roles increases, they tend to be more sexually passive, whereas men tend to be more sexually dominant (Kiefer & Sanchez, 2007b). This shows how sexual submission and communion are interrelated. Submissive behavior reflects “communality” in its extreme (cf. also Wiggins, 1991).

It is important to note that not every woman or man exhibits these different behaviors or shares these different sexual cognitions (scripts, fantasies). Rather, such behaviors and cognitions are likely to vary among the individuals of each sex. For instance, a woman with an androgynous self-concept and egalitarian gender role attitudes is more likely to construe her sexual self as agentic than is a woman who has a feminine self-concept and traditional gender role attitudes (Edgar & Fitzpatrick, 1993). Nevertheless, in general, the sexual scripts of men and women do indeed differ markedly (Krahé, Bieneck, & Scheinberger-Olwig, 2007) and shape actual sexual behavior (Krahé, 2000). It has also been shown that individuals rely on these scripts especially when engaging in sexual activity with a new partner (Littleton & Axsom, 2003).

Many of the differences between women and men with respect to their sexual behavior (e.g., Buss & Schmitt, 1993; Oliver & Hyde, 1993) reflect these gender-typical sexual scripts. That is, men are often more assertive in sexual situations (Koss, Gidycz, & Wisniewski, 1987), are more likely to initiate sexual activity (Martin, 1996), especially in casual relationships (O’Sullivan & Byers, 1992), and are more likely to behave in aggressive ways (Zillmann, 1984) than are women. Women are less dominant and more submissive toward their partner in sexual situations, and they are more often the victims of sexual aggression (Goodman, Koss, Fitzgerald, Russo, & Keita, 1993; Koss et al., 1987) and abuse (Finkelhor, Hotaling, Lewis, & Smith, 1990) than are men. As early as their first sexual experience, women enact more submissive and fewer agentic behaviors than do their male partners, with many adolescent girls reporting that they assumed a submissive role during their first sexual experiences (Martin, 1996). Research has shown that, in general, women are more sexually compliant than men (Impett & Peplau, 2003). Together, this evidence strongly suggests that, on average, the gender stereotype of female communion is revealed in more partner-centered sexual behavior. The gender stereotype of male agency, on the other hand, is revealed in more agentic sexual behavior. Although individual sexual scripts may deviate from this pattern, these gender stereotypical sexual behaviors represent culturally shared knowledge also manifest in the sexual imagery that pervades the media.

Unlike many other concepts, women’s and men’s semantic representations of sexuality differ. For instance, women, but not men, have been shown to associate sexuality with submission (Kiefer, Sanchez, Kalinka, & Ybarra, 2006; Sanchez, Kiefer, & Ybarra, 2006). In one study, sex-related prime words (sex, naked, climax, oral, bed, and caress) facilitated responses to submission-related target words (comply, submit, slave, yield, concede, and weaken) on a lexical decision task, but only among female participants (Sanchez et al., 2006). For men, sexuality is associated with assertive and even aggressive behaviors, whereas for women, sexuality is associated with a tendency to perceive an aggressive bias in others. Mussweiler and Förster (2000), for instance, demonstrated that sex-priming facilitates aggressive behavior only for men. In sum, the sexuality concept appears to be associated with submissive behaviors and communal attributes for women, but with dominant behaviors and agentic attributes for men.

The Present Research

We propose that for women and men, sexuality is associated with attributes and behaviors that are in line with the stereotypes of their respective genders. Hence, with regard to self-perception, we hypothesized that sex-priming should highlight one’s own gender-typical attributes. Of the broad spectrum of feminine and masculine attributes, we expected that those reflected in typical sexual scripts would be influenced most strongly by sex-priming. Hence, we predicted that communal attributes would be activated for women, whereas agentic attributes would be activated for men. Given that people’s identification with a certain group and the degree to which they self-stereotype are interrelated (Henderson-King, Henderson-King, Zhermer, Posokhova, & Chiker, 1997; Jetten et al., 2002), we expected that sex-priming affects both aspects. Furthermore, we propose that sex-priming should also lead people to behave in accordance with the agency versus communion dimensions. Hence, women should behave more submissively in a social interaction, men more assertively. To test these hypotheses, we conducted six experiments in which we primed the concept of sexuality using subtle pictorial (Study 3) and verbal (Studies 1, 2, 4, 5, and 6) materials. The first five experiments examine how sex-priming influences the accessibility of one’s own gender (Study 1), identification with both gender groups (Study 2), self-perceptions regarding gender-typical attributes (Study 3), and dominant versus submissive behaviors (Studies 4 and 5). Finally, Study 6 sheds light on the boundary conditions of sex-priming effects by testing the possibility that priming modern gender roles can undo the basic pattern found in Studies 1–5.

The present research seeks to answer three main questions: First, how does sex-priming influence the self-perceptions of women and men? Second, how does sex-priming influence behavior? Third, is it possible to immunize the active-self against sex-priming? The following six studies sought answers to these empirical questions.

Study 1

Study 1 examined how sex-priming affects the accessibility of people’s own gender. We subliminally primed participants with the concept of sexuality (vs. with neutral content) and subsequently asked them to indicate whether they are a woman or a man. Our reasoning holds that sex-priming makes participants’ gender particularly accessible. Accordingly, participants should be faster to indicate their own gender after sex-priming.

Method

Participants. We recruited 47 female and 51 male students (17–32 years of age; M = 24.11 years, SD = 3.07) with different methods.
study majors at the University of Cologne library as participants. They were asked to take part in two ostensibly unrelated short studies on attention and self-assessment. As compensation, they were offered a bar of chocolate and a coupon for a free coffee.

Materials, procedures, and design. Upon arrival in the lab, participants were greeted by a same-sex experimenter, were led to individual booths, and were seated in front of a 70-Hz computer monitor. Participants learned that first they would engage in an “attentiveness task,” during which they would assess as quickly as possible whether a letter string constituted a word or a non-word and indicate their decision by button press. Participants were instructed to focus on the fixation point at the center of the screen. Using subliminal primes that were embedded in this lexical decision task (e.g., Dijksterhuis, Aarts, Bargh, & van Knippenberg, 2000; Mussweiler & Förster, 2000), we primed participants with the concept of sexuality or with no particular concept.

For each priming sequence, the letter string fixation point “MW#R/Mc” was first presented in the center of the screen for 3,000 ms. This letter string was overwritten by the priming word (15 ms) and was followed by the letter string again (500 ms), and finally the target letter string (cf. suggestions by Bargh & Chartrand, 2000). The target remained on the screen until participants responded by pressing one of the two response buttons. Out of a total of 24 trials, 18 included words (e.g., swan), and six included non-words. During each of the 24 trials, half of the participants were subliminally exposed to the word “Sex,” whereas the other half was exposed to a sign string identical to the fixation point letter string. In line with previous research (Fürster, Özel, & Epstude, 2010; Mayer & Mussweiler, 2011), we used a single-word priming procedure by repeatedly priming participants with the word that directly denotes the critical concept. Hence, sex-primed participants were exposed to the prime word “Sex” 24 times. It is important to note that in the German language, the word “Sex” or “Sexualität” exclusively denotes sexual activity, and not, as in the English language, one’s gender category as well (“Geschlecht” in German).

After completion of the “attentiveness task,” participants proceeded with the self-assessment task. Here they were informed that they should use one of the two marked response buttons to answer the upcoming questions about their personality and their current psychological state as quickly as possible. The first screen after this instruction displayed the beginning of a phrase on top of the screen and two possible endings at the bottom right and left. The first question concerned participants’ current university enrollment status and was administered to familiarize participants with the procedure. On top, it said “At the moment . . .” and offered two possible endings: “I study” or “I do not study.” This item remained on the screen until participants responded by pressing either response button. The second question was the critical one and concerned participants’ gender. The responses were worded “Are you . . . “ “a woman” or “a man”; the presentation of woman and man was counterbalanced on each side. Then participants answered additional questions regarding their mood and arousal; these were included to maintain the cover story of a more comprehensive self-assessment task.

We used a funneled debriefing method to test for participants’ awareness of the primes in an unobtrusive way (Bargh, Chen, & Burrows, 1996). Participants answered a total of 10 questions that varied in their specificity. The initial questions tested participants’ awareness of the actual connection between the two ostensibly unrelated studies. The subsequent questions checked for the recognition of the subliminal priming stimuli. After completing the awareness check, participants were fully debriefed, thanked, and dismissed.

In sum, Study 1 is based on a 2 (neutral vs. sex-priming) × 2 (female vs. male participants) experimental design. The priming factor was manipulated between participants.

Results and Discussion

Awareness check. Analyses of the awareness check questions revealed that none of the participants were skeptical about the procedure, inferred the actual purpose of the study, or were able to report that the word “Sex” had been presented. Twelve participants indicated that the fixation string flickered, but they were unable to specify what interrupted the fixation string.

Response latencies. Our central prediction pertains to the response latencies for the self-categorization as a woman or man. We hypothesized that sex-priming facilitates responses for gender self-categorization. In a preliminary Prime × Participant Gender analysis of variance (ANOVA), Participant Gender did not affect reaction times (for effects involving Gender, both Fs < 1.36, ps > .25). Hence, we collapsed the analysis across participant gender. Means and standard deviations for female and male participants are given in Table 1.

To deal with the skewed distribution of the response latencies, we followed recent statistical recommendations (Ercg-Hurn & Mirosevich, 2008) and performed a nonparametric bootstrapping analysis to test for the statistical significance of this difference. The 95% confidence interval (CI) of the mean reaction time difference between sex-primed and control-primed participants (1,000 bootstrapping resamples) did not include zero (95% CI [–362.95, −14.67]). Therefore, we rejected the null hypothesis at the 5% level. The bootstrapped estimate for the p value of the mean difference was .045. A

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gender self-categorization and gender identification</th>
<th>Neutral prime</th>
<th>Sex prime</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Women</td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>Gender self-categorization Reaction time (in ms)</td>
<td>1,197</td>
<td>1,244</td>
<td>950</td>
</tr>
<tr>
<td>M</td>
<td>665</td>
<td>495</td>
<td>167</td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingroup identification score</td>
<td>−0.16</td>
<td>−0.42</td>
<td>0.51</td>
</tr>
<tr>
<td>M</td>
<td>0.92</td>
<td>0.90</td>
<td>0.58</td>
</tr>
<tr>
<td>SD</td>
<td>1.05</td>
<td>1.23</td>
<td>0.88</td>
</tr>
<tr>
<td>Outgroup identification score</td>
<td>0.04</td>
<td>0.19</td>
<td>−0.25</td>
</tr>
</tbody>
</table>

Table 1

Means and Standard Deviations for the Reaction Times in Gender Self-Categorization (Study 1) and Means (z Values) and Standard Deviations for Identification With the Gender Ingroup and Outgroup (Study 2) by Priming (Neutral vs. Sex-Priming) and Participant Gender
parametric comparison yielded the same conclusion, \( t(96) = 2.00, p < .05, \) Cohen’s \( d = 0.40. \)

The obtained pattern of response latencies is consistent with our prediction: On average, participants were faster in gender self-categorizing after sex-priming (\( M = 1.037 \text{ ms}, SD = 315 \)) than after control priming (\( M = 1.222 \text{ ms}, SD = 575 \)).

To examine whether sex-priming facilitates responses in general, we also analyzed reaction times to the first question regarding student status. In a Prime \( \times \) Participant Gender ANOVA, neither Priming nor Participant Gender nor the interaction of both yielded significant effects (all \( F < 1 \)). This suggests that sex-priming specifically facilitated participants’ gender self-categorization.

The results of Study 1 demonstrate that exposing participants to the prime word “Sex” facilitates gender self-categorization. Research on the connection between self-knowledge accessibility and identification (e.g., Jetten et al., 2002) suggests that the activation of the sex-concept might also influence the centrality of one’s gender identity for self-perception (gender identification). To explore this possibility, Study 2 investigated the consequences of sex-priming for gender identification.

Study 2

Study 2 examined how sex-priming affects the centrality of one’s gender identity for one’s current self-perception (gender identification). Participants were either primed with sexuality or performed a control task, after which they indicated how strongly they identified with women and men as a group on a figurative measure as well as a rating scale. In this study, we used a word-search task (Mussweiler & Förster, 2000) as our priming method. The sex-priming word-search task, which has been successfully applied in previous research (Mussweiler & Förster, 2000), is an ideal means to activate sexuality without referring to the more interaction-related connotations of sexuality such as dominant or submissive behaviors and the typically masculine or feminine attributes of agency and communion. The word-search task only contained words related to physical aspects of sexuality. These included body sensations like to feel and to sweat, body parts like skin, and bodily indicators of sexual arousal like wet and stiff, and bed as a contextual cue for sexuality. Importantly, the word-search task did not include references to sexual actions that might imply male dominance and female submission.

Method

Participants. We recruited 29 female and 27 male students (20–39 years of age; \( M = 25.84 \) years, \( SD = 3.76 \)) with different study majors at the University of Cologne as participants. Participants were asked to take part in two ostensibly unrelated studies, the first one on word processing and the second one on self-assessment. As compensation, we offered them a bar of chocolate and a coupon for a free coffee.

Materials. The word-search task. The priming manipulation closely followed the one described by Mussweiler and Förster (2000) and consisted of either a sex-priming or a neutral word-search task. Participants were asked to find a total of 12 words in a 19 \( \times \) 17 letter matrix. Both word-search tasks included the following six words that were neutral with respect to sexuality: Tafel (board), Radio (radio), Dach (roof), Uhr (clock), Zeitung (newspaper), and Brot (bread). In addition to these, the sex-priming task included six “sex words” (i.e., words that were moderately associated with the concept of sexuality; \( 5 < M < 7 \) on a 9-point scale), as pretested by Mussweiler and Förster: Haut (skin), feucht (wet), spüren (feel), schwitzen (sweat), Bett (bed), and steif (stiff). The neutral task included six additional neutral words: sprechen (speak), bunt (colorful), drehen (turn), Kahl (barge), Schuh (shoe), and Birke (birch). For both tasks, all 12 words were printed below the letter matrix in capital letters.

Gender identification. Gender identification was measured with two scales: a graphical one (Schubert & Otten, 2002), based on Aron, Aron, and Smollan’s (1992) self–other overlap ven diagrams, and a verbal one (Crisp, Stone, & Hall, 2006). The graphical scale presented participants with seven graphical depictions of idealized relationships of self and a critical group (Schubert & Otten, 2002). This scale is based on the idea that when people describe relations between the self and groups or between different groups, they often use spatial metaphors of inclusion or overlap. Such graphical measures correlate substantially with verbal social identity measures assessing ingroup identification and predict the degree of self-stereotyping (e.g., Tropp & Wright, 2001). Schubert and Otten (2002) concur with Tropp and Wright (2001) that this one-item measure of ingroup identification captures “the essence of interconnectedness between self and ingroup” (p. 354). Based on this logic, we instructed participants to choose the depiction that best represents their closeness to the group of women/men. Following Schubert and Otten, this item was composed of seven diagrams, each consisting of two circles, a smaller one labeled self and a bigger one labeled women or men, respectively. The seven diagrams were displayed on one page and differed with respect to the overlap of the two circles. The most non-overlapping depiction of the two circles, in which they do not overlap at all, was displayed on the top of the page in the first diagram; the most overlapping depiction, in which the small circle is in the center of the larger circle, was displayed on the bottom of the page in the seventh diagram. Participants received two graphical items: The first assessed the overlap between self and participants’ gender ingroup, and the second assessed the overlap between self and participants’ gender outgroup. The latter was administered to examine whether sex-priming effects are specific to identification with one’s own gender.

In addition to this graphical item, we used a four-item verbal rating measure to assess gender identification (Crisp et al., 2006). Participants were asked to rate their agreement with the following six statements: “I identify strongly with other women/men”; “Being a woman/man is an important part of who I am”; “I feel strong ties with other women/men”; and “I feel a sense of solidarity with other women/men.” All ratings were provided on scales ranging from 1 (not at all) to 9 (very much so).

The verbal rating items formed a reliable scale (Cronbach’s \( \alpha = .85; N = 56 \)). The graphical ingroup closeness measure correlated significantly with the verbal identification rating score (\( r_{\text{pearson}} = .33, p < .02; N = 56 \)). As expected (cf. Tropp & Wright, 2001), combining visual and rating items for gender identification produced a reliable scale (Cronbach’s \( \alpha = .82; N = 56 \)), so for
reasons of simplicity, they were collapsed into a single measure by averaging graphical and verbal ingroup identification.

**Procedures and design.** We recruited participants at the library of the University of Cologne and invited them to take part in two ostensibly unrelated studies. Participants were run in groups of two or three by same-sex experimenters. Participants received the materials for the two “experimental tasks” in separate folders. The first folder contained the word-search task; the second folder contained the gender group identification measures. Participants were informed that the aim of the second experimental task was to validate and select various personality questionnaires for future use. A funneled debriefing questionnaire tested for participants’ awareness of the true nature of the experiment. None of the participants expressed any suspicion. On completion, participants were thanked, debriefed, and dismissed.

In sum, Study 2 is based on a 2 (neutral vs. sex-priming) × 2 (female vs. male participants) × 2 (reference group of identification: gender ingroup vs. outgroup) experimental design. The priming factor was manipulated between participants, whereas the Reference Group Factor was manipulated within participants.

**Results and Discussion**

We hypothesized that sex-priming would lead to higher identification with one’s own gender, but that it would have no effect on identification with the opposite gender.

We averaged the graphical and the mean verbal ingroup identification scores to obtain a single ingroup identification measure. To do so, we z-transformed each score before averaging because the graphical item assessed ingroup closeness on a 7-point scale, whereas the verbal ratings were given on 9-point scales. The resulting mean score reflects participants’ ingroup identification ratings in units of the pertinent standard deviation.

In a repeated measures ANOVA with Reference Group of Identification (ingroup vs. outgroup) as a within-participants factor and Priming (neutral vs. sex-priming) and Participant Gender as between-participants factors, this pattern produced a significant interaction effect between Priming and Reference Group, $F(1, 52) = 4.43$, $p = .04$, $\eta^2_p = .08$. No other effects reached significance, $F < 2.80$, $p > .10$, $\eta^2_p < .06$, for all effects. Planned comparisons further revealed that sex-primed participants identified more strongly with their ingroup than did control participants, $t(54) = 2.64$, $p = .01$, Cohen’s $d = 0.70$, but that sex-priming did not significantly affect identification with the outgroup ($t < 1$; see Table 1).

Study 1 demonstrated that sex-priming leads participants to self-categorize as a woman or man more readily. Study 2 corroborates this finding by demonstrating that sex-primed participants identify more strongly with their gender ingroup. These findings go beyond previous priming studies by showing that even priming with words like “sweat” or “bed,” which represent only physical awareness of the true nature of the experiment. None of the participants expressed any suspicion. On completion, participants were thanked, debriefed, and dismissed.

In sum, Study 2 is based on a 2 (neutral vs. sex-priming) × 2 (female vs. male participants) × 2 (reference group of identification: gender ingroup vs. outgroup) experimental design. The priming factor was manipulated between participants, whereas the Reference Group Factor was manipulated within participants.

Study 3

Study 2 demonstrates that sex-priming leads participants to identify more strongly with their own gender. As noted earlier, group identification and self-stereotyping are intertwined phenomena (Jetten et al., 2002). Our reasoning suggests that sex-priming also leads people to perceive themselves as more gender-typical, that is, to more strongly ascribe to themselves attributes typically associated to their respective gender stereotype. Study 3 examined this possibility. To do so, we primed participants with photos that did or did not have sexual content and subsequently asked them to rate themselves with respect to a number of gender-stereotypic attributes. We predicted that sex-primed women would ascribe feminine attributes to themselves more strongly than would control-primed women, whereas sex-primed men would ascribe masculine attributes to themselves more strongly than would control-primed men. Because our primary interest is in changes in the relative accessibility of feminine and masculine attributes, we focused on a difference measure of the two respective types of self-knowledge.

**Method**

**Participants.** We recruited 33 female and 33 male undergraduate students (17–41 years of age; $M = 23.95$ years, $SD = 3.72$) with different majors at the University of Cologne as participants. Participants were asked to take part in two ostensibly unrelated short studies. As compensation, we offered them a bar of chocolate and a coupon for a free coffee.

**Materials.**

**Picture primes.** In this study, we used a photo to prime the concept of sexuality. The photograph was carefully chosen to ensure that the priming method in and of itself did not prime the gender-typical attributes of submissive and dominant behaviors. In choosing the picture, we tried to avoid depicting possible differences between the woman and the man that might be interpreted as dominance or submission displays. To achieve this goal, the critical picture excluded dominant/submissive sexual positions (no one is “on top”), gestures (both are similarly active and are shown as moving), and facial expressions (both have their eyes closed) that might have conveyed power imbalances between the female and the male character. The picture also displayed the woman and the man as similar in height because their faces are at the same level. The sex-priming picture depicted a woman and a man kissing each other passionately with their eyes closed, mouths agape, and arms flung around each other’s head or neck. The picture only

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1 As the correlation between the graphical ingroup closeness and the verbal identification rating was significant but small ($r_{Pearson} = .33$), we also analyzed the results for these two measures separately. The results remain basically the same. Planned comparisons revealed that sex-primed participants saw themselves as closer to their gender ingroup, $r(54) = 2.34$, $p = .02$, Cohen’s $d = 0.62$ (neutral prime: $M = 4.85$, $SD = 1.68$; sex prime: $M = 5.72$, $SD = 1.07$), and identified more strongly (marginally significant) with their ingroup than did control participants, $r(54) = 1.89$, $p = .06$, Cohen’s $d = 0.50$ (neutral prime: $M = 5.70$, $SD = 1.92$; sex prime: $M = 6.60$, $SD = 1.64$). The effect found in the combined measure seems to be driven slightly more by the graphical measure.
showed their heads, necks, and part of the man’s back, but it is clear that they are naked. This picture was taken from the International Affective Picture System (IAPS; Lang, Bradley, & Cuthbert, 2005; Picture No. 4660) and was slightly altered (Adobe Photoshop 7.0). We converted it into black-and-white and deleted a ring on the woman’s hand. We also deleted nail polish and lightened the woman’s very dark eye make-up to avoid priming the female sub-stereotype of a “vamp” (Eckes, 1994a, 1994b; Six & Eckes, 1991). One sex-priming and two sex-neutral control photos were utilized. All pictures were black-and-white and contained up to 1,024 × 768 pixels. One control picture depicted a friendly interaction between a man and a woman sitting at a table with some distance between them (the friends picture); the second depicted a sandy beach with palm trees and small huts (the palms picture; IAPS Picture No. 5814). The control pictures were chosen to match the sex picture with respect to their valence and arousal ratings (IAPS manual; Lang et al., 2005). Additionally, we chose a second control picture to control for specific content: Both the friends and the sex-picture depicted physically attractive, opposite-sex young adults having a positive interaction. The only difference is that in the friends picture, the interaction is non-sexual.

**Picture pre-test.** We pre-tested the three pictures with 32 male and 34 female students as participants who did not take part in the main study. Participants were given one of the three pictures and were asked to rate it with respect to valence, arousal, association with sexuality, and the level of sexual arousal the picture elicited in participants. All ratings were given on 9-point scales ranging from 1 (not at all) to 9 (very). All pictures were rated as quite positive by women (M = 6.85, SD = 1.88) and men (M = 6.47, SD = 1.72) alike, F < 1.66, p > .19, η²p < .053, for all effects, and as moderately arousing by women (M = 5.35, SD = 1.65) and men (M = 4.84, SD = 2.41) alike, F < 2.36, p > .1, η²p < .07, for all effects. The sex picture’s association with sexuality was judged to be stronger (M = 7.91, SD = 1.31) than that of the palms picture (M = 2.05, SD = 1.65) and the friends picture (M = 4.05, SD = 2.17), F(2, 60) = 61.67, p < .001, η²p = .67. Neither the main effect for participant gender nor the interaction effect was significant (both Fs < 1). The sex-priming picture thus differed from both control pictures on the crucial dimension of association to sexuality, receiving higher ratings than did both of the control pictures. Participants judged the sex-picture to be more sexually arousing (M = 3.86, SD = 2.32) than either the palms picture (M = 1.64, SD = 1.50) or friends picture (M = 1.73, SD = 1.35), F(2, 60) = 10.76, p < .001, η²p = .26 (all other Fs < 1). In sum, the sex-picture differed from the two control pictures only on the dimensions of sexuality and sexual arousal, and women and men did not differ in their judgments on these dimensions.

**Dependent measure: Gender typicality.** We assessed the extent to which participants ascribe gender-stereotypic attributes to themselves with the Gender Typicality Scale (GTS+; Altstätter-Gleich, 2004). Construction of this scale was based on the Bem Sex Role Inventory (BSRI; Bem, 1974). GTS+ contains eight rating items for agency, representing the male stereotype (decisive, assertive, confident, fearless, businesslike, daunting, resolute, and willing to take risks) and eight rating items for communion, representing the female stereotype (warm-hearted, empathetic, romantic, sensitive, understanding, hearty, emotional, and sensual), administered in an alternating order. Participants were asked to rate how often they consider each attribute as self-descriptive in their everyday lives, using a 4-point scale (rarely, sometimes, often, and almost always). The internal consistency of the two GTS+ subscales was adequate (Cronbach’s α [communion] = .69, N = 66; Cronbach’s α [agency] = .73, N = 66), and the two subscales were not significantly correlated with each other (r = -.12, p = .33; N = 66).

**Procedures and design.** Participants were run in groups of three by same-sex experimenters. Upon arrival in the lab, participants were handed a set of two folders and were asked to work through them in the given order. The first folder contained a “picture evaluation task.” This priming procedure consisted of a picture task on two pages, ostensibly about “subjective picture processing.” On the first page, participants were instructed to form an impression of a photograph that would be displayed on the second page. Participants were further informed that such subjective impressions were influenced by a variety of factors that direct viewers’ attention to different parts of a picture. The picture (13 cm × 10 cm) was displayed in the upper half of the second page and was followed by seven items assessing participants’ impression of the picture. Here, participants rated their own liking for, curiosity for, and familiarity with the picture. They also responded to questions about parts of the picture and gave the picture a title. The second folder contained the gender typicality measure. Finally, we tested participants for their awareness of the true nature of the experiment. None of the participants expressed any suspicion. On completion, participants were thanked, debriefed, and dismissed.

In sum, Study 3 is based on a 2 (sex-priming picture vs. neutral pictures) × 2 (female vs. male participants) experimental design. Priming was manipulated between participants.

**Results and Discussion**

We predicted that exposure to the sex-priming picture would lead participants to perceive and describe themselves in line with the respective gender stereotype. Our reasoning suggests that for women, the typical endorsement of communion over agency attributes becomes even more pronounced following sex-priming. For men, the opposite should be the case. We hypothesized that this differential effect on women and men would be limited to the sex-priming picture condition.

To create a gender typicality score, the mean agency rating was subtracted from the mean communion rating to describe each participant’s gender typicality. Positive scores indicate that participants ascribe feminine characteristics to themselves more strongly than masculine ones. Negative scores indicate that participants ascribe masculine characteristics to themselves more strongly than feminine ones.

Planned comparisons revealed that women shifted their self-views in a more feminine direction when sexuality was primed
(neutral primes combined: $M = 0.41, SD = 0.62$; sex prime: $M = 1.10, SD = 0.64$), $t(31) = 3.02, p = .005$, Cohen’s $d = 1.11$. Men shifted their self-views in a more masculine direction (neutral primes combined: $M = 0.37, SD = 0.51$; sex prime: $M = -0.19, SD = 0.50$), $t(31) = 2.90, p = .007$, Cohen’s $d = 1.10$ (see Figure 1).¹³

In line with our hypotheses, Study 3 demonstrated that in response to a sexual prime, participants perceive themselves as more in line with the respective gender stereotype, ascribing more gender-stereotypic attributes to themselves. This shows how even an incidental reminder of sexuality can lead to substantial changes in the active-self: Women shifted their self-views in a more feminine direction, whereas men shifted their self-views in a more masculine direction.

One surprising aspect of these findings is that in the two control conditions, we found no significant difference between women and men in gender typicality. It is important to note that, although unexpected, this finding is irrelevant for our hypothesis, which pertains to gender-specific divergence of the self-stereotyping measure in response to sex-priming toward a more gender stereotypic self. Our findings are consistent with this prediction. In response to sex-priming, men show a (stronger) inclination toward masculine attributes, and women show a (stronger) inclination toward feminine ones. The results of Study 3 demonstrate that viewing erotic material, which does not depict submissive or dominant content, influences how men and women see themselves and which attributes they ascribe to themselves. Exposure to sexual stimuli thus appears to facilitate self-stereotyping along the lines of the respective gender stereotype.

**Study 4**

Taken together, the results of Studies 1 through 3 demonstrate that activating the sex-concept via subtle cues leads people to put themselves in “gendered shoes.” We have demonstrated that ratings on gender-typical personality attributes, gender identification, and gender accessibility are all affected by sex-priming. The findings we have presented thus far pertain exclusively to the realm of self-perception. Recent research and theorizing suggests that such changes in self-perception may have behavioral consequences (Wheeler et al., 2007). In fact, Wheeler et al. (2007) have argued that altered self-perceptions are one key to understanding prime-to-behavior effects, which suggests that sex-priming may influence not only how people see themselves but also how they behave. Studies 4 and 5 were designed to address this possibility and to examine whether sex-priming influences the behavior of men and women in a way that is consistent with the obtained changes in self-perception. More specifically, we set out to examine whether sex-priming induces women to behave in a more submissive manner and men to behave in a more dominant manner.

To examine this possibility, in Study 4, we created an interaction situation in which participants could behave in a more or less submissive versus assertive and dominant way. Inspired by Bargh et al. (1996), we confronted sex-primed versus control-primed participants with an experimenter who was caught up in a conversation when participants needed the person’s help to proceed with their task. A dominant way to behave in this situation is to interrupt the experimenter, asserting one’s own needs. A submissive way to behave is to wait until the experimenter has finished his conversation, enduring the other’s (impolite) behavior. In this respect, the time participants wait until they interrupt the experimenter can be employed as a measure of dominant versus submissive behavior. Based on our reasoning as well as the results of Study 3, we expected that sex-primed women would hesitate more before interrupting the experimenter, whereas sex-primed men would hesitate less.

In this study and in Study 5, the experimenter was always of the opposite sex; hence, male participants were always instructed by female experimenters, whereas female participants were always instructed by male experimenters. This was done in order to ensure

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¹³ When analyzing the two components of the difference score individually, results remain basically the same. Planned comparisons revealed that when sexuality was primed, women shifted their self-views into a less agentic direction, $t(31) = 2.80, p = .009$, Cohen’s $d = 1.08$ (neutral primes combined: $M = 2.39, SD = 0.39$; sex prime: $M = 2.01, SD = 0.31$), and into a more communal direction, $t(31) = 1.88, p = .069$, Cohen’s $d = 0.74$ (neutral primes combined: $M = 2.80, SD = 0.48$; sex prime: $M = 3.13, SD = 0.41$). As predicted, for men the opposite was the case. Planned comparisons revealed that when sexuality was primed, men shifted their self-views into a more agentic direction, $t(31) = 2.01, p = .053$, Cohen’s $d = 0.75$ (neutral primes combined: $M = 2.38, SD = 0.45$; sex prime: $M = 2.71, SD = 0.43$), and into a less communal direction, $t(31) = 1.50, p = .14$, Cohen’s $d = 0.53$ (neutral primes combined: $M = 2.74, SD = 0.37$; sex prime: $M = 2.53, SD = 0.42$). Hence, the effect in the difference score reflects the hypothesized pattern of changes in its individual components, and it appears to be driven more strongly by the changes in agency: Sex-priming reduces it in women and boosts it in men. This came as no surprise, as agency has previously been shown to be the more malleable concept of the two gender typical dimensions (e.g., Diekman & Eagly, 2000).
that the experimental situations shared the important feature of mixed-sex interactions with heterosexual situations. In this way, the primed behavioral tendencies should be more probable to be applied to the given social situation in the experimental setting (cf. Higgins, Rholes, & Jones, 1977). In addition, experimenters were unaware of the administered priming condition.

Another goal of Study 4 was to examine whether mood effects contribute to the effects of sex-priming. To do so, we administered a mood measure following the behavioral measure. A final goal of this study was to test for priming effects on the perception of the experimenter. Our reasoning holds that changes in the active-self drive the hypothesized behavioral effects, not changes in the perception of the interaction partner. Hence, we tested whether sex-priming causes participants to see the experimenter as more or less courteous. If so, this could contribute to the expected behavioral effects.

**Method**

**Participants.** We recruited 94 participants—54 female and 40 male students (19–47 years of age; \( M = 24.35 \) years, \( SD = 4.04 \)—majoring in disciplines other than psychology at the University of Cologne and offered them a bar of chocolate and a coupon for a free coffee as compensation.

**Materials.**

**The sex-priming manipulation.** The priming manipulation was the same as in Study 2.

**The telephone conversation.** As part of the experimental procedure, participants needed to communicate with the experimenter. When trying to do so, they found the experimenter chatting on the telephone. Unbeknownst to participants, the experimenter recorded the time that elapsed from the moment participants started looking for the experimenter to the moment they interrupted this conversation. The telephone conversation was structured such that it seemed like a natural conversation between the experimenter and a friend. It lasted for exactly 10 min. The topics of the conversation included friends, university work, and family, and events in the city of Cologne. During this conversation, the experimenter pretended to be listening rather than speaking, occasionally uttering a “hmmm . . .” and “yes . . . .” These were predetermined break points within the conversational flow, which offered participants an opportunity to interrupt. Following Bargh et al. (1996), we interpreted every verbal utterance from the participants as an interruption which led to the immediate end of the “waiting” phase of the experiment.

**The mood measure.** A German version of the Positive and Negative Affect Schedule (PANAS; Kroehe, Egloff, Kohlmann, & Tausch, 1996; Watson, Clark, & Tellegen, 1988) was used to test whether sex-priming affected participants’ mood. The PANAS consists of two 10-item scales of positive and negative affect. Participants are asked to rate how strongly they experienced the respective positive (interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active) and negative (distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid) affect states on a 5-point scale (1 = not at all, 2 = a little, 3 = moderately, 4 = quite a bit, 5 = extremely). The internal consistency of the two PANAS subscales was high (Cronbach’s \( \alpha \) [positive affect] = .81, \( N = 93 \); Cronbach’s \( \alpha \) [negative affect] = .76, \( N = 93 \)).

**Perception of the experimenter.** A post-experimental survey questionnaire included three items concerning the experimental situation (such as the room) and the experimenter, with one critical item reading, “Was the experimenter friendly and courteous to you?” Participants responded on a 7-point rating scale ranging from –3 (not at all) to +3 (very much so).

**Procedures and design.** Participants were recruited by phone and were asked to participate in two separate studies on word processing and self-assessment, respectively. Participants were run individually. Upon arrival in the lab, participants were greeted by the experimenter, who showed them into the first experimental room and handed them a folder that contained the word-search task. In order to ensure that the experimenter was unaware of the administered priming condition, the experimenter took the priming material from a pile of folders, which contained the conditions in a random order. In addition, each folder contained the same neutral introductory page. Before leaving participants, the experimenter explained that participants should inform the experimenter upon completing the first task so that the experimenter could hand participants a second folder. The experimenter added that (s)he would leave the room and go to the “other lab next door,” showing the participant the door. The experimenter waited for participants in the adjacent lab room, connected to the first room via a small hallway and two doors. The door of the first experimental room was closed, whereas the door of the second one stood open at a 60° angle. Thus, upon opening the first door and entering into the hallway, participants already heard that the experimenter was engaged in a conversation. The sound of the first door opening served as the cue for the experimenter to start the stopwatch and to pretend to be in the middle of a conversation. The entering participant could clearly see the experimenter holding the telephone receiver to his or her ear. As soon as the participant began to say anything to the experimenter, such as “Excuse me,” or “Sorry, but . . . .,” or other vocal utterances such as “Hmmmm” or clearing his or her throat, the experimenter stopped the stopwatch inconspicuously and recorded the elapsed time. If a participant did not interrupt within 10 min, the experimenter pretended to notice the participant at that time and interrupted the telephone conversation him- or herself. In both cases, the experimenter apologized briefly for not having noticed the participant and handed the participant the second folder. Here, participants were given several short questionnaires including the PANAS. After completing these scales, participants received a final questionnaire concerning their experience during the experiment, including the critical item: “Was the experimenter friendly and courteous to you?” On completion, participants were thanked, fully debriefed, and dismissed.

In sum, Study 4 is based on a 2 (participant gender) \( \times \) 2 (priming: sex vs. control) design. The priming factor was manipulated between participants. We hypothesized that female participants would wait longer but that male participants would wait less before interrupting after sex-priming than after control priming (i.e., an interaction effect).

**Results and Discussion**

**Awareness check.** The awareness check revealed that none of the participants suspected that the word-search task might have affected their waiting behavior. Twenty-nine of the 94 participants speculated that there was some kind of connection between dif-
different parts of the study. The influence that they hypothesized, however, was never between the priming and their waiting behavior, but typically related the priming to some of the questionnaires. For example, some participants hypothesized that the word-search task had an effect on mood ("unpleasant task") or on the ability to concentrate ("relaxing task, strengthens my concentration").

Elapsed waiting time. The critical dependent measure was the time that elapsed before participants interrupted the experimenter (see Figure 2). Thirteen of the 54 female participants did not interrupt at all in the 10-min timeframe: five (19%) in the neutral condition and eight (30%) in the sex-priming condition. Within the 40 male participants, six did not interrupt at all in the 10-min timeframe: five (24%) in the neutral condition and 1 (5%) in the sex-priming condition. Following the procedures of Bargh et al. (1996), we ascribed these participants a value of 10 min.

A 2 (female vs. male participants) × 2 (prime: sex vs. neutral) ANOVA yielded the predicted interaction effect, $F(1, 90) = 15.16$, $p < .001$, $\eta^2 = .14$. The main effect for Participant Gender did not reach significance, $F(1, 90) = 2.24$, $p = .14$, $\eta^2 = .02$. The main effect for Prime also did not reach significance, $F(1, 90) = 1.02$, $p = .32$, $\eta^2 = .01$. In line with our hypothesis, planned comparisons further indicated that women waited longer when sexuality was primed ($M = 361$ s, $SD = 226$) than when they were primed with neutral concepts ($M = 225$ s, $SD = 227$), $t(52) = 2.04$, $p = .05$, Cohen’s $d = 0.56$, whereas men waited less when sexuality was primed ($M = 126$ s, $SD = 144$) than when they were primed with neutral concepts ($M = 339$ s, $SD = 210$), $t(38) = 3.71$, $p = .001$, Cohen’s $d = 1.19$. The waiting times of male and female participants in the neutral priming condition did not differ significantly, $t(46) = 1.63$, $p = .11$, Cohen’s $d = 0.48$, so we do not discuss this further.

Perception of the experimenter. Female and male participants perceived their experimenters similarly as relatively friendly and courteous ($M_{female} = 1.52$, $SD = 1.31$; $M_{male} = 1.90$, $SD = 1.06$). Neither priming, nor participant gender, nor their interaction produced reliable differences in the perception of the experimenters (all $Fs < 2.4$, $ps > .12$).

Mood. There was no reliable difference in mean negative affect between the sex-priming ($M = 1.31$, $SD = 0.32$) and neutral ($M = 1.42$, $SD = 0.48$) conditions (all $Fs < 1.58$). Furthermore, there was no reliable difference in mean positive affect between the sex-priming ($M = 3.00$, $SD = 0.63$) and neutral ($M = 2.85$, $SD = 0.57$) conditions (all $Fs < 2.57$). Hence, mood does not seem to be influenced by sex-priming, making it extremely unlikely that mood changes mediate the sex-priming effects on social behavior.

These findings are consistent with our hypothesis that sex-priming affects women’s and men’s social behavior in mixed-sex settings. When the concept of sexuality had been activated surreptitiously, in the following situation women hesitated more before they interrupted the experimenter, whereas men hesitated less. Furthermore, there is no indication that these behavioral consequences of sex-priming are brought about by effects on participants’ mood or their perception of the experimenter. In fact, no significant differences in mood and experimenter perception emerged. Our test of changes in experimenter perception was modeled after the established procedures described by Bargh et al. (1996).

Extending the findings, Study 5 was designed to provide further evidence that sex-priming caused women to behave more submissively and men to behave more dominantly toward a person from the opposite sex.

Study 5

Study 5 examined whether the behavioral effects of sex-priming are also apparent in situations that involve more direct and unpleasant requests by the experimenter. Such situations should be suited to test whether sex-prime induced communal behavior (extended or reduced waiting) extends to its more extreme (and more detrimental) form: submissive behavior. Inspired by classic work on resistance to social pressure (Frank, 1944a, 1944b, 1944c), we confronted participants with an experimenter who requested them to eat as many tasteless, unsalted, dry rice crackers as possible for the purpose of a “taste test”—an unpleasant and seemingly nonsensical task. The level of resistance versus compliance in this paradigm has been shown to react to various situational influences. Hence, it seemed suited to us to measure how sex-primes affect resistance versus compliance in women and men. Compliance behaviors have been shown to increase with normative social influence (Kelley, 1955; Miller & Prentice, 1996). Taken together, this work suggests that compliance with pointless requests can be interpreted as a more extreme form of a communal reaction to social pressure out of a wish to be seen as cooperative and may thus be used as an unobtrusive behavioral measure of submissiveness versus dominance.

The experimenter counted how many crackers the participants ate within a 5-min timeframe. Eating many crackers can be seen as a submissive reaction and resembles instances of compliance behaviors in response to normative social influence, as documented by abundant research (Cialdini & Goldstein, 2004). Responding to this situation in an assertive manner entails behavioral resistance (eating slowly or stopping eating) or verbal protest that results in less food intake. We hypothesized that sex-primed women would comply more readily with the experimenter’s request and eat more crackers, whereas sex-primed men would comply less and eat less.

Figure 2. Means and standard errors for elapsed waiting time in seconds by priming (neutral vs. sex-priming) and participant gender (Study 4).
Method

Participants and materials. We recruited 80 undergraduate students (19–30 years of age; \(M = 23.54\) years, \(SD = 2.62\)) at the University of Cologne for an experimental session including two independent studies, namely a study on word recognition and a taste test. As compensation, we offered participants a bar of chocolate and a coupon for a free coffee.

The sex-priming manipulation. We used the word-search task also used in Studies 2 and 4 to prime participants with sex versus neutral concepts.

Procedures. Participants were recruited over phone and scheduled for individual experimental sessions. Upon arrival at the lab, they were greeted by an experimenter (male when the participant was female, female when the participant was male) in a white lab coat with a name tag, which also displayed the label Nutrition Studies. The experimenter was unaware of the administered priming condition (cf. Study 4). Throughout the experiment, the experimenter addressed the participant with the formal German form of address (Sie). First, participants worked on the word-search task, which primed about half of them with sex-related concepts and the other half with neutral concepts. After completion of the word-search task, participants proceeded with the taste test. Here, the experimenter first explained the procedure, instructing the participant to focus on the taste of the upcoming “taste samples,” not to speak during the next 5 min, and to eat as many of the taste samples as possible. The experimenter then placed a tray with 20 identical unsalted dry rice crackers in front of the participant and prompted him/her to start. During the taste test, the experimenter remained seated next to the participant, took notes, and held a stopwatch. Whenever a participant commented on the task or asked a question, the experimenter just replied: “It is important that you try to eat as many of the crackers as possible.” After the taste test, participants were handed a questionnaire regarding the taste of the crackers and their eating habits to maintain the cover story. Upon completion, participants were thanked, fully debriefed, and dismissed. The experimenter then weighed the remaining crackers in order to establish how many grams had been eaten.

Results and Discussion

The amount of rice crackers eaten in grams served as our dependent variable. One rice cracker weighs about 2 g (see Figure 3).

We hypothesized that sex-priming would have differential effects on the compliance of men and women. In particular, our reasoning holds that sex-priming should lead to more compliance for women (more rice crackers eaten), whereas it should lead to less compliance for men (less rice crackers eaten).

In a 2 (sex vs. control priming) × 2 (female vs. male participants) ANOVA, the predicted interaction effect emerged, \(F(1, 76) = 9.52, p = .003, \eta^2_p = .11\). Neither of the main effects reached significance (all Fs < 1). The interaction indicates that sex-primed males refused to comply with an obnoxious demand more readily than controls, \(t(27) = 2.06, p = .05\), Cohen’s \(d = 0.77\). This is consistent with the hypothesis that men become more dominant and self-assured after sex-priming. Sex-primed females complied more and ate more crackers, \(t(49) = 2.00, p = .05\), Cohen’s \(d = 0.56\). This is consistent with the hypothesis that women become more submissive and compliant after sex-priming.

These findings further corroborate the hypothesis that sex-priming affects the social behavior of women and men in opposite ways. Whereas sex-primed women in Study 4 spontaneously showed a more communal behavior when they put the experimenter’s phone chat before their own need to proceed quickly with the experiment, in Study 5 the behavioral reaction was prompted by the experimenter’s insisting request to eat as many identical crackers as possible. This shows the ampleness of behaviors affected.

Study 6

Studies 1–5 show how people are caught in the trap of sex-priming. Not only do subtle sexual cues turn people into more gendered individuals without their awareness (Studies 1–3), but sex-primes also affect how women and men interact (Studies 4 and 5). We explain these findings based on a socio-cultural model and posit that sex-priming affects the self-concept by activating culturally shared associations of the sexuality concept, namely communion and submission for women and agency and dominance for men. At the moment of priming, these associations become a central component of the active-self. These process assumptions also help delineate viable ways out of the “sex-priming trap”: Activating self-views that are incompatible with sex-priming may help to immunize participants against the typical sex-priming effects.

What kind of self-views may have such an immunizing effect? The literature on gender roles and gender stereotyping suggests that adherence to or deviance from gender (self)stereotyping is associated with the work versus family role the target person occupies (e.g., Diekman & Eagly, 2000). Traditional definitions of womanhood and manhood prescribe a role division into the homemaker role (the traditional female role) and the breadwinner role (the traditional male role; e.g., Kalmijn, 1998). In contemporary society, in general, there is less consensus about this kind of role division; hence, there is more room for alternative role interpretations by individuals. Role inversions (i.e., males as homemakers and women as career-oriented) represent the extreme opposite of the traditional gender role and are sometimes referred to as “egalitarian” or simply “modern.” It has been shown that the stereotypic
attributes of female communion and male agency ascribed to women or men, respectively, are fueled by attributes indicative of career-oriented working people versus family-oriented homemakers. When women or men are perceived in egalitarian roles, they are stereotyped less in terms of the traditional gender stereotypes (Diekmann & Eagly, 2000). This is also relevant for self-perception and mating behavior: Envisioning oneself in a marital relationship either in a traditional or in an egalitarian role leads to different mate preferences (Eagly, Eastwick, & JohanneSEN-Schmid, 2009). Only in the traditional role do women and men desire a stereotypically masculine or feminine mate. Furthermore, there is evidence that implicit stereotyping can be reduced by engaging in counter-stereotypic mental imagery (Blair, Ma, & Lenton, 2001). In Study 6, we build on these findings and try to highlight counter-stereotypic (self-) knowledge.

If our reasoning is correct and sex-priming shapes self-perception because it activates subsets of gender-stereotypic self-knowledge, then activating counter-stereotypic self-knowledge may undo the effects of sex-priming. More specifically, encouraging participants to think about househusbands and career women before sex-priming may activate counter-stereotypic facets of self-knowledge that may inhibit stereotypic facets ordinarily activated by sex-priming. In this way, activating counter-stereotypic self-knowledge may immunize participants against the typical effects of sex-priming.

Method

Participants. We recruited 72 female and 64 male undergraduate students (18–41 years of age; M = 23.87, SD = 4.05) from all study majors at the University of Cologne campus cafeteria for an experimental session that included an imagination task (which would require putting oneself into somebody else’s position), a task on word recognition, and a self-assessment task. As compensation, we offered participants a bar of chocolate and a coupon for a free coffee.

Materials.

The gender role priming manipulation. We used the procedure suggested by Macrae, Bodenhausen, Milne, and Jetten (1994). Specifically, as a cover story, we informed participants that they would be asked to fulfill a task that investigates the human ability to construct daily life details from minimal information. For 5 min, participants then composed a brief passage describing a typical day in the life of a given target.

The sex-priming manipulation. We used the word-search task also used in Studies 2, 4, and 5 to prime participants with sex versus neutral concepts.

Gender typicality. To assess the combined influences of gender role priming and sex-priming versus control priming on self-ascribed gender typicality, we used the same gender typicality scale as in Study 3. The internal consistency of the two GTS+ subscales was high (Cronbach’s α [communion] = .82, N = 135; Cronbach’s α [agency] = .74, N = 135). The two subscales were negatively correlated with each other (r = -.23, p = .007; N = 136).

Procedures. Participants were recruited in and around the cafeteria building and were led to the lab where they were greeted by the experimenter (male when the participant was female, female when the participant was male). First, participants worked on the imagination task, which primed half of them with the respective traditional gender role concept (housewife for women, “career man” for men) and the other half with a non-traditional, modern gender role concept (househusband for men, “career woman” for women). Written instructions pointed out that the first task comprised an investigation of people’s ability to construct daily life details from minimal information. It was explained that participants should take about 5 min to compose a brief passage describing a typical day in the life of the target and that the target was a housewife/househusband/career woman/career man. After completion of the imagination task, participants proceeded with the word-search task. In the next phase, participants worked on the self-assessment scale, following a cover story that the scale was administered for the purpose of selecting questionnaires for future studies. Upon completion, participants were thanked, fully debriefed, and dismissed.

In sum, Study 6 is based on a 2 (gender role priming: traditional vs. modern) × 2 (concept prime: sex vs. neutral) × 2 (female vs. male participants) experimental design. The priming factors were manipulated between participants.

Results

Gender typicality. To create a gender typicality score, the mean agency rating was subtracted from the mean communion rating to describe each participant’s gender typicality. Positive scores indicate that participants ascribe feminine characteristics to themselves more strongly than masculine ones. Negative scores indicate that participants ascribe masculine characteristics to themselves more strongly than feminine ones.

As in Study 3, we predicted that participants would perceive themselves as more in line with the respective gender stereotype following sex-priming. This means that for women, the average endorsement of communion over agency attributes should become more pronounced following sex-priming, leading to positive gender typicality scores. For men, the opposite should be the case. We hypothesized this differential effect on women and men to be limited to the sex-priming picture condition in which the traditional gender role was also primed. Hence, we predicted a three-way interaction.

A 2 (traditional vs. modern gender role priming) × 2 (sex vs. control priming) × 2 (female vs. male participants) ANOVA yielded the predicted three-way-interaction effect, F(1, 128) = 9.19, p = .003, ηp² = .07. Neither the Gender Role Priming nor the Concept Priming main effect reached significance (all Fs < 1). The main effect for Participant Gender was highly significant, F(1, 128) = 13.18, p < .001, ηp² = .09, indicating more feminine scores for female participants than for male participants.

In planned 2 (sex vs. control priming) × 2 (female vs. male participants) ANOVAs for the two gender role prime conditions, the data pattern depicted in Figure 4 produced the predicted two-way-interaction effects in the traditional gender role condition, F(1, 67) = 4.60, p = .04, ηp² = .064, and in the modern gender role condition, F(1, 61) = 4.74, p = .03, ηp² = .072. There was also a significant main effect of Participant Gender in the modern gender role condition, F(1, 61) = 4.69, p = .03, ηp² = .071, as well as in the traditional gender role condition, F(1, 67) = 8.81, p = .004, ηp² = .12, indicating more feminine scores for female participants than for male participants. Sex-priming itself was not
These results are consistent with our hypothesis that depending on the type of gender role prime, sex-priming leads to different results. Indeed, in the traditional gender role prime condition, the gender-based self-stereotyping effect obtained in Study 3 was replicated. The interaction in the traditional gender role prime condition indicates that sex-primed female participants reported more feminine scores than sex-primed male participants, \( t(32) = 4.02, p < .001 \), Cohen’s \( d = 1.35 \), whereas control-primed female participants did not differ significantly from control-primed males, \( t(35) = 0.54, p = .59 \), Cohen’s \( d = 0.18 \). The pattern for the traditional gender role prime condition replicates the findings of Study 3. Here, we have already shown that sex-priming leads to self-stereotyping that is consistent with the gender stereotype of female communion and male agency. Study 6 shows that when also primed with traditional gender roles this pattern remains reliable.

For participants primed with modern gender roles, however, the opposite pattern emerged. In the modern gender role prime condition, the gender-based self-stereotyping effect was eliminated. Here, the interaction indicates that sex-primed female participants did not report more feminine scores than sex-primed male participants, \( t(30) < 1, p = .99 \), whereas control-primed female participants differed significantly from control-primed males, \( t(31) = 2.45, p = .02 \), Cohen’s \( d = 0.84 \). The pattern for the modern prime condition is essentially the opposite of the pattern for the traditional priming condition and the findings from Study 3. In the modern gender role priming condition, sex-priming led to less self-stereotyping with respect to communion and agency. Here, in the sex-priming condition women and men do not differ from each other. Our findings reported before seem to be reversible by modern gender role priming.

**Discussion**

The results of Study 6 are consistent with our hypothesis: The typical sex-priming effects can be undone by previously activating counter-stereotypical gender role knowledge. Study 6 thus demonstrates that there are important boundary conditions for sex-priming effects. Specifically, whether sex-priming leads to gender self-stereotyping depends on the accessibility of modern versus traditional gender roles. If traditional gender roles are accessible, then sex-priming leads to gender self-stereotyping. This, however,
is not the case if the accessibility of modern gender roles is increased before sex-related stimuli are encountered. It is important to note that the obtained differences in the non-sex control priming conditions are extraneous to our hypotheses, which pertain directly to changes from this baseline following sex-priming.

Closer inspection of these findings reveals that activating modern gender roles reverses the effects of sex-priming that we have observed so far: If modern gender roles are activated, then sex-priming encourages female and male participants to adopt more modern self-views, relative to a neutral priming condition. This suggests that sex-priming may highlight whatever gender-related self-view is most accessible at the time. Without a preceding gender role priming task, traditional gender-roles appear to be most accessible in our participant population, so that sex-priming renders self-views more traditional as a default. In situations in which the chronic accessibility of traditional gender-roles is overidden by an increased accessibility of modern gender-roles, sex-priming highlights these modern gender-roles. The pattern of results we obtain across our studies may thus result from an interplay of chronic and situational accessibility, as has been described in the priming literature (Bargh, Lombardi, & Higgins, 1988).

**General Discussion**

The gender-typical attributes of female communion and male agency color the scripts of sexual submissiveness for women and sexual dominance for men. In the present research, we hypothesized that sex-priming would activate these concepts and the respective self-knowledge depending on the gender of the participant. Hence, we predicted that sex-priming affects self-perception temporarily, in that it renders one’s gender—and with it the gender stereotypic attributes of communion and agency—more dominant in the active-self.

Study 1 demonstrates that, indeed, one’s gender identity becomes more accessible in response to sex-priming, as indicated by faster self-categorization as a woman or man after subliminal sex-priming. We hypothesized that sex-priming makes gender stereotypical attributes more central in self-perception. The findings of Studies 2, 3, and 6 are consistent with this hypothesis: In response to sex-priming using pictorial (Study 3) or verbal material (Studies 2 and 6), participants described themselves as more gender-typical than in response to various control conditions.

In addition to these sex-priming effects on self-perception, we also hypothesized that in response to sex-priming, women become more submissive, whereas men become more dominant in interactions with the other sex. To examine this possibility, we used two distinct behavioral paradigms that allowed participants to behave in a more or less dominant versus submissive way toward a person (the experimenter) of the other sex. Studies 4 and 5 demonstrate that sex-primed women hesitated more before interrupting a male experimenter’s ongoing conversation and showed more compliance with obnoxious requests, whereas sex-primed men hesitated less and showed less compliance. Building on these results, Study 6 examined boundary conditions for the occurrence of sex-priming effects. Here, we manipulated the accessibility of mental content prior to sex-priming. We showed that the typical sex-priming effects can be undone if counter-stereotypic gender knowledge is made accessible. Only if there is no modern gender role accessible at the time does sex-priming lead to gender self-stereotyping. These findings seem more in line with a socio-cultural than with a biological perspective on the effects of sex-priming. The finding that priming culturally shared gender roles affects sex-priming makes biological (evolutionary) explanations of the present findings seem less probable or at least less parsimonious. It is important to keep in mind, however, that our research was not designed to determine whether the observed sex priming effects have primarily socio-cultural or biological roots.

Future research will have to examine this question more closely.

Taken together, in six studies the present research demonstrates that when subtle stimuli activate the concept of sexuality, the self-views and non-sexual social behaviors of men and women are influenced in opposite ways, at least as long as there is no modern gender knowledge already accessible. By combining subliminal and supraliminal, lexical and pictorial methods to prime sexuality and to assess its consequences, we were able to provide converging evidence that activating the sex-concept shapes human thinking and behavior in important and multifaceted ways. These findings have a number of important implications.

**Toward a Model of Gendered Sex-Priming Effects**

For one, they hint at a potential psychological model that allows us to explain, predict, and influence women’s and men’s reactions to sexual cues. This model has the potential to integrate existing findings and to suggest new directions for future research. Based on an active-self account of prime-to-behavior effects (Wheeler et al., 2007), we have suggested that sex-priming influences self-perceptions and behavior in similar ways.

We suggest that consulting the active-self account may help to integrate a substantial body of empirical evidence. This includes the present findings as well as findings on women’s semantic link between sex and submission (Sanchez et al., 2006), women’s tendency toward submissive and compliant sexual behaviors (Butler, 1976; Hite, 1976; Martin, 1996), men’s link between sexuality and aggressive behavior (Mussweiler & Förster, 2000), men’s link between power and sex (Bargh, Raymond, Pryor, & Strack, 1995), and men’s tendency toward dominant-initiative behaviors in general (Koss et al., 1987; Martin, 1996; O’Sullivan & Byers, 1992). Even the finding of men’s sex-dominance inhibition (Kiefer & Sanchez, 2007a) can be integrated within this framework.

The present research shows that upon sex-priming, the gender stereotypes that underlie gender-based sexual roles affect the self in an assimilative manner. When sexuality is primed, gender-stereotypical self-knowledge becomes more accessible in the active-self. Such gender-based changes in the active-self after sex-priming are likely to contribute to a series of related findings and phenomena. Mussweiler and Förster (2000) demonstrated that sex-primed male participants behaved more aggressively toward women, whereas sex-primed women did not. Mussweiler and Förster explained their findings in terms of greater contiguous activation (Hebb, 1948) of sexuality and aggressive acts for men, either in their own or in vicarious experiences. They argued that, over time, these contiguous activations create an automatic link between the sexuality concept and aggressive behaviors for men. From this viewpoint, the sex-aggression link is direct and hence does not involve changes in the self-concept.

In light of the present findings, however, the findings of Mussweiler and Förster (2000) may be reinterpreted as another instance...
of a behavioral consequence of the described self-concept shift, a shift toward the masculine gender stereotype of dominance and agency. Hence, rather than a direct link that drives male participants’ aggressive behavior in response to sex-priming, changes in the active-self may yield the sex-aggression effect. This conceptualization provides new opportunities for potential moderators to intervene in the chain of events. For example, one could speculate that, because there are societal norms that veto sexual domination and coercion (e.g., Dunk & Refinetti, 2000), the mental accessibility of these norms might moderate sex-priming effects on men’s dominant and aggressive behaviors. If this norm is more salient, it might be less likely that aggressive contents are incorporated into the active-self and expressed in automatic social behavior. This possibility also helps explain why studies that were conducted in cultural backgrounds that differ in the salience of such a norm yield diverging results. A study conducted in the United States, for example, demonstrated that men inhibit the concept of dominance after sex-priming (Kiefer & Sanchez, 2007a). The seeming inconsistency with the studies reported here as well as with those reported by Mussweiler and Förster, all of which were conducted in Germany, may be resolved by taking into account different levels of salience of sexual dominance norms in both cultures.

Similar to Mussweiler and Förster’s (2000) reasoning, Sanchez et al. (2006) argued that women, bombarded with images of women’s sexual subservience to male partners, form an automatic association of sex with submission. Sanchez et al. also showed that the strength of women’s implicit association between sex and submission predicted their personal adoption of a submissive sexual role. Again, this sex → submission link for women (Kiefer et al., 2006; Sanchez et al., 2006) and its connection with actual sexual submissiveness might alternatively be explained by an active-self account of sex-priming effects. As the present work has shown, in women, sex-priming induces a shift toward a more communal and submissive self-view and action tendencies. From this point of view, it can be predicted that the more a woman’s self-perception shows the sex-prime induced gendered shift, the stronger her tendency to follow the activated self-knowledge in real-life sexual situations. The results of Sanchez et al. are consistent with this interpretation.

Notably, the empirical evidence that has been gathered to date does not definitively rule out either of the psychological mechanisms that have been proposed to explain various effects of sex-priming (Bargh et al., 1995; Kiefer & Sanchez, 2007a; Mussweiler & Förster, 2000; Sanchez et al., 2006). One is a direct link, which connects the perceptive input of sex-cues immediately with aggressive behavioral outputs for men and submissive associations and behaviors for women (Hebb, 1948; Mussweiler & Förster, 2000; Sanchez et al., 2006). The other is a more indirect associative network link that allows the self to be activated and partially altered in relation to self-relevant gender associations of sex-primes. Our findings from Studies 1–3 also show that, indeed, the self is affected by sex primes in the predicted gender based ways. The findings of moderation of sex-priming effects by the adherence to gender ideals (Kiefer & Sanchez, 2007b) or by the heightened accessibility of modern gender roles (career woman and househusband; Study 6 of the present work) underpin the relevance of the self and gender related knowledge as central mechanisms in producing these effects.

In line with this notion, Cross and Madson (1997) have noted that many of the observed gender differences in behavior are due to gender differences in habitual self-construal. What the present work adds to this basic insight is that gender-typical shifts in behavior (Studies 4 and 5) might also be due to shifts in one’s momentary self-construal. Sexuality, when primed, seems to be able to bring about similar self-construal shifts.

**Potential Mechanisms of Active-Self Change in Sex-Priming and Potential Boundary Conditions of the Sex-Priming Effects on the Active-Self**

Our theoretical reasoning is derived from the active-self account of prime to behavior effects (Wheeler et al., 2007). Consequently, research on the active-self allows us to derive novel predictions concerning potential underlying mechanisms and boundary conditions for how exposure to sexual stimuli shapes behavior.

For one, research on the active-self account has demonstrated that a priming stimulus does not necessarily only produce effects when extensive self-knowledge concerning the primed concept is available. To the contrary, a priming stimulus can also introduce new material into the self-concept—a mechanism described by the “expansion model” (Wheeler et al., 2007, p. 241) of prime-to-behavior effects. In the present context, this implies that even if a person does not regularly self-stereotype in terms of gender, a sex-prime may still activate general knowledge about gender stereotypes and introduce them into the person’s momentary self-perception. This possibility suggests that it may be fruitful to clarify the amount of self-knowledge that is necessary for sex-priming to produce the documented gender-typical shifts in self-perception.

Furthermore, the social cognition literature on priming effects in social judgment and behavior suggests different moderators for the obtained sex-priming effects (see Higgins, 1996). One potentially important moderator, for example, is the extremity of the primed concept (e.g., Herr, Sherman, & Fazio, 1983; Mussweiler, 2003). Moderate primes tend to yield assimilation, whereas extreme primes tend to lead to contrast (e.g., Herr et al., 1983). In the present research, only moderate sexual stimuli were administered. If the priming stimuli were more extreme—for example, typical pornographic stimuli, which tend to depict women as extremely submissive and men as extremely dominant—this might reduce the probability of an assimilative active-self shift. In these cases, contrast in self-perception may occur.

These different theoretical perspectives converge in suggesting that a host of different cognitive variables could moderate the effects of sex-priming demonstrated in the present research. Another open question for future research is the duration of sex-priming effects. One could also broaden the debate about underlying mechanisms and study motivational accounts (affiliation motive, self-presentation, mating, adherence to gender norms) of these phenomena.

In any event, however, it is important to keep in mind that the present findings point to a potentially alarming effect: Subtle cues as the word “Sex” flashed for 15 ms may influence who we think we are and how we interact with others. Real-world sexual stimuli consist not only of the obvious and explicit ones described at the outset of this article but also more implicit ones that are interwoven with non-sexual domains of social life. Given the omnipres-
ence of sexual stimuli in our natural environment, this suggests that the self-perceptual and behavioral effects we demonstrate may be quite ubiquitous.

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