

FEMALE = SUBMISSIVE and MALE = ASSERTIVE
Sexuality-priming leads to gender-based self-
perception and automatic behavior

Selbstwahrnehmung und soziales Verhalten im Kontext von
sexuellen Hinweisreizen: Die unbewusste Aktivierung der
Geschlechterstereotype und ihre Konsequenzen

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ABSTRACT

Sexuality is a domain in which gender stereotypes thrive. A cultural standard for the sexual experience and expression of women and men prescribes different gender roles in sexuality. Women's sexual role is submissive and tender, men's assertive and dominant. These sexual roles reflect the stereotypical view of women as more communal and men as more agentic.

If gender stereotypes and sexual roles are activated by sexuality cues, this may have consequences for subsequent thought and behavior. Specifically, following reminders of sex, men's and women's self-perceptions may become more gender-stereotypical, and they may identify more strongly with their respective sexes. Moreover, research on prime-to-behavior effects has shown that priming affects a person's momentary self-representation (the "active self"), which can lead to corresponding behavioral effects (e.g., Wheeler, DeMarree, & Petty, 2007). Thus, after sex-priming the prescriptive gender stereotypes of sexual submissiveness among women and sexual assertiveness among men may manifest themselves in participants' non-sexual social behavior.

In four studies, sexuality was primed using visual (Study 1) and verbal (Study 2 through 4) material. Sex-priming led to a gender-based self-perception, i.e. women's communal orientation was more pronounced relative to their agency, whereas for men the opposite was true (Study 1 and 4), heightened identification with one's own gender (Study 2), and prompted greater submissiveness in women (Study 3 and 4) and greater assertiveness in men (Study 3). More specifically, in Study 3 changes in participants' signature size were unobtrusively measured after sex-priming to check for changes in assertiveness. Men's signatures were larger following sex-priming whereas women's were not. In Study 4 sex-primed women hesitated longer before interrupting an experimenter chatting on the telephone, thus revealing a more submissive approach to social interaction.

In sum, these findings support the hypothesis that following sex-priming, self-perception and social behavior "tune in" to gender stereotypes. The potentially detrimental effects of casual „sex-priming“ in everyday life on self-perceptions and mixed-sex social interactions are discussed.

Keywords: sex-priming, sexual scripts, sexual roles, active self, self-perception, prime-to-behavior effects, identification, submissiveness, assertiveness, gender stereotypes, communion, agency, social interaction

DEUTSCHE KURZZUSAMMENFASSUNG

Sexuelles Verhalten wird zum großen Teil von kulturell geteilten Skripten beschrieben. Diese Skripte beschreiben nicht nur, wie sich Männer und Frauen typischerweise im sexuellen Kontext verhalten, sondern sie schreiben auch vor, wie sich verhalten sollten. Diese Vorgaben beschreiben weibliches sexuelles Verhalten als nachgiebig, hingebungsvoll und submissiv, männliches sexuelles Verhalten hingegen als assertiv und dominant. Diese Vorgaben lassen sich verstehen als eine Anwendung der traditionellen Geschlechtsrollenorientierung – mit der entsprechenden stereotypen Wahrnehmung von Frauen und Männern – auf das Gebiet der Heterosexualität. Hinweisreize (sog. „Primes“) für Sexualität sollten diese kulturell geteilten Stereotype und Verhaltensvorgaben aktivieren. Aus der Forschung zu automatischem Verhalten ist bekannt, dass aktivierte Attribute in die momentane Selbstwahrnehmung einer Person einfließen können, was wiederum zu passendem Verhalten führen kann (Wheeler, DeMarree, & Petty, 2007). Dementsprechend sollte sich die Selbstwahrnehmung einer mit sexuellen Hinweisreizen „geprimten“ Person vorübergehend stärker an die Geschlechterstereotype „typisch femininer“ Nachgiebigkeit und „typisch maskuliner“ Durchsetzungsfähigkeit anlehnen und entsprechende Verhaltenstendenzen sollten sich automatisch im aktuell ablaufenden Sozialverhalten abzeichnen.

In vier Experimenten wurden diese Vorhersagen untersucht. Es wurden Bilder (Studie 1) sowie Wortmaterial (Studie 2, 3 und 4) benutzt, um das Konzept Sexualität zu primen. Es konnte gezeigt werden, dass dies die Selbstwahrnehmung verändert wie auch soziales Verhalten beeinflusst, ohne dass sich die Versuchspersonen darüber bewusst waren. Sex-Priming führte zu einer stärker geschlechterstereotypen Selbstwahrnehmung und entsprechend zu einer stärkeren Identifikation mit der geschlechtsbezogenen Eigengruppe. Im Verhalten führte Sex-Priming bei Männern zu einer stärkeren sozialen Dominanz im Auftreten, bei Frauen hingegen zu größerer Nachgiebigkeit. Gefahren der aktuellen medialen geschlechterstereotypen Darstellung von Sexualität für das Selbstkonzept und die Interaktion zwischen Frauen und Männern werden diskutiert.

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In Wirklichkeit aber ist kein Ich, auch nicht das naivste, eine Einheit, sondern eine höchst vielfältige Welt, ein kleiner Sternenhimmel, ein Chaos von Formen, Stufen und Zuständen, von Erbschaften und Möglichkeiten.

Hermann Hesse, Der Steppenwolf

INTRODUCTION: SEXUALITY AS AN IMPORTANT MOTIVATOR IN HUMAN EVERYDAY BEHAVIOR

Sigmund Freud (e.g., 1905, 1938) was the first scholar who “dared” to study sexuality, which hitherto had been avoided as a research topic mainly because of the Victorian taboo on this aspect of human life (Havelock, 1910). Freud studied the associations and dreams of his patients (1899) as a way of examining how the human psyche is influenced and shaped by sexuality. Using this method, he arrived at the conclusion that sexuality contributes to the life drive (libido), which “subconsciously” motivates and energizes large parts of a person’s social behavior (cf. *Three Essays on the Theory of Sexuality*, 1905). People were described as typically unaware of what drives their behavior (1901/1965). Most of Freud’s specific theories and especially his methodology have fallen out of favor in modern experimental psychology. The psychological mechanisms Freud proposed to explain behavioral phenomena remained mechanistic metaphors (e.g. libido or aggressive urges were compared to energy that accumulates in a steam boiler). Thus, it remained for future experimental research to shed light on the cognitive and emotional underpinnings of the “energy” of sexuality. Freud’s idea that the mind also contains hidden, irrational elements that lie outside of conscious control, drive behavior, and motivate conscious activities, has actually been proven valid by decades of revolutionary research that has converged in how psychologists now view the unconscious (cf. *The new unconscious*, Hassin, Uleman, & Bargh, 2005). It has turned out to be true that a great deal of our mental lives occurs behind the curtain of consciousness.

A few decades after Freud’s first extensive theorizing on how sexuality influences human behavior, Alfred Kinsey and his associates (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Marting, & Gebhard, 1953) conducted a comprehensive survey of sexual practices, interviewing more than 20 000 Americans. Kinsey and colleagues documented mean rates of various forms of sexual behavior. With this exploration of population norms, he

founded the academic study of sexuality. This pioneering work was a major breakthrough that led to a virtual explosion of studies on the topic. Apart from demonstrating the variability among sexual practices, Kinsey et al. (1953) also documented gender differences. For example, according to their data women and men differ on sexual arousal in response to visual stimuli. Although Kinsey and his associates produced an enormous amount of behavioral data, the psychological mechanisms remained untouched. More recently, psychologists have started to tackle the field of sexuality with experimental research methods. One can see the founding of the Society for the Scientific Study of Sexuality in 1957 (www.sexscience.org) as a further milestone in the development of an interdisciplinary empirical approach to understanding sexuality.

Only recently have psychologists started to explore the cognitive and emotional phenomena revolving around sexuality. In 1943, Abraham Maslow still categorized sexuality as one of the primitive bodily needs along with eating, drinking, breathing, sleeping, and excreting. In this way, he categorized sexuality in the group of the so-called deficit motives, i.e. motives that return after their satisfaction because they are driven by physiological mechanisms directed at homeostasis. Nowadays researchers are more interested in how sexuality is represented on an experiential level and which cognitive mechanisms might contribute to generate sexuality effects on social behavior: How is sexuality represented cognitively, i.e. what concepts and attitudes are associated with it and how do individuals differ in that respect? (e.g., Byrne, 1983; Fisher, White, Byrne, & Kelley, 1988; Mosher, 1966); How is sexuality and gender integrated into a person's self-concept? (e.g., Andersen & Cyranowski, 1994); Which associations does a reminder of sexuality trigger? (e.g., Mussweiler & Förster, 2000; Sanchez, Kiefer, & Ybarra, 2006); to name just a few questions of recent interest. Despite these changes in focus within the academic study of psychology, there seems to be a stable consensus about the great importance of sexuality in human life. Sexuality and related concepts like intimacy, love and procreation often mark the transitions between two developmental phases like childhood and puberty or puberty and adulthood (Erikson, 1966). From this perspective, sexuality is connected to important developmental milestones. For example, in adolescence, developing a sense of oneself as a sexual being is an important task (Adelson, 1980; Arnett, 2000; Collins & Sroufe, 1999). The experience of sexual intercourse is considered a major life transition and people recall it throughout their lives (Harvey, Flanary, & Morgan, 1986). Later sexual experiences and relationships may be influenced by one's first sexual experience (e.g., Cate, Long, Anger, & Draper, 1993).

Healthy sexuality is an important component of both physical and mental wellbeing, because it can foster intimacy, bonding, and shared pleasure (Satcher, 2001). In sum, clinical, developmental, health and social psychologists are all involved in studying how sexuality is experienced and understood by women and men.

From the perspective of social psychology, one important aspect of the experience of sexuality is sexual *cognition*, i.e. the knowledge structures (sexual roles, scripts, norms, gender role attitudes, sexual self-concept) people have and apply in their sexual lives, which can be seen as a special part of people's social lives. Sexual fantasies, for example, are an important part of human sexuality, because how people think about sex can enhance or inhibit their sexual responsiveness. It has been suggested that sexual fantasies may provide a unique insight into the different sexual scripts for women and men (cf. Leitenberg & Henning, 1995, for a review on sexual fantasizing). In the study of sexual crimes (sexual harassment and rape) cognitive variables like gender role attitudes, beliefs in rape myths, self-view, gender stereotypes and automatic associations are increasingly studied (cf. Driescher & Lange, 1999 for a review about cognitive factors in the etiology of rape).

Like these approaches, the present work aims to study how cognition and sexuality are intertwined. Based on a review of the differences between women's and men's mental representations of sexuality, I generate and test hypotheses concerning the effect of activating the concept of sexuality on a person's self-perception and social behavior. What happens, for example, upon seeing a poster advertisement for perfume, which displays a masculine, self-secure man embracing a stereotypically feminine woman who reacts to the embrace by closing her eyes, both topless and clearly about to engage in a sexual interaction? Does this sex reminder affect how we perceive ourselves, as a woman, or man, respectively? What does it bring to mind about our personality? Does a sex reminder change how we act in a subsequent mixed-sex interaction situation?

The present work will shed light on the automatic activation of self-knowledge in response to stimuli that prime sexuality, and on how social behavior is affected by these stimuli.

THEORETICAL PART

Prescriptive gender stereotypes in the sexual roles

Gender stereotypes as pervasive element of a person's socialization

Gender plays a central role in the socialization process. From infancy onward, females and males are encouraged to pursue different activities and patterns of social behavior (Huston, 1983). Cross-sex behavior in girls and boys (“tomboys and sissies”) is judged negatively, especially for boys, who are rated as less likely to be well adjusted in the future than children without cross sex-behaviors (Martin, 1990). Consequently, theories of the socialization process make prominent reference to gender, whether it be in terms of identification with the parent of the same sex, reinforcement for gender-appropriate behavior, punishment for gender-inappropriate behavior, or socialization toward being consistent with one’s gender role (Huston, 1983). In adult life, gender roles provide behavioral norms for all sorts of situations from the professional to the interpersonal (Rudman & Glick, 1999, 2001; Wood, Christensen, Hebl, & Rothgerber, 1997). Research has shown that women are expected to be communal and cater to the needs of others (Diekmann & Eagly, 2000; Eagly & Mladinic, 1989; Rudman & Glick, 2001), whereas men are expected to be agentic and independent (Rudman, 1998; Rudman & Glick, 1999, 2001; Wood, Christensen, Hebl, & Rothgerber, 1997), and that sometimes counter-stereotypic behavior can even be punished. In the workplace, women who do not defer to others but express agency are seen as insufficiently nice, the so-called “backlash effect” (Rudman, 1998; Rudman & Glick, 2001). These behavioral norms are based on stereotypic beliefs that typically men are dominant, competitive, and self-assertive whereas women are caring, concerned with others, and emotionally expressive. Bakan (1966) coined the terms “agency” and “communion” (also called instrumentality and expressiveness (Parsons & Bales, 1955) or masculinity and femininity (Bem, 1974; Deaux & Lewis, 1984) to denote these different behavioral styles as two basic orientations toward interpersonal behavior—a self-orientation and an other-orientation. Agency reflects a concern for the self. It is associated with separating the self from others and with instrumental, traditionally masculine traits such as self-assertion, self-enhancement, and self-protection. An emphasis on a task orientation also means that in the case of conflict, personal goals and desires are put before group harmony. The agentic dimension represents a tendency towards assertive,

dominant, and controlling behavior and it is universally believed that men manifest this tendency more strongly than women (Deaux & Lewis, 1984; Williams and Best, 1982, 1990a). Communion, on the other hand, reflects a concern for others. It is associated with forming connections with others and with interpersonal, traditionally feminine traits such as cooperation, providing for others, and facilitating group harmony. Prioritizing group harmony also means that in the case of conflict, personal goals and desires are put aside. The communal dimension represents a concern with the welfare of other people, and it is believed that women manifest this concern more strongly than men (Deaux & Lewis, 1984; Williams and Best, 1982, 1990a). Previous research has shown that the majority of the beliefs people hold about the difference between women and men can be boiled down to these two dimensions. Hence, they have been used extensively as central themes in the psychology of gender (Conway, Pizzamiglio, & Mount, 1996; Deaux, 1985; Eagly, 1987; Glick & Fiske, 2001; Helgeson, 1994; Moskowitz, Suh, & Desaulniers, 1994; Sidanius, Pratto, & Bobo, 1994; Wood, Christensen, Hebl, & Rothgerber, 1997). We typically stereotype others according to these notions (e.g. Deaux & Lewis, 1984; see Williams and Best (1982, 1990a for a cross-cultural study), but they are also relevant in self-perception (Gern, 1992; Sieverding & Alfermann, 1992; Williams & Best, 1990b). It has consistently been shown that on average females perceive and describe themselves as having more communal, interdependence-related attributes (e.g., gentle, cheerful, sociable) whereas males perceive and describe themselves as having more agentic, independence-related attributes (e.g., competitive, takes a stand, self-sufficient) (e.g., Bem, 1981; Feingold, 1994; Lippa, 1995; Spence, 1993; Swan & Wyer, 1997). These average gender differences in self-perception also manifest themselves in actual behavior differences between women and men. On average, women are more socially oriented and friendlier than men, whereas men are more dominant, controlling, and independent (Eagly, 1994; Eagly & Wood, 1991; Swim, 1994). Communion and agency have been the core concepts within the study of gender stereotypes for decades (Deaux & Lewis, 1984). They are relatively stable over time (Bergen & Williams, 1991; Street, Kimmel & Kromrey, 1995; Werner & LaRussa, 1985) and across different cultures (Williams & Best, 1982, 1990a). Even preschoolers ascribe these stereotypic attributes to women and men (Lutz & Ruble, 1995; Trautner, Helbing, Sahm & Lohaus, 1988). This explains why these two dimensions form the core of virtually every measure of gender typicality (e.g., Personal Attributes Questionnaire [PAQ], Spence, Helmreich, & Stapp, 1974; Bem Sex-Role Inventory [BSRI], Bem, 1974).

These gender stereotypes contain prescriptive elements that represent possible standards to which people adjust their own behavior. Especially among persons for whom gender role norms are highly relevant, norm-congruent experiences (i.e. those involving dominance for men and communion for women) can lead to rewarding experiences, e.g. in the form of positive feelings (Wood et al., 1997), which further strengthen the incorporation of attributes relevant for the respective gender role into the self-concept. Research has shown, for example, that men receive a self-esteem boost when they fulfill the traditional gender role in the realm of sexuality by managing to steer a new female partner into sexual activity (Baumeister & Tice, 2001).

Gender stereotypes in sexuality

As the last example suggests, prescriptive gender stereotypes extend to intimate relationships and sexual behavior. In sexual situations, women and men feel especially compelled to enact their respective gender role (Coward, 1985; Rohlinger, 2002). Cultural standards prescribe different sexual roles for women and men, and supply them with different (hetero)sexual¹¹ scripts regarding sexual experience and expression. Sexual script theory contends that in order to participate in sexual events, the “actors” must have an understanding of how to behave sexually. Culturally-shared scripts enable the “actors” to act appropriately (Gagnon, 1990). These scripts have been compared to lines in a play where people take on the role of actors who perform scripted behaviors, in this case sexual acts (McCormick, 1987).

Sexual scripts are conceptualized as cognitive representations of prototypical sequences of events in sexual interactions (Abelson, 1981, Metts & Spitzberg, 1996; Simon & Gagnon, 1986), which have been shown to be embedded in cultural norms about sexuality and to reflect consensually-shared gender stereotypes and gender-typed behavioral expectations (Rosenthal & Smith, 1997; Wiederman, 2005). There is evidence that sexual scripts shape

¹ At this point it should already be made clear that the present work focuses on heterosexuals. In the absence of gender-based norms, lesbians and gay men must negotiate their sexual roles differently with their partners (e.g. Klinkenberg & Rose, 1994). Although the dating and sexual scripts for gay men and lesbians resemble traditional heterosexual sexual scripts in many aspects, there is no role differentiation into a gatekeeper versus initiator role like in the traditional heterosexual scripts (Klinkenberg & Rose, 1994). For example, lesbians report levels of sexual initiation behaviors similar to gay men (Beres, Herold, & Maitland, 2004). Therefore, the norms of male sexual agency and female sexual submission are expected to be most pronounced within a heterosexual context. Additionally, research has shown that gender differences in agency and communion are more pronounced for heterosexuals than for homosexuals (Kurdek, 1987). Further, homosexual women are more agentic than heterosexual women, while homosexual and heterosexual men are equivalent in this regard. Conversely, homosexual men are more communal than heterosexual men, while homosexual and heterosexual women are equivalent. This means that not only may homosexuality imply different sexual roles, but in general lesbians’ or gay men’s attitudes towards gender roles and their self-concept as a woman or man, seem to differ from those of heterosexuals (cf. also Skidmore, Linsenmeier, & Bailey, 2006).

actual sexual behavior to a high degree (Krahé 2000, 2001) and that individuals rely on them especially when engaging in sexual activity with a new partner (Littleton & Axsom, 2003). The traditional script of heterosexual sexual behavior prescribes a role differentiation between the two partners in that the man should initiate sexual behavior (the initiator role), whereas the woman should not (the “gatekeeper” role) (Edgar & Fitzpatrick, 1993; McCormick, 1987; Wheelless & Parsons, 1994).

The male and female scripts imply that women are expected to be submissive and communal sexual partners, whereas men are expected to be dominant and assertive sexual partners (Bernard, 1966; Blumstein & Schwarz, 1983; Gagnon & Simon, 1973; Lips, 1981; Sprecher & McKinney, 1993; Tevlin & Leiblum, 1983).² Especially at the outset of their sexual lives, people tend to succumb to the implications of the passive-submissive female versus agentic-dominant male sexual script. Consistent with the importance of these culturally-shared scripts as a launching pad for the development of individual sexual scripts and early sexual performances are studies on adolescents’ sexual scripts. Krahé, Bieneck, & Scheinberger-Olwig (2004) interviewed 400 tenth and eleventh graders from Berlin about their general and personal sexual scripts (asking them how they think that typical sexual encounters evolve). The adolescents voiced sexual scripts that borrowed from traditional gender roles, with the boy assuming the active role and the girl the more passive, hesitating counterpart. This can be interpreted as an orientation along the guidelines of the gender-based sexual script. Consistent with these findings, many adolescent girls report assuming a submissive role during their first sexual experiences (Martin, 1996).

Theorists have argued that in Western culture there are long-standing traditions which result in heterosexual women being socialized to take on a submissive and passive role during sexual activity, to act as the “gatekeepers” of sex (Gagnon & Simon, 1973; Schwarz & Rutter, 2000; Tevlin & Leiblum, 1983). Men, in contrast, are socialized to take on a more agentic and dominant role than women, to act as the “teachers and experts” on sex (Blumstein & Schwarz,

² It must again be stressed that not every woman or man shares these different behaviors and sexual cognitions (scripts, fantasies). Rather, they are likely to vary between the individuals of one sex as well. For instance, a woman with an androgynous self-concept and egalitarian gender role attitudes is probably more likely to construe her sexual self as more agentic and active than a woman who has a feminine self-concept and traditional gender role attitudes. Moreover, the described sex-specific experiences and behavioral tendencies are likely to be limited to heterosexual women and men. The available data do suggest, however, that at least for heterosexuals sexual thoughts and behaviors differ on average along the line of gender stereotypes regarding agency versus communion. At this point, it is important to emphasize that the individual sexual scripts of women and men may deviate from the culturally shared scripts of submission and agency (Krahé, Bieneck, & Scheinberger-Olwig, 2004). In the present work, I am interested in understanding how the presumed general sexual scripts might influence an individual’s self-perception and social behavior. The general script is culturally shared and passed on via the mass media (educational books, magazines), one’s peers, and the social institutions of a given culture.

1983; Lips, 1981; Schwartz & Rutter, 2000; Sprecher & McKinney, 1993). The well-known standard is that men should typically pursue women and indeed, men are more likely to initiate sexual activity, especially in casual relationships (O'Sullivan & Byers, 1992). The sexual script for males includes agentic as well as aggressive elements: Sometimes the agentic pursuit of women's consent can take on instrumentally aggressive tendencies, when the male partner exerts his influence, while ignoring the female partner's potentially different needs. Thus, instrumentally aggressive behavior in sexuality can be seen as a callous and extreme form of agentic sexual behavior.

The female sexual role typically implies setting a barrier that each male must overcome. This fits well with the competitive and achievement-oriented aspects of masculine gender roles (Wiederman, 2005). To the extent that women's sexual scripts block men from attaining sexual activity, men will be motivated to value such sexual activity even more, and to go to greater lengths to achieve their goals rather than "giving in" to women's decisions (Eyre, Read, & Millstein, 1997). The woman's initial rejection of a man's sexual advances can be interpreted as another part of traditional sexual roles that seems to have particularly problematic consequences, because it involves unclear, ambivalent messages. Many men try to overcome what they perceive as "token resistance": "She is saying no but she means yes..." (Krahé, Scheinberger-Olwig, & Kolpin, 2000). Wiederman (2005, pp. 497-502) describes how women are more likely than their male partners to construct the meaning of their sexual activity within the context of an ongoing relationship, thus running a greater risk of hurt feelings should a partner follow the traditional male script, in which male sexual activity is goal-oriented and motivated by bodily pleasure for its own sake: "Note that the female sexual role frees males to adopt and maintain a relatively unrestrained approach to sexuality in relationships. It is the female's role to limit sex so the male is free to focus on outwitting her defences to the extent necessary to achieve sexual activity. Masculinity calls for being proactive and able to outdo one's opponent. In many cases, male-female differences in sexual roles set up a dynamic of polar extremes; the more he pushes for sex, the more defensive she has to be, and vice-versa."

In sum, sexuality is a domain of our social lives in which prescriptive gender stereotypes thrive. The differences in the female and the male sexual roles reflect the more general prescriptive gender stereotypes of women as more communal and men as more agentic. The prescribed submissiveness of the female sexual role mirrors the stereotypic view of women as communal and nurturant: Their sexual behavior is supposed to be more reactive

than proactive, thus centering on the male's initiatives, being sexually responsive to his behavioral performance, and avoiding sexual eagerness, which may cast doubts on her femininity (Eyre, Read, & Millstein, 1997). Remember that the female sexual role includes "gate keeping", before finally yielding to the male partner's urges. The agency and dominance in the male sexual role mirrors the stereotypic view of men as more active, energetic, forceful, and task-oriented.

Perhaps not surprisingly, then, women and men differ remarkably with respect to their sexual behavior (e.g. Buss & Schmitt, 1993; Oliver & Hyde, 1993). Many of these differences reflect the gender-based sexual roles that prescribe different behaviors for women and men. That is, men are often more assertive in sexual situations (Koss, Gidycz, & Wisniewski, 1987) and are more likely than women to behave in aggressive ways in sexual situations (Zillmann, 1984). Women are less dominant and more submissive toward their partner in sexual situations, and 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). Current knowledge of heterosexual sexual relationships suggests that as early as their first sexual experience, women enact more submissive and fewer agentic behaviors than their male partners. For example, many adolescent girls report assuming a submissive role during their first sexual experiences (Martin, 1996). Initiating sexual activity is more common among men. When university students were asked to record all of their sexual interactions for 1-2 weeks, men reported initiating sexual activity more often than women (Martin, 1996). Research has shown that in general women are more sexually compliant than men (Impett & Peplau, 2003). Sexual compliance is shown when a person consents to engaging in sex when they are not interested in having sex. A recent survey found that many adult women consent to unwanted sexual activities, as 50% reported this type of sexual compliance (O'Sullivan & Allgeier, 1998). Women also pretend to reach orgasm more often than do men (Butler, 1976; Hite, 1976), thus forfeiting their own sexual well-being for the sake of their partner's self-esteem, and prioritizing the relationship before their own sexual needs (Darling & Davidson, 1986; Ottenheimer, Rosenbaum, Seidenburg, & Chernick, 1971). In light of this evidence, one can say that on average the gender stereotype of female communion is reflected in more indulgent, partner-centered sexual behavior. The stereotypic care and concern for others, the cooperative approach and the prioritization of group harmony, when applied to sexual interactions, corresponds to a concern for the male partner's satisfaction and the prioritization

of relationship harmony over personal satisfaction. The gender stereotype of male agency, on the other hand, expresses itself in more agentic, sometimes even aggressive sexual behavior.

Various theories propose that sexual attitudes and behavior are mediated by a person's socialization experiences with sexuality. These experiences are influenced by gender role scripts regarding sexuality and the social construction of sexuality in our society (Murnen & Stockton, 1997). Below I will briefly discuss how the social construction of sexuality and the individual cognitive representation of sexuality are intertwined and mutually influence one another.

In sum, if a woman identifies with the prescriptive gender stereotype of women's submissive sexuality, for her it is more important to please than to have a pleasurable experience. Conversely, for a man who identifies with the prescriptive gender stereotype on men's dominant sexuality, it is more important to have a pleasurable experience than to please. Although individual sexual scripts may deviate from this pattern, these stereotypic sexual roles represent a form of well-ingrained, culturally-shared knowledge. Messages about women's passive-submissive and men's agentic-dominant sexuality are communicated from multiple sources. They manifest themselves in the sexual imagery that pervades the media and in people's semantic associations to sex.

Sexuality in culturally shared imagery

How do gender stereotypes influence sexuality? One key to answering this intriguing question is to look at a culture's sexual imagery as portrayed in entertainment and commercial media. The various forms of sexual media pose an important source of information about sexuality, especially for young people, who are developing their sexual lives and identities. According to a Time/CNN poll (Stodghill, 1998), 29% of U.S. teens cite television as their principal source of information about sex (compared to only 3% who cite sex education as their principal source). Systematic research supports the common perception that sexual images and messages are increasing in frequency. For example, on television verbal and visual references to sexual activity are numerous (Lowry & Shidler, 1993; Lowry & Towles, 1989; Ward, 1995) and have increased dramatically over time (Kunkel, Eyal, Biely, Cope-Farrar, & Donnerstein, 2003; Kunkel, Eyal, Finnerty, Biely, & Donnerstein, 2005). The media depict women as sexually submissive, thus perpetuating their gender-based sexual role. Magazines, television shows, and movies commonly display female sexual submission to men and male sexual dominance over women (Dworkin, 1987; Jeffreys, 1990; Jhally, 1995; Kilbourne,

2000a, 2000b; Kitzinger, 1984; MacKinnon, 1987). Magazines for adolescent girls promote sexual submissiveness as a way to please male partners (Kilbourne, 2000a, 2000b; Kim & Ward, 2004).

As women are “bombarded” with images of women’s sexual submission and subservience to male partners they might come to internalize this role by associating sex implicitly with submission. The same holds for men: When they are repeatedly exposed to images of men’s sexual dominance, they might internalize this role by associating sex implicitly with dominance. In Ward’s (2003) recent review on the media’s role in the sexual socialization of young people (adolescents and young adults), she shows that regular and involved viewing of genres with a strong sexual accent, e.g. music videos, correlates with an acceptance of gender stereotypes in sexuality. Having people watch television clips where gender-stereotyped sexuality is displayed changes their attitudes toward the sexual roles of women and men to more stereotypic ones, i.e. they agree more with statements like “in sexuality, men are the driving part, women are subject to men” (Ward, 2002). In a similar vein, Frable, Johnson and Kellman (1997) found that exposing male adolescents for 20 minutes to music videos with gender-based sexuality led to a stronger stereotypic perception of how women were different from men. This shows that medial messages can affect the perception of the “other” sex. Similarly, one could hypothesize that self-perception might also be influenced by gender stereotypes.

Being repeatedly exposed to media eroticizing female sexual submission and male dominance might also explain the prevalence of submission fantasies among women (Arndt, Foehl, & Good, 1985; Corne, Briere, & Esses, 1992; Crepault, Abraham, Porto, & Couture, 1976; Davidson & Hoffman, 1986; Fisher, S., 1973; Hariton & Singer, 1974; Kanin, 1982; Knafo & Jaffe, 1984; Pelletier & Herold, 1988; Talbot, Beech, & Vaughn, 1980) and dominance fantasies among men (Arndt et al., 1985; Hunt, 1974; Miller & Simon, 1980; Person et al., 1989; Sue, 1979; Zurbriggen & Yost, 2004). Common sexual fantasies may also reflect the prevailing sexual imagery and shared cultural experiences in a given society (Miller & Simon, 1980; Rokach, 1990). For example, Mednick (1977) found that when women were asked to describe their most common sexual fantasy in the previous three months, they were more likely than men to imagine themselves as the recipients or the objects of sexual activity rather than the providers or performers. The opposite was true for the men. These gender differences in fantasy content are consistent with the gender stereotypes and the different sexual scripts taught to women and men (Gagnon & Simon, 1973). According to

feminist writers, pornography in particular reinforces the stereotype of women as (sexually) submissive and men as (sexually) dominant, and condones power inequalities between women and men (e.g. Vance, 1984, pp. 12-13). Consistent with this hypothesis, an analysis of x-rated videos found that dominance of men over women and exploitation of women were primary themes in over half of the sex scenes portrayed (Cowan, Lee, Levy, & Snyder, 1988). Exposure to pornography indeed strengthens the perception of gender differences (Frable, Johnson, & Kellman, 1997).

Sexuality in individual cognition: Women's and men's semantic associations to sex

The sexual images that pervade the media, gender differences in sexual fantasies, scripts and actual sexual behavior are all consistent with gender-typed sexual roles. Women are socialized into being submissive and indulgent, thus expressing their stereotypic concern for communion, whereas men are socialized into being active and assertive, thus expressing their stereotypic agency.

If these differences are ingrained into the individual's representation of sexuality, they should be reflected in (implicit) semantic associations to sexuality as well. In the following section, I will describe how women and men indeed automatically associate different concepts with the concept of sexuality. Unlike other general concepts like group stereotypes (e.g. the elderly, Turkish people, etc.), on average women's and men's representation of sexuality differ. Women have been shown to associate sexuality with submission (Kiefer, Sanchez, Kalinka, & Ybarra, 2006; Sanchez, Kiefer, & Ybarra, 2006). In a lexical decision task, sex-related primes (sex, naked, climax, oral, bed, and caress) facilitated responses to submissive target words (comply, submit, slave, yield, concede, and weaken), but only among female participants (Sanchez et al., 2006). This gender difference is consistent with a gender role perspective. Attributes connected to the female gender stereotypic sexual role of submission are connected to the concept of sex for females, but not for males. This seminal study is impressive in that it demonstrates a semantic association between sexuality and submission for women, but it still lacks an experimental demonstration of potential behavioral effects of sex-priming on women.

On the other hand, for men sexuality is associated with assertive and sometimes also with aggressive behaviors. Mussweiler and Förster (2000) demonstrated that sex-priming facilitates aggressive behavior only for men. So far, this has been explained by greater contiguous activation (Hebb, 1948) of sexuality and aggressive acts for men, either in their

own or in vicarious experience. The authors emphasize statistical differences in the frequency with which men vs. women become perpetrators or victims of sexual aggression. The link between sex and aggressive behavior for males can again alternatively be interpreted as activation and automatic behavior along the lines of the masculine gender stereotype of dominance and assertiveness.

Recently there is some new evidence which seems to contradict to the sex→aggression link. In particular, research has shown that sex-priming can lead to an automatic sex-dominance inhibition in men (Kiefer & Sanchez, 2007), which the authors explain as a reaction to the conflicting messages men receive about their sexual roles in heterosexual relationships: On the one hand they are socialized to initiate and direct sexual activities with women (Grauerholz & Serpe, 1985; Sprecher & McKinney, 1993), but on the other hand societal norms and politics ban sexual domination and coercion (Dank & Refinetti, 2000). This finding is not incompatible with gender-based differences between men's and women's sexual roles. In some circumstances the sex→aggression link may outweigh the sex-dominance inhibition link. This might also depend on how much a given culture stigmatizes sexual harassment and how the threshold for sexual harassment is defined³. A great amount of public attention to these phenomena (like in the U.S.) might lead to habitualization of the application of norms against a coercive sexuality. Mussweiler and Förster's (2000) experiments were conducted in Germany, whereas Kiefer and Sanchez' (2007) were conducted in the U.S. This might help to explain these seemingly contradictory findings.

Consistent with this hypothesis regarding a potential cultural difference, I asked German university students to rate how much certain concepts were related to each other on a 9-point scale from their subjective experience, and found that male participants reported seeing a stronger association ($M = 5.66$, $SD = 1.80$) between sex and dominance than did female participants ($M = 4.64$, $SD = 1.87$), $t(190) = 2.93$, $p < .005$.

For men who score high in the likelihood to sexually harass, an automatic link between the concepts of power and sex has been demonstrated (Bargh, Raymond, Pryor, & Strack, 1995). In this research, power priming also led to higher sexual attractiveness ratings for a female target in a subordinate position. When combined with the findings regarding a potential sex-dominance inhibition (Kiefer, Sanchez, 2007), one can conclude that men's sex

³ For the U.S. definition see *Guidelines on Discrimination because of Sex* (1980), by the U.S. Equal Employment Opportunity Commission.

associations are more varied but center around the concept of dominance, with some men inhibiting this connection, and others activating it with ease and without awareness.

In sum, the sexuality concept is embedded in a gender-based framework of socially relevant concepts, and includes submission and communion for women, and agency and dominance for men. Gender stereotypes underlying the different sexual roles can unite these fragmented findings under a common umbrella. With the present work, I explore how the activation of the sexuality concept (*sex-priming*) influences how people view themselves and how they behave in a social context.

Sex-priming and self-perception

Might sex-priming alter how persons perceive themselves, and, if so, on which attributes should we expect potential sex-priming effects?

There is systematic variance within a person's self-perception and – consequently – self-description. For example, when people self-report on personality attributes, their self-representation varies with context (e.g., McGuire & McGuire, 1988). Recent theorizing and research on the structure of the self (e.g., Hannover, 1997a; McGuire & Padawer-Singer, 1976; Wheeler, DeMarree, Petty, 2007) documents the malleability of self-perception and how it responds dynamically to activated concepts. In different models of the self, principles of knowledge activation and schematic processing (for reviews see Bargh, 1997 and Smith, 1998) have been applied to the self as an associative knowledge structure. The self-knowledge represented in long-term memory that is stable represents the so-called “chronic self” (Kihlstrom & Cantor, 1984). Most models of the self share the notion that the chronic self-concept consists of declarative and episodic memories linked to a self node (Linville & Carlston, 1994; Markus & Wurf, 1987). For example, one can expect one's own gender and related gender-typed traits to be part of that knowledge, because our social identity as a woman or man is quite pervasive and present from birth. The contents of our “chronic” self enable us to hold a relatively stable self-perception (e.g., Markus & Kunda, 1986). Chronic self-content is vast and multifaceted (Markus & Kunda, 1986; Markus & Wurf, 1987) and can contain diverse and potentially contradictory elements, e.g. including masculine and feminine self-characteristics, episodic memories, behaviors, aspirations, and so on (e.g., Greenwald & Pratkanis, 1984; Kihlstrom & Cantor, 1984; Markus & Wurf, 1987). For example, individuals can have self-information supporting the notion that they are self-oriented and dominant, and information supporting the notion that they are other-oriented and indulgent. Likewise,

individuals may have episodic memories of both dominant and indulgent behaviors. An important assumption drawn from the associative memory network model is that the pieces of self-content within a certain self-construct (e.g., the attributes from the communal personality dimension) are assumed to be more strongly associated than constructs are among each other (e.g., agency and communion). Therefore, activation of a certain construct spreads mainly to the self-content within that construct, and only spreads across constructs if they are interconnected. For this reason, it is impossible for individuals to have the entire chronic self-concept and associated information activated simultaneously in self-representation at any given moment (e.g., Andersen & Chen, 2002; Linville & Carlston, 1994; Markus & Kunda, 1986; Niedenthal & Beike, 1997). Rather, the active self-concept contains only a small subset of all available self content, including content rendered accessible by the situation and the chronically accessible self content. These selective accessibility processes can account for the context dependency of self-reported personality attributes (e.g., McGuire & McGuire, 1988). In such self-reports, people often base their assessments on the configuration of temporarily-activated chronic self-content (e.g., Cantor, Markus, Niedenthal, & Nurius, 1986; Higgins, 1990; Markus & Nurius 1986; Markus & Wurf, 1987; Rhodewalt, 1986; Rhodewalt & Agustsdottir 1986; Schlenker 1985; Wheeler, DeMarree, & Petty; 2005, 2007). Therefore, what is actually changing in response to situational factors is a person's "working", or active self, i.e. the subset(s) of self-content temporarily rendered accessible by the context or by priming stimuli in an experimental setting. Situational factors determine which category becomes dominant in self-perception in any given moment (for a review, see Bodenhausen & Macrae, 1998).

A gender-typed self-perception centers on one's gender and gender-typed attributes that are associated with it. Literature has shown that the degree of gender-typed self-perception depends on various situational factors. In the next section, I will describe the four most important factors and then go on to suggest that sex-priming might affect self-perception in a gender-typed way.

First, the degree of gender-typed self-perception depends on the *salience* of one's own gender in any given situation. Being in the minority-sex group in class, for example, leads a higher percentage of students (26%) to spontaneously mention their gender category when describing themselves in comparison to students from the majority-sex group (11%) (Cota & Dion, 1986).

Second, fulfilling a *sex-typed task*, i.e., one that is considered more appropriate for, or more typical of, one gender than the other, can also activate gender-related self-knowledge. Mental representations of oneself fulfilling a gender-related task like repairing a car are associated with consistent gender-typed self-knowledge about one's instrumental, task-oriented attributes and previous experiences (Markus, Crane, Bernstein, & Siladi, 1982; Markus & Wurf, 1987). In an experimental demonstration of this mechanism, Hannover (1997b) found that after fulfilling typically masculine or typically feminine activities, participants' self-ascription of agentic versus communal traits changed accordingly. In her study, both girls and boys had to change a doll's diaper (the feminine activity) or to pound large nails into a piece of wood (masculine activity) or to fulfill an activity that was not gender-related. In a second, ostensibly unrelated study, both boys and girls in the feminine activity group endorsed more "expressive" traits and fewer instrumental traits as being self-descriptive, as compared to the control group. They also processed expressive traits faster and instrumental traits slower than did control subjects. For the masculine activity group the exact opposite was true. Participants in the masculine activity group endorsed more instrumental traits and fewer expressive traits as being self-descriptive when compared to the control group. They also processed instrumental traits faster and expressive traits slower than did control subjects. These findings bolster the assumption that gender-congruent tasks, situations, and behaviors serve as a source of contextual activation for gender-congruent self-knowledge. At the same time, they show that for both female and male participants, gender-incongruent self-knowledge was available to be incorporated into the working self concept. Similarly, women primed with the female stereotype exhibit a shift towards more gender-typed attitudes (i.e., preferences for the arts over mathematics; Steele & Ambady, 2006).

Third, *emphasizing gender differences* in how women and men typically fulfill a single task has been shown (Hogg & Turner, 1987) to lead to stronger gender-related self-stereotyping. In Hogg's and Turner's experiment participants were assigned to discussion groups which were either mixed- or single sex. Additionally, participants in the mixed-sex group were led to believe that the study was about well-documented gender differences in discussion style. This was expected to provide an additional activating source of gender-congruent self-knowledge. Following the discussion session participants had to describe themselves on rating items from the Bem Sex Role Inventory (BSRI; Bem, 1974) which had previously been rated by the same participants on how typical these were for males or females. Self-stereotyping was calculated as the difference between participants' pretest

ratings and their self-ascription of these adjectives. As expected, in the condition where gender differences had been emphasized, both females and males displayed stronger gender-relevant self-stereotyping. A similar effect is found in stereotype threat paradigms which feature women in mathematics, where leading participants to believe that test results typically differ between the sexes leads women to perform more poorly than men (Spencer, Steele, & Quinn, 1999). In conditions where the test had been described as being unrelated to gender, however, no gender differences in performance appeared.

In addition to contextual salience, sex-typed activities, and the emphasis on gender differences, a fourth situational influence described by Deaux and LaFrance (1998) is the amount of *gender-typed self-knowledge* about the task at hand. Coherent self-representations regarding gender-typical attributes facilitate the effects of primes as long as the primes are consistent with available self-content and ceiling effects are not possible.

In a heterosexual situation with an intimate partner, several of the situational factors described above might push people to a more gender-based active self. In the next section, I will explain why.

First, one's own gender is automatically salient in such situations, as heterosexuality involves an interaction between a woman and a man.

Second, the female and the male sexual scripts differ. Thus, being involved in a sexual interaction implies fulfilling gender-typed tasks. Women are more inclined to engage in compliant and thus other-centered behaviors, whereas men are more likely to engage in initiative and self-centered behaviors. These are gender-typed social "moves" that are likely to activate gender-related self-knowledge (Markus, Crane, Bernstein, & Siladi, 1982; Markus & Wurf, 1987).

Third, gender stereotypes underline differences in women's and men's personality and social interaction styles: communion is said to be typical of females, whereas agency is seen as typical of males (Deaux & Lewis, 1984; Williams and Best (1982, 1990a). This extends to the realm of sexuality. Women are perceived as more reactive and indulgent in sexuality (Gagnon & Simon, 1973; Schwarz & Rutter, 2000; Tevlin & Leiblum, 1983, whereas men are perceived to be the active, agentic part sex (Blumstein & Schwarz, 1983; Lips, 1981; Schwartz & Rutter, 2000; Sprecher & McKinney, 1993). This stereotypic view of female vs. male sexuality is perpetuated by the media and can be seen as culturally shared knowledge.

As sexuality is imbued with gender-typed stereotypic knowledge, having sex is likely to activate gender-related self-knowledge in women and men.

Fourth, in sexual situations women and men feel especially compelled to enact their respective gender role (Coward, 1985; Rohlinger, 2002). Women act more often in an indulgent, other-centered way in sexuality, e.g., complying to the male partner's wishes (Martin, 1996) or faking orgasm (Butler, 1976; Hite, 1976), thus they should have accessible more self-knowledge about their own submissive sexual behaviors. Men act more often in agentic and dominant ways in sexuality, e.g. initiating sexual activities they desire (Martin, 1996), thus they should have accessible more self-knowledge about their own dominant sexual behaviors.

Fifth, another contextual factor that might contribute to the stress on a person's gender identity is the bodily aspect of sexuality. In a heterosexual situation, a woman and a man interact in a way that involves their bodies (genitals) and allows for a direct comparison of the female versus the male body. It is not by chance that in the English language the word for sexual activity and the word for the gender category a person belongs to is the same: *sex*. Sexuality is a situation where one's own gender is central for the activity at hand. People are mostly naked, which confronts them with their physical nature and makes their own gender more visible and literally tangible. Physical sensations and arousal direct attention to intimate body parts and sexual organs which are otherwise covered by clothes and which are not central to other kinds of activities. Research on social embodiment (e.g., Barsalou, Niedenthal, Barbey, & Ruppert, 2003; Glenberg, 1997; see Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005 for a recent review) indicates that our attitudes and emotions, and the way we perceive others are inextricably intertwined with our bodily states. The link between body states and social cognition seems bidirectional in nature (Barsalou et al., 2003). Social stimuli produce bodily states in the perceiver, as when seeing a picture of members of a different fraternity produced negative facial expressions in an EMG-study by Vanman and Miller (1993), or when seeing a confederate experiencing a fake injury causes participants to wince in response (Bavelas, Black, Lemery, & Mullett, 1986). Bodily stimuli or events also produce social cognitions and affect. For example, in a study by Strack and Neumann (2000), participants who were made to furrow their brows subsequently judged target people as less famous because the muscle contraction led to a feeling of mental effort, on which the fame judgment was based. Unobtrusively inducing participants to make a fist (Schubert, 2004) activated the concept of power in a Stroop task. Especially for men, making

a fist led to a more power-prone interpretation of the drawings in the Multi-Motive Grid (MMG; Sokolowski, Schmalt, Langens, & Puca, 2000).

Because of the interdependence between cognition and the body, bodily events and behavior can influence cognitive processing. Sexual activity involves one's genitals and should heighten one's awareness of them. I assume that this heightened awareness of one's female or male genitals leads to a stronger awareness of the fact that one is a woman, or a man, respectively. I base this assumption on the basic tenets of embodiment research, although this special facet of embodiment has not been studied yet. Consistent with this reasoning, research on mortality salience effects (e.g., Solomon, Greenberg, & Pyszczynski, 2004) has shown that making people think of physical sex can increase the accessibility of death-related thoughts, because thinking about sexuality renders a person's physical (and thus mortal) nature more accessible (Goldenberg, Pyszczynski, McCoy, Greenberg, & Solomon, 1999). To conclude, a person's gender is inextricably intertwined with sexual activity.

So, which changes in the active self can we expect when the concept of sexuality is primed? Based on the analysis of factors that promote a gender-based self-perception, I expect that the gender category should become more central to a person's active self. In response to reminders of sexuality, a person should feel that being a woman or man, respectively is one of her or his core attributes.

Self-categorization theory (SCT, Simon, 1999; Simon & Hamilton, 1994; Turner, 1984; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987, Turner, Oakes, Haslam, & McGarty, 1994) distinguishes between two main levels at which one can define oneself: one's personal identity (or individual self) and one's social identity (or collective self), which is defined at the group level. The momentary self-concept can change quickly as one moves from the level of personal identity to the level of the social/group identity. At the group level, "the self is defined and experienced as identical, equivalent, or similar to a social class" (Turner, Oakes, Haslam, & McGarty, 1994, p. 454). Highly identified persons are more likely to self-stereotype (Jetten, Postmes, & McAuliffe, 2002). They show more overlap in the traits they assigned to the self and the in-group (Hogg & Hains, 1996; Riketta, 2005), and are more likely to conform to group norms (Fielding & Hogg, 2000; Hogg, Turner, & Davison, 1990; Jetten, Spears, & Manstead, 1997; McAuliffe, Jetten, Hornsey, & Hogg, 2003; Schofield, Pattison, Hill, & Borland, 2003; Smith & Terry, 2003; Terry, Hogg, & McKimmie, 2000). Thus, when an environmental stimulus reminds a person of one of her or his group identities,

she or he should self-stereotype more strongly on those attributes that are connected to the group identity via the group stereotype.

Sex-priming might lead the individual to self-identify as a woman or man. In this way, the momentary self-concept should predominantly be defined by this group identity. When this internalized group membership as a woman or man is more salient, individuals should perceive themselves more strongly in terms of gender-typical attributes and less strongly in terms of the idiosyncrasies that make a person unique. I expect sex-priming to induce self-stereotyping in terms of typically feminine and masculine traits. Of the broad spectrum of feminine and masculine traits, I expect those that respond to sex-priming to be reflected in the typical sexual scripts. Communal traits should be activated for women, whereas agentic traits should be activated for men.

Corresponding effects of sex-priming on self-perception effects in the realms of identification and self-stereotyping would converge to illustrate the pervasiveness of sex-priming effects on self-perception (Henderson-King, Henderson-King, Zhermer, Posokhova, & Chiker, 1997; Jetten, Spears, & Manstead, 1998).

Sex-priming and social behavior

If sex-priming actually alter self-perception in the hypothesized ways, how might social behavior be affected by the same primes? Current research suggests that primes affect behavior in two basic ways. One is a direct link between perception and behavior (for an extensive discussion of the “ideomotor account” of prime-to-behavior effects (cf. Dijksterhuis & Bargh, 2001). Another way in which primes can affect behavior follows a more complicated route and involves the self. Accordingly, this account has been termed the active self account of prime-to-behavior effects (Wheeler & Petty, 2001; Wheeler, DeMarree and Petty, 2007). Research investigating this route emphasizes that the self guides our behaviors in many circumstances (Cross & Markus, 1990; Hull, Slone, Meteyer, & Matthews, 2002 Markus & Wurf, 1987). Individuals with highly accessible self-content are more likely to act in ways consistent with this content, and linking an action to the self increases the likelihood of that action’s occurrence (Markus & Wurf, 1987). Primes can induce changes in the active self, which then mediate many prime-to-behavior effects. From this perspective, the active self is a crucial interface, decisive for how the priming input is processed. Many findings in the priming literature are consistent with this account of priming effects on behavior. According to what kind of self-content is activated in response to a prime, the behavior may

or may not be prime-consistent. For example, it has been shown that priming participants with an elderly prime does not necessarily induce them to walk slower, as participants who dislike the elderly actually walk more quickly (Cesario, Plaks, & Higgins, 2006). This contrast effect in behavior can be explained by participants perceiving themselves as different from the disliked out-groups, thereby increasing the likelihood of contrast in the self and behavior. How strongly a prime influences subsequent behavior often depends on how much the active self has been affected by the prime. For example, Dijksterhuis and van Knippenberg (2000) showed that making chronic self-content accessible by placing participants in front of a mirror diminishes the effects of a politician prime on behavior. In absence of the mirror, the politician prime indeed led participants to write longer essays, which is consistent with the stereotype of politicians being long-winded. In a similar vein, a series of experiments by Wheeler et al. (2007) demonstrated that activation of chronic self-content increases the likelihood that consistent chronic behavioral tendencies will guide behavior, leaving less leeway for the prime content to do the same.

I will test whether sex-priming will affect the active self in the manner I outlined in the previous section. I predict that sex-priming should affect behavior that is consistent with the shifts it produces in a person's active self. If sex-priming indeed selectively activates the gender-typical attributes of communion in women and agency in men, this should affect behavior in a consistent way. Does social behavior tune into the implications of the gender stereotypic self-content? Does sex-priming lead to stereotypic feminine and masculine behavior in women and men? How can masculine and feminine behavior best be operationalized?

As has been discussed above, communion and agency are personality dimensions that describe different approaches to social interaction. Being very agentic in a certain social situation implies concentrating more on the task and less on the other persons involved or on social harmony, and might even include dominating the other person in order to reach one's goal. Being communal implies focusing less on the task, and more on group harmony with the other persons involved. This includes tuning in to a partner's feelings and needs, focusing less on oneself, and submitting if the other behaves in a dominant way. For women, their sexual role entails sexual submissiveness and general communion, for men, their sexual role entail agency and dominance. Consistent with these gender-typed sexual scripts a more general theory on complementarity in interpersonal behavior (e.g., Kiesler, 1983; Leary, 1957) describes how interpersonal behavior evolves around a control dimension, anchored by

dominance and submissiveness (Tiedens & Jimenez, 2003). Dyadic interactions can often be shown to be complementary. Dominance is typically responded to with submissiveness, and submissiveness is responded to with dominance. Empirical studies support this notion of complementarity (e.g., Dryer & Horowitz, 1997; Tiedens & Jimenez, 2003).

A reminder of sexuality (sex-priming) should affect one's active self and render it more imbued by one's gender identity. In response to sex-priming, people should also act more in accordance with the agency vs. communion dimensions stereotypically connected with their respective sexual role.

Overview of the present research

In four studies sexuality was primed using subtle visual (Study 1) and verbal (Study 2 through 4) material. These studies examined how sex-priming influences identification with the group of women or men, respectively (Study 1), self-perception regarding gender-stereotypic traits (Study 2), and dominant versus submissive behavior in a social interaction (Study 3 and 4). In study 1, two measures of gender identification were employed: a graphical one (Schubert and Otten, 2002) and a more conventional explicit rating scale (Crisp, Stone, & Hall, 2006). In Study 2 and 4 participants had to rate the extent to which they found the communal and agentic traits of a gender typicality scale self-descriptive. I examined whether sex-priming leads to a gender-based self-perception, i.e. whether after sexuality cues women's communal orientation was more pronounced relative to their agency orientation, whereas for men the opposite was true. In Study 3 and 4 I tested how sex-priming affects social behavior using two different paradigms that allowed participants to enact these scripts in a non-sexual social interaction. In particular, I tested whether sex-priming leads to greater submissiveness in women (Study 3 and 4) and greater assertiveness in men (Study 3). In sum, the four experiments in the present work test the hypothesis that self-perception and social behavior tune in to gender stereotypes in response to sex-priming.

The two sex-priming paradigms employed pictures displaying sexuality or words with a sexual meaning "wrapped up" in a cover story that distracted participants from the actual content of the stimuli. The story also led participants to believe that the priming tasks and the dependent measures were two independent experiments. Apart from that, the stimuli were also rather subtle in nature. I used two different kinds of sex-priming in order to reduce the possibility of methodological artifacts and to foster the reliability of potential findings.

In sum, in the present research, I seek to answer two main questions. First, how does one's self-perception change in the wake of sex-priming? Does it actually become more stereotypical? In addition, do we feel a greater sense of belonging to our gender in-group? Second, does such an altered state of self-perception also reflect in "expressed gender," i.e. in consistent changes in social behavior? Does sex-priming indeed lead women to submit more in a dyadic interaction situation, and men to assert themselves more strongly? The following four studies will seek answers to these empirical questions.

Hypothesis

Gender-based traits of female communion and male agency color the culturally shared sexual scripts for women and men. In the present research, I hypothesized that sex-priming temporarily affects self-perception by rendering one's gender more dominant in the active self. This should strengthen one's social identity as a woman or man, and consequently, produce more pronounced gender stereotypic traits in self-perception. The active self guides behavior, and activated gender-stereotypic traits should be reflected in corresponding gender-based social behavior if the activated traits are applicable to the given situation. So, for example, if a sex-primed woman is in an informal mixed-sex social context she should behave according to the female (sexual) role. She should show more submissive and communal behaviors, indulge more readily than she would normally do, thus applying a sexual script to a non-sexual situation. For men, a similar effect should occur in regard to dominant and agentic behavior. In this way, social behavior is hypothesized to follow from sex-prime affected self-perception.

EMPIRICAL PART

Studies 1 and 2: Sex-priming and gendered self-representation

Is identification with one's own gender-group fostered under sex-priming conditions? It has been hypothesized that sexuality is a concept in which the socialization into one's gender role plays an important role. For both women and men, sexuality is connected to attributes and behaviors that are impregnated by the respective gender stereotype. Sex-priming is hypothesized to affect which parts of one's self-knowledge become activated. Sex-priming should momentarily highlight one's own gender typical characteristics and make them seem more central to the momentary self-concept. With this self-representation bias in the working self concept, one's sense of belonging to the group of women or men, respectively, should momentarily receive a boost. As we know that people's identification with a certain group and the degree to which they describe themselves using traits that are seen as typical for members of this group are interrelated (Jetten, Postmes, & McAuliffe, 2002), we can expect that both of these phenomena occur in parallel. Study 1 and 2 were designed to measure changes in gender identification and typicality in response to sex-priming.

Study 1 – Sex-priming and identification with women and men as groups

Study 1 examined how sex-priming affects identification with the group of women and men. Participants were either primed with sexuality or performed a control task and then indicated their identification with women and men as a group on a visual measure as well as a rating scale. In Study 1, the sex-priming word-search puzzle constructed by Mussweiler and Förster (2000) was employed as a priming method. The sex-priming word-search puzzle is an ideal means to activate sexuality without making reference to gender-based sexual scripts. It only contains words related to the physical aspects of sexuality, i.e. body sensations like “feeling” and “sweating,” body parts like “skin,” bodily indicators of sexual arousal like “wet” and “stiff,” and “bed” as a contextual reminder for sexuality. It does not include references to sexual actions that might imply male dominance and female indulgence. This helps to keep this sexuality priming free from the more interaction-related connotations of sexuality such as dominant or submissive behaviors.

In sum, throughout the four studies I tried to keep sex-primers as “purely sexual” as possible so that a potential priming effect could be attributed to the activation of the sex-concept per se and not to secondary, stimuli-inherent content.

Method

Participants. Twenty-nine female and 27 male students at the University of Cologne were recruited as participants. They were asked to take part in two ostensibly unrelated short studies that would be run together for efficiency reasons, the first one on word processing and the second on self-assessment. As compensation, they were offered a bar of chocolate and coupon for a free coffee.

Materials.

The (sex) priming manipulation: the word-search puzzle. The priming manipulation followed closely the one described by Mussweiler and Förster (2000) and consisted of a word-search puzzle. A sex-priming and a neutral word-search puzzle were utilized. Each puzzle consisted of a matrix of 19 x 17 capital letters. The matrix contained a total of 12 words that were located horizontally and vertically. Both puzzles included the same six words which were neutral with respect to sexuality and gender-typed traits: *Tafel* (board), *Radio* (radio), *Dach* (roof), *Uhr* (clock), *Zeitung* (newspaper), and *Brot* (bread). In addition to these, the sex-priming puzzle included six sex words (i.e. words that were moderately associated with sex ($5 < Ms < 7$ on a 9-point-scale), as pretested by Mussweiler and Förster (2000): *Haut* (skin), *feucht* (wet), *spüren* (feel), *schwitzen* (sweat), *Bett* (bed), and *steif* (stiff). The neutral puzzle included another six neutral words: *sprechen* (speak), *bunt* (colorful), *drehen* (turn), *Kahn* (barge), *Schuh* (shoe), and *Birke* (birch). For each puzzle, all 12 words were printed below the word-search puzzle in capital letters.

Identification with women and men as groups. In-group identification was measured using the visual measures of self-categorization described by Schubert and Otten (2002), especially the inclusion of self in the in-group 7-point graphical item. Here participants are instructed to choose the picture which best represents their “closeness to the group of women/men.” The item consists of seven diagrams, each consisting of two circles, a smaller one labeled “self” and a bigger one labeled “women” or “men,” respectively. Both circles are centered vertically on a horizontal line. The seven diagrams are displayed on one page, starting with the most distant depiction of the two circles in the first diagram on top of the

page and ending in the closest depiction in the seventh diagram at the bottom of the page. With each diagram, the relation of the smaller and the bigger circle changes. They are completely separate in the first diagram, and then they are touching in the third diagram. In the sixth diagram, the small circle is fully inside the larger circle, but still has contact with the border of the larger circle. In the seventh diagram, the small circle is exactly in the center of the larger circle. The construction of this graphical item is based on the idea that when we describe relations between the self and groups or between different groups, we often use spatial metaphors of *inclusion* or *overlap* (e.g. “inner circle of friends,” distant cultures, etc.). In constructing their circle scale Schubert and Otten drew on earlier work by Aron, Aron and Smollan (1992), who developed a graphical, nonverbal measure of the closeness of an interpersonal relation – the Inclusion of Other in Self Scale (IOS). Their one-item measure consisted of seven pictures of two increasingly overlapping circles, labeled Self and Other, and is used to assess the overlap of self and partner mental representations (Smith, Coats, & Walling, 1999). This approach was extended to a graphical measure of in-group identification by Tropp and Wright (2001), who used the same item, labeling the circles Self and In-group. They found that this nonverbal one-item measure correlated substantially with a verbal multi-item social identity measure assessing in-group identification, and predicted an implicit reaction-time measure of self-stereotyping. Tropp and Wright (2001) concluded that this one-item measure of in-group identification captures “the essence of interconnectedness between self and in-group” (p. 598). Schubert and Otten (2002) have constructed a more complex 3-item graphical measure that taps self-categorization in an intergroup context. Their measure consists of an item for the overlap of self and in-group and self and out-group, which are both used in Study 1, as well as the overlap of in-group and out-group, which is not relevant to Study 1. The item for the overlap of self and out-group (the group of women for a male participant, or the group of men for a female participant) was administered in order to show that the priming effect is specific to identifying with one’s in-group. This item is exactly the same as the in-group identification item, only the label of the bigger circle is different: For female participants it is “men,” whereas for male participants it is “women”. It was hypothesized that sex-priming would affect in-group identification in regard to one’s own sex, but not affect the feeling of closeness to other groups.

A second, short explicit rating measure was employed to assess identification with one’s gender-group in a more conventional way. This was done in order to verify the results

of the more innovative graphical measure with a more traditional one. The measure consists of four rating items concerning in-group identification (Crisp, Stone, & Hall, 2006).

Women and men received the version for their respective in-group. Participants were asked to rate their agreement with the following four statements: „*Ich identifiziere mich sehr mit den Frauen/den Männern.*“ (“I identify strongly with other women/men”), „*Dass ich eine Frau/ein Mann bin, ist ein sehr wichtiger Teil meiner Person.*“ (“Being a women/man is an important part of who I am”), „*Ich fühle mich mit anderen Frauen/Männern sehr verbunden.*“ (“I feel strong ties with other women/men”), and „*Ich empfinde Solidarität mit anderen Frauen/Männern.*“ (“I feel a sense of solidarity with other women/men”). These ratings were made on a scale anchored at 1 (“not at all”) to 9 (“very much so”).

Procedure and design. Participants were recruited at the library of the University of Cologne and invited to take part in two ostensibly unrelated studies. They were told that the first study would examine text comprehension, the second one personality self-appraisals. Participants were run in groups of two to three by same-gender experimenters. On arrival at the laboratory, the experimenter led participants to separate tables and told them to read the upcoming instructions carefully. Participants were told that the two tasks were paper-and-pencil based, and that written instructions would guide them through these tasks. Upon signing the consent form, participants received the materials for the two “experimental tasks” in separate folders. The experimenter was blind as to which condition he or she administered. The first folder contained the instructions for the word-search puzzle, which explained that the task would examine how text comprehension was influenced by the manner in which words were presented. Participants' task was to find and circle the 12 words listed under the puzzle. Participants were further informed that words could be hidden either horizontally or vertically. After completion of the first task, participants opened the second folder. Here they were informed that they would answer miscellaneous short questionnaires for self-assessment of several aspects of “daily behaviors and experience.” Participants were also told that the aim of the “second study” was to validate and select some questionnaires for further use. This instruction was followed by a series of personality measures, the first ones of which were the visual and rating in-group identification measures. Other scales followed which are irrelevant to the purpose of this study but were administered for the purpose of the cover story. The scales were followed by a funneled debriefing questionnaire that tested for participants' awareness about 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) X 2 (in-group vs. out-group identification) X 2 (female vs. male participants) experimental design. The priming factor was manipulated between participants, whereas the group factor was manipulated within participants.

Hypothesis

A two-way interaction between priming and group was expected: Sex-priming should lead to higher identification with one's own gender whereas identification with the respective out-group should remain unaffected.

Results and Discussion

The following tables show the results for in-group and out-group closeness and for the 4-item identity rating measure. As Table 1 reveals, participants felt closer to their gender-group after sex-priming. Table 3 shows a similar pattern for the verbal in-group identification measure.

Table 1: In-group closeness by Gender and Priming

	Participant gender			
	Female		Male	
Word-search puzzle	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Sex	5.93	0.96	5.50	1.16
Neutral	4.86	1.35	4.85	2.03

Note. The in-group closeness ratings can take on values from 1 to 7; $n = 29$ for females and $n = 27$ for males.

Table 2: Out-group closeness by Gender and Priming

	Participant gender			
	Female		Male	
Word-search puzzle	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Sex	3.00	1.07	3.37	1.08
Neutral	3.37	1.28	3.54	1.51

Note. The out-group closeness ratings can take on values from 1 to 7; $n = 29$ for females and $n = 27$ for males.

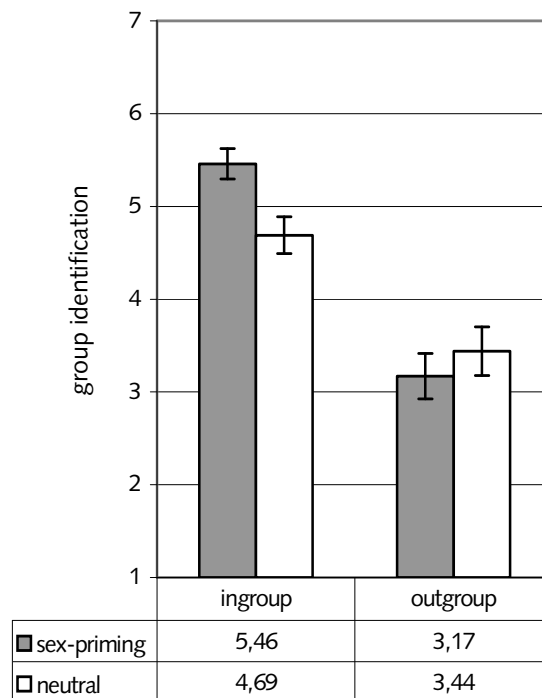
Table 3: Mean Group Identification Rating by Gender and Priming

	Participant gender			
	Female		Male	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Word-search puzzle				
Sex	7.23	1.30	5.93	1.74
Neutral	6.16	2.14	5.21	1.60

Note. The group identification ratings can take on values from 1 to 9; $n = 29$ for females and $n = 27$ for males.

As expected, the four rating items formed a reliable scale (Cronbach's $\alpha = .85$, $N = 56$). The visual in-group identification measure correlated significantly with this mean rating, $r_{\text{Pearson}} = .33$, $p < .02$, $N = 56$. Combining visual and rating items for in-group 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 pictorial in-group identification and mean identification ratings, which had been transformed into a 7-point scale. This linear transformation was necessary because the graphical item assessed in-group identification on a 7-point scale whereas the ratings were given on a 9-point scale. A repeated measures ANOVA with reference group of identification (in-group vs. out-group) as a within-participants factor and priming (sex vs. neutral) and participant gender (female vs. male) as between factors revealed only one significant interaction between priming and reference group, $F(1,52) = 4.84$, $p < .04$. The interaction between scale and participant gender tended toward significance, $F(1,52) = 2.90$, $p = .10$. Apart from a main effect of reference group $F(1,52) = 55.39$, $p < .001$, no other effects reached significance.

Planned contrasts show that sex-primed participants identified more strongly with their in-group than did neutrally primed participants, $t(54) = 2.65$, $p < .02$. Sex-priming did not significantly affect identification with the out-group ($t < 1$). Thus, in this sample of university students sex-priming appeared to shift their working self concept more towards a group-based self-representation as a woman or man. This does not necessarily imply, however, that they see themselves in a greater distance from the opposite sex. Sex-priming just heightens the awareness of and the identification with one's own sex.



Note. The group identification scores range on a 7-point scale from 1 to 7. Means and standard errors are displayed; $n = 29$ for females and $n = 27$ for males.

Figure 1: Group Identification by Group and Priming

In line with the hypothesis, Study 1 demonstrates that people perceive themselves as closer to their respective gender-group when primed with sexuality. This effect can be explained in terms of the social identity approach (Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) which posits that the self can be defined at different levels, ranging from sub-personal, to personal, to the group level. At the group level, “the self is defined and experienced as identical, equivalent, or similar to a social class” (Turner, Oakes, Haslam, & McGarty, 1994, p. 454). Sex-priming leads the individual to self-categorize as a woman or man. In this way, the momentary self-concept is defined by this group identity. Internalized group membership as a woman or man becomes more relevant when individuals perceive themselves more strongly in terms of the attributes defining the group (the “social identity” in Self-Categorization Theory) and less strongly in idiosyncratic terms which make a person unique and emphasize individuality (the “personal identity” in SCT). Correspondingly, this should also lead to self-stereotyping in terms of typically feminine and masculine traits. Study

2 will address this question of whether people also ascribe traits pertinent to the respective gender stereotype more strongly to themselves in response to sex-priming.

Study 2 – Sex-priming and gender-based self-perception

Study 1 showed that in response to sex-priming, gender identity becomes more central in how participants perceive themselves. Their in-group identity momentarily gets a boost and their working self concept becomes imbued with their social identity as a woman or a man. As has been outlined above, group identification and self-stereotyping are intertwined phenomena. The social identity approach would predict that “the self is defined and experienced as identical, equivalent, or similar to a social class” (Turner, Oakes, Haslam, & McGarty, 1994, p. 454) when group identity is central. The stronger people identify with a certain group, the more they should ascribe themselves the traits that are seen as typical for a member of this group (Jetten, Postmes, & McAuliffe, 2002). Thus sex-priming should also induce people to perceive themselves as more gender typical, i.e. ascribe the traits from the respective gender stereotype more strongly to themselves.

In Study 2, I examined how sex-priming affects gender typicality in self-perception. Participants were either primed with sexuality or were asked to perform a control task. Subsequently they rated themselves on traits that are at the heart of the gender stereotypes and lay the foundations for the different sexual roles into which women and men are socialized (communion for women and agency for men). The average gender difference in self-perception on these two traits (women score higher on communion than on agency, whereas for men the opposite is true (Feingold, 1994)) should be more pronounced under sex-priming conditions. Sex-priming should lead to a heightened prominence of communion over agency in women. For men, sex-priming should lead to a relatively smaller degree of self-ascribed communion in comparison to agency. In sum, sex-priming should push people to see themselves with more “gendered eyes”.

Method

Participants. Thirty-three female and 33 male undergraduate students (from 17 to 41 years ($M = 23.95$, $SD = 3.72$)) at the University of Cologne were recruited as participants. They were randomly assigned to one of three experimental conditions. The students were asked to take part in two ostensibly unrelated short studies that would be run together for

efficiency reasons. The first one would include evaluating a picture and the second one personality self-assessments. As compensation, participants were offered a bar of chocolate and a coupon for a free coffee.

Materials.

The (sex) priming manipulation: the picture task. In this study, a picture was used 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-based traits or indulgence and dominance behaviors connected to the sexual script. Therefore, it did not include positions (no one is “on top”), gestures, or facial expressions which might convey power imbalances between the female and the male character. Both are “active” in kissing and holding each other. In sum, the sex-priming picture was kept as “purely sexual” as possible so that a potential priming effect on self-perception was attributable to the activation of the sex-concept per se and not to secondary stimuli-inherent content.

The priming manipulation 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 told that picture perception and subjective impressions were influenced by a variety of factors that direct viewers’ attention to different parts of a picture. The picture (13 cm x 10 cm) was displayed in the upper half of the second page followed by seven questions and ratings about participants’ impression, e.g. “Which part of the picture did you look at first?”, “Which part of the picture did you look at longest?” and “Did the picture arouse your curiosity?” They also rated how familiar the picture seemed to them and how much they liked the picture. For the last item, they were called upon to give the picture a title. Questions and ratings ensured that participants processed the content of the picture for a few minutes.

One sex-priming and two sex-neutral control photos were utilized. All pictures were black-and-white and contained up to 1024 x 768 pixels. The sex-priming picture shows a woman and a man kissing each other passionately with their eyes closed, mouths half open, and their arms flung around each other’s head or neck. The picture only shows their heads, necks and part of the man’s back, but it is clear that they are naked. The sex-picture was taken from the international affective picture system (IAPS; Lang, Bradley, & Cuthbert, 2005), picture no. 4660. It was slightly altered (Adobe Photoshop 7.0). First, the original color photo was turned into black-and-white. Second, in order to avoid priming additional concepts, a ring

on the woman's hand was deleted, nail polish was "removed," and the woman's very dark eye make-up was brightened up because otherwise it might have primed the female sub-stereotype of a "vamp" (Eckes, 1994a, 1994b; Six & Eckes, 1991). One of the sex-neutral control pictures depicts a friendly interaction between a man and a woman sitting at a table with some distance between each other (the friends picture), and the second depicts a sandy beach with palm trees and little huts (the palms picture, IAPS picture no. 5814). The friends picture was taken from a personal collection.

The control pictures were chosen on the basis of their valence and arousal ratings in the IAPS manual (Lang, Bradley, & Cuthbert, 2005). On a 9-point scale the IAPS ratings for the sex-picture on valence ($M = 7.40$, $SD = 1.36$) and arousal ($M = 6.58$, $SD = 1.88$) are moderately high, with similar ratings for women and men; (valence: $M_{\text{women}} = 7.22$, $M_{\text{men}} = 7.63$; arousal: $M_{\text{women}} = 6.31$, $M_{\text{men}} = 6.92$). Additionally, the friends picture was chosen to control for specific content: The friends as well as the sex-picture contain a woman and a man in a positive interaction. In both pictures the woman and the man are good-looking young adults. The only difference is that in the friends picture the interaction is non-sexual.

Pretest of the pictures. Thirty-two male and 34 female students rated one of the three pictures on valence, arousal, and the extent to which they were associated with sexuality and sexual arousal. The pretest was intended to test how the pictures are perceived by a sample of university students in Germany. It also checked whether the sex-picture is actually associated with sexuality more strongly than the control pictures. As there is some evidence showing that in response to erotic stimuli, women show less sexual arousal than men (for a meta-analysis of sex-differences in self-reported sexual arousal in response to erotic and pornographic stimuli, see Murnen & Stockton, 1997), the pretest was also intended to control for this possibility by excluding it.

Valence and arousal were assessed with the Self-Assessment Manikin (SAM; Lang, 1980), a 9-point figuratively rendered scale which has repeatedly been used in the IAPS research (Lang, Bradley, & Cuthbert, 2005). The valence scale ranges from a negative (denoted as "unhappy, discontented") to a positive manikin ("happy, contented") with a neutral one in the middle. The arousal scale is unipolar and ranges from a calm manikin ("calm, sleepy") to an excited one ("excited, wide-awake"). Relatedness to sexuality and sexual arousal were assessed with conventional verbal 9-point rating scales.

The pretest ratings were submitted to a 3 (sex vs. palms vs. friends) X 2 (female vs. male participants) analysis of variance. The picture factor was manipulated between participants.

For the valence ratings, neither the main effect for picture type, $F(2,60) = 1.64, p = .20$ nor the main effect for participant gender reached significance ($F < 1$). There is no significant interaction effect, $F(2,60) = 1.66, p = .20$. All pictures were rated as moderately positive by women ($M = 6.85, SD = 1.88$) and men ($M = 6.47, SD = 1.72$) alike.

Table 4: Means and standard deviations for the valence ratings by picture and participant gender.

Picture	Participant gender			
	Female ($n = 34$)		Male ($n = 32$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Sex	6.18	2.48	6.91	1.45
Palms	6.55	1.75	5.91	1.38
Friends	7.75	0.87	6.60	2.27

For the arousal ratings, neither the main effect for picture type, $F(2,60) = 2.36, p = .10$ nor the main effect for participant gender, $F(1,60) = 1.02, p = .32$ reaches significance. There is no significant interaction effect between the two ($F < 1$).

All pictures were rated as moderately arousing by women ($M = 5.35, SD = 1.65$) and men ($M = 4.84, SD = 2.41$) alike.

Table 5: Means and standard deviations for the arousal ratings by picture and participant gender.

Picture	Participant gender			
	Female ($n = 34$)		Male ($n = 32$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Sex	6.09	1.92	5.36	2.80
Palms	4.91	1.70	3.91	1.87
Friends	5.08	1.16	5.30	2.41

In sum, the three pictures were perceived as similarly positive and arousing.

Inspection of the means in Table 6 reveals that the sex-picture's association with sexuality is judged to be much stronger ($M = 7.91$, $SD = 1.31$) than that of the palms picture ($M = 2.05$, $SD = 1.65$) or the friends picture ($M = 4.05$, $SD = 2.17$). This pattern produced a significant main effect for picture, $F(2,60) = 61.67$, $p < .001$. Neither the main effect for participant gender nor the interaction effect is significant ($F < 1$).

Planned contrasts between the pictures revealed that the palms picture was associated with sexuality to a lesser extent than was the sex-picture, $t(39.93) = 13.09$, $p < .001$. The same was true for the friends picture, which was rated as significantly less associated with sexuality than the sex-picture, $t(34.44) = 7.15$, $p < .001$. There was also a between the friends and the palms picture, $t(39.16) = 3.44$, $p < .002$, such that the friends picture was rated as significantly more associated with sexuality than the palms picture. In sum, the sex-priming picture differs from both control pictures on the crucial dimension of association to sexuality, receiving higher ratings than both of the control pictures. Nevertheless, the control pictures are not perfectly equivalent, as the friends picture received higher ratings than the palms picture.

Table 6: Means and standard deviations for the relatedness with sexuality ratings by picture and participant gender.

Picture	Participant gender			
	Female ($n = 34$)		Male ($n = 32$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Sex	8.00	1.10	7.82	1.54
Palms	2.27	1.90	1.82	1.40
Friends	3.92	1.93	4.20	2.53

Inspection of the means in Table 7 reveals that the participants judged the sex-picture to be more sexually arousing ($M = 3.86$, $SD = 2.32$) than either the palms ($M = 1.64$, $SD = 1.50$) or friends picture ($M = 1.73$, $SD = 1.35$). In the ANOVA this pattern produced a significant main effect for picture, $F(2,60) = 10.76$, $p < .001$. The main effect for participant gender and the interaction effect were not significant ($F < 1$). Planned contrasts between the pictures revealed that participants found the palms picture to be less arousing than the sex-picture, $t(35.95) = 3.79$, $p < .002$. The same was true the friends picture, which was rated as less arousing than the sex-picture $t(33.82) = 3.74$, $p < .002$. There was no difference in sexual arousal between the friends and the palms picture ($t < 1$).

In sum, the sex-priming picture differs from both control pictures on the dimension of sexual arousal. The sex-priming picture received higher ratings than both of the control pictures, whereas the two control pictures did not differ from each other.

Table 7: Means and standard deviations for the sexual arousal ratings by picture and participant gender.

Picture	Participant gender			
	Female ($n = 34$)		Male ($n = 32$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Sex	3.45	2.38	4.27	2.28
Palms	1.64	1.50	1.64	1.57
Friends	1.67	0.78	1.80	1.87

In sum, the sex-picture differs 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. Thus, the pictures satisfy the criteria defined above. With the sex-picture one actually primes sexuality, and the two different control pictures control for various additional aspects like a man-woman interaction, valence and general arousal.

Dependent measure: Measuring gender typicality. In the present research gender typicality was measured employing the Gender Typicality Scale (GTS+) by Altstötter-Gleich (2004).

The GTS+ contains eight rating items for agency, representing the male personality stereotype (decisive, assertive, confident, fearless, businesslike, daunting, resolute, and willing to take risks) and eight rating items for communion, representing the female personality stereotype (warm-hearted, empathetic, romantic, sensitive, understanding, hearty, emotional, and sensual). Items from both stereotypes are administered in an alternating order. Participants were asked to rate the frequency with which they consider each trait term as self-descriptive in their everyday lives using a 4-point scale (“rarely, sometimes, often, and almost always”).

The principle applied in construction of the GTS+ was derived from the Bem Gender Role Inventory (BSRI; Bem, 1974), which contains items that are equally socially desirable for both sexes but are seen as more typical for one of the two sexes: “sex-typed social desirability” (Lenny, 1991, S. 578). Both BSRI and GTS+ have a limited scope, as they do

not cover every possible aspect of sex typing (which could include interests, activities, verbal behavior etc.; Huston, 1983).

Procedure and design. Participants were run in groups of three by same-gender experimenters. On arrival, the experimenter led participants to separate tables and told them to read the provided instructions carefully. The experimenter explained to them that the two tasks were paper-and-pencil based, and that written instructions would guide them through these tasks. Upon signing the consent form participants received the materials for the two ostensibly unrelated experimental tasks in separate folders. The first folder contained the picture evaluation task, which kept participants processing the content of the picture for about five minutes. After the picture task participants opened the second folder. Here they asked to complete a questionnaire on important aspects of their everyday behavior and experience, which in reality was the gender typicality measure (GTS+). Finally, participants received a questionnaire that tested for their awareness about 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 3 (sex-priming vs. neutral: palms vs. neutral: friends) X 2 (female vs. male participants) experimental design. The priming factor was manipulated between participants.

Hypothesis

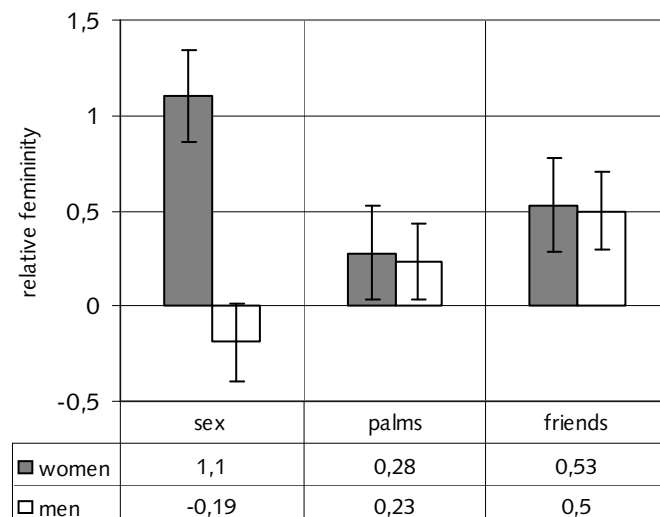
I hypothesized that participants would perceive and describe themselves as more in line with the respective gender stereotype in response to the sex-priming picture. In women, the average endorsement of communion over agency traits should become more pronounced after sex-priming. In men, the opposite should be true. This differential effect on women and men should be limited to the sex-priming condition, whereas the control tasks should not affect women and men in a different manner. Thus, I expect an interaction between priming and gender.

Results and Discussion

The internal consistency of the two GTS+ subscales was high (Cronbach's Alpha (communion) = .69, $N = 66$, 8 items; Cronbach's Alpha (agency) = .73, $N = 66$, 8 items) and the two subscales did not show a significant correlation with each other ($r = -.12$, $p = .33$,

$N = 66$). The mean agency rating was subtracted from the mean communion rating to describe each participant gender typicality. Positive scores mean that participants ascribe attributes from the female stereotype (communion) more strongly to themselves than attributes from the male stereotype (agency). That is, they show a typical female gender identity. Negative scores mean that participants ascribe attributes from the male stereotype (agency) more strongly to themselves than attributes from the female stereotype (communion). That is, they show a typical male gender identity. Gender typicality served as the central dependent variable.

As Figure 2 reveals, women scored higher than men on this gender typicality score only after sex-priming.



Note. A positive score denotes a gender identity more typical of females. The measure can theoretically take on values from 3 to -3; $n = 33$ for females and $n = 33$ for males.

Figure 2: Gender Typicality by Participant gender and Priming

In a 3 (sex vs. palms vs. friends priming) X 2 (female vs. male participants) analysis of variance (ANOVA), this pattern produced a significant interaction effect, $F(2,60) = 8.81$, $p < .001$. The main effect for participant gender was also significant, $F(1,60) = 10.75$, $p < .01$. The main effect for picture type did not reach significance, $F(2,60) = 1.32$, $p = .27$. Contrast analyses indicate that the priming had a significant effect on women, $F(2,60) = 6.10$, $p < .01$, as well as on men, $F(2,60) = 4.01$, $p < .05$.

Finally, contrast analyses indicate that the difference between women and men is significant for the sex-priming condition, $F(1,60) = 27.44, p < .001$, but not for the palms or friends picture ($F < 1$). In these latter two, both described themselves as somewhat feminine.

In line with expectations, Study 2 demonstrates that in response to a subtle sexual context people perceive themselves as more in line with the respective gender stereotype. This means that even a slight reminder of sexuality can lead to substantial changes in the working self concept: Women shift their self-view in a more feminine direction when sexuality is cued, whereas men shift their self-view in a more masculine direction. What is remarkable about the present findings is that in the two control conditions there is no significant difference between women and men in gender typicality. In both sexes, attributes from the female stereotype outweigh attributes from the male stereotype. A potential explanation for this surprising finding might be due to the sample. Most of the participants, male and female alike, were humanities or education majors (teachers-to-be, students of pedagogic and remedial education, or art students). These are subjects that are more strongly associated to women, and seen as “typical female subjects” with a strong numeric bias towards female students (Eccles, 1987). Either the very few male students enrolled in these kind of studies might assimilate to their surroundings and assume more of the stereotypically feminine characteristics because they might find themselves more often in contexts which selectively activate subsets of self-knowledge that pertain to communion (i.e. training to be of help to others and to understand other’s problems, etc.), or a self-selection effect might be at work. Hannover (1997b) has shown that even engaging in a short task that is stereotypically seen as typical of the other gender (hammering in a nail as typical for boys and changing the diapers of a doll as typical for girls) can produce a shift in the working self concept. Self-knowledge momentarily focuses more on self-knowledge regarding the stereotype of the other gender, and thus people describe themselves as less gender typical or even endorse the typical traits from the opposite gender stereotype as more self-descriptive (Hannover, 1997b). Repeated exposure to situations in which one completes complex study tasks that are more typical of the other gender might have an accumulative effect on the working self concept such that these contents remain chronically accessible. This might explain why the male participants in the neutral conditions of Study 2 showed a similar gender typicality pattern to females in the neutral conditions. Popular feminist magazines like the German “Emma” (e.g. *Emma*, 6, 2007) often stress possible detrimental effects of commercial pornographic material depicting women in inferior positions. From Study 2 it seems that even mildly erotic material that does

not depict submissive or dominant content can have effects on the self-concept of women and men who view it.

To date, it has not been shown that a single stimulus can lead to different effects on self-perception for women and men. But the present research shows that the mere presence of a stimulus activating the sexuality concept facilitates a more gender-typical self-view for each sex. This effect seems to be an automatic consequence of the sexuality prime. With the priming manipulation being supraliminal, but very subtle, mediation by conscious reflection on the different sexual roles for women and men seems unlikely. Regardless of its strong association with sexuality, the sex-priming stimulus was not blatant in nature, which made it difficult for participants to detect the nature of the activated concept. In fact, only one participant mentioned the concept of sexuality in debriefing.

Because the primed concept of sexuality and the self-assessment on attributes related to gender stereotypes are on different semantic dimensions, conscious mediation of the obtained effects presupposes that participants are aware of the link between sexuality and gender typicality in self-perception (for a related point regarding the correction of priming influences see Strack, 1992; Strack, Schwarz, & Wänke, 1991; Wegener & Petty, 1997; Wilson & Brekke, 1994). Given that this effect is hypothesized to be based on the selective activation of self-knowledge, a conceptualization which has only emerged recently from complex findings in social cognition research (Wheeler et al., 2007), it seems unlikely that research participants would be able to base their speculations on such knowledge intuitively. In line with this reasoning, none of the participants reported an awareness of the true nature of the study in the manipulation check. Thus, exposure to sexual stimuli appears to facilitate self-stereotyping along the lines of the respective gender stereotype automatically. Taken together, Study 1 and Study 2 demonstrate that the working self concept of a person is affected by sex-priming in the hypothesized manner. In response to sex-priming, people's self-representations are more centered on their identity as women or men, and imbued with the implications of the gender stereotypes of communion and agency. As research on automaticity has shown, altered self-perceptions are one key to understanding prime-to-behavior effects (Wheeler et al., 2007). Study 3 and Study 4 address the question whether sex-priming leads to gender stereotypic behavior.

Studies 3 and 4: Expressed Gender – behavioral conformity to gender norms after sex-priming

Summing up Study 1 and 2, people put themselves in “gender-based shoes” in the context of sexuality. Thus far, results pertain to the realm of self-perception: ratings on “gender-based” personality traits and gender-group identification have been shown to be affected by sex-priming. How does this relate to behavior? Does sex-priming also affect how people act in a social context? Does their social behavior tune in to gender stereotypes as well?

Study 3 and Study 4 were designed to address this question, using two different behavioral paradigms.

Study 3 – Sex-priming and dominance versus submission

Study 3 tests whether sex-priming leads to subservient behavior in women and dominant behavior in men.

In the search for a dependent measure for dominance versus submission, I drew on the work of Zweigenhaft and Marlowe (1973), who found that signature size increased (decreased) after inducing participants to take on a superior (subordinate) social role. Thus, signature expansion can be interpreted as an expression of social dominance and self-assurance. Changes in signature size have been shown to be an implicit measure for changes in self-esteem (Stapel and Blanton, 2004; see also Hoorens, 1990; Koole, 2000). Zweigenhaft (1970) also reported evidence of a more long-term expansion in signature size as people fulfill certain career steps and thus experience a rise in social status. So differences in signature size can be based on long-term changes in self-perception concerning social dominance.

In the present study signature size was measured unobtrusively before and after sex-priming. If sex-priming is connected with an activation of the male (sexual) stereotype of dominance, and with an activation of the female (sexual) stereotype of submission, this may appear in a self-expressive behaviors like signature size. From an increased signature in response to sex-priming, we can conclude that the priming manipulation has made the person feel more dominant and self-assured. From a decrease in signature size, we can conclude that a person feels less self-assured and ascribes him or herself a submissive role in a given situation. Signature size change was chosen as a way to measure socially dominant versus submissive behavior in an unobtrusive, implicit, and non-reactant manner (Webb, Campbell,

Schwartz, & Sechrest, 1966). Participants do not realize that they are behaving in a dominant or submissive behavior when signing, nor do they feel prompted to make any explicit self-judgment. This should exclude the activation of self-presentational concerns (e.g., Fiedler & Bluemke, 2004), heightened self-awareness, evocation of an evaluative mindset, or the induction of other psychological states that could alter how a participant behaves. Still, signing can be said to be a social act of self-expression. We do this often in front of others when we want to indicate our agreement or participation in something important. Participants signing consent forms typically have no reason to think that they are providing “data” on the self – in their eyes the experiment has not even started yet (in the case of a signature on the consent form) or is over already (in the case of a signature on the compensation form). It was predicted that female participants primed with sexuality would automatically show submission (less signature size expansion) than male participants primed with sexuality, who should show dominance (signature size expansion).

Method

Participants. Thirty-one female and 33 male students of the University of Cologne (mean age 24.55, *SD* 2.53, ranging from 19 – 30) participated in this study. They were randomly assigned to one of the two experimental conditions. As compensation, they were offered a bar of chocolate and a coupon for a free coffee. Three participants had difficulty completing the experimental task and were dropped from the analyses. The final sample consisted of 31 female and 30 male participants.

Materials.

The sex-priming manipulation. The priming manipulation was the same word search puzzle used in Study 1.

Measuring dominant and submissive behavior. Dominant versus submissive behavior was measured as follows: Participants signed twice, on two similar forms. Before the actual experiment started, all participants were requested to sign a consent form. This allowed for the measurement of a first baseline signature size (T_1 signature size). After completing the word-search puzzle, participants were asked to sign a second form, which ostensibly was a receipt for the participant compensation sponsored by the German Research Foundation (T_2 or post-priming signature size). Signature size was assessed at each time point by drawing the smallest possible rectangle that could contain each participant’s signature (following Koole,

2000 and Stapel & Blanton, 2004). For each participant's T_1 and T_2 signature size, a surface index (in square mm) was calculated. The two signature sizes were then combined in the form of the quotient T_2 divided by T_1 signature size in order to illustrate the shrinking (numbers smaller than 1) or expanding (numbers bigger than 1) of a participant's signature – a measure free from baseline differences in signature size. The ratio index is a clear and easily interpretable indicator of changes in signature and the central variable in the following analysis.

Procedure and design. Participants were approached individually at the Cologne University library and were invited to take part in a short study, which involved text comprehension, gestures, and self-assessment. Participants were told that they would be rewarded for participation with a chocolate bar and a coupon for a free coffee. Participants were run individually by an experimenter of the opposite sex. They were led to a separate table and were told to read and sign the consent form. The consent form contained a brief description of what participants would be asked to do during the study (filling out questionnaires and showing how they performed certain gestures) and that they could terminate the study at any point in time. At the bottom of the consent form they were requested to provide their signature. When the participant had signed (which all participants did) the experimenter approached the participant and handed him/her two experimental folders, taking away the consent form. The participant was told to read the upcoming instructions carefully. Participants were told that the two tasks were paper-and-pencil based, and that written instructions would guide them through these tasks. The first folder contained general instructions and the word-search puzzle. Participants then began on the word-search puzzle, with experimenters blind to the condition they administered. After that, participants opened the second folder, which contained instructions on a short distracter task, the “gesture task.” This task was implemented in order to keep up the cover story that the study was about relations between word processing style and other typical personal habits. After completing this task, the experimenter thanked the participants and offered him or her a chocolate bar of their choice and a coupon for a free coffee. At this point, the experimenter handed the participant a form that briefly explained that participants should sign the form, which would function as a receipt for the sponsors of the study. After signing, participants filled out a short personality questionnaire irrelevant for this context and a form containing demographic variables. They also received a funneled debriefing questionnaire that tested for their

awareness about the true nature of the experiment. None of the participants expressed any suspicion. On completion, participants were thanked again, fully debriefed, and dismissed.

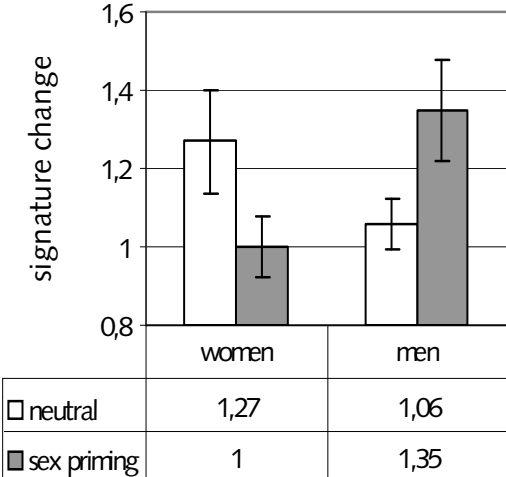
Study 3 is based on a 2 (neutral vs. sex-priming) X 2 (female vs. male participants) experimental design. The priming factor was manipulated between participants.

Hypothesis

I hypothesized that sex-priming would affect women’s and men’s signature size differently. In particular, sex-priming was expected to expand male participants’ signature, and to shrink female participants’ signature. Thus, a participant gender X priming interaction effect on signature size is predicted.

Results and Discussion

The ratio measure (T_2 signature size divided by T_1 signature size) reflects changes in signature size. Scores greater than 1 represent an expansion in signature size after priming and are assumed to represent dominant behavior. As Figure 3 reveals, female participant’s signatures expand less in the sex-priming than in the neutral condition, whereas male participants’ signatures expand more in the sex-priming condition than in the neutral condition.



Note. The signature size change score is a ratio score (T_2 signature size divided by T_1 signature size). A score above 1 represents an increase in signature size after the word-search (priming) task. Means and standard errors are displayed.

Figure 3: Mean Signature Size Change as a Function of Prime and Participant Sex

In a 2 (sex vs. neutral word search) X 2 (female vs. male participants) ANOVA, this pattern produced the predicted significant interaction $F(1, 57) = 6.29, p < .02$. Neither of the main effects reached significance (all $F < 1$). The interaction indicates that for male participants, sex priming led to a larger increase in their signature size from T₁ to T₂, in comparison to the neutral priming condition, $t(57) = 1.83, p < .04$. This is consistent with the hypothesis that men became more assertive after sex priming. For female participants, however, the opposite pattern was found. Although female participants showed some natural signature size expansion in the neutral priming condition⁴, this expansion was entirely absent after sex priming, $t(57) = 1.71, p < .05$. Moreover, looking just at the sex-priming condition⁴, men showed more signature size expansion than did women, $t(57) = 2.26, p < .03$. These results provide the first evidence that sex-priming can affect submissiveness versus dominance in social behavior. A non-reactive behavioral measure of dominance versus submission responded to a subtle sex-priming manipulation in the hypothesized way. Whereas men showed behavioral evidence of increased assertiveness after sex priming, women showed less assertiveness in the sex priming condition than in a neutral condition.

It should be noted, however, that the priming effect among women consists of a signature expansion in the neutral condition versus no change in signature size in the sex-priming condition (rather than the predicted decrease in signature size the sex-priming condition). This indicates that in the neutral priming condition, women naturally feel somewhat more assertive as the experiment progresses, whereas in the sex-priming condition they do not. Thus the priming effect for women is driven by the inhibition of an otherwise spontaneously occurring signature increase for women, rather than by a reduction of their signature size. This might also reflect a floor effect, if female participants' signatures were already quite small, such that an actual reduction in signature size would lead to illegible signatures. Still, the pattern for men is clearly consistent with the hypothesis, in relative and in absolute terms: Sex-priming leads to an expanded signature size, indicating more self-esteem and dominance. For women the pattern is consistent with the hypothesis, such that for them sex-priming inhibits an assertive pattern they would otherwise have expressed. Still, for women it remains somewhat unclear whether the inhibited dominance in the sex-priming condition should be understood as submissive behavior. To resolve this shortcoming, Study 4 was conducted.

⁴ The reported t test involves hypothesized differences and is therefore one-tailed. If there are clear directional predictions many authorities recommend the use of one-tailed significance tests (e.g., Abelson, 1995).

Study 4 – Sex-priming and submissive behavior in women

In Study 4 female participants were confronted with an awkward situation that required an assertive behavior to escape. After finishing the priming task, participants found the experimenter chatting on the telephone and ignoring them. In order to continue with the experiment, participants had to interrupt the ongoing conversation, an action that requires assertiveness. The experimenter unobtrusively measured how much time elapsed until each participant interrupted him. The question was whether sex-primed women would hesitate longer before interrupting the experimenter, revealing a more yielding and less assertive approach to this mixed-sex social interaction. Additionally, in Study 4 the effect of sex-priming on self-perception was measured again. Would communion again outweigh agency female participants' self-descriptions more so after sex-priming than after no priming? Study 3 showed that sex-priming affects women and men in a different manner. Thus in Study 4, I intended to look more closely at women's behavior in the context of a paradigm which was constructed to allow for various degrees of submissiveness in a social interaction situation. Study 3 revealed that women show less dominance than men in response to sex-priming, but it did not demonstrate submissive behavior in a strict sense. Therefore, Study 4 used an additional paradigm more apt to measure submissiveness.

Inspired by the now-classic work of Bargh, Chen, and Burrows (1996), women in Study 4 were placed in an interaction situation where they could react in a "feminine" or "masculine" way. The situation allowed for assertiveness or submissiveness. In Bargh et al. (1996), participants had first been primed with trait words related to either rudeness (e.g., rude, impolite, obnoxious), politeness (e.g., respect, considerate, polite) or neither, in an initial "language experiment." Then participants were confronted with an experimenter who was caught in a conversation with another participant during the study. In order to continue the experiment, the participant had to interrupt the experimenter in his ongoing conversation. Bargh et al. (1996) examined whether participants would act in line with the content of the primed trait construct. Significantly more participants in the rude priming condition interrupted (67%), in comparison to the control condition (38%), whereas only 16% of those in the polite priming condition interrupted the conversation.

My first two studies showed that in response to sex-priming women perceive themselves with more gender-biased eyes. They ascribe stereotypically female traits to themselves in a stronger way than they normally do. Their identity as a woman becomes more

central in their momentary self-views. According to the active self-account of prime-to-behavior effects, changes in the working self concept are crucial in providing behavior effects after priming. In Study 4, I tested whether women also behave according to the stereotype of communion and (sexual) submissiveness in a non-sexual setting. I predicted that in response to sex-priming, female participants would hesitate much longer before they finally decide to interrupt the experimenter. Waiting politely until another person has finished a conversation is a clear example of the stereotypic communion attributed to women and can be seen as a submissive reaction to this situation. Responding to this situation in an assertive manner would mean interrupting early and asking for the second folder, thus focusing on one's own desires and not submitting to another's impolite behavior. In addition to a potential effect of sex-priming on submissive behavior Study 4 also tested whether two personality variables influence this potential effect. In particular, normative gender role attitudes and sexual autonomy were measured.

If a potential sex→submission behavioral priming effect for women is based on repeated experience and internalization of certain sexual scripts based on the female gender stereotype, then women who strongly deviate from these normative expectations and who self-define defeating gender stereotypes may not show these effects. Women with a strong feeling of sexual autonomy might also not succumb to these effects, because for them sexual situations are strongly associated with autonomous decisions. Study 4 tested for this possibility by administering questionnaires on normative gender role orientation and sexual autonomy at the end of the experimental sessions. Another important goal of Study 4 was to examine whether mood effects could alternatively explain sex-priming effects. Thus, in Study 4 a mood measure was administered immediately after the behavioral measure of assertiveness versus submission. In order to test the effects of sex-priming on self-perception, Study 1 tested gender typicality after the picture priming task. In Study 4, in addition to sex-priming effects on automatic behavior gender typicality was measured again, this time after the mood measure described below. This would replicate the findings from Study 2, which had used the picture priming paradigm.

A last methodological issue pertains to priming effects on the perception of the experimenter. Behavioral effects should be due to changes in the working self concept, and not be mediated by an altered perception of the interaction partner. At the end of the study, participants answered a few questions on how they had perceived the experimenter during the

study. Most importantly, I checked whether sex-priming led to a more aggressive perception of the experimenter, which might provide an alternative explanation for the behavioral effects.

Method

Participants. Fifty-four female undergraduate students (mean age = 23.59, $SD = 1.95$, range from 19 – 28 years) at the University of Cologne majoring in disciplines other than psychology were recruited for an experimental session which was described as consisting of a word task and self-appraisals. As compensation, they were offered a bar of chocolate and a coupon for a free coffee. Participants were randomized between priming conditions.

Materials.

The sex-priming manipulation. The priming manipulation was the same as in Study 1 and 3.

Interruption of experimenter's telephone conversation. The central dependent measure was the time it took participants to interrupt the experimenter, who was chatting on the telephone in an adjacent experimental room. This telephone conversation was standardized and elaborately constructed in order to seem a natural conversation between the experimenter and a friend of his. It lasted exactly ten minutes. If the participant did not interrupt after these ten minutes, the experimenter turned his eyes to the participant and interrupted his own conversation. The topics of the conversation ranged from friends, university work, and family to events in the city of Cologne. The experimenter sat in an adjacent room, facing the wall. The participant entered the room sideways from behind, so she could not be sure that the experimenter noticed her entering. On the one hand, he could not see her, but on the other, a participant might assume that the experimenter might have heard the door handle turned by the participant. Actually, the turning of the door handle was the signal for the experimenter to start a stopwatch and to feign being in the middle of his telephone conversation. The experimenter was a well-trained improvisational theatre actor⁵ who did not report having any emotional trouble with ignoring the participant and was able to continue a faked telephone conversation in a natural manner. The conversation included phases where the experimenter pretended to be listening rather than speaking, apart from uttering an occasional “hmmm...” and “yes...” These were predetermined breaking points within the conversational flow which

⁵ His routine turned out to be very helpful as in a first pilot phase of the study another experimenter could not stand the emotional arousal triggered by having to ignore another person. This first pilot phase had to be interrupted after eleven participants and the new experimenter started to prepare the role of the “distracted experimenter”.

supposedly should offer the participant an opportunity to interrupt the telephone talk. Following Bargh, Chen and Burrows (1996) every verbal utterance was interpreted as interruption and led to the immediate end of the “waiting” phase of the experiment. The experimenter excused himself to the participant and handed her the second experimental folder.

The Mood measure. A German version of the Positive and Negative Affect Schedule, the PANAS (Watson, Clark, & Tellegen, 1988; Krohne, Egloff, Kohlmann, & Tausch, 1996) 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 the strength of the respective positive (interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active) and negative affect items (distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid) on a 5-point scale (1 = not at all; 2 = a little; 3 = moderately; 4 = quite a bit; 5 = extremely) in the given moment. The internal consistency of this scale coefficients are reported to range from .84 to .90.

Gender typicality. The gender typicality measure from Study 1 was administered immediately after the waiting phase. This was done in order to replicate the findings from Study 1 with a different sex-priming manipulation.

Normative Gender Role Attitudes. The Normative Gender Role Attitudes Questionnaire was administered (NGRO, Athenstaedt, 2000). Normative gender role attitudes can be defined as internalized personal gender-related social norms (Athenstaedt, 2000). These norms refer to different gender role areas such as work and status distribution or social interaction (Spence, Deaux, & Helmreich, 1985). Interindividual differences exist with regard to the amount of conformity people show to these norms. Normative gender role attitudes are conceptualized as a one-dimensional, bipolar construct that differentiates between people with more egalitarian or more traditional attitudes, respectively. The NGRO consists of 29 7-point rating items (from 1 = does not apply to 7 = does apply). The items are attitude statements about women, men and their relative roles in society, family and work and can be answered from 1 (do not agree) to 7 (do agree). “Every boy should own a doll.” (reverse-coded) or “It should be women who organize the household.” are examples of these attitude statements.

Sexual autonomy. The sexual autonomy measure consists of three items translated from Sanchez, Kiefer, and Ybarra (2006). Their measure of sexual autonomy was created by adapting the autonomy scale used in self-determination research (e.g., LaGuardia, Ryan,

Couchman, & Deci, 2000) to the sexual context. Participants were asked to indicate their agreement with three statements on a scale from 1 (not at all true) to 7 (very true): “When I am having sex or engaging in sexual activities with someone, I feel free to be who I am”; “When I am having sex or engaging in sexual activities with someone, I have a say in what happens and I can voice my opinion”; “When I am having sex or engaging in sexual activities with someone, I feel controlled and pressured to be certain ways” (reverse coded).

Perception of the experimenter. A last post-experimental survey questionnaire included three items which inconspicuously asked about the experimental situation (such as the room) and the experimenter, with one critical item: "Was the experimenter friendly and courteous to you?" Participants responded on a 7-point rating scale that ranged from -3 (*not at all*) to +3 (*very much so*).

Procedure and design. Participants were approached individually at the Cologne University, Faculty of Educational Sciences campus and were invited to take part in two separate short studies that would be run together for efficiency reasons (one on word processing and one on self-assessment). Participants were offered a chocolate bar and a coupon for a free coffee as compensation. Consenting participants were accompanied individually to the laboratory room. On arrival, the participant was greeted by the experimenter, who showed her into the first experimental room. After obtaining participant’s consent, the experimenter handed her a folder that contained instructions for the word-search puzzle and one of its two versions. The experimenter was blind to the condition he administered. Before leaving the participant, the experimenter told her that she should inform him upon completing the first task so that he could hand her the second folder. The experimenter added that he would leave the room and go over to the “other lab next door,” showing the participant the door. Then participants read the written instructions for “experiment one,” which ostensibly concerned how text comprehension is influenced by the manner in which words are presented. In the meantime, the experimenter waited for the participant in the adjacent laboratory room, connected to the first laboratory room via a small hallway and two doors. The door leading out of the first experimental room was closed, whereas the second one, which opened into the adjacent second experimental room stood open in a 60-degree 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 also as the cue for the experimenter to start the stopwatch and to start talking, pretending to be in the middle of an engrossing, friendly phone conversation

which seemed to have started earlier. While talking the experimenter watched the wall in front of him, so that the entering participant was not in his visual field, but the participant could clearly see him holding the telephone receiver to his ear. The experimenter continued the conversation, no matter what the participant did. Some approached the experimenter, some remained standing in the hallway. Regardless of what the participant did, as long as she was waiting for the experimenter to acknowledge her presence the experimenter continued chatting. When the participant began to say anything to the experimenter, such as "Excuse me," or "Sorry, but..." or other vocal utterances such as "Hmmhmm" or clearing her throat the confederate stopped the stopwatch inconspicuously and recorded the elapsed time. Until she did so, the conversation continued, with the experimenter chatting away happily and without looking at the participant or making eye contact with her. If a participant did not interrupt within ten minutes, the experimenter pretended to notice her and interrupted the telephone conversation. If the participant interrupted (or at the end of the 10 minutes maximum waiting time), the experimenter excused himself briefly for not having noticed the participant entering, handed the participant the second folder (containing the remaining questionnaires and questions regarding demographical data). Instructions for the second part read as follows: Participants were asked to answer miscellaneous short questionnaires on various aspects of their behavior and experience. This instruction was followed by the PANAS, the gender typicality scale, the normative gender role attitude measure and the sexual autonomy scale. After filling out these scales, participants received a last questionnaire concerning their experience during the experiment, including the critical item: "Was the experimenter friendly and courteous to you?", some awareness check items, and demographic items. None of the participants suspected that the word-search task might have affected their waiting behavior. Twelve of the 54 participants guessed a connection between different parts of the study. The influence that they hypothesized was never between the priming and their waiting behavior, but had to do with the priming and some of the questionnaires. For example, some hypothesized that the word-search puzzle had a mood effect ("unpleasant task") or an effect on self-efficacy ("easy task") or on concentration ("relaxing task, strengthens my concentration"). On completion, participants were thanked, debriefed, and dismissed.

In sum, Study 4 is based on a single factor experimental design consisting of two conditions (neutral versus sex-priming) manipulated between participants.

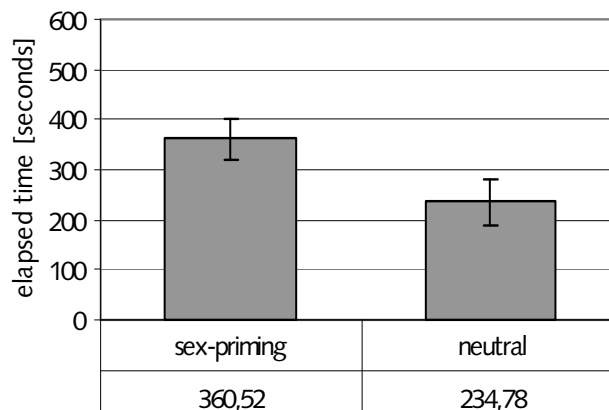
Hypothesis

I hypothesized that female participants would wait longer in response to sex-priming than neutral priming. I also expected to replicate that they self-stereotype more. Mood should not be influenced by sex-priming.

Results

Elapsed waiting time. The central dependent variable was the number of seconds participants waited before interrupting the experimenter. Only 13 of the 54 participants failed to interrupt at all in the 10 minutes time-window, 5 (18.5%) in the neutral and 8 (29.6%) in the sex-priming condition so that the time variable did not suffer from a ceiling effect. Participants in the sex-priming condition interrupted significantly later (*after* $M = 361s$, $SD = 225.80s$), in comparison to participants in the neutral ($M = 235s$, $SD = 227.25s$) priming condition, $t(52) = 2.04$, $p < .05$.

This result supports the hypothesis that social interaction behavior can be affected by sex-priming.

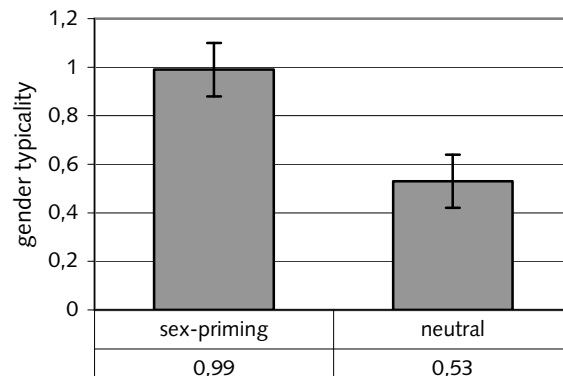


Note. The scale is depicted in its full range. Participants could interrupt the experiment in a time from 0 to 600 seconds; $n = 27$ for the sex-priming and $n = 27$ for the neutral condition.

Figure 4: Elapsed time before interrupting by Priming

Gender Typicality. As in Study 2, the mean agency rating was subtracted from the mean communion rating to describe each participant gender typicality. Positive scores mean that participants ascribe attributes from the female stereotype (communion) more strongly to

themselves than attributes from the male stereotype (agency), showing a typical female gender identity.



Note. A positive score denotes a gender identity more typical of females. The measure can theoretically take on values from 3 to -3; $n = 27$ for females and $n = 27$ for males.

Figure 5: Gender typicality in response to priming

The analysis of gender typicality is based on a single factor experimental design consisting of two conditions (neutral versus sex-priming) manipulated between participants. The central dependent variable was gender typicality as described above. Replicating the results of Study 2, women in the sex-priming condition perceived themselves as more gender typical in response to sex-priming ($M = 0.99$, $SD = 0.57$) than did women in the neutral condition ($M = 0.53$, $SD = 0.56$), $t(52) = 3.00$, $p < .006$.

Perception of the experimenter. To assess whether the priming manipulations had resulted in differential perceptions of the experimenter, participants rated the friendliness with which they felt they had been treated by the experimenter. The critical item was: "Was the experimenter friendly and courteous to you?" and participants responded on a 7-point scale that ranged from -3 (not at all) to +3 (very much so). There was no reliable difference in the ratings made in the sex-priming ($M = 1.63$, $SD = 1.24$) vs. neutral ($M = 1.41$, $SD = 1.40$) conditions ($t < 1$). Apparently, the fact that the experimenter overlooked participants while focusing his attention on the telephone conversation still did not prevent participants from forming a moderately friendly impression of him. Rarely did participants judge the experimenter as unfriendly or uncourteous (only 4 of the 54 ratings were in the negative range), so it is unlikely that participants attributed the experimenter's behavior to an intention to be rude. The fact that the behavioral measure showed quite strong effects in response to the

priming manipulation, whereas the effect on the judgment measure was nonexistent, argues against the alternative interpretation of the finding on waiting. It is important to note, however, that the experimenter's behavior was not intended to be ambiguous in this way, because the intention was to demonstrate an effect of sex-priming on behavior that was not mediated by differential interpretations of the experimenter's behavior.

Mood. The mean positive affect and negative affect in the PANAS ranges from 1 to 5. There was no reliable difference in positive affect between the sex-priming ($M = 2.93$) and neutral ($M = 2.75$) conditions, $F(1,52) = 1.01$, $p = .32$. Nor was there a reliable difference in negative affect between the conditions, sex-priming ($M = 1.33$) vs. neutral ($M = 1.50$), $F(1,52) = 1.77$, $p = .19$. Apparently, the priming conditions did not produce reliable differences in mood. The fact that the experimenter ignored the participant and focused his attention on the telephone conversation while the participant stood in the doorway did not induce a bad mood in the participant in general. After waiting, participants' positive affect ($M = 2.84$, $SD = 0.65$) was still stronger than their negative affect ($M = 1.41$, $SD = 0.46$), $t(53) = 11.94$, $p < .001$.

Influence of normative gender role attitudes on behavioral sex-priming effects. Normative Gender Role Attitudes scores range from 1 to 7, with 1 representing an egalitarian and 7 a traditional approach to gender roles. There was no reliable difference between attitudes in the sex-priming ($M = 2.52$, $SD = 0.62$) and the neutral condition ($M = 2.75$, $SD = 0.53$), $t(52) = 1.47$, $p = .15$.

A median split was performed on the participant sample (median = 2.55) according to their traditionalism score. In a 2 (sex vs. neutral word-search puzzle) X 2 (low (score ≤ 2.55) vs. high traditionalism) ANOVA, this pattern also produces a significant main effect for priming, $F(1,50) = 4.56$, $p < .04$, with sex-primed women interrupting later than women in the neutral condition. The other effects do not reach significance (all $F < 1$).

This pattern of results does not support the notion that traditional gender role attitudes might be a prerequisite for behavioral effects to emerge.

Discussion

The mean score on the normative gender attitude scale was rather low and the variance rather small, pointing to similarly egalitarian attitudes in this university student sample. This makes it difficult for gender role attitudes to influence priming effects. Additionally, one might argue

that measuring gender role attitudes after priming and the dependent measures could also be problematic, because priming might have affected them as well, thus reducing their utility as potential moderators. But, on the other hand, there were no significant differences in gender role attitudes between the priming groups. Still, ideally the attitude measurement should take place before the experiment. In the present study, it was impossible because I wanted to avoid activating gender role content, which could interfere with sex-priming effects.

So it cannot be excluded that in a sample with greater diversity with regards to gender role orientation, these attitudes moderate the effects of sex-priming. The behavioral effect might be stronger if the idea of female communion and sexual submission is deeply ingrained into a woman's personal belief system. If a woman cherishes traditional beliefs about womanhood, i.e. strongly adheres to gender differences in personality and related interaction tendencies (assertiveness versus submission), sex-priming might lead to a stronger shift in self-perception, activating deeply ingrained and important self-knowledge. On the other hand, in such cases one might also run into a ceiling effect for the sex-priming if these behaviors and self-representations are chronically accessible in the working self concept and thus cannot respond to further priming. Anyway, in Study 4 no moderation could be found. Although students were generally liberally minded in regard to gender roles, sex-priming still affected their momentary self-perception and social behavior.

In sum, the results from Study 4 support the hypothesis that sex-priming affects women's social behavior: When the concept of sexuality is surreptitiously activated via a word-search puzzle, women hesitated longer before they interrupted the experimenter's telephone conversation. Sex-priming with a word-search puzzle did not produce a significant pattern of mood effects. Thus, mood as an alternative mechanism (e.g., people in a better mood might act more generously towards the experimenter and give him more time to finish his ongoing conversation) that might explain the effect of sex-priming on waiting seems rather unlikely. Although on average normative gender role attitudes were rather egalitarian, a strong effect of sex-priming on time-to-interruption in women was still found. So even women who generally do not adhere to traditional gender role norms still seem to succumb to the association between sexuality and female indulgence or subservience, and move them to the center of their self-perception. This association manifests itself in gender-based social behavior: waiting longer before assertively demanding the attention of a social interaction partner.

GENERAL DISCUSSION

Significance of the present findings

The gender-based traits of female “communion” and male “agency” color the culturally-shared sexual scripts for women and men. In the present research, I hypothesized that sex-priming temporarily affects self-perception in that it renders one’s gender more dominant in the active self. Sex-priming was hypothesized to strengthen one’s social identity as a woman or man, and consequently, to make gender stereotypic traits more central in self-perception. The findings from Study 1 and 2 of the present work are consistent with these hypotheses. Indeed, in response to sex-priming with a word-search puzzle, participants saw themselves closer to other women (or men, respectively). They also agreed more with statements affirming their gender identity as a central, important part of their personalities (Study 1). In response to sex-priming using picture material, participants described themselves as more gender stereotypic (Study 2) than in response to two different control pictures that were comparably positive and arousing in nature, one of which also featured a man and a woman in a positive, but non-sexual, interaction. In the sex-priming condition, the tendency for female participants to affirm feminine attributes like warm-heartedness, empathy, understanding, sensitivity, more so than masculine attributes like decisiveness, assertiveness, confidence, resolution, became more pronounced. (This pattern of results was replicated with word-search puzzle sex-priming in Study 4.) For male participants this pattern was reversed. Only in the sex-priming condition did they endorse masculine attributes more strongly than feminine attributes.

Apart from sex-priming effects on the self, I also hypothesized that behavior would be affected in a congruent fashion, as momentarily activated self-content often guides behavior. Gender identity and feminine or masculine attributes, which are activated and made self-relevant by sex-priming, should be reflected in corresponding gender-based social behavior if the activated traits are applicable to the given situation. In response to sex-priming, women should be more submissive and men more dominant, because submission and dominance match the general gender stereotypes of men’s more agentic and women’s more communal social behavior.

Therefore, two paradigms were created that allowed for a more dominant or more submissive interaction in a social context (Study 3 and 4). In response to sex-priming, male

participants' signature expanded (Study 3), which can be interpreted as an increase in self-assurance and a feeling of social dominance (Zweigenhaft & Marlowe, 1973; Zweigenhaft, 1970), and as an implicit measure of changes in self-esteem (Stapel and Blanton, 2004; see also Hoorens, 1990; Koole, 2000). Female participant's signature showed the opposite pattern. In the sex-priming condition it stayed the same (Study 3), thus not showing this boost in self-assertion and social dominance which male participants received from sex-priming. In a second behavioral paradigm, involving an awkward situation that called for assertiveness, sex-primed women hesitated longer before interrupting the conversation of an experimenter who was ignoring them. Thus, they showed more submissive behavior, because they put the other's desire to continue his telephone conversation before their own desire to finish the experiment and leave (Study 4), and inhibited the potentially rude (Bargh, Chen, & Burrows, 1996) behavior of interrupting.

In sum, the present research has shown in four studies that when subtle stimuli activate the concept of sexuality, we see corresponding changes in a person's self-view and non-sexual social behavior.

A model of sex-priming effects

The present work can be explained in terms of the broad applicability of the concepts of communion versus agency, which have been hypothesized and shown to affect self-representation in response to sex-priming (Study 1 and 2). Communion and agency are such pervasive approaches to social encounters in different kinds of settings that one can easily imagine them carry over to a non-sexual mixed-sex setting. In Studies 3 and 4 of the present work, sex-priming indeed had a measurable effect on women's as well as on men's behavior.

In this section I will describe how a mechanism affecting the active self can explain the present findings, as well as findings on the female bias toward a semantic sex-submission link (Sanchez et al., 2006), the female tendency towards submissive and compliant sexual behaviors in general (Butler, 1976; Hite, 1976; Martin, 1996), the male bias toward a semantic sex-aggression/dominance association (Mussweiler & Förster, 2000), and the male tendency towards dominant-initiative behaviors in general (Koss, Gidycz, & Wisniewski, 1987; Martin, 1996; O'Sullivan & Byers, 1992).

The present research shows that prescriptive gender stereotypes underlying sexual roles – female = communal (e.g., Deaux & Lewis, 1984) = sexually submissive (Gagnon &

Simon, 1973; Schwarz & Rutter, 2000; Tevlin & Leiblum, 1983) and male = agentic (e.g., Deaux & Lewis, 1984) = sexually dominant (Blumstein & Schwarz, 1983; Lips, 1981; Schwartz & Rutter, 2000; Sprecher & McKinney, 1993) – affect the active self in an assimilative manner. When sex is subtly primed, gender-typed contents become more accessible in the momentary self-concept. This active-self account of sex-priming effects might also explain other findings on sex-priming effects from the literature, e.g. the findings on the sex→aggression link for men (Mussweiler & Förster, 2000). In Mussweiler and Förster’s studies, sex-primed male participants behaved aggressively towards another participant, whereas sex-primed women did not. Sex-primed women, on the other hand, perceived a male judgmental target as more aggressive, whereas sex-priming did not affect men’s social judgments. Mussweiler and Förster (2000) explain their findings in terms of greater contiguous activation (Hebb, 1948) of sexuality and aggressive acts for men, either in their own or in vicarious (media) experience. This, they argued, lead to an automatic link between the sexuality concept and aggressive behaviors for men, and a link between the sexuality concept and judgments biased by aggressive connotations for women. In this view, aggressive behavior occurs automatically in response to sex-priming, and the self-concept need not be involved. The authors emphasize statistical differences in the frequency with which men versus women become perpetrators or victims of sexual aggression, and draw on these statistical differences as potential determinants of the differential mental representation of sexuality for women and men. Instrumental aggressive behavior can be interpreted as an extreme form of agency, because it implies having or showing determination and energetic pursuit of a goal, at the expense of others who are damaged by such behaviors (e.g., "an aggressive businessman," "an aggressive basketball player," "aggressive drivers," etc.).

From the current perspective, the reported “automatic” link between sex and aggressive behavior for males can alternatively be interpreted as a shift in the active self, towards contents regarding the masculine gender stereotype of dominance and ambitious assertiveness. I suggest that in the sex→aggression studies (Mussweiler & Förster, 2000), aggressive content might have become more central in the self-representation, steering the male participant towards (instrumental) aggression. Rather than a mere automaticity that drives the male participants’ aggressive behavior in response to sex-priming, this effect may be mediated by changes in the active self. This leaves room for potential moderators to intervene in this chain of events. One could speculate that because such behavior is not socially desirable, it is unlikely that aggressive contents are always incorporated into the

active self, and instead that sex-priming might lead to contrast under certain circumstances. Therefore, the limits, parameters, and especially the mediators of male sex-prime-to-aggressive behavior effects need more empirical attention.

The sex→submission link for women (Kiefer, Sanchez, Kalinka, & Ybarra, 2006; Sanchez, Kiefer, & Ybarra, 2006) might also alternatively be explained by an active-self account of sex-priming effects on behavior. Sanchez et al. (2006) argue that women are bombarded with images of women's sexual submission and subservience to male partners. As a result, they internalize this gender-based submissive sexual role and come to associate sex with submission on a subconscious level. Sanchez et al. (2006) also showed that the strength of women's implicit association between sex and submission predicted their personal adoption of a submissive sexual role. The same arguments that I have put forth in regard to the sex→aggression link might hold true for the sex→submission link. These sex-submission findings (Kiefer et al., 2006; Sanchez et al, 2006) are also consistent with the hypothesis that for females, sex-priming induces a shift in the active self (Study 1, 2 and 4 of the present work) towards a more communal and submissive self-view. This could then explain the connection between a strong sex-submission link and habitually passive, indulgent sexual behaviors. The more a woman's self-representation is colored by the sex-prime induced gendered shift, the stronger will be her tendency to follow the activated self-content in sexual situations.

Future research should disentangle whether sex-priming effects on behavior are actually mediated by active self shifts and thus follow the mechanisms outlined in research on the active self account of prime-to-behavior effects (Wheeler et al., 2007), or whether they are simple perception-behavior links and thus follow the mechanisms outlined in research on the ideomotor account of prime-to-behavior effects (cf. Dijksterhuis & Bargh, 2001). Although the present research cannot definitively decide between the two, it offers evidence that the self-concept is actually involved in these kind of priming-effects., and thus points more in the direction of a model that includes self-concept shifts as an important mechanism triggered by sex-priming. A third model might also account for the present findings. According to the automatic model described by Bargh (1990), behavioral goals are activated by primes that occur outside of conscious awareness. It is possible, then, that sex-priming induces the goal to live up to the standards of the traditional gender roles.

These three alternative explanations need further empirical attention before we can be sure which is the most adequate to explain the various empirical findings in a coherent

manner. The advantage of an active-self account of sex-priming effects is its potential to unify present and past findings, and to allow us to deduce and test potential boundary conditions of these effects.

Based on present and past findings, I propose the following sex→gender-effect model. This model predicts that when sexuality is activated, gender stereotypes and especially the associated concepts of agency versus communion are also activated and enter one’s momentary self-representation. This has consequences for both the active self-concept and gender-typed behavior. The work at hand tests only a fraction of the full range of potentially affected facets of self-perception and behavior and awaits replication and generalization by future studies. Figure 6 shows the portion of self-perception and behavior effects which have been examined in the present work. The dotted arrow between Active Self Shift and Gender-Typed Behavior indicates that the mediation of the behavior effects by active self-content shift has not been demonstrated yet. The grey boxes indicate facets which might be studied in the future because they are closely linked to gender self-stereotyping and behavior.

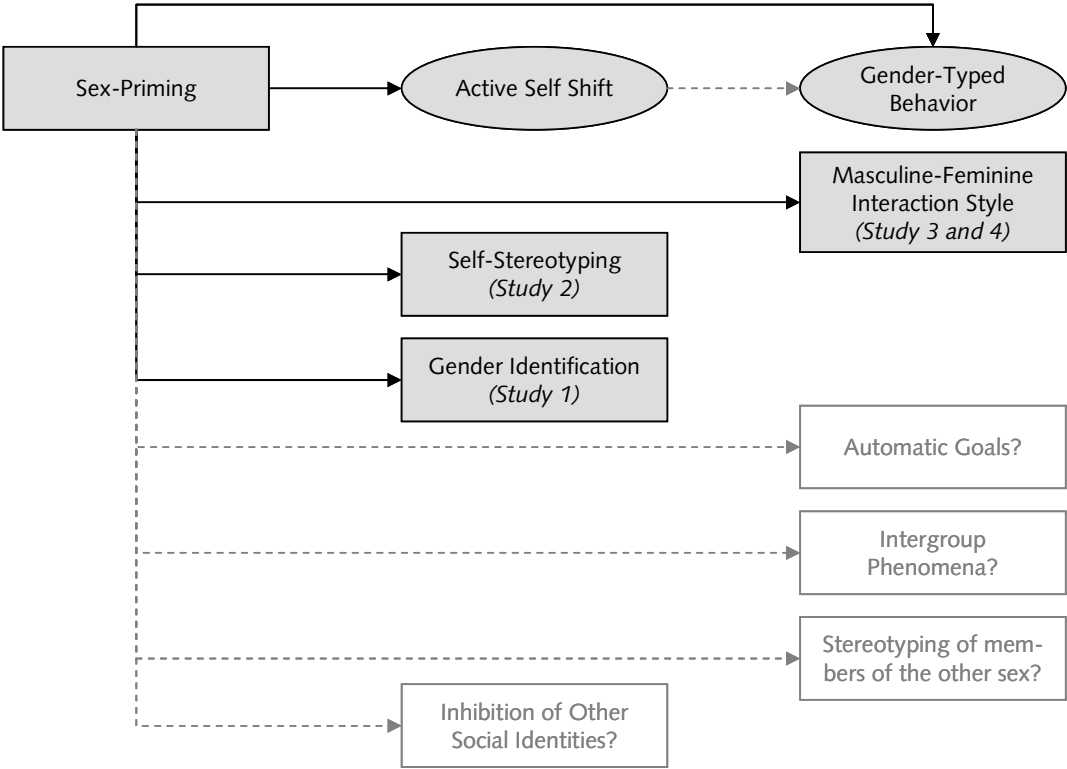


Figure 6: Overview of present studies and potential future directions

In general, the present work raises questions about the automaticity of the sex→aggression and sex→submission links. Changes in the active self may be an important intermediate

mechanism that helps to bring about the phenomena produced by sex-priming. In a similar vein, Cross and Madson (1997) have pointed out that many of the observed gender differences in behavior are due to gender differences in self-construal. What the present work adds to this basic insight is that gender-typed shifts in behavior (Study 3 and 4), might similarly be due to shifts in one's momentary self-construal. Sexuality, when primed, seems to be able to bring about these kinds of shifts. This fits nicely with work showing that between-gender comparisons bring about similar shifts in the momentary self-construal of women and men, whereas within-gender comparisons do not (Guimond, Chatard, Martinot, Crisp, & Redersdorff, 2006). Guimond et al. (2006) show an increase in relational interdependence and a decrease in agency for women, and the opposite pattern for men, in a between-gender comparison condition. These effects parallel the ones induced in the sex-priming conditions of the present studies. Like between-gender comparisons, reminders of sexuality seem to render one's own gender more salient and thus more central in the momentary self-representation.

Sex-priming is special in two respects. First, it combines many contextual cues that have been shown to encourage gender-based behavior, and second, it involves complicated predictions featuring a prime x gender interaction. These two aspects will be discussed in detail in the remainder of this chapter.

Contextual factors contributing to sex-priming effects

Sexual situations, and thus also (cultural or priming) reminders of sexuality, combine various contextual variables that have been shown to activate gender congruent self-knowledge (Hannover, 2000; pp. 185-202): salience of one's own gender, situational emphasis on gender differences, and gendered tasks. A reflection on these contributing contextual factors might be helpful in designing experiments that more carefully examine the mechanisms involved in sex-priming. In the next section, I will discuss how these three contextual factors could be useful in designing future sex-priming studies.

First, heterosexual situations render *gender a salient self-characteristic*, which makes this attribute more central and salient in self-perception. Being in the minority-sex group in a school class, for example, leads to a higher percentage of students (26%) to spontaneously mention their gender category when describing themselves in comparison to students from the majority-sex group (11%) (Cota & Dion, 1986). The degree of gender-typed behavior has been shown to depend on the salience of one's own sex, accordingly (Deaux & LaFrance,

1998; Hannover, 2000). Many of these findings are restricted to situations in which individuals are unaware that gender-congruent self-knowledge is being primed. If participants in a sex-priming experiment do not even consider the possibility that unwanted self-representations are being activated, they are not likely to take steps to avoid the resulting biases on their behavior or self-perception (Greenwald & Banaji, 1995). One might expect that drawing people's attention to such activation would prompt them to attempt to correct for the priming effect, which should attenuate or even reverse priming effects (see Strack & Hannover, 1996, for a comprehensive discussion). Prompting participants to think about themselves as sexual beings and about how they define their own sexual roles might bring an interesting twist into the findings, such that persons who consciously defy gender-typed sexual roles might protect themselves against sex-priming effects. Thus, the blatancy of priming might determine whether the self is affected by primed associations or whether conscious gender role attitudes moderate the outcome of sex-priming. This could be an interesting issue for further investigation. Sex-priming could be administered in three forms that vary in blatancy: subliminal, versus supraliminal but subtle, versus blatant sex-priming. Another important issue might be the activation of social identities other than one's gender identity, which might outweigh the effects of sex-priming (Hugenberg & Bodenhausen, 2004). In order to form meaningful impressions of ourselves as well as others, we have to deal with a multitude of potentially available social categories. The self is probably one of the richest and most complex memory structures (Baumeister, 1998), which allows for an almost infinite number of social categorizations that could in turn influence the active self. Research has shown that as a default, one social category tends to dominate social perception (Macrae, Bodenhausen, & Milne, 1995). Potentially relevant categories seem to "race" to cross an activation threshold. Once a particular category gains sufficient activation, this winner "takes all" and guides subsequent processing. The remaining, potentially conflicting social categorizations of others (Bodenhausen & Macrae, 1998; Macrae, Bodenhausen, & Milne, 1995; Pendry & Macrae, 1996) as well as of the self (Hugenberg & Bodenhausen, 2004) are kept at bay by mechanisms which inhibit the simultaneous activation of different social categories. In their study, Hugenberg and Bodenhausen (2004) showed that when participants' sorority/fraternity identity was activated, the mental representation of their identity as university students was inhibited below baseline. Importantly, participants who were not members of the sorority/fraternity in question did not show this inhibition, although they were equally familiar with the relevant stereotypes. Thus, when two relevant social categories compete for activation, one is inhibited. This suggests that in the context of the

present work, inhibition should occur when participants activate a social identity other than their gender identity before sex-priming.

Second, contextual *emphasis on gender differences* has been shown (Hogg & Turner, 1987) to lead to stronger gender-related self-stereotyping. In Hogg's and Turner's (1987) experiment, participants were assigned to discussion groups composed of either mixed- or same-sex participants. Additionally, participants in the mixed-sex group were led to believe that the study concerned well-documented gender differences in discussion style. As expected, in the condition where gender differences had been emphasized, both females and males displayed stronger gender-relevant self-stereotyping. Sexuality might be similarly classified as a situation for which strong, culturally-shared prescriptive gender-stereotypes exist. More "gender neutral" sexual imagery that depicts both sexes equally agentic or involved might change the effects of sex-priming on self-representation shifts. If people imagine a future society in which women reach equal employment rates to men's, they also ascribe more agentic characteristics to women (Diekmann & Eagly, 2000). This shows that stereotypic beliefs can be quite dynamic and can adapt to changes in social role distributions.

Third, performing a *gender-related task*, i.e. one that is considered more appropriate for one gender than the other, also activates gender-related self-knowledge. Mental representations of oneself fulfilling a gender-related task like repairing a car are associated with consistent, gender-typed self-knowledge about one's instrumental, task-oriented attributes and previous experiences (Markus, Crane, Bernstein, & Siladi, 1982). This has been shown to work for both sexes (Hannover, 1997b), and for both types of activities. Typically masculine activities like pounding nails into a piece of wood, for example, led boys and girls to endorse more instrumental, independence-related trait adjectives as self-descriptive (Hannover, 1997b). Concerning sexuality, sexual scripts direct behavior and identify gender-appropriate behavioral styles. People feel especially compelled to enact gender-typed norms in sexuality (e.g. Byers & Heinlen, 1989; Byers & Lewis, 1988; O'Sullivan & Byers, 1992). This might lay the foundations for individual gender-typed self-knowledge in the realm of sexuality, which then becomes more ingrained and automatic over time.

In sum, the sexual realm includes a number of features that all point into the same direction: Sexuality, with its mixed-sex setting, its emphasis on gender differences, and the gender-typed activities that follow from it, is predisposed to drive individuals' self-perception into a gender-typed corner. Moreover, automatic tendencies to complement the behavioral styles of others (e.g., Dryer & Horowitz, 1997; Kiesler, 1983; Leary, 1957; Tiedens &

Jimenez, 2003) may fuel preexisting gender differences in the tendency to engage in dominant or submissive behaviors.

Sex-priming as an example of a prime x person interaction

Research on priming effects has shown that primes with widely shared associations (i.e., stereotypes) affect the subsequent self-perception and behavior of people in consistent ways (i.e., acting stereotypically). Much of the work on priming effects in self-perception has worked with stereotype, trait or exemplar primes. These primes have been shown to modify the features of the active self-concept in a number of paradigms. For example, African American stereotype primes led participants to confuse traits associated with the African American stereotype with their own traits (DeMarree, Wheeler, & Petty, 2003; Galinsky, Wang, & Ku, 2005, cited in Galinsky, Ku, & Wang, 2005) and to experience increased feelings of aggression (DeMarree, Wheeler, & Petty, 2005). Stereotype and trait primes generally produce assimilation effects (Wheeler, DeMarree, & Petty, 2007; Wheeler & Petty, 2001) but contrast has also been demonstrated. Contrast can occur via the activation of prime-inconsistent self-content (Mussweiler, 2003; Wheeler et al., 2007). In the present work, the priming of sexuality involved more complicated predictions. In this section, I will explain how the present work advances our understanding of the mechanisms involved in priming effects.

Unlike previous work, which focused on simple “assimilation” or “contrast” to the priming stimulus, in the present research I predicted differential reactions to sex-priming depending on the gender of the participant. Still, women and men clearly differ in how they perceive the stimulus and show divergent shifts in the active self in response to it. Female participants show a shift into a feminine stereotypic direction whereas males shift their active self more towards masculine self-knowledge. These divergent effects are only understandable when one assumes sexuality to be represented differently depending on the gender of the person. One can then conclude that a single priming stimulus is capable of producing divergent results in people from different sexes.

Wheeler and Berger (2007) showed that a single prime affects the product choices of different groups in an opposite manner. The authors attributed these differences to the fact that different groups have different prime associations, and underscored the importance of understanding personal associations to primes when one wants to predict nonconsciously influenced choices. They compared men’s versus women’s and introverts’ versus extroverts’

reactions to a prime and found that the same priming stimulus produced opposite effects in consumer (product-buying) behavior depending on the group. In one experiment, women and men were primed either with shopping or with a neutral prime. On average, women and men were expected to differ in their individual mental representation of the concept of shopping. The shopping prime was expected to activate “possibility-driven” (adventurous, rambling) tendencies in women and “purpose-driven” (purposeful, goal-oriented) tendencies in men. Hence, the authors predicted that men would be more inclined to get right to their goal of finding the needed item, while women would see a “possibility-driven” experience with lots of room for browsing in response to a shopping-prime. This was then expected to carry over to the next, ostensibly unrelated task. Here participants had to describe how they would plan a trip in a new place. These descriptions were raters coded for the style of choice behavior they implied. Shopping-primed men indeed made more purpose-driven choices on the trip question (e.g., sticking to the major sites, sticking to the map) whereas shopping-primed women indeed made more possibility-driven choices (e.g., planning a more leisurely and unstructured trip, being adventurous). In this study, the priming even reversed the normal gender difference in the task: Without the shopping prime women made more goal-oriented choices, whereas men were more willing to be adventurous. This resembles the present sex-priming findings in that a single priming stimulus can activate different associations for different kinds of people, depending on their average perception and behavioral habits in response to the stimulus. The shopping findings differ from the present sex-priming findings in that in the latter, pre-existing gender differences are exacerbated not reversed. The present sex-priming work also differs from the shopping study in that it not only shows how a single prime affects the behavior of two groups differently, but also shows that this is paralleled by a corresponding content shift in the active self.

Another illuminating example is the second experiment by Wheeler and Berger (2007) in which they showed that priming introverts versus extroverts with the concept of a party differentially influences subsequent product choices. For introverts, thinking about going to a party where they would not know anyone was expected to activate anxiety that would carry over to a subsequent task. In particular, the authors expected these participants to choose items that were less stimulating, and more calming (e.g., a comfort food cookbook instead of one featuring spicy food, a coupon for takeout versus a meal at a restaurant, a CD of nighttime jazz rather than dance party music). The resulting choice behaviors were consistent with this hypothesis. Extroverts showed no difference in their choices regardless of the prime.

This study again resembles the present sex-priming studies in that a single prime produces opposite behavioral effects for different groups of people. It differs in that sex-priming involves gender-based self-perceptions and corresponding behavior tendencies that do not necessarily have to be part of a person's habitual responses, like shying away from a party scene might be for introverts.

Similarly, Mussweiler and Förster's (2000) studies on the sex-aggression link tested divergent predictions for women and men. For women, priming was expected to influence their social judgment but not their social behavior. For men, priming was expected to influence their social behavior but not their social judgments. Therefore, the prime x person interaction in this case pertained to different realms of the psychological response to the sex-prime: judgment or behavior. This dissociation shows that priming effects can be even more complicated than the prime x person interactions within the present studies or in the work by Wheeler and Berger (2007).

In general, work on the differential effects of sex-priming depending on the prime-recipient furthers our understanding of the nature of priming effects. It adds to the growing body of literature describing how the self-concept is involved in, and often mediates, prime-to-behavior effects (Stapel & Van der Zee, 2006; Wheeler et al., 2007).

The present research follows a general trend in priming research, pushing the limits of priming research beyond simple trait/stereotype priming (Bargh, 2006). The present work shows that no direct exemplar or trait prime is necessary to push people into a more gender-based self-view. Thus, in order to evoke a group stereotype it is not necessary to prime the respective group directly. It is also possible to evoke the stereotype by priming a social situation that is strongly associated with different gender-typed scripts for the two sexes. Scenes involving real social interactions might be a highly-relevant incidental priming stimulus in everyday life, and thus it would be very useful to gather more empirical data to further our understanding of such intricate primes.

Theoretical implications of the Sex Gender Automaticities

The present research has a number of theoretical implications that should be examined more closely in future research. In this part, I will first discuss the potential scope of sex-priming effects. I will then outline some limits of the present research and possible directions for future research that might help overcome these limits. In particular, I describe what kinds of

experiments would be necessary to bolster the active-self account of sex-priming effects on behavior. I will also explain why the present research is not able to address the question of the origin of gender differences in sexual cognition. I will then go on to discuss different mechanisms that might be responsible for the change in the self-concept found in Studies 1, 2, and 4, which will also include a discussion of potential boundary conditions for the present findings. Finally, I will continue to discuss additional potential moderators for the present findings.

The invisible oil-slick effect: Sex-priming affects behavior beyond sexuality

Before the present studies were conducted, research on the effects of sex-priming on women's behavior has been limited to studying correlations between the strength of automatic sex-submission associations and self-reported sexual behavior (e.g., Sanchez et al., 2006). What is new in the present studies is that they show how associations activated by sex-priming can enter non-sexual interaction situations and influence people's behavior in a social context (Study 3 and 4). The present work also suggests that persons may fail to recognize the influence that sex-priming-induced content exerts on their social behavior. Priming effects have been shown to occur quite often without conscious intention or awareness (Bargh et al., 1995). Consistent with this idea, participants in the present studies did not express any suspicion about the priming task's true nature (Study 1 through 4). Therefore, it is likely that they were unaware of how the sex-priming produced a gender-typed shift in their active selves, and how this in turn influenced their behavior.

This implies that in general, women and men may unwittingly enact social scripts shaped by a stereotypic sexuality representation while engaging in mixed-sex interactions. Especially for women, the effects of a temporary increase in submissiveness might be highly problematic and dysfunctional in social situations that require assertiveness and a task-orientated approach. Especially in work-related settings, such as in a job interview with a male interviewer, but also in situations where they encounter persuasive appeals (e.g. promotion in a shopping mall), incidental sex-priming stimuli (like poster ads featuring sexual situations) might lead to undermined assertiveness in women. In sum, sex-priming might influence women's behavior in persuasion situations or, even worse, might interfere with their ability to defend themselves in situations where they are overwhelmed with obnoxious requests. For example, if a woman simply passes by a poster that promotes perfume or underwear depicting a woman in a submissive pose, she may not be aware of the influence

this could possibly have on her when she encounters someone who pressures her into doing him a favor three blocks later.

Men, on the other hand, might fail to show empathy and a communal orientation on tasks that require these abilities, especially in tasks where smooth social interaction, mutual respect and perspective taking are crucial. Sex-priming stimuli might foster men's dominance, which could reduce their social sensibility and ability act in accordance with female partners or coworkers (Galinsky, Magee, Inesi, Gruenfeld, 2006). This could lead to interpersonal problems like misunderstandings in heterosexual dating relationships.

Other problematic consequences of sex-priming can be found in the momentarily altered self-view it produces. Some people hold chronic self-views that combine agentic and communal content to a similar degree ("androgyny," Bem, 1974). This tendency has been shown to influence psychological health in a positive way, and it seems to correspond to higher self-esteem and satisfaction in general (Peres, Lichtenstein, Hoch, & Shepher, 1982). On the other hand, people who strongly identify with their respective gender stereotype also tend to stereotype others and show less tolerance for complexity when construing their social world around them (Hudak, 1993). Males who strongly adhere to traditional gender roles are likely to also hold ambivalent sexist attitudes regarding women (Glick, Diebold, Bailey-Werner, & Zhu, 1997) and prefer mates who match the traditional gender stereotype (Johannesen-Schmidt & Eagly, 2002). Habitually gender-typing the self and identifying with a gendered self-perception can thus limit flexibility in social thinking and behavior. Every factor that enforces these tendencies might thus be dysfunctional.

Future studies should thus try to delimit the range of possible situations and tasks that can be affected by sex-priming as well as investigate how long these effects might last.

In general, we can conclude that sexuality as we construe and experience it seems to be one of the "motors" that contribute to the persistence of gender stereotypes, because it poses a recurring "refresher" stimulus that activates gender-typed associations and self-content.

Limits of the present research and further directions for future research

This work has a clear focus on the effects of sex-priming. It demonstrates, for the first time, that sex-priming renders accessible gendered self-content and produces behavior that mirrors this change in self-representation. I developed these predictions based on an analysis of

current culturally-shared sexual imagery and typical gender differences in individual mental representations of sexuality. The main limitation of the present research is that it does not show the actual mechanisms behind the effects. In the four studies presented here, sex-priming effects on self-perception and behavioral effects occurred as predicted, but the findings are not combined in a single study. Are shifts in the active self actually mediating the behavioral effects? In order to show this, one would need to show effects of sex-priming on self-perception and behavior in one study and then statistically demonstrate that the behavioral effects are actually mediated by shifts in self-perception.

In addition, future studies could corroborate the active self account of sex-priming effects by introducing additional variables which have been shown to bolster or to reduce priming effects on self-representation and behavior, like habitual self-monitoring (Snyder, 1974), perspective taking (Wheeler, Jarvis, & Petty, 2001), and private self-consciousness (e.g., Fenigstein & Levine, 1984; Hull, Slone, Meteyer, & Matthews, 2002). For example, perspective taking is one factor that increases the link between the self and primed content, leading the person to perceive the primed content as characteristic of the self. A number of studies support the idea that this integrates the primed content more strongly into the active self, which can increase behavioral assimilation to primes. In one such study (Wheeler, Jarvis, & Petty, 2001) some participants wrote essays about a day in the life of a student named Tyrone Walker (whom most assumed to be African American) from the first-person perspective. These participants subsequently exhibited poorer performance on a math test than did participants who wrote the essay from the third-person perspective. Hence, when participants actively related the prime content to their self-concept via perspective taking, they showed stronger behavioral assimilation to a stereotypically-ascribed attribute (in this case, weak mathematical aptitude). In another series of studies, perspective taking led to larger assimilation effects in both self-judgments and behavior (Galinsky, Ku, & Wang, 2005). In studies using the stereotype of professors as very analytically skilled (Galinsky, Ku, & Wang, 2005), participants who were told to take the professor's perspective performed even better on a series of analytical questions than did those simply told to pay attention to the priming stimulus. Marx and Stapel (2006) showed that this effect is not likely to be due to more elaborative or vivid processing of the prime in the perspective taking conditions, which would confound the perspective taking manipulation with a cognitive elaboration manipulation. Participants who wrote an essay from the first person perspective were instructed to write only five concise sentences, whereas participants writing the essay from the third person

perspective were instructed to write nine detailed and elaborate sentences. Still, their results indicated that perspective taking per se is the decisive factor that leads to increases in prime-self overlap in the active self, which leads to consistent behavior. For the present research, showing that sex-priming effects on behavior are mediated by shifts in the current self-concept, and showing that perspective taking moderates the effect, would strengthen an active-self account of the present findings.

Furthermore, perspective taking might be used to study whether sex-priming effects can be reversed. If women and men were instructed to disengage from their respective gender role when thinking about sex or processing the sex-priming stimulus, this might lessen the self-prime overlap in self-content and thus reduce the priming effects on self-perception and behavior. For example, one might instruct participants in the picture task to take the perspective of the other gender and write an essay about this person's feelings and experiences. This might work against the automatic tendency to take the perspective of the person in one's own gender category. This possibility might be applicable mainly to visual/film material, which typically offers more than one target with which one can identify.

Different explanations for differences in men's and women's response to sex-priming

Although in the present work I hypothesized that sex-priming effects on self-perception and social behavior are driven by prescriptive gender stereotypes concerning female and male sexuality that are socially constructed, the present results are also consistent with the idea that the sex-priming mechanisms might develop from biological influences. In general, there are many possible explanations for differences in men's and women's sexual behavior and cognition. Evolutionary theory, for example, argues that men and women behave differently in sexual situations because they are acting upon evolved mating strategies (e.g., Buss & Schmitt, 1993). In contrast, other researchers argue that these differences develop out of differences between men's and women's sexual scripts (e.g., Hynie, Lydon, Cote, & Wiener, 1998), and highlight how boys' and girls' differential socialization may lead them to develop different sexual thoughts, motivations and behaviors. Research on sexual self-schemas, or individuals' cognitive representations about sexual aspects of the self (Andersen & Cyranowki, 1994), has shown that men's and women's self-schemas differ considerably (Andersen & Cyranowki, 1994; Andersen, Cyranowki, & Espindle, 1999), reflecting the internalization of social norms about gender appropriate sexual behavior. According to

Ehrhardt and Wasserheit (1991), cultural values about gender roles may influence the behavior of men and women in sexual situations at a number of levels: gender roles may influence sexual behavior at the relationship level by defining the general behavior of men and women toward each other in relationships, and by playing a role in how sexual behavior is negotiated and ultimately enacted. The present findings do not speak directly to the etiology of the differences in activated content in response to sexuality, which differs between women and men. So this question also warrants future research.

Potential mechanisms of active self-change in sex-priming and potential boundary conditions of the sex-priming effects on the active self

From research on the active self (Wheeler, DeMarree, & Petty, 2007), it is known that a priming stimulus does not necessarily only produce effects when extensive self-knowledge concerning the primed content is available. On 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. This implies that even if a person does not regularly self-stereotype in terms of gender and instead distances her- or himself from gender-based behavioral choices, a sex-prime can still activate general knowledge about gender stereotypes and introduce them into the person’s momentary self-perception. This illuminates the need for studies that clarify the amount of self-knowledge necessary for sex-priming to produce the documented gender-typical shifts in the momentary self-representation. For this purpose, one would have to assess gender self-stereotyping in an initial session and measure how sex-priming affects self-perception and behavior in a later session depending on the group of people to whom the prime-recipient belongs (e.g., persons who show strong gender-related self-stereotyping, moderate gender-related self-stereotyping, androgenic self-perception, or counter-stereotypic self-stereotyping). Different hypotheses could be put forth regarding the potentially different reactions of people belonging to these different groups. Persons with a strong pre-existing tendency to self-stereotype along gender lines should have extensive self-knowledge that can be brought to mind in response to sex-priming, thus allowing for a great impact of sex-priming on the momentary self-concept. On the other hand, for them gender-typical content might already be part of chronically accessible self-content, which might make them less susceptible to the impact of sex-priming (a kind of ceiling effect). For persons with a weak pre-existing tendency to self-stereotype, or for persons with a prevailing androgenic or counter-stereotypic self-view, sex-priming might

bring less extensive gender-typical self-knowledge to mind and into the focus of their active self, thus leading to relatively small sex-priming effects. Nonetheless, sex-priming may still affect their momentary self-representation in a gender-based way because for them expansion processes might take place.

Under certain circumstances, it is possible that the boundaries between pre-existing self-content and prime-induced (non-)self-content are more permeable and make expansion more likely. As in the misattribution of arousal (see Petty & Cacioppo, 1983; Zillmann, 1983, for reviews), features of the context that create ambiguity concerning the source of content activation might set the stage for expansion mechanisms. In the case of sex-priming, people might have trouble identifying the source of accessible gender-typical content and thus be likely to show an active-self shift in a more gender-typical direction even though they personally do not have particularly strong or extensive gender-stereotypic self-views available as chronic self-content. Mussweiler and Neumann (2000) have shown that source-monitoring failures lead to the misattribution of primed content when forming an impression of an ambiguous social target. In the case of sex-priming, the same phenomenon could occur, with the self as the ambiguous judgmental target regarding gender-typical characteristics. As attribution processes can occur outside of conscious awareness (Zillmann, 1983) the *misattribution* of prime content to preexisting self-knowledge could also occur outside of awareness.

Similar to impression formation, in which the applicability of primes determines whether they actually influence social judgment, in self-perception the discrepancy between sex-prime-induced content and the chronic self-content might determine whether the sex-prime-induced content influences the active self in an assimilative manner (i.e. misattribution of the sex-primed gender-typed content to the self) or not. In certain cases, the sex-prime induced content (gender-typical attributes and their behavioral equivalents) may be extremely discrepant from a person's chronic self-content, for example because a person emphasizes her/his counter-stereotypic attributes or is proud of her/his androgenic self-concept and gender role attitudes. In these cases, the prime might influence the active self in a contrastive manner (e.g., Herr, Sherman, & Fazio, 1983), because the sex-prime induced gender-typical content is deemed inapplicable to the self. This type of contrast has also been shown to operate outside of a person's conscious awareness (Mussweiler, Rüter, & Epstude, 2004).

Still another dimension along which the fit between prime-induced content and self-content might moderate priming effects is the extremity of the prime itself (e.g., Herr,

Sherman, & Fazio, 1983; Mussweiler, 2003). In the present study, only very moderate, subtle sexual stimuli were administered, in order to avoid suggesting any power imbalances between the sexes. 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 also exceed the ability of the active self to integrate prime content that is not, or is only in very few associations, part of potentially available self-content. In these cases contrast in self-perception may be more likely.

At this point, it is necessary to repeat that in the present work none of these factors could be addressed. The stimuli were chosen to test for the possibility of sex-priming effects on self-representation and social behavior, not to establish the boundary conditions that diminish or reverse the effects. Still, subtle sex-priming stimuli led the current participants, who tended to endorse liberal gender role attitudes (Study 4), to describe themselves in more gender-typed terms. Future work should more closely examine boundary conditions in which these effects are diminished and under what conditions they can be reversed.

Potential moderators of the sex-prime induced effects on self-perception and behavior

There are other factors that might potentially influence and moderate sex-priming effects and which should also be tested. In this section, I will discuss applicability, sexual orientation, sex drive, and attitude towards traditional gender roles.

Applicability is an important limiting factor in priming effects on social judgments. In their classical study, Higgins, Rholes, and Jones (1977) showed that people interpret ambiguous information in terms of the concepts that are most accessible at the time of judgment, but only if the most accessible concept is applicable to the target. In the present work I argued that the applicability of self-content activated by sex-priming in a non-sexual interaction context is a given, and that it should thus be applied in self-assessments as well as in behavioral self-presentation. The findings were consistent with this hypothesis. This shows that the representation of a single social interaction situation, i.e. that of sexuality, has broader consequences for many types of situations in which men and women interact. The social situations in Study 3 and 4 resembled heterosexual encounters in that both a woman and a man were present. This might be a necessary precondition for sex-priming effects to influence behavior. An inclination to submit or to dominate may be closely associated with heterosexual situations and may not carry over to same-sex situations. It is unclear, for example, whether

the stereotypic communal orientation in the “waiting” paradigm would have shown the documented effect if the experimenter had been another woman. Hence, future research should systematically test whether the applicability of sex primes in mixed- versus same-sex contexts moderates their effects on social tuning.

Another interesting issue is how sex-priming effects might depend on the *sexual orientation* of a person. From the existing literature on the correlations between sexual orientation and the self-concept, we can conclude that heterosexuals’ sexual roles are especially imbued with the general gender stereotypes. This is not only apparent in culturally-shared images of sexuality, but is also reflected in gender differences in the mental representation of sexuality. For lesbians and gay men the situation is different. For these individuals, gender-based norms on sexuality are absent and they must negotiate their sexual roles differently with their partners (e.g., Klinkenberg & Rose, 1994). Although the dating and sexual scripts for gay men and lesbians resemble the traditional heterosexual sexual scripts in some aspects, core elements of the traditional heterosexual scripts are missing. For example, there is no role differentiation into a gatekeeper versus initiator role (Klinkenberg & Rose, 1994). Indeed, lesbians report levels of sexual initiation behaviors that are similar to those reported by gay men (Beres, Herold, & Maitland, 2004). Additionally, research has shown that gender differences in agency and communion are more pronounced for heterosexuals than for homosexuals (Kurdek, 1987). In general, research has found lesbians to be more agentic than heterosexual women, gay men to be more communal than heterosexual men. Some subgroups of lesbians (e.g., “butch” lesbians) are especially likely to show typically male traits (Singh, Vidaurri, Zambarano, & Dabbs, 1999). This means homosexuality implies different sexual roles and different attitudes towards the gender roles and self-concepts as women or men (cf. also Skidmore, Linsenmeier, & Bailey, 2006). Hence, we can expect the norms of male sexual agency and female sexual submission to be much less prominent, or even absent, within a homosexual context. What does this mean for the effects of sex-priming when administered to a homosexual participant pool? One could speculate that priming gay men or lesbians with sexuality might lead to diminished (or even non-existent) gender-typed active-self shifts. For lesbians and gay men, priming sexuality should predominantly activate concepts that are associated in their individual representations of sexuality. Lesbian women, for example, might not show the reported sex-submission link from the literature. For them, sexuality might even be a reminder for an agentic approach (especially for the “butch lesbians”) or for behavioral flexibility concerning dominance versus

submission. This should further imply that priming lesbian women with sexuality would not necessarily shift their active self into a more traditional feminine direction, as it does for heterosexual women. In future studies sexual orientation should be included into the experimental design of sex-priming studies in order to examine the exact influence of that factor.

A person's *sex drive*, or the strength of their sexual motivation, is reflected in spontaneous thoughts about sex, frequency and variety of sexual fantasies, desired frequency of intercourse, desired number of partners, masturbation, liking for various sexual practices, willingness to forego sex, initiating versus refusing sex, making sacrifices for sex, and other measures (e.g., Baumeister, Catanese, & Vohs, 2001). Although research has shown that, on average, men's sex drive is stronger than women's (Baumeister et al., 2001), there are also exceptions to that rule. Women with a high sex drive differ from women with a moderate or low sex drive in their sexual behavior and other personality characteristics (e.g., Lippa, 2006). Women with a high sex drive are more self-assertive and agentic with regard to sex. They do not refrain from seeking out sex in an assertive manner, and thus do not conform to the traditional female sexual script of submission and communion. Hence, strength of sex drive is a factor that may moderate personal adoption of traditional gender-typed sexual scripts, and thus may influence how sex-priming influences self-construal. We might expect that women with a high sex-drive actually experience an active-self shift toward a more assertive and dominant direction in the wake of sex-priming. Hence, sexual orientation as well as strength of sex drive are potential personality moderators of sex-priming effects on self-perception and behavior which should be considered in future experimental paradigms.

Finally, we should expect a moderating role of a person's personal *attitudes towards traditional gender role*. From research on the androgenic personality (e.g., Bem, 1974), we know that there are people of both sexes who describe themselves as having feminine as well as masculine traits. These people typically do not self-stereotype, nor do they stereotype others along gender lines (Hudak, 1993). One could speculate that androgenic persons have a less gender-typed representation of sexuality, as well. One could also directly assess the personal sexual scripts of participants (e.g., Krahe, Bieneck, & Scheinberger-Olwig, 2007; Wiederman, 2005) and examine whether people with gender-typed versus gender-neutral or counter-stereotypic sexual scripts differ in their reactions to sex-priming.

Practical Applications of the Sex Gender Effects

The present research has a number of potential practical applications. In this section I will discuss only one, namely how the present studies and other findings on sex-priming effects from the existing literature might inform a social psychological perspective on sexual health education. First, I will explain the potential consequences for our sexual lives when sex-priming puts us into gendered shoes, and start discussing broad strategies which might help overcome some of these problems. From there I will go on to discuss how techniques from cognitive behavior therapy might help overcome detrimental sexual cognitive patterns (i.e., associations and scripts).

Consequences of sex-associations for a healthy sexual life

Sexuality is of course the facet of social behavior that is most likely to be directly affected by the impact of sex associations on self-representations.

Men who internalize the traditional dominant sexual script for males may feel pressure to embody the stereotypical masculine ideal of the sexual adventurer and push their partners into unwanted sexual activities, and women who internalize the traditional submissive sexual script for females may leave important sexual decisions up to their partners.

Indeed, in sexual situations, gender-typed mental representations of sexuality are related to detrimental behavioral outcomes. The stronger a woman's association between sexuality and submissiveness, the lower her personal sexual well-being (Kiefer, Sanchez, Kalinka, & Ybarra, 2006; Sanchez et al., 2006). Associating sexuality with submission correlates with a reduced feeling of sexual autonomy, which is thought to be critical for women's sexual enjoyment and ability to orgasm (for a review, see Weinberg, Swensson, & Hammersmith, 1983). Many researchers and practitioners contend that sexual assertiveness and perceived control are necessary for healthy sexual relationships (Haavio-Mannila & Kontula, 1997; Hurlbert, 1991; Hurlbert, Apt, & Rabehl, 1993; Morokoff et al., 1997; Tolman, 2002). For example, Masters and Johnson (1979) proposed that "spectatoring," (i.e. the loss of sexual agency through viewing oneself as a sexual object) disturbs sexual functioning because it distracts women from their own pleasure (see also Barlow, 1986; Faith & Schare, 1993; Fredrickson & Roberts, 1997). In sum, the field of sex therapy and empirical research suggest that enacting a submissive sexual role undermines women's sexual autonomy and consequently their sexual well-being.

For men, similar studies that relate implicit sex-dominance associations to detrimental attitudes and experiences in the sexual realm are lacking. However, there are studies that demonstrate that investing strongly in gender norms of masculinity might be correlated with negative outcomes for the sexual health and social well-being of males. For example, endorsement of traditional gender role attitudes co-varies with college males' self-reports of having more power than, and engaging in less self-disclosure with, their heterosexual dating partners (Thompson, Grisant, & Pleck, 1985). Hyper-masculine attitudes predict college males' use of psychological violence in dating relationships (Thompson, 1990) and endorsement of myths about rape (Bunting & Reeves, 1983). In a sample of male teenagers, traditional attitudes toward male roles are associated with less consistent condom use, negative attitudes toward condoms, and coercive sex (Pleck, Sonenstein, & Ku, 1993a,b). Of course, these studies are correlational in nature and cannot be interpreted causally. They simply show relations between harmful sexual or relationship behaviors and a strong endorsement of masculine ideals as self-relevant. Studies like this cannot answer the question whether priming sexuality can push a man's self-representation to become hyper-masculine and actually trigger harmful behaviors like the ones cited above; they can just give hints as to the areas of behavior where problems might arise. Sex therapists (e.g., Wiederman, 2005) also describe the potential problems when dating partners follow different sets of sexual scripts. Both women and men might feel obligated to follow the gendered sexual scripts for their respective sex, which may lead men to feign sexual eagerness and dominance early in an erotic relationship even if this is not in accordance with what they really feel. Indeed, some males report having engaged in unwanted sexual activity with females because they felt obligated to fulfill their role (O'Sullivan & Allgeier, 1998). The male might fear that his female partner will doubt his masculinity, sexual potency, and virility if he does not show the expected pattern of sexual dominance and agency. Women may react when their male partner deviates from the male sexual agency scripts by questioning their own sexual desirability (Gilbert, Walker, McKinney, & Snell, 1999). On the other hand, a woman might feel that she cannot freely express her sexual urges, because her sexual script of submission and passivity forbids this behavior.

In sum, one or both members of a couple may feel compelled to follow the traditional sexual scripts for his or her gender, even though they do not reflect what that the individual truly desires. Clement (2006) has successfully introduced an innovative approach into sex therapy, suggesting that the most important aim is to lead couples out of subjectively

perceived role constraints. Partners with sexual problems might be “stuck” because they rely too much on norms or habits that do not actually express their sexual needs and fantasies. In order to promote a more functional sexuality, Clement thus proposes that the partners try to be more expressive and sincere about their real sexual wishes and fantasies and try to overcome the fear of potential rejection.

The World Organization of Health (2005) definition of sexual health similarly involves bodily as well as psychosocial aspects of sexual well-being. The psychosocial aspects include satisfying intimate relationships with an autonomous expression of a person’s will. This is potentially incompatible with a passive-submissive sexual role, which can detract from women’s autonomy to „negotiate the terms“ of sexuality. Hence, the study of sexual scripts and how to overcome potentially detrimental effects of a submissive sexual script might be very fruitful for the purpose of sexual health. Women might benefit from a more agentic approach when it comes to seeking both sexual pleasure and safety. Some researchers have investigated women's feelings of power in relationships and found that women who perceive greater power in their romantic relationships engage in safer sexual practices (Pulerwitz, Amaro, DeJong, Gortmaker, & Rudd, 2002). Similarly, Soet, Dudley, and Dilorio (1999) found that women's perception of dominance in their romantic relationships was related to higher self-efficacy for using condoms and more positive expectancies regarding condom use. Women may sometimes fake an orgasm, often with the intention of keeping their partner satisfied (with himself) (Butler, 1976; Hite, 1976). Often they consent to unwanted sexual activities. The reasons for these phenomena may vary widely, but surely more models depicting a self-assertive female sexuality could help to change the mental representation of sexuality, and thus pave the way for automatic sexual assertiveness in females, as well. For males, the sexual script of assertiveness and dominance might have other downsides, which could be overcome with a more flexible approach to gender roles in sexuality. In general, if men feel powerful in sexual situations they might be less able to decode their female partners’ nonverbal and verbal messages (Galinsky et al., 2006). Successful sexual interaction should include a good understanding of what the other appreciates and enjoys or refuses.

Today, androgyny (having both masculine and feminine characteristics) is considered to the healthy ideal by many researchers and clinicians (e.g., Bem, 1975; Gilbert, 1981; Kaplan, 1976; for mixed evidence see also Taylor & Hall, 1982; cf. Paulhus & Martin, 1988). According to this view, limiting a child's exposure to only "feminine" or to only "masculine" toys hinders the development of a full range of capabilities (see Bradbard, Martin, Endsley, &

Halverson, 1986). This might also apply for sexual education. Both dominance and indulgence should be taught as behavioral options for both sexes by sex educators in schools, by parents, by the media. The wish to please the other and the wish to find pleasure should be embraced by both sexes equally. Above all, personal autonomy to freely choose among behaviors that please oneself (and do not hurt others) should be taught and modeled. For that reason, children and adolescents need to learn how to resist the pressure to behave according to sexual scripts, which might circulate among groups of friends, and instead focus on finding their own standards of behavior. Attitude inoculation (McGuire, 1964) has been applied to help non-smoking adolescents to resist peer pressure to try their first cigarette (Pfau, Van Bockern, & Geenkang, 1996). Similarly, sexual education might involve a sensitization concerning the impact of sexual scripts on the development of one's personal sexuality, and how these scripts might exert pressure on one's partner and create problems and misunderstandings. Wiederman (2005) proposes a similar approach in sex therapy (when problems already have appeared). He suggests teaching scripting theory explicitly to certain clients in order to facilitate understanding of the nature of their typical sexual interactions. Clients are often surprised to realize the extent of predictability (i.e. the scripted nature) of their problematic sexual activity (Wiederman, 2005). By working through these scripts, clients can gain distance from their own behavior to examine which aspects of the scripts work and which create misunderstandings, conflict and discord in their relationships.

Media literacy (Goodman, 2003; Thoman, & Jolls, 2005) is another important issue into which the social psychological insights on priming effects should be included. It could be an important lesson to learn that even very subtle cues, like the things we notice in poster ads when we rush by, might influence our momentary self-representation. This might lead to a heightened awareness of these subtle phenomena and a more sensitive attentiveness to how commercial ads might influence our self-definition in indirect ways. In sum, a lesson in social psychological insights on automatic behavior and priming research in general should be included into the curriculum in an age-adapted, appealing form. Given the affinity for psychology (Fuhrer, Kaiser, & Hangartner, 1995) that is typical in adolescence, it might not be difficult to get students' attention and interest.

How to overcome implicit associations to sexuality

Based on the principles of learning, cognitive behavior therapy (e.g., Margraf, 2000; Reinecker, 1999) has developed a number of strategies that help to overcome automatic

habitual responses to certain stimuli, e.g. fear-inducing or “phobic” stimuli. Exaggerated fears (phobia, panic attacks) and fight-or-flight reactions can be overcome by confronting oneself with the fear-inducing situation until the panic reaction fades and more comfortable experiences can be made with the situation (Foa & Kozak, 1986). This has been shown to lead to new, more positive associations with the situation (Foa & Kozak, 1986). These more positive associations are fortified by training, by entering the situation over and over again. Instead of having just one strong association between spiders and fear, for example, after exposure training a clinical patient might be able to associate additional incompatible responses and emotions to the fear-inducing spider, e.g. relaxation, control, curiosity, mastery, or pride, among others. These additional responses then help to overcome the automatic impulse to flee from the fear-inducing object. It is crucial, however, that the new, incompatible association is well ingrained. So the new experience has to be repeated over and over again to ensure that it becomes habitual. It is also helpful to think about the feared object in new ways, thus elaborating deeply on potential alternative associations and giving them a chance to become part of one’s long term memory, heightening their chronic accessibility.

If we wish to apply the insights of cognitive behavior therapy to how we mentally represent sexuality, then a direct application could involve enriching and diversifying the sex associations that young people hold, for example by showing agency and communion independent of the gender of the person. One could also encourage people to reflect their sexual scripts in regard to what kind of approach they usually have (communion or agency? acting or reacting? initiative or subservience? dominance or submission?) and check whether this is in line with their self-concept as a woman or man.

CONCLUSION

With the present work I attempted to explore how sex-priming affects people's self-representations and their social behavior. I started with an in-depth analysis of how women's and men's cognitive representation of sexuality differs. A sex-submission link seems to be unique to women's associative network concerning sexuality, whereas men exhibit a link between sex and aggression. Differences in sexual associations and the scripts of female sexual submission versus male dominance were shown to reflect the general prescriptive gender stereotype that women should be communal, whereas men should be agentic.

It was predicted that activating the context of sexuality leads to an activation of the gender stereotypes of communion and submissiveness in women, whereas in men the same sex-priming leads to an activation of the gender stereotypes of agency and dominance. I hypothesized that in response to sex-priming these elements would become a central focus in participants' momentary self-representations. The active self "tunes in" into these basic notions and hence, after sex-priming participants described themselves in more gender-typed ways than they did prior to sex-priming. These altered self-views were also reflected in how female and male participants approached a social situation. In the wake of sex-priming, men showed more dominant behavior whereas women showed more submission.

The present research is innovative because it shows how the self-concept is involved in reactions to sex-priming. This is a new way of conceptualizing the effects of sex-priming, which have hitherto been described as automatic perception-behavior links driven by implicit mental associations between sexuality and contiguous perceptions/behaviors. The present account has the potential to integrate existing findings concerning gender differences in gender roles, sexual scripts, implicit associations to sexuality, and automatic behavior in the wake of sex-priming. The idea of an active self shift in response to sex-priming unites social cognition literature on priming (e.g., Dijksterhuis & Bargh, 2001; Wheeler, DeMarree and Petty, 2007) with social role theory (Eagly & Steffen, 1984) and sexual scripting theory (e.g., Hynie, Lydon, Cote, & Wiener, 1998). It adds to existing priming research because it shows prime x recipient interactions which corroborate the active self account of prime-to-behavior effects. It allows us to deduce future experiments that can expand our understanding of how available self-content and newly introduced, misattributed self-content might cooperate or compete in producing priming effects.

With this work I intend to offer a launching pad for an avalanche of research which could deal with a variety of open, intriguing questions about what sex-priming induces and how it does so. Mediation is the most obvious next step and should be examined in future research. Researchers more interested in the applied domains of advertising, media, sexual health, and education might also feel inspired to delve into the mind mechanics of sex. I guess even Freud would have enjoyed joining a lab investigating empirically what is behind that steam boiler in our psychic apparatus.

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APPENDIX

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Appendix A: Materials Study 1

The priming manipulation: the word-search puzzle

Mit der folgenden Aufgabe versuchen wir zu untersuchen, wie kognitive Leistungen von der Darbietungsform des zu bearbeitenden Materials beeinflusst werden. Dazu bieten wir den einzelnen Personen das zu bearbeitende Material in unterschiedlicher Form dar.

Ihre Aufgabe ist es nun, die Begriffe, die im untenstehenden Buchstabengitter versteckt sind, zu finden und einzurahmen. Die zu suchenden Begriffe sind in horizontaler und in vertikaler Anordnung versteckt. Sie finden die Begriffe unter dem Gitter aufgelistet.

D	P	M	O	T	H	A	L	D	E	F	R	V	O	L	B	G
E	N	E	D	H	K	R	B	U	N	T	H	T	F	H	V	K
R	U	K	F	A	S	O	K	G	M	N	E	F	O	K	M	L
A	S	A	Z	F	G	D	N	H	C	H	I	T	I	D	H	S
D	R	H	A	Z	L	Z	O	S	U	S	V	Z	F	H	L	P
I	Z	N	G	A	H	T	J	U	N	B	H	D	V	W	J	R
O	W	F	E	Q	H	A	C	M	K	W	J	G	Q	L	K	E
G	F	W	T	D	F	F	O	C	B	I	R	K	E	G	I	C
L	H	Z	Z	J	E	E	S	N	H	E	U	T	Z	B	L	H
J	D	U	H	R	G	L	D	F	L	D	H	I	R	I	X	E
R	U	L	S	K	T	A	F	O	Z	K	L	X	J	U	W	N
E	D	R	E	H	E	N	E	R	U	I	B	M	J	T	F	K
K	N	P	U	M	D	R	H	E	H	J	R	K	O	D	H	J
O	E	L	T	C	F	W	M	W	F	F	O	I	P	R	N	L
F	B	H	S	H	T	Y	C	G	J	A	T	X	D	S	C	H
L	M	A	D	L	J	S	C	A	D	A	C	H	S	F	C	M
U	R	Z	G	W	H	N	P	L	D	T	G	I	U	T	O	O
R	F	S	C	H	U	H	G	K	I	W	F	G	O	U	F	H
Y	F	U	F	N	O	L	M	L	Z	E	I	T	U	N	G	W

TAFEL
SPRECHEN
RADIO
BUNT
DACH
DREHEN
UHR
KAHN
ZEITUNG
SCHUH
BIRKE
BROT

Mit der folgenden Aufgabe versuchen wir zu untersuchen, wie kognitive Leistungen von der Darbietungsform des zu bearbeitenden Materials beeinflusst werden. Dazu bieten wir den einzelnen Personen das zu bearbeitende Material in unterschiedlicher Form dar.

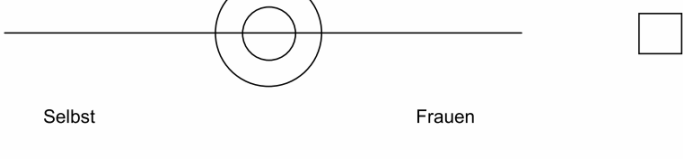
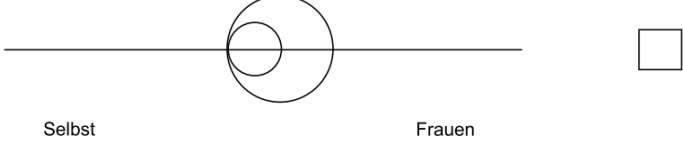
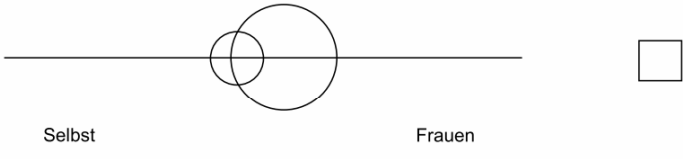
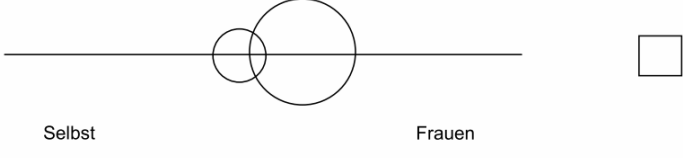
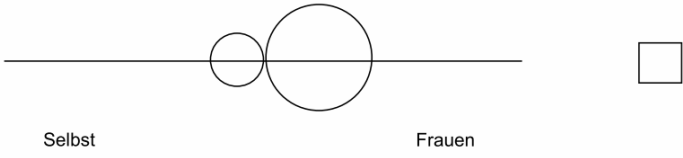
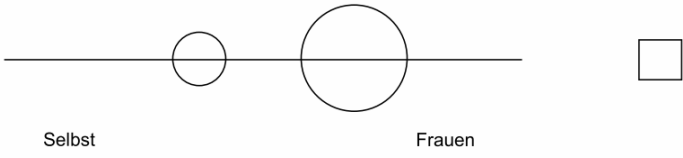
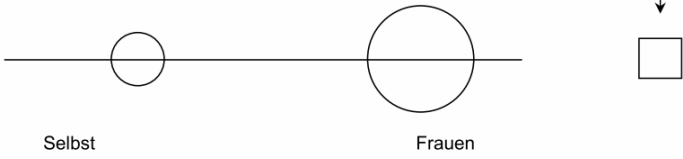
Ihre Aufgabe ist es nun, die Begriffe, die im untenstehenden Buchstabengitter versteckt sind, zu finden und einzurahmen. Die zu suchenden Begriffe sind in horizontaler und in vertikaler Anordnung versteckt. Sie finden die Begriffe unter dem Gitter aufgelistet.

D	P	M	O	T	H	A	L	D	E	F	R	V	O	L	B	G
E	N	E	D	H	K	R	F	E	U	C	H	T	F	H	V	K
R	U	S	F	A	S	O	K	G	M	N	E	F	O	K	M	L
A	S	T	Z	F	G	D	N	H	C	H	I	T	I	D	H	S
D	R	E	A	Z	L	Z	O	S	U	S	V	Z	F	H	L	C
I	Z	I	G	A	H	T	J	U	N	B	H	D	V	W	J	H
O	W	F	E	Q	H	A	C	M	K	W	J	G	Q	L	K	W
G	F	W	T	D	F	F	O	C	H	A	U	T	P	N	I	I
L	H	Z	Z	J	E	E	S	N	H	E	U	T	Z	B	L	T
J	D	U	H	R	G	L	D	F	L	D	H	I	R	I	X	Z
R	U	L	S	K	T	A	F	O	Z	K	L	X	J	U	W	E
E	S	P	U	E	R	E	N	K	U	I	B	M	J	T	F	N
K	N	P	U	M	D	R	H	E	H	J	R	K	O	D	H	J
O	E	L	T	C	F	W	M	W	F	F	O	I	P	R	N	L
F	B	H	S	H	T	Y	C	G	J	A	T	X	D	S	C	H
L	M	A	D	L	J	S	C	A	D	A	C	H	S	F	C	M
U	R	Z	G	W	L	N	P	L	D	T	G	I	U	T	O	O
R	F	B	E	T	T	E	G	K	I	W	F	G	O	U	F	H
Y	F	U	F	N	O	L	M	L	Z	E	I	T	U	N	G	W

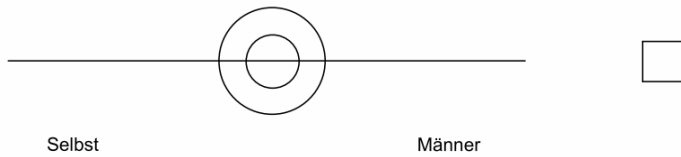
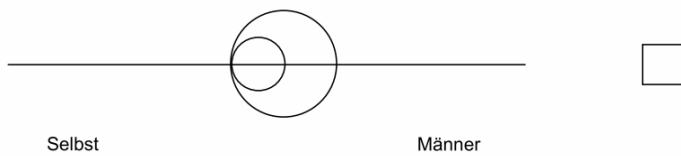
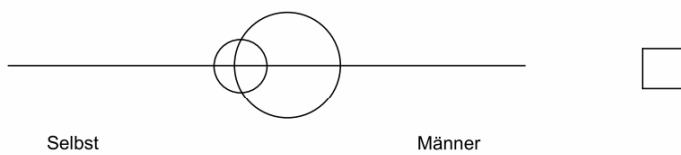
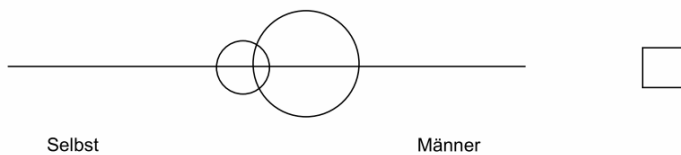
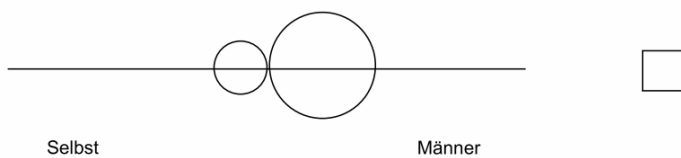
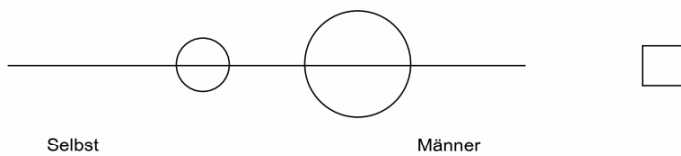
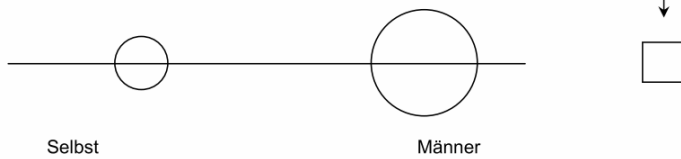
TAFEL
SCHWITZEN
RADIO
FEUCHT
DACH
SPUEREN
UHR
STEIF
ZEITUNG
BETT
HAUT
BROT

Graphical measure

Kreuzen Sie die Darstellung an, die am besten *Ihre eigene Nähe* zur Gruppe der Frauen beschreibt!



Kreuzen Sie die Darstellung an, die am besten *Ihre eigene Nähe* zur Gruppe der Männer beschreibt!



Rating measure

Bitte schätzen Sie ein, wie sehr Sie den folgenden Aussagen zustimmen:

	1	2	3	4	5	6	7	8	9
	stimme ganz und gar nicht zu								stimme voll und ganz zu
„Ich identifiziere mich sehr mit den Frauen.“	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
„Dass ich eine Frau bin, ist ein sehr wichtiger Teil meiner Person.“	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
„Ich fühle mich mit anderen Frauen sehr verbunden.“	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
„Ich empfinde Solidarität mit anderen Frauen.“	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bitte schätzen Sie ein, wie sehr Sie den folgenden Aussagen zustimmen:

	1	2	3	4	5	6	7	8	9
	stimme ganz und gar nicht zu								stimme voll und ganz zu
„Ich identifiziere mich sehr mit den Männern.“	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
„Dass ich ein Mann bin, ist ein sehr wichtiger Teil meiner Person.“	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
„Ich fühle mich mit anderen Männern sehr verbunden.“	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
„Ich empfinde Solidarität mit anderen Männern.“	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix B: Materials Study 2

The impression formation picture task

In dieser Untersuchung geht es um subjektive Bildwahrnehmung. Täglich begegnen wir einer großen Anzahl von Bildern, Fotografien und anderen Darstellungen. Unsere subjektive Wahrnehmung und Verarbeitung all dieser Bilder hängt von einer Vielzahl von Faktoren ab, unter anderem auch von einzelnen grafischen Merkmalen der Darstellung, die unsere Aufmerksamkeit „binden“.

In dieser sehr kurzen Untersuchung möchten wir Sie bitten, ein Bild eingehend zu betrachten und als Ganzes auf sich wirken zu lassen. Lassen Sie sich dazu ausreichend Zeit – bis Sie einen Eindruck des Bildes für sich gewonnen haben und sich bereit fühlen, das Bild zu beurteilen. Beantworten Sie die Schätzfragen mit Hilfe der angegebenen Skala.

Bitte umblättern...



(...)

Nachdem Sie sich einen Eindruck des Bildes verschafft haben, beantworten Sie bitte die folgenden Fragen. Antworten Sie möglichst spontan. Lassen Sie sich dabei von Ihrem persönlichen Eindruck leiten.

Welcher Teil des Bildes ist Ihnen als Erstes ins Auge gefallen?	
An welcher Stelle des Bildes bleibt Ihr Blick am längsten „haften“?	

	gar nicht					sehr
Wie gefällt Ihnen spontan die Auswahl des Bildausschnitts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Macht Sie die Darstellung neugierig?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kommt Ihnen das Bild vertraut vor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wie gefällt Ihnen das Bild als Ganzes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	zu weit weg					zu nah
Wie empfinden Sie den Abstand, den Ihnen das Bild zu den Akteuren vermittelt?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bitte versuchen Sie, einen Titel für das Bild zu finden, der Ihnen persönlichen Eindruck am besten wiedergibt:

Vielen Dank für Ihre Einschätzungen und Antworten.



(...)

Nachdem Sie sich einen Eindruck des Bildes verschafft haben, beantworten Sie bitte die folgenden Fragen. Antworten Sie möglichst spontan. Lassen Sie sich dabei von Ihrem persönlichen Eindruck leiten.

Welcher Teil des Bildes ist Ihnen als Erstes ins Auge gefallen?	
An welcher Stelle des Bildes bleibt Ihr Blick am längsten „haften“?	

	gar nicht					sehr
Wie gefällt Ihnen spontan die Auswahl des Bildausschnitts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Macht Sie die Darstellung neugierig?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kommt Ihnen das Bild vertraut vor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wie gefällt Ihnen das Bild als Ganzes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	zu weit weg					zu nah
Wie empfinden Sie den Abstand, den Ihnen das Bild zu dem Sandstrand vermittelt?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bitte versuchen Sie, einen Titel für das Bild zu finden, der Ihnen persönlichen Eindruck am besten wiedergibt:

Vielen Dank für Ihre Einschätzungen und Antworten.



(...)

Nachdem Sie sich einen Eindruck des Bildes verschafft haben, beantworten Sie bitte die folgenden Fragen. Antworten Sie möglichst spontan. Lassen Sie sich dabei von Ihrem persönlichen Eindruck leiten.

Welcher Teil des Bildes ist Ihnen als Erstes ins Auge gefallen?	
An welcher Stelle des Bildes bleibt Ihr Blick am längsten „haften“?	

	gar nicht					sehr
Wie gefällt Ihnen spontan die Auswahl des Bildausschnitts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Macht Sie die Darstellung neugierig?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kommt Ihnen das Bild vertraut vor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wie gefällt Ihnen das Bild als Ganzes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	zu weit weg					zu nah
Wie empfinden Sie den Abstand, den Ihnen das Bild zu den Akteuren vermittelt?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bitte versuchen Sie, einen Titel für das Bild zu finden, der Ihren persönlichen Eindruck am besten wiedergibt:

Vielen Dank für Ihre Einschätzungen und Antworten.

The GTS+ (Gender Typicality Scale)

UNIVERSITÄT ZU KÖLN
INSTITUT FÜR PSYCHOLOGIE I

Im Folgenden werden Ihnen zwei kurze Fragebögen zur Selbsteinschätzung vorgelegt, welche auf unterschiedliche Art wichtige Merkmale des täglichen Verhaltens und Erlebens erfassen.

Bitte füllen Sie diese beiden Fragebögen sorgfältig der Reihe nach aus und lassen Sie sich bei Ihren Einschätzungen ausreichend Zeit. Bitte beantworten Sie jede Frage, da wir nur so Ihre Daten sinnvoll auswerten können.

Wir möchten Sie an dieser Stelle noch einmal darauf hinweisen, dass die Abgabe der Antworten anonym erfolgt.

Bitte geben Sie im Folgenden an, wie oft Sie in Ihrem täglichen Leben die folgenden Merkmale zeigen. Kreuzen Sie dazu an, welche Antwort am besten für Sie passt.

	selten	manchmal	häufig	fast immer
verständnisvoll	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
entscheidungsfähig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
sinnlich	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
trete bestimmt auf	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
einfühlsam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
unerschrocken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
romantisch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
durchsetzungsfähig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
weichherzig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
selbstbewusst	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
herzlich	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
zeige geschäftsmäßiges Verhalten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
sensibel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
bin bereit, etwas zu riskieren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
gefühlbetont	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respekt einflößend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix C: Materials Study 3

The signing forms

UNIVERSITÄT ZU KÖLN
Erziehungswissenschaftliche Fakultät
Institut für Psychologie I



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Institut für Psychologie I
Gronewaldstr. 2
50931 Köln

Telefon: 0221 470-7915
Telefax: 0221 470-5105

Zustimmung zur Teilnahme

Dipl.-Psych. T. Hundhammer, Institut für Allgemeine Psychologie und Sozialpsychologie, bietet Ihnen die freiwillige Teilnahme an einer kurzen Studie. Wir werden Sie bitten, ein so genanntes „Wortsuchgitter“ zu bearbeiten. Hierbei sollen vorgegebene Wörter in einer Buchstabenmatrix identifiziert werden. Weiterhin werden wir Sie bitten, eine alltägliche Geste ausführen (z.B. jemanden per Handschlag begrüßen), einen Fragebogen zur Selbsteinschätzung ausfüllen und einige demografische Angaben zu machen. Insgesamt wird die Studie ca. 15 Minuten dauern.

Die Teilnahme an der Studie führt zu keinen bekannten Risiken und alle gesammelten Daten werden anonym und nur für Forschungszwecke ausgewertet. Wenn Sie trotzdem eine Frage nicht beantworten wollen oder können, lassen Sie diese aus. Wenn Sie im Verlauf der Studie Fragen haben, wenden Sie sich bitte an die Versuchsleitung.

Sie können zu jeder Zeit und ohne Angabe von Gründen die Bearbeitung der Aufgaben abbrechen, ohne dass Ihnen daraus Nachteile entstehen. Auf jeden Fall erhalten Sie Ihre Belohnung. Sie können nachträglich Ihre Einwilligung zur Datenanalyse widerrufen. Um dies zu ermöglichen, bitten wir Sie am Ende der Untersuchung um die Angabe eines Codes, der es uns ermöglicht, Ihren Datensatz ohne Preisgabe Ihrer Anonymität nachträglich zu identifizieren und ggf. zu löschen. Wenden Sie sich dafür bitte an Dipl.-Psych. T. Hundhammer, 0221 - 470 7915. Sie können detaillierte Informationen über die Studie erhalten, sobald die Datenerhebungen vollständig abgeschlossen sind. Dies ist voraussichtlich in zwei bis drei Wochen der Fall. Nähere Informationen hierzu finden Sie auf einem Informationsblatt, welches Sie am Ende der Untersuchung erhalten. Bitte geben Sie diesen Bogen ausgefüllt bei der Versuchsleitung ab, damit die Untersuchung beginnen kann.

Ich stimme der Verwertung meiner hier gemachten Einschätzungen und Angaben als Datengrundlage für eine anonymisierte wissenschaftliche Auswertung und Publikation zu. Die Auswertung der Daten erfolgt auf Gruppenebene, d.h. es sind keine Rückschlüsse auf die Angaben einer konkreten Person möglich.

Ich stimme zu.

Datum:

Unterschrift:

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Institut für Psychologie I

Belohnung erhalten

Diese Studie wird von der DFG (Deutsche Forschungsgemeinschaft) im Rahmen eines Drittmittelprojekts gefördert. Diese Förderung ermöglichte die Anschaffung von Gerätschaften aus der Sportphysiologie und der Medizin zur Erforschung der hier untersuchten Fragestellung, ebenso wie die Belohnung der Versuchspersonen.

Im Rahmen dieser kurzen Experimentalstudie wird eine Tafel Schokolade als Versuchsbelohnung vergeben.

Ich bestätige, dass ich die oben genannte Versuchsbelohnung für meine Teilnahme an einem Versuch des Instituts für Psychologie I erhalten habe.

Datum:

Unterschrift:

Debriefing

UNIVERSITÄT ZU KÖLN
Erziehungswissenschaftliche Fakultät
Institut für Psychologie I



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Versuchsinformation

Liebe Versuchsteilnehmerin, lieber Versuchsteilnehmer!

Erst einmal vielen herzlichen Dank für Ihr Interesse und Ihre Teilnahme an dieser sozialpsychologischen Studie!

Wir möchten Sie an dieser Stelle darüber informieren, dass wir in dieser Studie neben den Antworten in den Fragebögen und dem bei der Handgeste ausgeübten Druck auch implizites Selbstwertgefühl messen wollen. Die Forschung hat gezeigt, dass die Größe der eigenen Unterschrift ein Maß ist, welches gut solche impliziten (unbewussten) Anteile in unserem Selbstwertgefühl abbildet (Zweigenhaft & Marlowe, 1973; Stapel & Blanton, 2004). Dazu haben wir vor, bei der von Ihnen geleisteten Unterschrift mit Hilfe eines technischen Zeichengerätes Breite und Höhe Ihrer Unterschrift in Millimetern auszumessen. Im Anschluss daran werden diese Einzel-Bögen von den übrigen Fragebögen getrennt und vernichtet. Ihre Anonymität ist dadurch in keiner Weise gefährdet. Es geht uns nur darum, die räumliche Ausdehnung Ihrer Unterschrift, aber nicht Ihren Namen an sich zu erfassen. Wir konnten diese Variable nur auf diese Art messen. Wenn wir Ihnen vorher mitgeteilt hätten, dass die Unterschrift ein Bestandteil des Experiments ist, und wir damit eine Messabsicht verbinden, wäre diese Messung reaktiv verfälscht gewesen.

Wir hoffen, Sie haben für diese forschungspraktische Notwendigkeit Verständnis und Sie gestatten uns die Auswertung der Unterschriftenausdehnung unter garantierter Gewährung Ihrer Anonymität (siehe oben). Wenn Sie dies nicht möchten, dann können Sie die Versuchsleitung bitten, Ihnen den von Ihnen unterschriebenen Bogen auszuhändigen.

Wir danken Ihnen sehr herzlich für Ihr Verständnis!

Appendix D: Materials Study 4

Interruption of experimenter's telephone conversation: abridged script

Telefongespräch

1. Befindlichkeit – Wie geht es Dir?

S: Du hast auch viel zu tun...

E: ...

S: in der Fa. hast du ein neues Projekt

E:...

S: hört sich aber gut an...

E:...

S: was machst du da genau?

E:....

S: schön...klingt nach viel spannender Arbeit

E:

S: aber ist doch OK...geht ja nicht immer...

E:

S: sonst ist es aber okay?

E:

S: wird auch wieder anders...

E:

S: im Endeffekt kannst du da nichts machen

E:

S: Okay, bei mir geht so muss viel arbeiten und außerdem steht die Klausur an...

E: bla

S: sonst gibt es nicht viel Neues...könnte besser sein

E: ..

S: war schon lange nicht mehr weg...würde gerne mal wieder tanzen gehen, habe aber zu viel zu tun

E:

S: wird ab November wieder besser...nach der Klausur werde ich mich erstmal zurück nehmen

Werde dann nach Hessen fahren und freunde besuchen, dann steht noch der 11.11.an

Kommst du auch mitfeiern

E:

S: wäre schön, Britta und Rolf kommen auch mit

E: wo geht ihr denn hin?

S: weiß noch nicht wohin...vielleicht ins Lappi

E: wo ist das denn?

S: das ist am Eigelsteintor.

Ist ganz gut da...nicht zu teuer, keine Touris...

Schau doch mal...

2. Verabredung

S: Heute Abend?

E:.....bla

S: passt mir nicht

E: bla...bla
S: nächste Woche würde mir besser passen, wie wäre es mit Mittwoch nächste Woche?
E:.....
S: OK, aber vielleicht ist es besser, wenn wir woanders uns treffen, wie wäre es mit dem Ebertplatz
E:.....
S: OK, dann treffen wir uns am Friesenplatz
E: ...
S: schön, wenn Er mitkommst und wie geht es Regina, alles okay?
E:....
S: schön, kommt sie auch mit?
E:....
S: Schade, aber wenn sie gerade ihr Vordiplom macht und so viel lernen muss...
E:....
S: Sie hat noch zwei Prüfungen...
E:....
S:...die schafft sie auch noch...
E:....
S: schön, dass bisher alles glatt lief
E:....

Break: mmh...mmh mmh

3. Letztes Wochenende

S: Letztens war ich bei meinen Eltern...wie das halt so ist
Viel gegessen, Hotel Mama hat schon was...ansonsten war ich noch auf dem Klassentreffen von meiner alten schule, war auch ganz okay. Bisschen viel getrunken, wie das immer so ist.
E: ...
S: Muss ich nicht jede Woche haben....
E:
S: ansonsten war ich noch eine Runde spazieren...
War sehr schönes Wetter, hab es auch genossen mal wieder richtig draußen „in der Natur“ spazieren zu gehen. Ist doch eine ganze ecke entspannter bei meinen Eltern auf dem Dorf. Manchmal nerven mich die Leute hierin der Stadt ganz schön.
E:....
S: geht dir manchmal auch so...bei meinen Eltern im haus geht es manchmal chaotisch zu und ich möchte sie auch nicht allzu lange ertragen, aber für ein paar tage ist es ganz okay

Break... mhm mhm mhm

4. Fernseher

S: Du hast dir einen neuen Fernseher gekauft? was denn für einen?
E:

S: Flachbildschirm, wie groß ist der denn?

E: was hat er denn gekostet?

S: Gutes Bild jetzt...

E: schön...

S: mir reicht mein kleiner, ich sehe ehe kaum fern –es denn zum aufstehen...

Da sehe ich mir manchmal das Morgenmagazin an oder wenn ich abends esse, da sitze ich dann nicht so alleine da...

Aber für euch beide ist das schon gut...

Break... mhm mhm mhm

5. Wohnung

S: Ihr wollt euch nach einer anderen Wohnung umschauen?

Wird nicht so einfach sein, in der Lage hier was zu finden...für so einen preis.

E:

Ich habe doch mit Unterbrechungen ein halbes Jahr gesucht...

Für meine erste Wohnung in der Stadt habe ich 5 Anzeigen im Stadtanzeiger aufgegeben, bevor es geklappt hat.

Allerdings hat so eine Selbstanzeige viele vorteile, man wird vom Vermieter selbst angerufen, die Besichtigungen finden im kleinen Rahmen statt und es ist kein Massenauflauf, wenn so Massen sich die Wohnung anschauen, sind die Chancen ehrlich gesagt relativ gering die Wohnung zu bekommen. Mit den finanziellen mitteln, die einem zur Verfügung stehen als Student hat man da eher mit die schlechtesten Karten.

E:...

S: einmal habe ich aber voll daneben gegriffen...war auch auf eine Anzeige hin

Instruction questionnaires

UNIVERSITÄT ZU KÖLN

INSTITUT FÜR PSYCHOLOGIE

Lehrstuhl für Sozialpsychologie und Differentielle Psychologie

Im Folgenden werden Ihnen einige verschiedene Fragebögen zur Selbsteinschätzung präsentiert, welche wichtige Merkmale des täglichen Verhaltens und Erlebens erfassen. Ziel ist es, aus diesen Fragebögen eine sinnvolle Auswahl für zukünftige Forschung an unserem Lehrstuhl zu ermitteln.

Bitte füllen Sie die folgenden Fragebögen sorgfältig der Reihe nach aus und lassen Sie sich bei Ihren Einschätzungen ausreichend Zeit. Bitte beantworten Sie jede Frage, da wir die Daten nur so sinnvoll auswerten können.

PANAS (Positive and negative affect scales)

Dieser Fragebogen besteht aus einer Reihe von Wörtern, die verschiedene Stimmungen und Gefühle beschreiben. Lesen Sie jedes Item, und tragen Sie dann die passende Antwort in dem Freiraum neben diesem Wort ein. Geben Sie an, in welchem Ausmaß Sie sich im Moment so fühlen. Benutzen Sie die folgende Skala zur Einstufung Ihrer Antworten:

1	2	3	4	5
gar nicht	ein bisschen	einigermaßen	erheblich	äußerst

- | | |
|----------------------|---------------------|
| _____ interessiert | _____ gereizt |
| _____ bekümmert | _____ wach |
| _____ freudig erregt | _____ beschämt |
| _____ verärgert | _____ angeregt |
| _____ stark | _____ nervös |
| _____ schuldig | _____ entschlossen |
| _____ erschrocken | _____ aufmerksam |
| _____ feindselig | _____ durcheinander |
| _____ begeistert | _____ aktiv |
| _____ stolz | _____ ängstlich |

GTS+

Bitte geben Sie im Folgenden an, wie oft Sie in Ihrem täglichen Leben die folgenden Merkmale zeigen. Kreuzen Sie dazu an, welche Antwort am besten für Sie passt.

	selten	manchmal	häufig	fast immer
verständnisvoll	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
entscheidungsfähig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
sinnlich	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
trete bestimmt auf	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
einfühlsam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
unerschrocken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
romantisch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
durchsetzungsfähig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
weichherzig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
selbstbewusst	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
herzlich	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
zeige geschäftsmäßiges Verhalten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
sensibel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
bin bereit, etwas zu riskieren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
gefühlbetont	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respekt einflößend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NGRO (Normative Gender Role Attitudes)

Bitte schätzen Sie anhand der angegebenen Skala ein, wie sehr die folgenden Aussagen Ihrer Meinung nach zutreffen.

	1	2	3	4	5	6	7
	trifft nicht zu						trifft zu
Auch Männer sollten nach der Geburt ihres Kindes die Möglichkeit eines Karenzurlaubes in Anspruch nehmen können.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Es ist angenehmer, einen männlichen Vorgesetzten zu haben als einen weiblichen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jungen und Mädchen sollen die gleichen Pflichten im Haushalt übernehmen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frauen sind weniger an Politik interessiert als Männer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Man kann von Frauen nicht fordern, dass sie die Hausarbeit alleine verrichten müssen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Für den Ersteindruck ist ein gepflegtes Äußeres bei einer Frau wichtiger als bei einem Mann.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Auch der Mann hat dafür zu sorgen, dass täglich Milch und Brot im Haus sind.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frauen lassen sich gerne von ihrem männlichen Begleiter einladen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hemden bügeln ist nicht Sache der Männer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eine höhere Ausbildung ist vor allem für Männer wichtig, da sie in Führungspositionen stärker vertreten sind als Frauen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frauen eignen sich ebenso gut für die Leitung eines technischen Betriebes wie Männer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Männer sollten in der Politik mehr auf Frauen hören.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Es wäre erfreulich, wenn es mehr männliche Kindergärtner gäbe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Männer sind für manche Berufe besser geeignet als Frauen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeder Junge sollte eine Puppe besitzen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mädchen helfen lieber im Haushalt als Jungen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Bitte umblättern...

	1	2	3	4	5	6	7
	trifft nicht zu						trifft zu
Die Putztätigkeit sollte auf beide Ehepartner entsprechend ihrer verfügbaren Zeit aufgeteilt werden.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Der Anteil der Frauen in der Politik sollte gleich groß sein wie der Anteil der Männer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Das Vertrauen in Politikerinnen ist nicht so groß, da diese meistens noch andere Dinge als ihr Amt im Kopf haben.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dass Männer im Allgemeinen mehr verdienen liegt daran, dass sie sich beruflich mehr einsetzen als Frauen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Es wäre nicht günstig, wenn eine Frau Verteidigungsminister wird.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Männliche Polizisten vermitteln ein stärkeres Sicherheitsgefühl als weibliche Polizisten.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Die Organisation des Haushaltes ist Sache der Frau.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Es ist notwendig, dass die Frau im Hause dafür sorgt, dass täglich zumindest eine warme Mahlzeit am Tisch steht.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Es ist nicht in Ordnung, wenn eine Frau den Garten umsticht, während ihr Mann das Mittagessen kocht.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Auch Hausmann ist für Männer ein erstrebenswerter Beruf.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meistens haben Frauen die größere Verantwortung für den Haushalt, weil sie ihn besser führen können.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Männer sollten sich auch mit Handarbeit (z. B. nähen, stricken) beschäftigen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frauen sind für den finanziellen Unterhalt der Familie genauso verantwortlich wie Männer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sexual autonomy

Bitte geben Sie an, wie sehr Sie folgenden drei Aussagen zustimmen würden. Antworten Sie so, wie es am besten auf Sie zutrifft – Kreuzen Sie dazu die entsprechende Zahl an.

Wenn ich mit jemandem Geschlechtsverkehr habe oder in intimem Kontakt mit jemandem bin, fühle ich mich frei, so zu sein, wie ich bin.

1	2	3	4	5	6	7
trifft überhaupt nicht zu						trifft völlig zu

Wenn ich mit jemandem Geschlechtsverkehr habe oder in intimem Kontakt mit jemandem bin, bestimme ich mit, was passiert und kann meine Meinung ausdrücken.

1	2	3	4	5	6	7
trifft überhaupt nicht zu						trifft völlig zu

Wenn ich mit jemandem Geschlechtsverkehr habe oder in intimem Kontakt mit jemandem bin, fühle ich mich unter Druck gesetzt, mich auf eine bestimmte Art und Weise zu verhalten.

1	2	3	4	5	6	7
trifft überhaupt nicht zu						trifft völlig zu

Perception of the experimenter

Die Studie ist hiermit beendet!
Vielen Dank, dass Sie an dieser Studie teilgenommen haben.

Wir möchten Sie bitten, zum Abschluss einige Fragen zur Studie selbst und zu Ihrer Person zu beantworten.

- Was könnte Ihrer Meinung nach Zweck der Untersuchung gewesen sein? Was wollten wir Ihrer Meinung nach herausfinden?

- Zu Beginn sollten Sie einige Wörter in einem Wortgitter suchen. Haben Sie bei den zu suchenden Wörtern ein bestimmtes Thema/bestimmte Themen erkannt?

Ja Nein

- Wenn ja, welches/welche?

- Haben Sie schon einmal an einer Studie unserer Arbeitsgruppe (Sozialpsychologie) teilgenommen, in der eine Wortgitteraufgabe enthalten war?

Ja Nein

- Wenn ja, können Sie sich noch erinnern, was Sie in dieser Studie zu tun hatten (Stichworte genügen)?

- Kannten Sie die Fragebögen zur Selbsteinschätzung oder Teile davon bereits?

Ja Nein

- Wenn ja, welche Teile?

Bitte umblättern...

Da die Studie mehrere Teile (Wortgitteraufgabe, Fragebögen) enthielt, ist es für uns wichtig zu wissen, ob Sie denken, dass die Bearbeitung der einzelnen Teilaufgaben sich gegenseitig beeinflusst haben könnte.

- Glauben Sie dass die Bearbeitung der einzelnen Teilaufgaben sich gegenseitig beeinflusst hat?

Ja Nein

- Wenn Sie soeben mit „Ja“ geantwortet haben, wie würden Sie diesen Einfluss beschreiben?

- Haben Sie sich sonst während der Studie von etwas gestört/beeinflusst gefühlt?

Ja Nein

- Wenn ja, wodurch?

- Wie haben Sie das Verhalten des Versuchsleiters empfunden?

- Hat sich der Versuchsleiter Ihnen gegenüber freundlich und zuvorkommend verhalten?

-3	-2	-1	0	1	2	3
gar nicht					sehr	

Bitte umblättern...

Bitte beantworten Sie zum Abschluss noch folgende Fragen zu Ihrer Person.
Bitte denken Sie daran, dass alle von Ihnen gemachten Angaben streng vertraulich behandelt und anonym ausgewertet werden. Die Angaben helfen uns, die Befunde differenziert auszuwerten und aussagekräftigere Befunde zu erhalten.

- Alter:
- Geschlecht: weiblich männlich
- Sexuelle Orientierung: heterosexuell homosexuell
bisexuell schwankend
- Muttersprache:
- Nationalität
- Studienfach:
- Semester:
- Kommentar zu diesem Versuch:

Da alle erfassten Daten natürlich anonym behandelt werden, bitten wir Sie nun noch um die Angabe eines achtstelligen Codes, welcher uns die Auswertung erleichtern soll. Bitte geben Sie den Code wie folgt an:

1. erster Buchstabe des Vornamens Ihrer Mutter: _____
2. letzter Buchstabe des Vornamens Ihrer Mutter: _____
3. zweiter Buchstabe des Mädchennamens Ihrer Mutter: _____
4. vorletzter Buchstabe des Mädchennamens Ihrer Mutter: _____
5. erster Buchstabe Ihres Geburtsortes: _____
6. vorletzter Buchstabe Ihres Geburtsortes: _____
7. der Tag, an dem Sie geboren wurden – zweistellig*: _____

(*Wenn Sie beispielsweise am 4. Mai geboren wurden, geben Sie **04** an. Wurden Sie am 13. Oktober geboren, geben Sie **13** an.)

Sie haben es geschafft!

Noch einmal vielen herzlichen Dank für Ihre Teilnahme!

Eidesstattliche Erklärung

Ich versichere eidesstattlich, dass ich die von mir vorgelegte Dissertation selbständig und ohne unzulässige Hilfe angefertigt, die benutzten Quellen und Hilfsmittel vollständig angegeben und die Stellen der Arbeit einschließlich Tabellen und Abbildungen, die anderen Werken im Wortlaut oder dem Sinn nach entnommen sind, in jedem Einzelfall als Entlehnung kenntlich gemacht habe; dass diese Dissertation noch keinem anderen Fachbereich zur Prüfung vorgelegen hat; dass sie noch nicht veröffentlicht worden ist sowie dass ich eine solche Veröffentlichung vor Abschluss des Promotionsverfahrens nicht vornehmen werde. Die Promotionsordnung ist mir bekannt. Die von mir vorgelegte Dissertation ist von Prof. Dr. Thomas Mussweiler betreut worden.

Tanja Hundhammer