Chapter 17

Gender

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Why is this chapter titled *Gender?* Why not *Sex?* The terms "sex" and "gender" are closely intertwined in science. *Sex* often connotes sexuality, and *gender* has come to refer to the cross-disciplinary field of study devoted to understanding the origins and consequences of being male or female. This chapter reviews this field of study. Specifically, it considers the joint influence of biological and sociocultural factors on the behavior of women and men. It provides a broad biosocial framework to organize the state of the evidence on the social thoughts, feelings, and behaviors of and about women and men.

Within psychology, the terms gender and sex are often understood to represent distinct sets of causes for the behavior of women and men. Feminist researchers separated sex from gender during the 1970s and 1980s to distinguish between female and male biology and the meanings that societies and individuals ascribe to male and female categories (e.g., Unger, 1979). In so doing, they were casting off the assumption that observable differences between the sexes arise because of inborn, biological factors that are impervious to social input. In an ironic twist, gender as a scientific term was apparently used first in the medical literature to describe the psychology accompanying certain biological conditions (Haig, 2004). Gender referred to the masculine or feminine self-concepts of individuals whose physical anomalies did not fit usual genital designation as male or female (Money, Hampson, & Hampson, 1955). Nonetheless, gender became the standard term for cultural distinctions between men and women and sex the standard term for biological distinctions (American Psychological Association, 2001). Whereas in the 1960s social science publications rarely mentioned gender, by the turn of this century they used it more than twice as often as sex (Haig, 2004).

Just as psychologists seemed to be reaching agreement that gender is to sociocultural causes as sex is to biological ones, empirical findings muddied any such neat distinction. By the 1990s, it was clear that the biology and psychology of masculinity and femininity could not be boxed into separate theories. Biological sex and the social environment are now understood to work together in influencing the attributes and behavior of women and men. If most differences between males and females are joint products of biology and society, then psychologists face a conundrum: Should the modifier of differences and similarities between women and men be "gender" or "sex"? What about the modifiers for roles, stereotypes, and identities—"sex" or "gender"? The underlying questions about causes cannot be answered through mere labeling. Establishing the contributions of biological and sociocultural causation is the end product of research, not its starting point.

This dilemma can be resolved by abandoning the now-traditional biology versus culture meaning of sex versus gender in favor of definitions that recognize the intertwining of nature and nurture. "Sex" is defined in this chapter by the common-language meaning of male and female as categories (e.g., "into which humans and most other living things are divided on the basis of their reproductive functions"; Oxford English Dictionary, 2009). These two groups are based on a biological reality of differing chromosomes and associated hormonal and reproductive differences. Yet this classification in daily life is a social act based on personal assessments or observers' judgments of maleness or femaleness (Kessler & McKenna, 1978). Therefore, visible cues of sex can sometimes contradict chromosomes. And the classification has to be expanded beyond two categories to include individuals who are

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intersexed and thus possess both male and female biological characteristics or are transsexual and have undertaken surgery or hormone therapy to change their biological sex (Fausto-Sterling, 1993). Nonetheless, the term "sex" designates female and male categories that fit the great majority of humans, and, in our usage, the terms *sex differences* and *sex similarities* do not imply particular types of underlying causes.

The term "gender" refers to the meanings that individuals and societies ascribe to males and females—meanings that rest on a biology in which most humans possess the standard XX or XY chromosomes. As this chapter explains, this biological difference emerges in human societies as a division of labor between men and women, which in turn drives the meanings that cultures impute to male and female and the meanings that individuals impute to themselves. Terms such as gender role and gender identity refer to cultural meanings in this sense. Sex and gender thus are separated into convenient categories that reflect the natural language definition of these words and simultaneously acknowledge the intertwining of nature and nurture. With this distinction, research findings and not terminologies do the heavy lifting of identifying the causes of sex and gender.

In brief, the present chapter reviews the research evidence on the biological and sociocultural causes of the thoughts, feelings, and behaviors of and about men and women. Our scope is necessarily broad and considers causes at multiple levels, including individual-level causes of hormones and personal identities, societal-level causes in stereotypical beliefs about the sexes, and evolutionary pressures that influence men's and women's behavior. Building on these various causes, the chapter considers the evidence for sex differences in aggression and prosocial behavior. It concludes with a discussion of how biosocial processes account for change and stability in men's and women's roles in society. The next sections explain our approach, first by outlining why it is necessary to consider both biological and social influences and then by organizing these various causes into a coherent theory.

BIOSOCIAL CAUSES OF MEN'S AND WOMEN'S BEHAVIOR

The biological and social causes of sex differences are closely interlinked in their effects. This presents a Gordian knot of complexity, with the threads of the knot representing the intertwined biological and sociocultural influences. To disentangle these causes, researchers do not have the mythical power of Alexander the Great who with a single cut from his sword sliced the Gordian knot in two. Yet, some psychologists do continue to apply simple, unitary explanations that they hope will allow them to master the complexities of sex and gender. Some such accounts focus exclusively on hormones and other biological processes and they fail to acknowledge how these processes depend on sociocultural factors. Others focus exclusively on sociocultural factors such as the social construction of gender and do not recognize how these are grounded in biology. However, contemporary science has revealed the value of a different approach—one that recognizes the inherent dependence between biological and sociocultural causes in producing and erasing differences between women and men.

In striking evidence of this dependence, researchers who pursue causal threads associated with the biological factors of sex-related genes and hormones sometimes have found themselves revealing the influences of socialization and culture. This interdependence reflects that the effects of male and female biology are moderated by aspects of the social environment. Genes function not like encapsulated units of heredity but instead like response systems that are highly contingent on environmental input (Lickliter & Honeycutt, 2003). Illustrating this contingency, the onset of menarche in girls is now understood to depend on the psychosocial environment (Ellis, 2004). Girls begin menstruating as early as around 12 years in some urban postindustrial societies and as late as 18 years or more in rural highland Papua New Guinea or high altitude Nepali groups. Age of onset is regulated biologically by the maturation of the adrenal glands and the hypothalamic–pituitary–gonadal axis. The rate of this maturation is increased by psychosocial stressors such as father absence, emotionally distant mother–daughter relationships, depression, and exposure to family conflicts. As Ellis (2004, p. 948) indicated, until recently, "the notion that social experiences influence something as biological and presumably genetic as pubertal timing was not taken seriously" by the research community.

Is the reverse also true—that the influence of sociocultural factors depends on biology? If so, in the Gordian knot of causal influences, research that pulls a thread associated with the social determinants of sex differences would reveal the effects of genes and hormones. We are not referring to the obvious idea that men and women are living beings whose survival and reproduction is undergirded by biological processes. Instead, in its more profound manifestation, the sociocultural meaning of gender is grounded partly in biological differences between the sexes. As an illustration, boys' preferences for masculine, wheeled toys that afford motion can be traced to more than the socialization of toy preferences by parents, peers, and the media. Masculine toy preferences also appear to have a hormonal basis in prenatal androgen exposure. Girls with congenital adrenal hyperplasia (CAH), a disorder involving exposure

to high levels of prenatal androgen, show these masculine toy preferences along with other boyish attributes—elevated activity levels and greater rough-and-tumble play (Hines, 2009). Also suggesting that toy preferences have a hormonal basis, male juvenile vervet and rhesus monkeys, much like young boys, showed a stronger preference for wheeled toys than did their female counterparts (Alexander & Hines, 2002; Hassett, Siebert, & Wallen, 2008). The socialization of children elaborates this initial hormonal effect by fostering different toy choices and play activities in girls and boys within societies (Lytton & Romney, 1991).

The interwoven influences of biology and culture in enhancing and reducing sex differences might seem to overwhelm personality and social psychological approaches by adding a laundry list of genetic and hormonal variables to investigations of female and male behavior. Worse yet, studying these intertwined influences might seem to place social and personality psychologists at risk for relocating their labs in the biology building on campus. Fortunately, theorizing about the various causes has kept pace with the emerging complexity of empirical findings. In particular, biosocial theories, which consider the interface between biological and sociocultural influences, articulate a clear role for social and personality psychology variables in scientific models about sex differences in behavior, as well as in people's beliefs about men and women.

DISTAL AND PROXIMAL CAUSES OF SEX DIFFERENCES AND SIMILARITIES

From the biosocial perspective of this chapter, sex and gender constructs in psychology are part of a *nomological net*, or series of connected theoretical concepts and observable properties, within which the constructs have a particular meaning (Cronbach & Meehl, 1955). By looking upward in the net toward the distal, fundamental causes of male and female behavior, we can answer the kind of big picture questions about women and men that a Martian might puzzle over when landing on earth for the first time and observing any human society. In all known societies, men and boys to some extent specialize in activities different from those favored by women and girls. An extraterrestrial visitor thus is likely to wonder why the sexes fill different social roles and thereby engage in a division of labor. Answering this question at a societal level of analysis illuminates the biosocial interaction writ large. That is, the division of labor arises from the ways in which cultural and ecological forces in a society interact with humans' biology in terms of female and male physical attributes and reproductive activities (Wood & Eagly, 2002). Because women bear and nurse children and men possess greater size, speed, and strength, especially in the upper body, certain activities in a society are more efficiently accomplished by one sex than the other. In short, the division of labor arises because it can be easier for one sex to perform certain tasks of daily life.

By looking downward in the nomological net toward the more proximal causes of individuals' behavior, we can identify the immediate determinants of differences between male and female behavior, as well as differences within each sex. Social and personality psychologists typically ask questions about proximal causes, such as why women generally are more nurturant than men toward close others and why individual women vary in their propensity to nurture. As this chapter explains, the proximal causes of sex differences in individual behavior are framed by *gender roles*, or the shared beliefs that apply to individuals on the basis of their socially identified sex (Eagly, 1987; Eagly, Wood, & Johannesen-Schmidt, 2004).

Gender roles, as well as specific social roles such as daughter, boss, and friend, influence the behavior of individual women and men through more immediate causes. We consider a trio of proximal causes of sex differences and similarities that reflect the biosocial interaction close-up: Roles influence behavior through chemical signals of *hormonal changes* in interaction with personal *gender identity* and others' *stereotypical expectations*. The second and third of these causes, which are the sociocultural aspects of this biosocial model, are reminiscent of Deaux and Major's (1987) argument that gender is enacted in dyadic interactions as a function of gendered beliefs about the self, others' expectations, and contextual influences that make gender more or less salient (see also Deaux & LaFrance, 1998). The next sections of the chapter first outline the nature and functioning of gender roles and then address the immediate biosocial mechanisms by which these beliefs about women and men influence behavior.

GENDER ROLES

Gender role beliefs arise from the specific social roles occupied by women and men—that is, from the division of labor in society. Most social behavior is embedded in the performance of specific roles, and gender roles serve as a backdrop that pervades the performance of such specific roles. Because in all cultures women and men tend to specialize in different behaviors, people have different beliefs about what each sex can and should do. These beliefs constitute socially shared stereotypes within a society. In essence, gender roles are reflected in a society's stereotypes about men and women. Thus, women may be viewed

as kind and compassionate and men as bold and fearless. Gender stereotypes might also include specific skills, such as women having the ability to weave baskets and men to tend crops, or vice versa (Murdock & Provost, 1973).

Our definition of gender roles derives from the broader concept of social role, which refers to the shared beliefs that apply to people who occupy a certain social position or are members of a particular social category (e.g., Biddle, 1979). For gender roles, these social categories are male and female. In the mind of individuals, roles are schemas, or abstract knowledge structures, pertaining to a group of people. When role schemas are shared among members of a society, they constitute structures at the societal level, as well as the individual level. Roles are thus symbolic aspects of social structure, which consists of persisting and bounded patterns of behavior and social interaction (e.g., House, 1995).

Gender roles, like roles based on group memberships such as age, social class, and race, apply to many aspects of daily life. In their *Handbook of Social Psychology* chapter on gender, Deaux and LaFrance (1998) likened this aspect of gender to air—a pervasive, ever-present part of people's experience. In contrast, more specific roles based on factors such as family relationships (e.g., father or daughter) and occupations (e.g., teacher or police officer) are relevant mainly to behavior in a particular social context. For example, occupational roles are pertinent mostly at work. Given their general applicability across settings, gender roles influence behavior simultaneously with specific roles and roles based on other group memberships (e.g., racial groups). These intersections of gender roles with other roles lend complexity to female and male behavior.

Gender roles specify what men and women usually do and what they should do—that is, roles are descriptive and prescriptive (or injunctive; Cialdini & Trost, 1998; Prislin & Wood, 2005). The descriptive aspect of gender roles indicates what is typical for each sex. People rely on this descriptive information when they are concerned about what is normal for their sex. Especially if a situation is ambiguous or confusing, people tend to enact sex-typical behaviors. The prescriptive aspect of gender roles describes what is desirable and admirable for each sex. People rely on this prescriptive information when they are motivated to gain social approval or to bolster their own esteem.

Content of Gender Roles

What are the gender role beliefs that people commonly hold about women and men? Research on gender stereotypes reveals this content (see review by Kite, Deaux, & Haines, 2007). Most people's beliefs about men and women can be summarized in two dimensions, which are most often labeled *agency*, or self-assertion, and *communion*, or connection with others (Bakan, 1966). These basic dimensions, in various forms, underlie people's beliefs about different social groups (Fiske, Cuddy, Glick, & Xu, 2002; Judd, James-Hawkins, Yzerbyt, & Kashima, 2005). Men, more than women, are thought to be agentic—that is, masterful, assertive, competitive, and dominant (e.g., Newport, 2001; Spence & Buckner, 2000). Women, more than men, are thought to be communal—that is, friendly, unselfish, concerned with others, and emotionally expressive. The expressiveness accorded to women extends to a range of emotions, including sadness, embarrassment, fear, distress, sympathy, love, and happiness, but not to anger and pride, which are ascribed more to men than to women (Alexander & Wood, 2000; Plant, Hyde, Keltner, & Devine, 2000).

Agency and communion were the predominant themes that emerged in the foundational studies of gender stereotypes. When respondents in such research listed the ways in which men and women differ, a high proportion of the most consensual attributes were either agentic or communal (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972). When respondents in another study free associated to the terms *masculine* and *feminine*, the great majority of these associations were agentic or communal traits (Deaux & Lewis, 1983). These stereotypes emerge with implicit measures, such as the Implicit Association Test, as well as with traditional explicit measures based on rating scales (Rudman, Greenwald, & McGhee, 2001). Male agency and female communion also appear to be pancultural, albeit with some variation across cultures (Best & Thomas, 2004; Williams & Best, 1990).

Agency and communion are not the whole story on gender stereotypes. People also take into account contrasting features of male and female bodies. They regard men as muscular, strong, and tall and women as pretty, sexy, and petite (Cejka & Eagly, 1999; Deaux & Lewis, 1984). With respect to the mind, intellectual ability is regarded as having subtly different contours in women and men, with women being more creative and verbally skilled and men more analytical and quantitatively skilled (Cejka & Eagly, 1999; Swim, 1994). Sheer intelligence is ascribed somewhat more to women than men in contemporary U.S. representative surveys (Newport, 2001; Pew Research Center, 2008), as opposed to the earlier tendency to ascribe greater intelligence to men (e.g., Fernberger, 1948).

People readily take other group memberships and social roles into account along with gender roles. The meaning of male and female social categories differs depending on group membership such as nationality (Eagly & Kite, 1987), age (Kite, Deaux, & Miele, 1991), race, and ethnicity (Timberlake & Estes, 2007). To give one illustration, sexual orientation makes a difference: Homosexual

individuals are regarded as similar to opposite-sex heterosexuals—that is, gay men as more feminine and lesbian women as more masculine—than typical members of their sex group (Kite & Deaux, 1987). Specific social roles also moderate gender roles. For example, acknowledging women's domestic role, perceivers accord more agency to women than men in some domestic contexts (Mendoza-Denton, Park, & O'Connor, 2008). In addition, portraying women and men in the same specific social role (e.g., occupation) appears to reduce the impact of gender stereotypes (Eagly & Steffen, 1984; Eagly & Wood, 1982).

Also reflecting that gender roles coexist with other social roles, the general categories of men and women are composed of subtypes. Vonk and Ashmore (2003) identified more than 200 masculine and feminine subtypes that varied in their young versus old and traditional versus modern meaning. Gender subtypes represent men and women in, for example, occupations such as businessman and career woman and interpersonal roles such as family man and lover (Carpenter & Trentham, 1998; Eckes, 2002). New subtypes continually emerge, such as *Joe six-pack* and *hockey mom* to represent the intersections of gender with political interest groups in the 2008 U.S. presidential election campaign.

Children gradually gain sophistication in their thinking about the sexes. Young children do not stereotype at the abstract level of the agentic and communal personality traits that dominate adults' gender stereotypes (see Miller, Trautner, & Ruble, 2006, for a review). Instead, children as young as 3 years associate concrete objects and activities with each sex—for example, dolls, hairbrushes, and sewing with females and baseball bats, cars, and playing basketball with males. Also, young children link qualities such as pink and softness with females and blue and roughness with males. In middle childhood, the core agency and communion stereotypes start to emerge. With maturity, perceivers acquire a rich set of social psychological concepts for thinking about men and women.

Roots of Gender Roles in the Division of Labor

The gender role beliefs, or stereotypes shared within a society, are not arbitrary or random. Instead, they are firmly rooted in a society's division of labor whereby people observe men and women engaged in different types of activities (Eagly, Wood, & Diekman, 2000). From these observations, people develop beliefs about women's and men's attributes, especially their personality traits. How do perceivers make their way from observations of concrete behaviors to abstract ideas about traits?

As a first step, people's behaviors are assumed to reflect their intrinsic characteristics. This cognitive process of inferring traits from observed behavior is known as *correspondent inference* or *correspondence bias* (Gilbert, 1998). For example, on observing an act of kindness, perceivers automatically identify the behavior in trait terms and characterize the actor by the trait that is implied—as a nice, caring person. By making this inference, people commit the fundamental attribution error by assuming that people are what they do. This process is widespread (Gawronski, 2003; Ross, Amabile, & Steinmetz, 1977) and largely spontaneous (Uleman, Saribay, & Gonzalez, 2008).

From observations of individuals, perceivers then generalize to the traits of entire groups of people—that is, to group stereotypes. Illustrating how thinking proceeds from individuals to groups, Ridgeway and Erickson (2000) created differential status between two individuals by having one person (an experimental confederate) act in a deferential or a superior way to the other person (the participant). These two people had been arbitrarily assigned to different nominal groups, A or B. The status difference established between these two individuals then was generalized, by the research participants and by observers, to other members of A and B groups, as if it were a characteristic of the groups (see also Ridgeway, 2006b). Perceivers appear to be especially adept at jumping from observations of even a single man or woman to generalizations about qualities typical of each sex (Prentice & Miller, 2006).

If gender stereotypes are largely data driven, what are the observations that feed them? Because the division between female domestic labor and male wage labor remains partially intact (Bianchi, Robinson, & Milkie, 2006), people have many opportunities to observe women and men engaging in different behaviors. They tend to see women engaged in supportive, nurturing behaviors in their domestic role and in occupations (e.g., teacher and nurse) that emphasize communal characteristics (Cejka & Eagly, 1999; England, Budig, & Folbre, 2002). Also, people tend to see men in family roles of provider and head of household, as well as in certain occupations that foster assertive, task-oriented behaviors (Cejka & Eagly, 1999). Additionally important are indirect observations provided by media portrayals and cultural lore. Given repeated observations of men and women engaging in different types of behaviors, gender roles effortlessly emerge.

Do these observations of male and female roles boil down to sex differences in observed social status, as some social psychologists have argued (e.g., Conway, Pizzamiglio, & Mount, 1996; Ridgeway & Bourg, 2004)? People often observe men in higher-status roles and women in lower-status ones—for example, male executives interacting with female secretaries and clerks. Accordingly, perceivers infer that men have the correspondent attributes of competitiveness and agency and women have the

attributes of compliance and supportiveness (Wood & Karten, 1986). However, status is more strongly related to agency than to communion (e.g., Conway et al., 1996) and thus is more suited to explaining stereotypes of men.

The perception that women are communal can be traced largely to their cooperative interdependence with other groups (e.g., men, children, and the elderly; Fiske et al., 2002). These helpful and supportive social relationships underlie the "women are wonderful" effect, whereby the female stereotype is often more favorable than the male stereotype (Eagly & Mladinic, 1994; Rudman & Goodwin, 2004).

Women's greater cooperative interdependence and men's greater status also have a dark side (Spence, Helmreich, & Holohan, 1979). Social perceivers regard women as more vulnerable than men to a communal focus on others that results in neglect of oneself (e.g., inability to say no and excessive concern with others' problems). They also regard men as more vulnerable than women to an agentic self-focus that results in neglect of others (e.g., arrogant, greedy, and cynical; Helgeson & Fritz, 1999). Thus, gender's troubled waters consist of agency not blended with some communion and communion not blended with some agency.

Accuracy of Gender Stereotypes

Are gender stereotypes accurate? Yes and no. To the extent that stereotypes are grounded in reality, they inevitably possess a kernel of truth. People's frequent observations of male and female behavior provide myriad opportunities to correct biased beliefs (Fiedler & Walther, 2004). Moreover, categorizing people as female and male would not be useful unless the meanings associated with the categories were at least broadly accurate. But saying "yes, stereotypes are accurate on average," could mean "no" for any specific instance. An intelligent answer separates the accuracy of beliefs about a category from those about individual category members (Ryan, 2002). Beliefs about groups may be quite accurate based on group averages (e.g., men like to shop for tools) but inaccurate when applied to individuals within the groups (e.g., Steve is a man, so he will enjoy tool shopping). For people not typical of their sex, stereotypical judgments are necessarily inaccurate.

Providing fairly good evidence of accuracy, research has related gender stereotypes to the sex differences and similarities established in psychological research. Participants' beliefs about the direction and magnitude of sex differences are moderately correlated with the findings of meta-analyses of studies that compared the sexes on a range of personality traits, abilities, and social behaviors (Briton & Hall, 1995; Hall & Carter, 1999a; Swim, 1994). For example, people believe that women smile more than men, and research has found this to be a sex difference (Labrance, Hecht, & Paluck, 2003). Also suggesting accuracy, gender stereotypical beliefs were correlated with men's and women's experiences of the emotions of anger, fear, love, joy, and sadness (Grossman & Wood, 1993). In addition, people can successfully estimate the social attitudes held by men and women on various topics (Diekman, Eagly, & Kulesa, 2002). Furthermore, Hall and Carter (1999a) found that people with more accurate gender stereotypes were also more interpersonally sensitive and believed more in the accuracy of their social perceptions.

Despite this evidence of a substantial kernel of truth, cognitive processes can exaggerate people's judgments of male–female differences. Categorizing people by sex is one such process. When individuals are categorized into groups, they might seem more similar to other group members than they actually are, as well as more different from members of other groups (e.g., Tajfel, 1981; Wilder, 1984). Sex provides the strongest basis of categorizing people, even when compared with race, age, and occupation (Fiske, Haslam, & Fiske, 1991; Stangor, Lynch, Duan, & Glass, 1992; but see Quinn & Macrae, 2005).

Stereotypes also slant the way in which people encode instances of behavior. By assimilating women and men to gender stereotypes, perceivers may not judge them accurately (von Hippel, Sekaquaptewa, & Vargas, 1995). In illustration, research participants informed about another person's agentic acts of leadership (e.g., "when speaking, motivates employees") were more likely to activate in memory the implied agentic traits (e.g., "charismatic") when the other person was male (Scott & Brown, 2006). Thus, given the same act of agency, observers are more likely to accord men than women the correspondent trait because agency is regarded typical of men. As a result of such biased processes, an assertive, decisive woman might not be considered for leadership positions (Eagly & Carli, 2007).

As another source of inaccuracy, differences are overestimated when men and women are viewed as opposites along a masculine–feminine bipolar dimension (Green, Ashmore, & Manzi, 2005; Krueger, Hasman, Acevedo, & Villano, 2003) or as having opposing group interests (Diekman et al., 2002). Nevertheless, empirical support for the exaggeration of group-level sex differences is mixed, with some studies showing overestimation (Allen, 1995; Martin, 1987) and others showing underestimation (e.g., Cejka & Eagly, 1999; Swim, 1994; see discussion in section, Sex Differences in Psychological Research).

Popular media also reduce stereotype accuracy by exaggerating differences between the sexes, despite occasional counterstereotypical portrayals (e.g., a female U.S. president in the television series *Commander in Chief*). One such

bias is that men are depicted more often than women in prime-time television commercials and more often in primary roles (Furnham & Mak, 1999; Ganahl, Prinsen, & Netzley, 2003). Media also mirror the division of labor, with prime-time television programming of situation comedy, drama, and reality offering 23% more men than women in employment-related roles and 33% more women than men in interpersonal roles involving family, romance, and friends (Lauzen, Dozier, & Horan, 2008). These paycheck-earning men and relationship-focused women fuel gender stereotypes in a media-intensive society. Suggesting the influence of media portrayals, frequent television viewing is associated with more stereotypical beliefs about women and men (Morgan & Shanahan, 1997).

Other stereotyping processes compromise accuracy by minimizing people's reports of sex differences. This effect occurs when perceivers use shifting standards to judge men and women. If people compare women with other women and men with other men, then the sexes are judged by different standards (Biernat, 2003, 2005). To illustrate, consider athleticism, a set of skills in which men predominate so much that athletic competitions are typically segregated by sex. When people describe a woman and a man as "athletic," they usually mean that the woman is athletic for a woman, just as the man is athletic for a man. Given typically lesser athletic prowess in women, observers would judge a woman athlete by a different and lower standard than a man. The result could be that a man and woman are judged as equally "athletic," for example, on a subjective rating scale ranging from "very athletic" to "not at all athletic." Yet, if observers judged this man and woman by the same, or *common*, standard (e.g., "how far can he or she throw a ball?"), the (accurate) stereotype of greater male athleticism would ordinarily dominate judgments (Biernat & Vescio, 2002).

Stereotypes also are minimized when perceivers contrast individual men's and women's behavior with gender stereotypes. For example, when confronted with unambiguously counterstereotypical behavior, perceivers may try to explain the unusual behavior and end up concluding that the individuals possess especially strong attributes corresponding to the behavior. Thus, perceivers observing exceptional service from a female financial adviser or a male wedding planner inferred that they must possess special competence at financial or wedding services (Matta & Folkes, 2005).

In summary, gender stereotypes are subject to conflicting pressures: People's many opportunities to observe males and females ensure overall group-level accuracy despite the various sources of bias that can exaggerate or minimize genuine differences between the sexes.

Controlling Detrimental Effects of Gender Roles on Judgments of Individuals

The accuracy of gender stereotypes at the group level does not make stereotypes benign influences in daily life. Instead, stereotypes constrain behavior and foster sanctions for deviation (see the later section Influence of Social Expectations). Stereotypes also help to retain traditional patterns of behavior: Gender stereotypes derive from observing women and men enacting a division of labor and in turn hold people into the very roles that make up the division of labor.

Controversy surrounds the question of whether people can inhibit stereotypes about social groups. Consistent with the inevitability of stereotyping are numerous experiments suggesting that stereotype activation does not require intentional control or conscious awareness. For example, priming of gender stereotypical words (e.g., jobs such as "nurse" or "doctor") versus nonstereotypical words led participants to classify quickly gender-matched pronouns (e.g., "he" or "she") into male and female categories (e.g., Banaji & Hardin, 1996). Similarly, implicit priming induced by having participants unscramble sentences with male or female stereotypical (vs. nonstereotypical) content produced more stereotypical ratings of a target person of the sex implied by the priming (Banaji, Hardin, & Rothman, 1993). Such phenomena suggest that perceivers have acquired a network of associations about men and women that are ordinarily activated by relevant concepts (Bargh, 1999; Fiske, 1998).

Questioning the inevitability of stereotyping are experiments demonstrating that mere exposure to sex-related cues does not necessarily bring gender stereotypes to mind, at least not in their generic form. For example, after imagining a "strong woman," such as a businesswoman in charge of others or a female athlete, perceivers indicated less extreme gender stereotypes on the Implicit Association Test (Blair, Ma, & Lenton, 2001). A host of other factors can modulate the activation of gender stereotypes, including time pressure and other cognitive constraints (Blair & Banaji, 1996), perceivers' processing goals (Macrae, Bodenhausen, Milne, Thorne, & Castelli, 1997; Moskowitz, Gollwitzer, Wasel, & Schaal, 1999), and a social environment with women in leadership positions (Dasgupta & Asgari, 2004). Such phenomena suggest that gender stereotypes are fluid, contextually sensitive, and potentially controllable.

Even when stereotypes have been activated, they are not always used in judging others (Devine, 1989). Information about individuals' other qualities can restrain the application of stereotypes to some extent (Fiske, 1998). Thus, in newly formed discussion groups, members perceived men

as higher in agency than women except when given direct information about the others' relative aptitudes (Wood & Karten, 1986). In addition, the application of stereotypes depends on a complex of cognitive and motivational variables (Blair, 2002; Kunda & Spencer, 2003). For example, perceivers can inhibit stereotyping when they have sufficient cognitive resources and motivation (e.g., Dasgupta & Rivera, 2006; see Fazio & Olson, 2003). Their motivation to restrain prejudicial reactions can reflect internal, personal desires to avoid sexism and external pressures deriving from others' reactions (Klonis, Plant, & Devine, 2005). Nonetheless, the motivation to correct for gender stereotypes is not guaranteed. People feel less compunction when they are confronted with their own sexism, compared with their other types of biases (e.g., Czopp & Monteith, 2003).

In summary, perceptions of individuals are not always at the mercy of gender stereotypes. Although social categories such as gender may be automatically activated outside of awareness and without conscious intent, such activation does not always occur. Even when gender stereotypes have been activated, perceivers can control their potential effects on judgments, given sufficient motivation and cognitive resources. However, in the hurly-burly of daily life, people often lack the motivation or resources to exert this control (see Macrae & Quadflieg, this volume).

Potency of Gender Roles

Gender roles do not always influence judgments and behavior, but they wield considerable power in various circumstances. The strength of gender roles arises from several sources: The shared beliefs that comprise these roles seem consensual, they have an injunctive or prescriptive quality, and they appear to describe qualities that are deeply embedded in human nature.

Stereotypical beliefs that are supported by social consensus seem valid—after all, others endorse them, and this consensus establishes pressures to comply (Crandall & Stangor, 2005). In research manipulating the consensus behind racial stereotypes, college students with the impression that their anti-Black beliefs were shared by other students sat further from an African American (Sechrist & Stangor, 2001). Similarly, the widespread consensus about female communion and male agency fuels the effects of these stereotypes on judgments and behavior.

Gender roles acquire additional power from their prescriptiveness. Gender stereotypical ways of behaving seem generally desirable for that sex (Prentice & Carranza, 2002; Spence & Helmreich, 1978). For example, if women, far more than men, care for infants and young children, it is reasonable that people prefer that women be kind and nurturing. In general, the more attributes actually differ between women and men, the more desirable they seem to be for one sex as opposed to the other (Hall & Carter, 1999b). This prescriptiveness makes sense, given that gender roles capture the qualities that facilitate sex-typical activities in society.

As an additional contribution to the power of stereotypes about women and men, sex strikes people as a *natural-kind* category, associated with a deep, inherent quality that makes the attributes linked with it seem relatively unalterable. For many social perceivers, women possess an essential nature that is different from that of men. Of 40 social categories, male–female categories were judged as the most natural, necessary, immutable, discrete, and stable (Haslam, Rothschild, & Ernst, 2000). As a consequence, people often regard feminine or masculine attributes and behaviors as inherent, stable properties of the sexes (Prentice & Miller, 2006).

In the next sections of this chapter, we consider various mechanisms through which gender roles and specific social roles are enacted to produce the behavior of men and women. For social and personality psychologists, this is where the rubber meets the road—where theories about psychological and biological processes are tested as predictors of behavior. However, within the nomological network of gender constructs, equally important are the distal biosocial causes of gender roles that we consider toward the end of the chapter.

ROLES GUIDE BEHAVIOR

Proximal Influences

In daily life, people carry out gender roles as they enact specific social roles such as athlete, employee, and parent. Performing social roles is enabled by biological and psychological mechanisms that interact in various ways. Biological processes include hormones acting as chemical signals and psychological mechanisms include gender identities and others' expectations. These factors work in tandem to promote role performance.

To understand how hormonal and psychological factors work together to guide behavior, consider the aggressive, competitive behaviors required to win athletic contests. Performance of these behaviors is promoted by increases in the steroid hormone, *testosterone*, which is an *androgen* secreted in men by the testes and in women to a lesser extent by the adrenal gland and ovaries. Athletic competition also is promoted by a masculine, agentic identity, as athletes regulate their behavior in line with this gendered self-view. Athletic performance also is likely to be highly

responsive to the agentic expectations of fans, other players, and coaches. In short, fluctuations in testosterone guide responses when people are engaged in roles involving dominance and competition, as defined by their identities and by others' expectations. Thus, the biosocial interaction reflects the selective recruitment of hormones and other neurochemical processes for particular roles, given men's and women's gender identities and others' expectations for role performance.

The biological and psychological influences we identify in this chapter are honed through socialization to support men's and women's role performances. Through socialization for particular roles, boys and girls learn to channel and respond to neurochemical signals, gender identities, and expectations of others in ways that enable them to carry out their everyday social roles.

Hormonal Influences

Gender roles and specific social roles guide behavior partly through the activation of hormonal changes. The hormones most relevant to understanding sex differences are *testosterone* (T), *oxytocin* (OT), and to some extent *cortisol* (C). These hormones act as chemical transmitters in the brain that promote performance of certain social behaviors. With culturally masculine roles, higher levels of T are associated with dominance, or behaviors that gain or maintain status. In humans, such behaviors often entail competition, risk taking, and aggression that may harm or injure others (Booth, Granger, Mazur, & Kivlighan, 2006). In contrast, with culturally feminine roles, higher levels of OT (as well as reduced C and T) are associated with behaviors that produce parental bonding, nurturance, and intimacy (Campbell, 2008).

According to the biosocial interaction, T is relevant when, due to personal identities and social expectancies, people experience social interactions as dominance contests. OT is relevant when, due to personal identities and social expectancies, people define social interactions as involving bonding and affiliation with close others. T and OT promote role performance in conjunction with other hormones, including C, a hormone associated with the experience of stress that is secreted by the adrenal gland. Lowered C may facilitate bonding with others, and heightened C may facilitate aggression and dominance. And other neurochemical processes, especially those associated with rewards and learning of particular behaviors, supplement or even supplant influences of T and OT.

Hormones and Masculine Social Roles

In Mazur and Booth's (1998) classic model, performance of dominant, aggressive behaviors activates T. That is, T is recruited for performance of roles involving competitive dominance. The model also postulates a reciprocal relation by which increased T promotes dominant, aggressive responding. That is, circulating T orients people to assume roles or engage in behaviors involving competitive dominance.

Providing evidence that T is recruited in performance of social roles or in reaction to situational provocations, T levels among men rise in anticipation of athletic and other competition and in response to insults, presumably to energize and direct their physical and cognitive performance (e.g., Cohen, Nisbett, Bowdle, & Schwarz, 1996; Suay et al., 1999). This relation was secured in Archer's (2006) meta-analysis in which T rose in men anticipating and playing sports and other competitions (e.g., video games), especially among the contest winners. In addition, higher T levels among male financial traders predicted their daily profitability (Coates & Herbert, 2008). This finding suggests that T facilitates competition even against the generalized competitors who make up financial markets. C levels also may be implicated, given that these have been found to rise in male and female athletes before and during a match (Bateup, Booth, Shirtcliff, & Granger, 2002; Edwards, Wetzel, & Wyner, 2006).

T does not increase in the absence of social roles or situational provocations that call for aggressive, dominant behavior. Thus, men's T did not reliably increase in contrived laboratory competitions (Archer, 2006). Also, in women's competitions, T did not rise in players of a video game before a contest (Mazur, Susman, & Edelbrock, 1997), but it rose in female rugby and soccer players before and during a match (Bateup et al., 2002; Edwards et al., 2006). Hence, despite women's production of only one fifth to one tenth of men's T levels, the hormone is activated in both sexes by interactions that are interpreted as dominance contests. Because men and women may not always agree in their interpretations of dominance interactions, some differences may occur in the details of these effects. Nonetheless, consistent with the classic model, role performances involving competitive dominance activate T.

How about the reciprocal relation whereby T activates competitive, dominant behavior, as also stipulated by the classic model? A meta-analysis of 11 studies that experimentally injected men with T or related synthetic androgens found no systematic rise in anger, aggression, or hostility (Archer, 2006). It may be that the experimental contexts did not reliably activate masculine identities and social expectations. In the absence of competition, circulating T appears largely unrelated to behavior. Instead, it shows effects primarily when dominance battles are imminent (e.g., Josephs, Sellers, Newman, & Mehta, 2006; Mehta, Jones, & Josephs, 2008).

In humans, dominance contests and displays are highly varied, with most occurring without physical aggression (Mazur & Booth, 1998). Thus, it is not surprising that only a small, positive association emerged in a meta-analytical review of the relation between circulating T and various behavioral and self-report measures of aggression (meta-analytical $r = .08$, $k = 42$; Archer, Graham-Kevan, & Davies, 2005). High levels of circulating T might activate behavior in a range of dominance-provoking situations, not just those associated with aggression. In support, high T in men is associated with criminal acts, especially violent crime, and some antisocial behaviors (Booth et al., 2006; Dabbs & Dabbs, 2000). In addition, higher T characterizes occupations such as professional football, in which success involves self-aggrandizing displays of dominance in face-to-face confrontations, compared with occupations such as minister, which generally involve selflessness and concern for others (Dabbs & Dabbs, 2000). Also, experimental manipulations of T in college women appeared to heighten their tendencies to dress and groom their hair attractively—behaviors that may yield popularity and social power in everyday competition for young women (Dabbs et al., 2003). Additionally suggesting a role for T in displays of dominance, men with high circulating T smiled less in facial photographs (Dabbs, 1997). In these ways, hormonal processes facilitate various behaviors as people interact with others and carry out social roles.

Hormones and Feminine Social Roles

OT and other neurochemicals that promote the expression of intimacy and caring for others are relevant to the performance of roles involving nurturance and affiliation. OT also influences the experience of stress and may have a dual function in promoting affiliative behavior to cope with stress and in reflecting the level of stress experienced in relationships (Taylor et al., 2000, 2006). OT is especially relevant to women because of the regulation of OT receptors by estrogen and OT's stimulation of uterine contractions during labor and milk expression during lactation.

The enhancement of maternal bonding by OT is most evident in rodents and sheep, which have been subjected to experimental manipulations of hormones. In humans, women's OT levels increase in contexts involving intimacy and caring for others. For example, OT rises in women during childbirth (Takagi et al., 1985) and with massage and sexual contact (Insel, 2000; Pedersen, 2004). Moreover, women with higher OT in early pregnancy and postpartum engaged in more maternal bonding behaviors such as gazing at the infant's face, affectionate touch, and speaking in the high-pitched, expressive tones of motherese (Feldman, Weller, Zagoory-Sharon, & Levine, 2007). Also, brain regions associated with OT receptors were activated in mothers viewing pictures of their infants and in male and female lovers viewing pictures of their romantic partners (Bartels & Zeki, 2004).

In humans and other large-brained primates, parental bonds and affiliation are promoted not only by OT but also by hormones involved in reward learning, including opioids and dopamine (Depue & Morrone-Strupinsky, 2005; Taylor, 2002). Reward mechanisms enable bonds to develop even without the hormones of pregnancy, parturition, and lactation. For example, close bonds to infants can develop in adoptive relationships. Fathers and other relatives and caretakers also bond with infants. Such bonding is promoted by experiences of reward that can be triggered by infants' vulnerability and need, by physical sensations of tactile contact and smell, and by the high value societies place on children. Underlying this positive affect are neurochemical reward systems that promote nurturing separately from the hormones of pregnancy. According to Kendrick (2004), these learned rewards can account for much of the positive affect arising from human maternal behavior. In evidence, manipulations of neurochemicals associated with reward influence bonding even in nonhuman primates (e.g., Kalin, Shelton, & Lynn, 1995). Thus, humans and other large-brained primates establish and maintain social bonds through both hormonal activation and reward learning. This dual basis of relational bonding reflects "evolutionary progression away from hormonal-centric determinants of maternal behaviour to emotional, reward-fulfilling activation" (Broad, Curley, & Keverne, 2006, p. 2204).

Other hormones also promote intimacy and tending of others. The stress hormone C and T both are implicated in performance of spousal and caretaking roles. A drop in C ordinarily accompanies initiation of the parental role, especially among mothers, evidently to support nurturing (Corter & Fleming, 1995; Fleming, Ruble, Krieger, & Wong, 1997). In addition, fathers' anticipation and vicarious experience of childbirth produce a fall in T, as well as hormonal changes in estradiol, C, and prolactin that mimic the changes that occur in mothers (Berg & Wynne-Edwards, 2001, 2002; Storey, Walsh, Quinton, & Wynne-Edwards, 2000). Also, men's T levels decline with marriage, an effect that may favor enactment of the caring spousal and parental roles (Booth et al., 2006). Consistent with this idea, lower levels of circulating T are associated with married men's close involvement with their spouse and emotional responsiveness to their infants' cries (e.g., Fleming, Corter, Stallings, & Steiner, 2002; Gray, Kahlenberg, Barrett, Lipson, & Ellison, 2002).

In general, performance of roles that involve dominance and competition is associated with increased T levels. Performance of roles involving nurturance and intimacy coincides with increased OT levels and reduced C and T. It might seem plausible that this hormonal regulation is more

reliable in the sex that has chronically higher levels of a hormone, or at least that the regulatory processes function somewhat differently for the sexes, given differences in biology (e.g., T in men is generated through the testes). Nonetheless, women's competitiveness and aggressiveness are associated with increments of T (Archer et al., 2005). When T was calculated as a percentage increase in each sex above basal levels, T increased 24% in female rugby players anticipating a game and 49% in those playing it, as well as 36% in male tennis players anticipating a match and 6% in those playing it, along with a 12% rise in male wrestlers during a match (Bateup et al., 2002). Also, under conditions of stress, artificially increasing OT in men appears to promote their bonding and affiliation (Heinrichs, Baumgartner, Kirshbaum, & Ehlert, 2003). Additionally enabling flexibility in male and female role performance, the neurochemical systems that underpin reward learning work, in addition to OT, to regulate attach ments in both sexes. Research has yet to fully clarify the extent to which these neurochemical systems that regulate culturally masculine and feminine behavior—that is, dominant, competitive behavior and nurturing, supportive behavior—function differently in men and women (Bateup et al., 2002; Broad et al., 2006).

Organizing Influences of Hormones

The responsiveness of OT, T, and C to performance of social roles explained in the prior section can be termed *activational* effects. Also, gonadal hormones, especially androgens, have *organizational* effects during early development and adolescence that produce enduring changes in the nervous system and brain structure (Cohen-Bendahan, van de Beek, & Berenbaum, 2005; Sisk & Zehr, 2005). Exposure to androgens during these periods affects the developing brain in ways that masculinize or defeminize certain behaviors and establish differential receptivity to particular socializing influences. Thus, organizational effects might modulate the interactions between neurochemical and psychological processes described in the prior section, with the result that men might be disposed toward certain activities and women toward others.

The prenatal development of males and females diverges primarily because the testes of the developing XY fetus secrete T during gestation. The ovaries of the XX fetus produce minimal hormones, but the placenta exposes both XY and XX fetuses to high levels of estrogen. Without some exposure to T, development follows a female-typical course. Despite some limited evidence of direct, nonhormonal genetic effects on male and female development (Arnold, 2004), the organizing effects that have been clearly established involve prenatal (and early postnatal) exposure to androgens. Because androgen receptors are found in several brain systems early in life, each of which is active at different developmental time points, androgen exposure might affect various behaviors through somewhat separate brain mechanisms (Hines, 2009).

Extensive research has examined the effects of prenatal androgen exposure on nonhuman primates. For example, in rhesus monkeys, artificially increasing the exposure of female fetuses to prenatal androgens enhanced masculine behaviors of juvenile rough-and-tumble play and foot-clasp mounting (a male sexual posture), whereas increasing the exposure of male fetuses to androgen agonists decreased these behaviors (Wallen, 1996, 2005). Prenatal androgens had less consistent effects on other sex-typical behaviors, including aggression, threat, and submission, which differed between normal males and normal females only in some rearing environments and social contexts.

In human studies, naturally occurring variation in prenatal hormones has sometimes, although not consistently, related to the differing behavior patterns of girls and boys (Auyeung et al., 2009). In contrast, masculinized and defeminized behaviors occur in girls with CAH disorder, which involves levels of prenatal androgen exposure that are comparable to those of normal males (Cohen-Bendahan et al., 2005). CAH girls, more than normal girls, play with construction and transportation toys, choose boys as playmates, and engage in physically aggressive, highly active, rough-and-tumble play (Pasterski et al., 2007). In addition, although CAH girls were found in one meta-analytical review to perform better than normal girls on tests of mental rotation, an aspect of spatial ability (Puts, McDaniel, Jordan, & Breedlove, 2008), a subsequent meta-analysis of the same data revealed no significant difference (Hines, 2009). Also, as adults, women with CAH are less likely to be heterosexual than are other women (e.g., Hines, Brook, & Conway, 2004). Such effects may be partially due to environmental causes because the masculinization of CAH girls' external genitalia plausibly alerts them and their parents to their atypical status. Nonetheless, parents of CAH girls have been observed to encourage sex-typical toy play in their CAH daughters, as well as in their other daughters (Pasterski et al., 2005).

As we noted in the introduction to this chapter, exposure to prenatal androgens influences children's play preferences and activity levels and may thereby affect their receptivity to some socializing efforts of parents and peers (Beaulieu & Bugental, 2006). Fathers and male peers may respond to boys' play in ways that promote learning of particular social skills (Pellis & Pellis, 2007), especially those associated with the agentic, dominant performance of masculine roles in adulthood (Pellegrini, 1995). These themes may be elaborated further in fantasy play, which emerges by the age of 3. Compared with girls' play about domestic

situations and close relationships, boys' play more often involves action adventures of pursuit and conquest (Leaper & Friedman, 2006). With increasing maturity, girls continue to favor relational themes and boys to favor aggression and adventure themes, often in the context of video games and sports. Through these experiences, boys and girls develop distinctive expectations, preferences, and abilities (Bussey & Bandura, 1999).

In general, prenatal exposure to androgens biases the biosocial processes that produce sex differences in some behaviors by increasing boys' activity levels, preferences for active toys, and rough-and-tumble play. These factors may orient boys toward particular socialization experiences, especially ones that involve vigorous pursuit and physical dominance contests. As a result of this socialization, men may develop personal identities that are relatively agentic, and others may expect them to act in agentic ways. Consequently, men may be especially suited to perform roles that require agency combined with brief bursts of energy, strength, and speed.

INFLUENCE OF GENDER IDENTITIES

Gender roles influence people's self-concepts and thereby become *gender identities*—individuals' sense of themselves as female or male. Gender identities arise because most people accept, or internalize, at least some aspects of cultural meanings associated with their sex—meanings that in turn arise from the differing social roles of men and women (Wood & Eagly, 2009). Gender identities thereby put the culture inside the person.

People differ in the extent to which they incorporate gender roles into their self-concepts. These individual differences have varying origins, including socialization experiences, role occupancies (e.g., paid occupations), and early hormonal influences. Also, not everyone does masculine and feminine in the same way—people differ in the aspects of gender roles that they adopt. For example, men who regard themselves as masculine could be invested in culturally masculine traits such as aggressiveness and dominance or in masculine interests such as football and hunting. Historically, most research on gender identity has emphasized the agentic and communal personality traits established as the core of gender role beliefs (Bem, 1974; Spence & Helmreich, 1978). This approach illustrates personality psychologists' search for traits that directly represent male and female gender and that thereby can account for individual differences in masculine and feminine behaviors.

Gender identities motivate responding through self-regulatory processes. That is, people use their gender identity as a standard against which to regulate their behavior (Wood, Christensen, Hebl, & Rothgerber, 1997). People who have a masculine self-concept involving traits of dominance and assertiveness might regulate their behavior by, for example, seeking opportunities for leadership. Self-regulation proceeds in stages, beginning with *testing* the extent to which current behavior matches self-standards (e.g., Carver & Scheier, 2008). Closer matches produce positive emotions and increased self-esteem, whereas mismatches produce negative emotions and decreased esteem. When signaled by negative feelings, people *operate* on their behavior to bring it more in line with the desired standard. In this way, esteem and emotions constitute feedback about whether adjustments are necessary to meet standards.

Illustrating such self-regulation, Wood and colleagues (1997) first assessed the strength of participants' gender identities on items that evaluated, for example, the importance of being similar to the ideal man or woman in society. Then participants imagined acting in masculine (dominant and assertive) or feminine (warm and communal) ways. People who were strongly identified with their sex showed a self-evaluation boost when their vicarious experience was congruent with that identity—that is, dominant behavior for men and communal behavior for women. Additional research extended these findings to everyday behavior by having participants keep diaries of their social interactions for a week (Witt & Wood, in press). When men acted in masculine ways or women in feminine ways, those with a stronger gender identity reported higher self-esteem and more positive feelings.

According to gender schema theory (Bem, 1981), self-regulation works not only through motivational signals of affect and self-esteem but also through enhanced attention, processing, and recall of information relevant to gender standards. For example, those who are highly identified with culturally feminine warmth and concern for others may especially attend to, process, and recall information relevant to these qualities in themselves and others.

Following the logic of self-regulation, role congruity theory (Diekman & Eagly, 2008) anticipates that men and women select into certain social roles because those roles afford pursuit of valued goals and thereby promote positive outcomes and well-being (Evans & Diekman, 2009). For example, because women on average place more importance than men on caregiving goals, including in family relationships and marriage (Cinamon & Rich, 2002), they pursue communally demanding occupations such as nurse and teacher (Evans & Diekman, 2009) and are more involved in family roles (Abele, 2003).

Also in line with self-regulation, the greater importance of close relationships for women renders their well-being

especially sensitive to relationship quality. Thus, being married, although beneficial for both sexes' well-being, is associated for women with greater emotional highs, as well as greater lows (Wood, Rhodes, & Whelan, 1989). Physical health outcomes yield the same pattern: Both sexes benefit from marriage, but women show especially negative outcomes from marital distress (Kiecolt-Glaser & Newton, 2001). Also, men have been found to value employment roles more than women (Cinamon & Rich, 2002), especially positions affording social status (Evans & Diekman, 2009), and extent of satisfaction with paid employment tends to be more important to men's well-being (Aldous & Ganey, 1999). In these ways, the life roles that men and women value influence their role pursuit and also influence how much role-related outcomes impact happiness and life satisfaction.

With development, children learn to regulate their behavior according to their sense of themselves as female or male. For instance, in a study of children ranging from 2 to 4 years, only the older children anticipated feeling better about themselves after playing with toys typical of their own sex (Bussey & Bandura, 1992). Furthermore, these older children's anticipatory affective reactions predicted their subsequent toy choices.

Types of Gender Identity

The most basic type of gender identity, ordinarily found in children as young as 2 years, is experiencing oneself as male or female (Kohlberg, 1966; Ruble, Martin, & Berenbaum, 2006). With this realization, young children also tend to prefer their own sex. Because collective identities link people to their various roles and groups, maturation brings individuals multiple identities, based on, for example, family status, occupation, religion, race and ethnicity, and sexual orientation (Stewart & McDermott, 2004). Gender is not necessarily the most important of these identities (Smith, 2007). Among schoolchildren, for example, gender identity is more important than ethnic identity for members of the majority ethnicity, but the two identities are equally important for minority ethnicities (Turner & Brown, 2007).

Adults experience themselves as male or female when they align themselves psychologically with their own sex, as in, "I identify with women/men." These collective social identities can reflect what is normative for gender groups in either a descriptive sense ("I am a typical guy"; Luhtanen & Crocker, 1992) or a prescriptive sense ("I am an ideal guy"; Wood et al., 1997). Also, given women's changing roles in postindustrial societies, their identities may encompass a progressive view of women as having careers and sharing domestic work with men or with a more traditional view of women as homemakers. Supporting this distinction, women with stronger collective identity expressed more sexist attitudes if this identity referred to traditional rather than progressive relations between the sexes (Becker & Wagner, 2009).

A collective identity as a man or women reflects the classification of people into two categories, male or female. Alternative collective gender identities also exist—for example, *intersex*, *intergender*, *pangender*, and *genderqueer*—all of which refer to individuals whose gender identity is a combination of male and female or invokes a third sex. And *transgender* rejects the biological inevitability of being one sex or the other. Additional variants depart from normative heterosexuality, including *gay*, *bear*, *fag*, *lesbian*, *butch*, *femme*, and *bisexual*. In some societies, certain of these alternative identities are not rare, such as the *kathoey* or *ladyboy* identity adopted by feminine boys and men in Thailand, comprising about 10% of the male population. Suggesting increasing acceptance, boys with this identity have been assigned transgender toilet facilities in some secondary schools (Head, 2008).

The most popular measures of gender identity assess not collective identification with a gender group but rather beliefs about self attributes, in particular the agentic and communal personality traits that reflect the main components of gender stereotypes. Specifically, personality traits more stereotypical of one sex than the other and more favorably evaluated in that sex constitute the items of the Bem Sex Role Inventory (BSRI; Bem, 1974) and Spence and Helmreich's (1978) closely related Personal Attributes Questionnaire (PAQ). These measures yield one scale of self-reported feminine, communal traits (e.g., warm and gentle) and another of self-reported masculine, agentic traits (e.g., aggressive and self-confident). With these two dimensions, it is possible to represent a masculine identity of high masculinity and low femininity, a feminine identity of high femininity and low masculinity, and identities with similar levels of masculinity and femininity (Bem, 1974).

Agentic and communal identities develop relatively slowly in children. Preschool children self-attribute primarily favorable characteristics, not gender stereotypical traits (e.g., Aubry, Ruble, & Silverman, 1999; Cowan & Hoffman, 1986). By middle childhood, most children ascribe gender-stereotypical personality traits to themselves, and this tendency grows stronger in adolescence (Ruble et al., 2006).

Despite psychologists' reliance on the BSRI and PAQ, people ascribe gender-stereotypical attributes to themselves on dimensions other than agency and communion. For example, people also possess a gender identity based on sex-differentiated vocations and interests (Lippa, 2001, 2005).

Additional facets of gender identity reflect investment in an individual versus social sense of self. Cross and Madson (1997) built on the cultural dimensions of individualism and collectivism to define masculine identity as an *independent* sense of self highlighting individuals' unique attributes and feminine identity as an *interdependent* sense of self highlighting relationships and group memberships. However, other researchers parsed the interdependence dimension into a masculine focus on oneself within teams and organizations and a feminine focus on oneself within relationships with close others such as friends and family (Baumeister & Sommer, 1997; Gardner & Gabriel, 2004). These two aspects of interdependence link identities to the differing role occupancies of men and women, whereby more men than women strive for status within organizations and collectives and more women than men invest in close relationships through their caring activities in families and other relationships.

Group identities can emerge and fade, depending on the context (Sinclair, Hardin, & Lowery, 2006), although psychologists typically have treated these identities as chronic self-attributes. Identities shift with the specifics of the local contexts in which people interact (Burke, 2004; Tajfel, 1978). For example, gender identity can become salient through being a solo representative of one's sex in a mixed-sex group (e.g., Sekaquaptewa & Thompson, 2002). Also, gender identity varies in strength depending on features of the situation such as the sex of an interaction partner (e.g., Leszczynski & Strough, 2008).

Predicting Behavior From Gender Identity

Measures of gender identity are useful for research to the extent that they predict relevant behaviors. Often they do not predict behavior—and they should not be expected to do so. Gender identity measures, like personality trait and attitude measures, predict behavior successfully when the content of the behavioral measure is *compatible* with the content of the predictive measure (Ajzen, 2005; Eagly & Chaiken, 1993). Consistent with this compatibility principle, the strength of one's collective identification with men or women predicts not all culturally masculine and feminine behaviors but instead group-related phenomena such as a preference for one's own sex and self-stereotyping on gender stereotypical qualities (Wood & Eagly, 2009). Measures based on agency and communion self-ratings, the BSRI and PAQ, are not general-purpose predictors of all sex-related behaviors (e.g., interest in fashion). Instead, these scales predict specifically whether people will act in agentic or communal ways (Spence & Buckner, 2000; Taylor & Hall, 1982).

Other identity measures also predict compatible behaviors. Gender identities involving vocational and leisure-time interests predict the differing occupational preferences of women and men (Lippa, 2005). Feminine relational measures assessing one's feelings of interdependence with close others predict attention to and valuing of close relationships (e.g., Gabriel & Gardner, 1999; Gore, Cross, & Morris, 2006). The logic of compatibility follows from self-regulation: People with a strong gender identity in one domain regulate their behavior in that domain. Thus, people who define themselves as highly agentic act in dominant, assertive ways, whereas those who define themselves as highly interdependent bond with significant others.

In general, individuals regulate their behavior in line with their gender identities, whether these are based on collective male and female groups, gender-stereotypical traits, or relational closeness to others. Through self-regulatory mechanisms, people enact these personally defining gender roles as they carry out such everyday roles as parent and employee. Regulation of behavior by gender identities is one facet of our biosocial model of sex and gender. This mechanism works in conjunction with hormonal processes and neurochemical mechanisms associated with reward to enable successful role performance. In line with this analysis, women high in masculinity on the BSRI, who perceived themselves as self-directed, action oriented, and resourceful, were likely to have higher circulating T (Baucom, Besch, & Callahan, 1985). Given that T is recruited in the service of role performance, this pattern suggests that agentic women are sensitive to dominance issues in daily life and recruit T as they assert dominance. Other neurochemicals associated with reward also might be implicated in the performance of gender-typical behavior, including dopamine reactivity in the brain that underlies the learning of preferences (Schultz, 2006).

INFLUENCE OF SOCIAL EXPECTATIONS

Gender roles permeate social expectations, as well as individuals' sense of themselves as male or female. Simply put, we expect men to act in masculine ways and fill male-typical roles (e.g., primary family provider) and women to act in feminine ways and to fill female-typical roles (e.g., primary caretaker of children). Gender role expectations influence behavior through their social consequences. Conformity to gender expectations usually garners social rewards, and nonconformity usually garners fewer rewards and even social rejection. Social expectations shaped by gender thereby influence social interaction. Social constructionists refer to this process as *doing gender*, as people recurrently produce behaviors stereotypical of their sex as they interact with others (West & Zimmerman, 1987).

Consensual gender role expectations exert influence not only through the beliefs and actions of specific interaction partners but also through individuals' expectations about the beliefs and probable reactions of others who are not present (Allport, 1954). Such expectations are not necessarily explicit but often implicit and influential largely outside of awareness. Also, interaction partners often are unable or unwilling to acknowledge their gender-based expectations and instead communicate them in subtle ways (e.g., falling silent or standing farther away).

Social Expectations Promote Behavioral Confirmation

People generally approve of others who conform to gender roles and penalize others who counter them. This approval is directed even toward young children, whose parents tend to encourage activities and toys that are typical for children's sex (Lytton & Romney, 1991; Pasterski et al., 2005). This is not to say that people favor hyperfeminized women and hypermacho men. But conformity to gender roles garners rewards because it validates shared beliefs about women and men and promotes social interaction that is easy to follow and understand.

Positive and negative sanctions for gender conformity and deviation are evident in the prevalence of approving, benevolent beliefs about women who conform to traditional gender roles and of disapproving, hostile beliefs about those who violate them (Glick & Fiske, 2001). On individual difference measures, hostile and benevolent beliefs were correlated—that is, they were two sides of the same coin. Thus, the people who endorsed negative beliefs about nontraditional women (labeled *hostile sexists* by Glick and Fiske, 2001) tended to be the same people who endorsed positive beliefs about traditional women (labeled *benevolent sexists*).

People commonly express hostility to various counterstereotypical behaviors. Children disapprove of peers' violations of gender norms concerning clothing, hairstyles, and styles of play (e.g., Blakemore, 2003). Adults react similarly in more mature domains. For example, in small-group interaction, women who behave in a dominant or extremely competent manner tend to lose likability and influence (Carli, 2001; Shackelford, Wood, & Worchel, 1996). Women in supervisory roles may be penalized for failing to attend to others' emotions or for expressing angry emotions (Brescoll & Uhlmann, 2008; Byron, 2007), as well as for performing at outstanding levels in stereotypically masculine roles (Heilman, Wallen, Fuchs, & Tamkins, 2004). In contrast, men, more than women, tend to lose social status for behaving passively, unassertively, anxiously, and negatively (e.g., Anderson, John, Keltner, & Kring, 2001), and modest and unassuming men are viewed as insufficiently competent for leadership roles (Rudman, 1998; Rudman & Glick, 2001). Nonetheless, sometimes the benefits of gender nonconformity outweigh its social costs, motivating people to act in ways that counter gender stereotypes, such as when women anticipate gender prejudice (e.g., Kaiser & Miller, 2001).

People often attempt to deflect negative responses to their nonconforming behaviors by reclaiming a conventional gender identity. For example, men and women who believed that they had performed well on a task typical of the other sex attempted to hide their success from others, falsely claimed success on a task typical of their own sex, and expressed greater interest in same-sex activities (Rudman & Fairchild, 2004). These mitigating strategies were stronger among those who reported expecting reprisals from others for their gender nonconformity. Also, men experiencing discomfort from performing the feminine task of braiding hair successfully reduced this discomfort by publicly claiming a conventional sexual orientation ("I am heterosexual," e.g., Bosson, Prewitt-Freilino, & Taylor, 2005). Some evidence also suggests that men's gender identity (i.e., their collective identity or "manhood") requires continual social proof and thus is more easily threatened than women's identity (or "womanhood"; Vandello, Bosson, Cohen, Burnaford, & Weaver, 2008).

Instilling conformity to gender norms does not require overt rewards and punishments. Instead, the explicit communication of stereotypical expectations by influential others can be sufficient. In a classic demonstration, female students shaped their self-presentations to fit the preferences of a highly eligible male interaction partner (Zanna & Pack, 1975). When this man reported preferring women who were traditional (vs. nontraditional), these young women presented themselves as conforming to his preferences and furthermore performed worse on a test of intellectual aptitude that was to be shared with this male partner. This stereotype confirmation is not surprising given that these female students anticipated meeting a desirable man who had explicitly stated his preferences (see the conceptual replication with male participants in Morier & Seroy, 1994).

In the standard account, such behavioral confirmations emerge through social perceivers forming expectancies about an individual target based on gender stereotypes and then behaving toward that individual as if the stereotypical beliefs were true (Olson, Roese, & Zanna, 1996). The target person responds so as to confirm the gender stereotype, and the perceiver interprets the target's behavior in line with the expectancy. The perceiver then encodes yet another instance of stereotype-consistent behavior and thereby strengthens gender role expectations. Although the link between expectancies and behavior is contingent on various

conditions (Olson et al., 1996), the behavioral confirmation of gender-based expectations through this sequence serves to maintain, propagate, and justify people's stereotypes about women and men.

Even without the explicit statement of gender norms, people often conform to interaction partners' presumed gender stereotypical expectancies (see review by Geis, 1993). For example, in an experiment by Skrypnek and Snyder (1982), task partners negotiated a more traditional division of labor when they believed that their (unseen) partner was of the other sex, regardless of their partner's actual sex. In addition, lack of awareness of certain stages in the confirmation process enhances such effects. If perceivers were aware that they caused another's gender stereotypical behavior, they would not attribute the behavior to that person's disposition or conclude support for gender stereotypes. Also, if targets were aware of a perceiver's stereotypical expectations, they might act to counter instead of fulfill them (Miller & Turnbull, 1986).

Consistent with current understanding of behavioral confirmation, these effects do not require and may even be impaired by the explicit communication of expectations. In the new generation of confirmation research, this insight is shrinking the importance of explicit expectations in producing behavioral confirmation. In one study that eliminated the necessity for perceivers' conscious expectations, priming men to think of women as sexual objects made them more likely to treat an individual woman applicant in a sexual way during a mock job interview (Rudman & Borgida, 1995). If women respond in stereotypical ways, then the perceivers' initial impressions are supported (see Chen & Bargh, 1997). Eliminating the necessity for perceiver expectations altogether, subtle cues such as nonverbal behavioral mimicry from an interaction partner could yield conformity to gender stereotypes (Leander, Chartrand, & Wood, 2009). Specifically, following mimicry by an interaction partner, participants apparently increased their desire to affiliate and therefore enhanced their conformity to gender stereotypes that presumably were shared with their partner. Thus, mimicked women performed worse on a math test. These findings suggest that people's own imaginings about interaction partners' and others' expectations are sufficient to promote stereotype-consistent behavior.

Stereotype Threat

Gender expectations also influence behavior when they are simply "in the air" and not held by any specific interaction partner or social audience. Because gender stereotypes specify task abilities, they can establish performance expectations in culturally masculine or feminine domains. Men are expected to have advantage at masculine tasks involving. for example, mechanics, math, and leadership and women to excel at feminine tasks involving social sensitivity, sewing, and emotional intelligence. When one of these abilities is evaluated, activating expectations about the inferior competence of one sex can impair their performance. This phenomenon is called *stereotype threat* (Steele, 1997; Steele & Aronson, 1995).

Negative performance stereotypes can be activated in various ways immediately before a test or competition. For example, performance decrements occurred when participants in a laboratory experiment were told that one sex excelled at the task in the past (e.g., Johns, Schmader, & Martens, 2005), were presented as the solo member of their sex in a competition (e.g., Ben-Zeev, Fein, & Inzlicht, 2005), or were exposed to stereotypical media portrayals of their sex (e.g., Davies, Spencer, Quinn, & Gerhardstein, 2002).

Activated gender stereotypes impair performance when individuals become anxious about confirming the negative stereotype in others' eyes or in their own. This anxiety can result in impairments in working memory (Schmader & Johns, 2003), mental intrusions (Dardenne, Dumont, & Bollier, 2007), physiological stress responses (Murphy, Steele, & Gross, 2007), and perhaps depletion of self-control strength (Inzlicht, McKay, & Aronson, 2006). People feel anxious because their self-integrity is threatened by the simultaneous activation of three conflicting beliefs (Schmader, Johns, & Forbes, 2008): (a) the group stereotype of inferior ability (e.g., women cannot read maps), (b) personal identification with the group (e.g., I am a woman), and (c) knowledge of one's own ability (e.g., I am good at map reading). Because these beliefs are imbalanced only when people initially believe in their own ability, stereotype threat is experienced most often by people who are highly identified in a counterstereotypic domain, including, for example, women who view themselves as mathematically talented.

Stereotype threat often produces a decrement in test performance in the unfavorably stereotyped sex. For example, women's math test performance is sensitive to negative ability stereotypes (e.g., Spencer, Steele, & Quinn, 1999; Steele, Spencer, & Aronson, 2002), and women's willingness to lead appears to be lessened by stereotype threat (Davies, Spencer, & Steele, 2005). In mirror fashion, when gender stereotypes are salient, men's performance falters at tasks involving social sensitivity (Koenig & Eagly, 2005), emotional intelligence (Keller & Bless, 2005), and affective information processing (Leyens, Désert, Croizet, & Darcis, 2000). In addition, the sex that is stereotyped as superior in an ability can experience improved performance, or *stereotype lift*, from downward comparison with the less able group. Yet, this lift typically is weaker than the decline in performance experienced by the unfavorably stereotyped sex (Walton & Cohen, 2003).

Performance does not always falter when the lesser ability of one's group is made salient. It remains unclear whether the mild forms of stereotype threat inherent in asking students to note their sex on high-stakes tests such as the SAT routinely affect performance (Cullen, Waters, & Sackett, 2006; Stricker & Ward, 2004). Also, a counterreaction of enhanced performance can emerge among threatened individuals who are especially confident in their own ability (Hoyt & Blascovich, 2007). And when individuals have more than one identity relevant to a domain, as with Asian women and math aptitude, performance depends on which identity is salient—Asian identity enhanced math performance, but female identity reduced it (Shih, Pittinsky, & Ambady, 1999).

In general, people conform to gender role expectations that are explicitly communicated, just implied or expected, or merely floating in the air. Resistance is possible but unlikely when these expectations hide out below the level of conscious awareness. Others' expectations work to promote role performance in conjunction with self identities and with the hormonal processes and neurochemical mechanisms associated with reward. Thus, in our three-way biosocial model emphasizing others' expectations, gender identity, and hormonal processes, a woman holding an infant might be responding to others' expectations and to her own identity as a nurturer. Such close contact can activate OT and neurochemicals of reward that further promote attachment (Taylor, 2002).

EMPIRICAL EVIDENCE FOR SEX DIFFERENCES AND SIMILARITIES

At the beginning of this chapter, we claimed that a Martian landing anywhere on earth would puzzle over why men and boys engage in different activities than women and girls. That is, sex differences in everyday activities are large enough to be readily apparent without the aid of statistical analyses or controlled research designs. Any observer of humans' daily lives would be struck also by variability in sex differences across contexts. These patterns of variability depend partly on how male and female reproductive and physical attributes facilitate or impair performance at specific life tasks that emerge within a given society. Thus, in a society that engages in warfare, men might display marked physical aggression on the battlefield but much less aggression in friendships and family relationships.

Sex Differences in Psychological Research

Many studies that have been conducted include comparisons of female and male behavior; thus, sex differences were an early and continuing target of meta-analytical integrations. Quantitative syntheses estimate the size and variability of sex differences in many aspects of social behavior. Aggregating across all available meta-analyses that had compared female and male social behavior, Richard, Bond, and Stokes-Zoota (2003) concluded that sex differences were somewhat smaller (r = .13) than effects averaged across the entire field of social psychology (r = .22). Yet, the average magnitude of the sex effects was comparable to the effects in several foundational research areas in social psychology, including attribution (r = .14) and social influence (r = .13). Similarly, Hyde (2005, 2007) aggregated 128 meta-analytical effects representing sex differences and similarities in personality, social, and cognitive psychology. While noting the importance of contextual variation, Hyde highlighted the evidence for similarities between women and men. Specifically, she termed almost half of the meta-analytical results "small" effects, notwithstanding the larger sex differences that emerged with motor performance, sexuality, and aggression.

Are sex differences small? Even if they are, small does not mean unimportant. Small effects can have substantial impact when they reliably characterize behavior across time and experiences (e.g., Abelson, 1985). But questions about effect size are not answered effectively by aggregating results across many meta-analyses. Such superaggregations of sex comparisons are not theory driven and thus do not distinguish between the behavioral domains that theoretically should versus should not yield sex differences. Moreover, each individual meta-analysis typically aggregates findings across a broad behavioral category, often collapsing across contexts and behaviors for which theories hold that sex differences are more or less likely.

The standard result in individual quantitative syntheses comparing women and men is that some studies yield large sex differences, most yield smaller sex differences, and a few yield reversals of the overall tendency, just as for other phenomena in social and personality psychology. The principle that virtually all psychological phenomena vary across settings, methods, and participant attributes has been labeled *contextualism* by McGuire (1983) and other methodologists, who argue that this is the very patterning theorists of social behavior are obliged to address. Researchers can focus on the rich tapestry of difference and similarity and build their theories to address this complexity. The alternative is for researchers to bury within aggregates the striking sex differences that people recognize in daily life as characteristic of male or female behavior. To illustrate these issues, we consider the bad and the good of social behavior—that is, aggressive behavior and prosocial behavior.

Aggressive Behavior

In view of the association of agency with men, it is not surprising that people ordinarily ascribe aggressiveness

more to men than to women (e.g., Williams & Best, 1990). Aggression, as behavior intended to harm others, might seem less related to communion. Nevertheless, the ascription to women of passive–aggressive traits such as whiny, complaining, and nagging suggests forms of female aggression (Spence et al., 1979; Williams & Best, 1990), especially relational acts that can wreak psychological harm.

As expected given the biosocial constraints of men's greater size and strength, physical aggression produced the largest sex differences favoring men, with meta-analytical effects as large as $r = .41$ (Knight, Fabes, & Higgins, 1996; see summary in Hyde, 2005). Research with children and adolescents yielded a similar effect favoring boys ($r = .34$; Card, Stucky, Sawalani, & Little, 2008). Much larger sex differences are found with extreme forms of real world aggression, as reflected in crime statistics that more men than women commit murders ($r = .93$), all kinds of violent crime ($r = .81$), and property crime ($r = .56$; U.S. Federal Bureau of Investigation, 2008).

In contrast to findings involving physical aggression, direct verbal aggression generally produces smaller sex differences in the male direction (e.g., Eagly & Steffen, 1986). Also, indirect forms of aggression that involve, for example, gossiping and spreading damaging rumors produce small meta-analytical differences in the female direction (Archer & Coyne, 2005; Card et al., 2008). In addition, in interactions between heterosexual intimate partners, meta-analytical data show that physically damaging aggression is male dominated but everyday, minor acts of physical aggression (e.g., slapping) are slightly female dominated (Archer, 2000).

The logic behind this variability lies in culturally shared gender role beliefs. At the descriptive level, these beliefs accurately track the variability in findings across studies. Specifically, in Eagly and Steffen's (1986) meta-analysis, judges contemplated the aggressive acts examined in each of the studies in the review. As expected, the more likely these judges thought it would be for typical men (vs. women) to engage in a behavior, the larger was the behavioral sex difference in the meta-analyzed studies. Thus, beliefs about men and women predicted the size of the actual sex differences in aggressive acts.

Because gender role beliefs are prescriptive, as well as descriptive, people are attentive to others' expectations about their aggressive behavior. For example, the usual tendency for men to aggress more than women in a game situation disappeared when participants were deindividuated—that is, made anonymous to one another, thus nullifying the effects of others' expectations (Lightdale & Prentice, 1994). Also, in meta-analytical data, provocation of research participants reduced the sex difference in aggression. When confronted by insults or negative evaluations, women became somewhat more aggressive than men, presumably because such behaviors violated social norms about behaving politely toward women (Bettencourt & Miller, 1996). Consistent with men's greater physical strength, the more that female (vs. male) judges perceived acts likely to cause harm to others and danger to themselves, the larger the sex difference in the male direction in the original research (see also Bettencourt & Miller, 1996). Women are thus not expected to confront others physically in clearly dangerous situations.

In summary, although aggression is often in the male domain, the equation between men and aggressiveness is most valid for physical aggression. It is illustrated dramatically in extreme forms of damaging violence. However, women and girls can sometimes be more indirectly aggressive than men and boys. Also, women's aggressiveness is likely to equal or exceed men's when others violate social norms by being mean to women or when gender norms are nullified by anonymity.

Prosocial Behavior

Consistent with gender role beliefs, sex differences in prosocial behavior, ordinarily defined by psychologists as acts intended to help others, depend on whether such acts invoke communion or agency. The female gender role's demand for communal behavior fosters acts of caring for others and tending to their individual needs, primarily in close relationships. The male gender role's demand for agentic behavior can foster some forms of prosocial behavior, especially physically challenging acts of rescuing and the chivalrous protection of dependent others (see Eagly & Koenig, 2006, for review; Eagly, in press).

This variability across types of prosocial behaviors is mirrored in gender role beliefs. In a meta-analysis integrating studies of varied helping behaviors (Eagly & Crowley, 1986), judges' estimates of the likelihood that women versus men would engage in the behaviors thus accurately tracked the sex differences obtained in the studies.

Culturally feminine prosocial behavior includes communally caring for and supporting others. In the United States, for example, women comprise approximately 75% of caregivers for older family members and friends and approximately 63% of grandparents living with and caring for grandchildren (U.S. Health Resources and Services Administration, 2005). Consistent with these findings, the moral reasoning of women (vs. men) is based somewhat more on caring and responsibility to others ($r = .14$; Jaffee & Hyde, 2000). Emotional support of others is facilitated by the greater emotional expressiveness of women than men, especially their more frequent and intense expressions of joy, love, fear, and happiness (Grossman & Wood, 1993).

Also, in a meta-analysis of personality research, women's (vs. men's) self-ratings indicated more tender-minded and nurturant personalities ($r = .35$; Feingold, 1994).

Research has documented similar findings with children. In Eisenberg and Fabes's (1998) meta-analysis of prosocial behavior, girls were slightly more helpful than boys overall ($r = .09$) but more so when helping expressed kindness and consideration ($r = .21$). In close relationships among adults, women generally provide more sensitive emotional support (see review by Burleson & Kunkel, 2006). This pattern extends to same-sex and other-sex friendships (e.g., Rose & Rudolph, 2006) and to marital relationships (e.g., Cutrona, 1996), especially in women's provision of emotional support to their spouse when it is most needed (Neff & Karney, 2005).

Women's caring and emotional support should be enhanced by their tendencies to manifest empathy and sympathy and to be sensitive to subtle cues conveying others' emotional states. Meta-analyses of empathy and sympathy have favored girls and women, with developmental trends showing an increase in this sex difference with age (Eisenberg, Fabes, & Spinrad, 2006). Meta-analyses examining various forms of nonverbal sensitivity also have generally favored women and girls (Hall, 2006).

Studies of helping behavior in social psychology have not usually addressed caring behavior in close relationships. Instead, most studies examined brief encounters between strangers, often in field experiments conducted in natural settings (see meta-analysis by Eagly & Crowley, 1986). Given that most of these studies involved bystander interventions or polite, chivalrous behaviors, it is not surprising that men helped somewhat more than women in these studies ($r = .17$). The power of social norms to induce this type of masculine behavior is revealed in the substantial sex difference in the male direction when onlookers were present ($r = .37$), compared with its absence when the potential helpers were alone ($r = -.01$).

Helping in these social psychological studies did not always require assertive intervention (Eagly & Crowley, 1986). To identify behaviors requiring an active, agentic approach, this meta-analysis separated the studies according to whether a need merely presented itself to participants (e.g., observing that someone is ill or endangered) or an explicit request to help was directed to them (e.g., asking for a charity contribution). Consistent with the agentic theme of the male gender role, men were especially more helpful than women when the need was merely presented and the helper therefore had to take the initiative to offer aid ($r = .28$), compared with when a request was made explicitly ($r = .04$).

Parallel to findings on aggressive behavior, when independent judges evaluated the studies in Eagly and Crowley's (1986) review, men were more helpful in the original research to the extent that women perceived helping as more dangerous than did men or that masculine skills were required (e.g., changing a tire). Consistent with these findings, the predominance of men among helpers is especially large in the extremely dangerous forms of helping that yield Carnegie Hero Medals ($r = .82$; Becker & Eagly, 2004). These awards recognize public acts of extremely risky prosocial behavior, such as saving people from fires, drownings, attacks by animals, and assaults by criminals. However, in a different type of extremely dangerous situation—the rescuing of Jews during the holocaust—women helped as often as men. In addition, women were represented somewhat more often than men as donators of living kidneys, volunteers for the Peace Corps, and medical volunteers in dangerous settings. These prosocial actions that were not male dominated, especially holocaust rescuing, entailed risk but rarely required highly strength-intensive actions that can result in Carnegie Medals (Becker & Eagly, 2004). In addition, most of these actions likely involved a mix of agentic and communal behaviors.

Conclusions About Sex Differences and Similarities

Both aggression and prosocial behavior are highly varied domains that can yield a range of sex difference findings. As evident from the preceding brief review, researchers' claims about difference or similarity depend on the level at which they choose to aggregate their data. Simple aggregation of either aggressive or prosocial behavior overall or many of its manifestations can suggest only relatively small differences and no consistent pattern. However, framing expectations for differences in terms of gender roles highlights the conditions under which similarity or difference is more likely. With this simple understanding, psychology researchers can be as accurate as everyday perceivers, whose descriptive knowledge of gender roles accurately tracks the direction and magnitude of sex differences both across different categories of behaviors (e.g., Hall & Carter, 1999a) and across specific instances of behaviors within such categories (Eagly & Crowley, 1986; Eagly & Steffen, 1986).

Reaching beyond simple observations of difference and similarity, social role theory adds the proposition that the size and direction of sex differences in aggressive and prosocial behaviors depend partly on whether the behaviors require agentic attributes associated with masculinity or communal attributes associated with femininity. Prosocial behavior seems to be the more variable domain in terms of clearly encompassing both communal and agentic behaviors. Whether the differences implied by gender roles are manifested in behavior also depends on features of the situation (e.g., the presence of onlookers) and of individuals

(e.g., their gender identities, Cohn & Zeichner, 2006). In addition, male physical prowess yields male advantage in both aggression and prosocial behavior when actions require physical strength or threaten physical retaliation. Thus, men tend to be heroic helpers in emergencies and with violent criminals' and women are inclined to be caretakers of children and elderly relatives and sensitive supporters of spouses and friends.

Although the pattern of meta-analytical findings is generally consistent with a gender role account, most of the research has not directly identified the proximal processes that produce sex differences in aggression or prosocial behavior. From our perspective, the direct precursors of these sex differences are likely to be gendered self-concepts, others' expectations, and hormonal processes, with T being especially relevant to aggressive behavior and assertive prosocial interventions and OT pertinent to nurturing and caring forms of prosocial behavior.

Sex Differences in Organizational Settings

In typical organizational settings, people contend with their job roles along with their gender roles. Illustrating the influence of these roles is a study that sampled Canadian employees' agentic and communal behaviors in their workplaces (Moskowitz, Suh, & Desaulniers, 1994). Demonstrating the influence of job roles, employees of both sexes behaved most agentically when interacting with a subordinate and least agentically when interacting with a superior. Also, demonstrating the influence of gender roles, women, regardless of their workplace status, delivered more communal behaviors, such as friendly, unselfish, and expressive acts, especially when interacting with other women. Similarly, meta-analyses of research on physicians' interactions with their patients yielded effects reflecting both gender roles and job roles. Specifically, female physicians, although the same as male physicians in providing medical information, displayed more communal behaviors than the men, including more positive talk, psychosocial counseling, emotion-focused talk, and nodding and smiling (Roter, Hall, & Aoki, 2002). It thus appears that agentically demanding supervisory and physician roles are sufficiently flexible to allow women to enact them while displaying communal behavior consistent with gender role norms.

Despite the apparent flexibility of many occupational roles, conflicts between demands of gender and workplace roles can pose challenges. Such conflicts are not marked for female nurses, male truck drivers, and others employed in sex-typical occupations. However, conflicts are more common for people in job roles dominated by the other sex. For example, in military settings, women experience such conflicts because effective soldiering is believed to require possession of masculine and rejection of feminine attributes (Biernat, Crandall, Young, Kobrynowicz, & Halpin, 1998; Boldry, Wood, & Kashy, 2001).

Inconsistencies between gender roles and workplace roles can produce prejudice and discrimination, which has been studied most extensively in relation to women in leader and manager roles (Eagly & Carli, 2007; Heilman, 2001). People commonly believe that managers and other leaders are endowed with masculine agentic qualities of ambition, confidence, self-sufficiency, and dominance and less endowed with feminine communal qualities (e.g., Powell, Butterfield, & Parent, 2002). This "think manager–think male" effect (Schein, 2001) is robust, despite some recent weakening (e.g., Duehr & Bono, 2006). The incongruity between beliefs about what it means to be a good leader and what it means to be female (e.g., Eagly & Karau, 2002) can generate the perception that women do not have what it takes to lead. The incompatible beliefs place female leaders in a dilemma—a *double bind* (Eagly & Carli, 2007): Communal female leaders may be criticized for not being agentic enough and not properly taking charge, and agentic female leaders may be criticized for lacking communion and not being nice enough (e.g., Cuddy, Fiske, & Glick, 2004; Rudman & Glick, 2001).

Illustrating the double bind, a meta-analysis of experiments that varied the sex of leaders while holding constant their other attributes showed stronger prejudice against women leaders when they managed others in stereotypically masculine ways (Eagly, Makhijani, & Klonsky, 1992). Thus, a male manager who acts in a forceful or assertive manner is perceived as behaving appropriately, whereas a female leader who behaves in exactly the same way may be considered unacceptably pushy. To cope with the double bind, women managers might offer a blend of masculine and feminine behaviors (Eagly & Carli, 2007). This style has proven effective at enhancing women's influence in small, mixed-sex discussion groups (Shackelford et al., 1996). In general, women entering engineering and other traditionally male fields cope through various mechanisms, such as garnering social support from family and friends outside of work settings (Richman, van Dellen, & Wood, in press).

MALE AND FEMALE SOCIAL ROLES ARE ROOTED IN A BIOSOCIAL REALITY

Gender roles are not arbitrary or random. Instead, they are firmly rooted in a society's division of labor and the social roles filled by men and women. Up to this point, the chapter considered how this division shapes the proximal, immediate

causes of sex differences and similarities. In brief, from observation of women's and men's activities, people infer the attributes of each sex. These gender role beliefs in turn influence behavior through the trio of proximal causes that we considered, including hormonal changes, self-regulation of identities, and social expectations. But what are the origins of the human division of labor? In the nomological network of gender constructs, this question addresses the distal, evolutionary causes of male and female behavior.

The origins of the division of labor can be traced partly to humans' evolved capacities to invent new solutions to adaptive problems and to share these innovations through complex forms of social learning that include teaching, imitation, and conformity. With these capacities, cultural knowledge, including beliefs about female and male roles, cumulates with modifications across generations and cultures. Humans' extended juvenile period further favors the transmission of cultural knowledge. Children engage in exploratory play and practice female and male roles, and societies socialize boys and girls by encouraging skills and preferences suited to the prevailing division of labor.

Variability in the roles of women and men occurs within the framework of the sexes' physical and reproductive attributes (Wood & Eagly, 2002). Specifically, women bear and nurse infants, and men have greater size, upper-body strength, and speed. These attributes organize behavioral and psychological sex differences and similarities across societies. The specific pattern of female and male behavior in a society emerges from the biosocial interaction between socioeconomic and cultural factors and the sexes' physical and reproductive attributes. This interaction influences behavior because some activities are more efficiently accomplished by one sex than the other, depending on societal conditions. Although these differences in physical characteristics and reproductive activities do not apply to all men or women (e.g., some women are taller or stronger than some men), social norms emerge that support the performance of tasks by the more efficient sex and discourage their performance by the other sex.

Women's Reproductive Activities and Men's Size, Strength, and Speed

Women's reproductive activities are especially important in shaping female and male social roles. Because women are responsible for gestating, nursing, and caring for infants, they perform childcare roles across societies (Barry & Paxson, 1971). In societies without effective birth control technology, fertile women on average have a child every 3.7 years and nurse each child for 2.8 years, with frequent suckling being the norm (Huber, 2007; Sellen, 2007). These activities limit women's ability to perform certain other tasks, especially those that require speed, uninterrupted periods of activity and training, or long-distance travel away from home. Yet, reproductive activities have less impact on women's roles in societies with low birthrates, much less reliance on lactation for feeding infants and young children, and more nonmaternal care of young children. These conditions hold in postindustrial societies.

Men's larger size and greater upper-body strength and speed also shape the division of labor. In addition, socialization channels boys' masculinized play preferences and high activity levels to hone males' skills in physically intensive activities. Because of these intrinsic differences in size, strength, speed, and activity level, the average man is more likely than the average woman to perform efficiently tasks that demand brief bursts of force and upper-body strength. In foraging, horticultural, and agricultural societies, these tasks include hunting large animals, plowing, and conducting warfare (Murdock & Provost, 1973). Nonetheless, some tasks usually performed by women require considerable strength, including fetching water, carrying children, and doing laundry (Mukhopadhyay & Higgins, 1988). Whatever the advantages are of men's ability to execute highly strength-intensive tasks, these attributes have less effect on role performance in postindustrial and other societies in which few occupational roles demand these attributes.

Were men's size and strength sculpted by sexual selection pressures? Perhaps ancestral males who were larger, stronger, and more aggressive had better fitness outcomes because they were able to compete with other males for access to many mates. Some researchers have argued that sexual selection pressures organized human psychology and physical attributes in these ways (Kenrick, Maner, & Li, 2005; see Neuberg, Kenrick, & Schaller, volume 2). However, comparative research with primates suggests that differences between men and women require a more complex explanation. Evaluated in relation to other anthropoid primate species, humans proved to have relatively "low" male–female dimorphism in both body weight and canines (i.e., the size and shape of teeth; Plavcan & van Schaik, 1997, p. 351). Even though across all primate species greater bodily dimorphism was associated with polygynous mating and male–male competition, dimorphism at the low levels existing in humans "can be found among species with various mating systems and competition levels" (Plavcan, 2000, p. 338). It follows that the relatively small amount of bodily dimorphism in humans does not imply sexual selection for particular psychological or physical characteristics. Also undermining sexual selection accounts is evidence that both size and canine dimorphism were likely influenced by selection of females, as well as males (Plavcan & van Schaik, 2005; Wood & Eagly, 2002).

Selection pressures on females are especially plausible given that the decreasing size dimorphism as hominids evolved from the earlier *Australopithecus* to *Homo* was due to an increase in the size of females relative to males (McHenry & Coffing, 2000).

In general, human bodily dimorphism follows from a complex set of factors and cannot be adequately explained merely by sexual selection pressures involving male competition and female choice. Also, this dimorphism does not imply that any particular psychological sex differences are characteristic of humans as a species or caused by sexual selection pressures on males (e.g., competition among males for sexual access to females). Instead, the distal, evolutionary causes of male and female psychology lie in the ways that men's physical attributes and women's reproductive activities interact with sociocultural conditions. As we have argued, the resulting division of labor and associated gender role beliefs in turn frame the interactions among hormonal processes, self-regulatory mechanisms, and social expectations that produce sex differences in behavior.

Evolutionary Origins of Human Cultural Variation

The specific roles that men and women perform in the division of labor vary across societies partly because humans developed abilities to innovate and to engage in complex forms of social learning and knowledge sharing. These capacities also have evolutionary origins: They developed because they solved problems of reproduction and survival. Specifically, humans and their ancestors became increasingly adept at responding with behavioral flexibility and generating cultural solutions to variability in evolutionary environments (Potts, 1998; Richerson & Boyd, 2005).

The extraordinary variability in ancestral environments was due partly to environmental changeability in the late Pleistocene climate. The increasing climate variation over the last 3 million years represented major shifts in vegetation, water, and other resources that sometimes emerged abruptly between periods of relative stability (e.g., Ditlevsen, Ditlevsen, & Andersen, 2002). Diversity in adaptive conditions also arose from the piecemeal development of human attributes, each constellation of which yielded unique selection pressures on human ancestors (Foley, 2007). Because the suite of uniquely human attributes developed in fits and starts, human evolution was marked by a sequence of significant changes (e.g., development of stone tools followed by growth in human societies) and thus of adaptive problems to be solved. Additionally contributing to diversity in adaptive conditions, humans engage in extensive *niche construction* through which they alter the environments in which they live (Odling-Smee, Laland, & Feldman, 2003). Niche construction plausibly accelerated the pace of humans' environmental change by promoting the development of new technologies, resources, and social organizations that supported the ecological and geographical expansion of humans across the globe (Sterelny, 2003).

By developing mechanisms for innovation and intensive social learning, ancestral humans developed the capacity for a *cumulative* form of culture that accrues modifications over time. As illustrated by clothing manufacture, one person or group initially cut and draped hides or skins, and others subsequently modified this practice by sewing and perhaps adding woven materials. Such simple construction was then adopted by others, possibly for generations and only eventually modified further. This process depends on several evolved capacities, including initial innovation of an artifact or practice, faithful cultural transmission that works as a sort of *ratchet* to retain that knowledge (Tomasello, Carpenter, Call, Behne, & Moll, 2005), and cumulative modifications of the original. The human flexibility inherent in this cultural progression does not imply that the mind is a blank slate. Instead, humans possess a suite of cognitive and social abilities that enable the production and sharing of novel solutions to the challenges of reproduction and survival.

The idea that social learning evolved as an adaptive response to changing environments is buttressed by the evidence that even in nonhuman species the relations between males and females are responsive to some extent to social learning, despite their more constraining adaptations to specific ecologies and climates. Through social and sexual interaction, individuals in many species learn basic capacities such as discriminating between males and females, a precondition for mating with a particular sex (Woodson, 2002), and learn about the range of attributes of potential mates (Dukas, 2008). Socially learned information complements genetically coded preferences and behavior patterns, allowing animals to fine-tune behavior to local circumstances.

Socialization in Humans

Opportunities for social learning are extensive in humans because their relatively long juvenile period allows childhood play and socialization to prepare children for the adult roles of their society. As already noted at various points in this chapter, socialization enlists various cognitive and social learning processes; it emanates from parents, the extended family, peers and other community members, media, religion, and other social institutions. Play and socialization enable children to acquire skills and preferences compatible with sex-typical social roles. For

example, as shown by Barry, Bacon, and Child's (1957) classic study of child rearing in 110 cultures, in most of the societies, girls were encouraged more than boys to be nurturant. Also, the structuring of childhood activities to give girls greater practice in nurturing was a clear-cut finding in the Six Cultures Project, which involved the collection of extensive data on children's lives in diverse cultures (Whiting & Edwards, 1988; Whiting & Whiting, 1975).

Amplifying these classic cross-cultural investigations, Lytton and Romney's (1991) meta-analysis of studies of parents' differential treatment of girls and boys yielded the clearest evidence for gender-stereotypical play, games, and chores. Such play activity generally models and provides tutelage in adult roles; for example, doll play models caring for children, and play with action figures models more violent and warlike activity. Also, the common tendency of parents to assign household chores such as lawn mowing and kitchen work on the basis of their children's sex provides apprenticeship in sex-typical adult roles.

Whether parents encourage the development of sex-typical personality attributes such as warmth and aggressiveness has remained more ambiguous (Lytton & Romney, 1991). Some have argued that parents may not convey such qualities explicitly but instead do so subtle ways—for example, by noting and contrasting female and male categories (e.g., Gelman, Taylor, & Nguyen, 2004). Observational learning is an ongoing feature of family life as well; parents' and other family members' own behavior and activities convey adult roles and sex-differentiated behavior patterns to children.

Through these various socialization experiences, girls and boys develop *self-efficacy* beliefs that they can engage in behavior typical of their sex and develop gender identities incorporating sex-typical attributes. Such beliefs enable children to administer self-praise or self-criticism when they conform to their personal standards for gender-appropriate behavior (Bussey & Bandura, 1999). Also, distinctive boy and girl cultures emerge, enhanced by considerable voluntary sex segregation in childhood (Maccoby, 1998). As a result, boys and girls tend to develop the skills and preferences that equip them to enact their society's division of labor.

Evolutionary Accounts of Sex Differences in Human Behavior

A biosocial evolutionary theory provides an organizing framework to understand sex differences and similarities in behavior (Wood & Eagly, 2002, 2007). From this perspective, humans' capacity for innovation and social learning enabled flexibility in the behavior and social roles of men and women, within the constraints that followed from men's physical attributes and women's reproductive activities. We illustrate this biosocial interaction by analyzing the conditions under which men and women express particular mate preferences and societies develop patriarchal social structures.

Mate Preferences

Mate preferences are inherently closely linked to evolutionary processes because differential reproduction, along with survival selection, drives evolutionary outcomes. In our analysis, these preferences vary as women and men attempt to maximize their outcomes given the prevailing division of labor and gender ideology. In demonstration of how this works, Eagly and Wood (1999) reanalyzed the data from Buss's (1989) study of the mate preferences of young adults from 37 diverse, primarily urbanized, cash-economy cultures. In societies with a strong division of labor between male providers, and female homemakers, women were more likely to prefer a mate with resources who could be a good provider, and men were more likely to prefer a mate who was a skilled homemaker and child caretaker (see also Lippa, 2007). This marital system of a good provider paired with a domestic worker also generated a spousal age difference, given that older men were more likely to have acquired resources and younger women without resources were more likely to value marriage and older partners with resources.

The importance of the marital division of labor to these mate preferences is consistent with experiments in which envisioning oneself as a future homemaker caused participants of both sexes to increase their preference for a mate with good provider qualities and older age, compared with envisioning oneself as a future family provider (Eagly, Eastwick, & Johannesen-Schmidt, 2009). Analogously, within each of nine nations, more traditional gender ideology, as manifested in individuals' sexist attitudes toward women or men, was associated with conventional sex-typing of mate preferences—that is, men's preferences for mates with homemaking skills and younger age and women's for mates with provider skills and older age (Eastwick et al., 2006). And sex-typical courtship roles may directly influence mate preferences. The agentic act of physically approaching a potential romantic partner, a behavior that is normatively more expected of men than women, increased students' attraction to potential partners and reduced their selectivity in a speed-dating study (Finkel & Eastwick, 2009).

Additional evidence that mate preferences emerge flexibly from the division of labor comes from Sweeney's (2002) investigation of cross-temporal changes within the U.S. population in the relation between economic prospects and marriage formation. The traditional tendency for higher earnings to increase the likelihood of marriage

for men but not women has changed over time as earnings have become more important for women's marital prospects. As a result, the relation between earning and marriage is now similar for men and women. Also, the age gap in first marriages in the United States has declined from husbands being 2.8 years older than wives in 1940 to 1.8 years in 2005 (U.S. Census Bureau, 2006). The findings of variability in mate preference suggest flexibility in response to current conditions.

Patriarchy

Societies also vary in whether they have a social hierarchy in which men have more status and power than women, with patriarchy becoming more widespread as societies developed greater complexity (Wood & Eagly, 2002). In contrast, some evolutionary scientists have argued that early humans evolved in the context of patriarchy fueled by males' desire for paternity certainty and the importance of male hunting and provisioning (e.g., Kaplan & Robson, 2002; Sidanius & Pratto, 1999). Contrary to this view of human evolution, recent evidence supports the survival value of female coalitions in early human societies, with mothers garnering help from grandmothers and female kin, as well as from pair-bonded men (e.g., Opie & Power, 2008).

As societies advanced and human activities became more specialized, patriarchal relations emerged from men's greater upper-body strength and speed giving them facility to perform physically demanding activities (e.g., warfare and plow technology) that can confer decision-making power, authority, and access to resources. Patriarchy also emerged when women's reproductive activities interfered with performing the activities that yielded the most status and power in a society. Although women combined their reproductive responsibilities with gathering in foraging societies, gestation and lactation limited their participation in the newly emerging roles (e.g., blacksmith and warrior) that required intensive specialized training, acquisition of complex skills, and extended, uninterrupted periods of task performance (Huber, 2007). With little participation in such activities, women lacked influence outside of the household and acquired few resources valuable for trade in the broader economy. Because simple economies in which people subsist by nomadic foraging lacked the specialized roles that gave some subgroups power over others, especially men over women, the contrasting physical and reproductive attributes of the sexes had weaker influence on power and status in such societies, which were generally more egalitarian (e.g., Salzman, 1999).

In summary, ancestral humans evolved a suite of social and cognitive skills that, along with a long juvenile period, promoted flexible performance of male and female roles. This flexibility was structured by men's physical attributes and women's reproductive activities, such that both women and men more efficiently performed certain roles given the conditions of their society. Therefore, mate preferences varied with the division of labor within a society and with individuals' endorsement of that division. Patriarchy emerged with the development of social roles, assumed largely by men, that provided privileged access to power and authority. Thus, the evolutionary origins of men's and women's role performance took the form of a biosocial interaction between the differing physical attributes and reproductive activities of the sexes and the local socioeconomic, cultural, and ecological conditions.

TEMPORAL AND CULTURAL CHANGE IN SEX DIFFERENCES

Variation over time and across cultures in sex differences in psychological dispositions and behaviors should reflect changes in women's and men's social roles. Simply put, as the division of labor changes, the demands on women and men change. Gender role beliefs mirror the changing content of each sex's roles and in turn influence gender identities and stereotypical social expectations.

Given that role change is linked to psychological change, the apron-wearing homemakers enshrined in U.S. situation comedies of the mid-20th century were psychologically different from the uniformed or professionally attired working women of the 21st century. To understand these differences, we first outline the U.S. sociodemographic shifts that have placed many women in formerly male-dominated roles yet largely retained women's participation in childcare and other forms of caring for others. Then we evaluate cross-cultural variation in men's and women's roles and in the attributes of each sex. This discussion sets the stage to analyze the equality of men and women in the Summary section of the chapter.

Variation in the United States Over Time

Traditionally, men's labor force participation was much higher than women's. In the United States since the mid-20th century, women greatly increased and men slightly decreased their employment, with women's labor force participation nearly doubling in the last half of the century (e.g., Eagly & Carli, 2007). By 2009, the labor force participation of Americans 20 years and older was 61% for women and 75% for men (U.S. Bureau of Labor Statistics, 2009). In terms of hours on the job per week between 1965 and 2003, employed men's work declined by more than 6 hours, whereas employed women's increased by more than 3 hours (Aguiar & Hurst, 2007). Yet, the traditional sex difference

remains in weakened form. From 2003 to 2006, even when men and women filled the same roles of being married, parents, and employed full time, men devoted 1.25 hours to their jobs for every hour devoted by women and enjoyed 1.30 hours of leisure and sport for every hour enjoyed by women (U.S. Bureau of Labor Statistics, 2008b).

Sex segregation in the workplace also declined over this period (Tomaskovic-Devey et al., 2006), with women increasing substantially in professional occupations and especially in managerial occupations (Wootton, 1997). Women now constitute 51% of individuals in management, professional, and related occupations (U.S. Bureau of Labor Statistics, 2008a).

Other sociodemographic shifts include the increasing education of women, who earned 58% of bachelor's degrees in 2006 versus 43% in 1970 (U.S. National Center for Education Statistics, 2007a, 2007b). Strikingly, women earned 46% of all doctoral degrees in the United States in 2006, an increase from 25% in 1977 (Welch, 2008). In addition, patterns of course taking have changed, with high school girls as likely as boys to take calculus and women earning 48% of undergraduate degrees in mathematics (Hyde, Lindberg, Linn, Ellis, & Williams, 2008). Women and girls now also participate more in sports, with women occupying 45% of Division 1 collegiate athletic positions in 2006 compared with 31% in 1992 (National Collegiate Athletic Association, 2008). With these female inroads into the formerly male-dominated domains of management and professions, higher education, mathematics, and sport, more women are entering roles that require agentic behavior and quantitative competence.

Some research indicates that women are increasing in agency, consistent with their changing social roles. A meta-analysis of self-reported agentic traits from 1973 to 1993 found that the sex difference decreased over time; specifically, agency rose for both sexes but especially among women (Twenge, 1997). Similarly, a meta-analysis that focused more narrowly on the personality traits of assertiveness and dominance found little change in men, but women's scores rose from 1931 to 1945, dropped from 1946 to 1967, and rose again from 1968 to 1993 (Twenge, 2001), apparently mirroring 20th-century fluctuations in women's employment roles. However, other research has found that, despite the increase in both sexes' agency, men are still higher (e.g., Feingold, 1994; Lueptow, Garovich-Szabo, & Lueptow, 2001). In general, the direction and magnitude of the sex difference may depend on what specific aspect of self-reported agency is being evaluated. Traditional sex differences favoring men may still be present in some aspects of agency, whereas other aspects favor women (see Costa, Terracciano, & McCrae, 2001, for male–female comparisons on specific facets of Big Five personality traits). Additional complexities enter when researchers compare the variabilities of male and female test scores, in addition to mean differences. Although the classic hypothesis of greater male variability enjoys some support (e.g., Archer & Mehdikhani, 2003; Johnson, Carothers, & Deary, 2008), causation continues to be debated among theories emphasizing sexual selection, sampling artifacts, and differential opportunities for developing abilities and traits.

Also linking women's personal attributes to their employment, research has shown that both full-time employment and employment in higher-prestige occupations predicted U.S. mothers' self-reported agency (Kasen, Chen, Sneed, Crawford, & Cohen, 2006). Among German university graduates of both sexes, self-reported agency predicted career success, which in turn enhanced agency (Abele, 2003). Women's increasing agency includes ambition for careers outside of the home. In multiple surveys of college freshmen conducted between 1966 and 2006, the career goals of men and women converged, primarily because of women's increased aspiration for traditionally male-dominated careers (Pryor, Hurtado, Saenz, Santos, & Korn, 2006). In addition, among high school seniors in 2004, slightly more women (93%) than men (90%) rated "being successful at work" as an important life value, indicating a reversal from the greater male emphasis on this value in the 1970s (U.S. National Center for Education Statistics, 2007a, 2007b). In a meta-analysis of the attributes valued in jobs, many sex differences weakened over time among adults in similar occupations, including the traditionally greater male preferences for leadership, promotions, and autonomy (Konrad, Ritchie, Lieb, & Corrigall, 2000).

The changes in the roles of men and women since the mid-20th century are not symmetrical. Although women have been moving into many traditionally male-dominated occupational roles, traditionally female-dominated roles involving caretaking of others continue to be female dominated. Women still are the majority in occupations such as elementary school teacher, social worker, and nurse that emphasize caring for others or communal characteristics more generally (Cejka & Eagly, 1999; England et al., 2002; U.S. Bureau of Labor Statistics, 2008a). Women also continue to take primary responsibility for childcare and other household service work, despite some increase in men's childcare and housework and a decrease in women's housework (Aguiar & Hurst, 2007; Bianchi et al., 2006). From 2003 to 2006, even for men and women who fill the same role—married parents who were employed full time, women devoted 1.5 hours to childcare for every hour devoted by men, as well as 1.5 hours to other household work for every hour devoted by men (U.S. Bureau of Labor Statistics, 2008b). Less equality prevails when mothers are employed part time or not at all.

Consistent with this continuity in women's caretaking of others, the sex difference in communal orientation has remained relatively unchanged over time. In a meta-analysis of self-reported personality characteristics, communal characteristics were fairly stable from 1973 to 1993 (Twenge, 1997). The continuation of higher levels of self-reported communion in women than men also was present in a meta-analysis of self-reports of caring (or "tender-minded") personality traits (Feingold, 1994), as well as in a single investigation spanning 1974 to 1997 (with evidence of increasing female communion; Lueptow et al., 2001). Life goals concerning family also have retained traditional sex differences—for example, among high school seniors in 2004, more women (53%) than men (45%) rated "having children" as an important life value (U.S. National Center for Education Statistics, 2007a, 2007b).

Sex differences also were stable across time in communal-related values and attitudes. Women, more than men, valued the welfare of others in the 1970s, and this effect persisted in the 1990s (Beutel & Marini, 1995). From 1973 to 1998, women's (vs. men's) stronger endorsement of socially compassionate social policies (e.g., support for disadvantaged groups) showed no change (Eagly, Diekman, Johannesen-Schmidt, & Koenig, 2004). Also stable over time was women's greater endorsement of traditional morality (e.g., disapproval of divorce or extramarital relations), which upholds communal-oriented institutions, such as marriage, the family, and organized religion.

In general, although women have entered the workplace in large numbers, they continue to be underrepresented in the more lucrative positions and in positions that confer high levels of authority (e.g., Helfat, Harris, & Wolfson, 2006). Thus, despite women's increasing agency, sex differences remain in some agentic attributes and beliefs. Less evidence exists of change in sex-differentiated attributes and beliefs related to communal qualities, perhaps due to the continuing female predominance in caretaking roles, both in the family and in the labor force. These trends closely match people's everyday understanding of changes over time in sex differences. Research on the stereotypical traits ascribed to women and men of the past, present, and future showed that social perceivers view the sex difference in communal qualities as remaining relatively constant over time, even though they view the sex difference in agency as eroding as women gain more of these qualities (Diekman & Eagly, 2000).

Despite the role changes of recent years, overall stereotypes about women and men have apparently not undergone marked shifts (Lueptow et al., 2001). Although conclusions about change of gender stereotypes require additional research evidence, the idea that these beliefs change more slowly than roles is consistent with the concept of *cultural lag* (Brinkman & Brinkman, 1997; Ogburn, 1922/1964). Traditional representations of women also continue, despite the addition of nontraditional representations. Not only does cultural lore still feature fairy-tale princesses and ecstatic brides, but people's personal encounters with occupants of roles such as primary caretaker and teacher of children also are overwhelmingly with women. Traditional assumptions about gender are perpetuated in various other ways, such as being embedded in language use and grammatical forms (e.g., Stahlberg, Braun, Irmen, & Sczesny, 2007).

Variation Across Cultures

Just as the psychology of women has changed across time in the United States, with changes mainly in women's roles, the values and attributes of men and women should differ across cultures depending on the distribution of women and men into social roles. That is, the attributes and beliefs of women and men should take a traditional form in societies with greater male–female inequality. In such societies, women generally have limited participation in the paid labor force and are otherwise restricted by, for example, having less access to education than men and by the segregation of women and men into different life roles.

Across societies, a patriarchal division of labor is reflected in gender role beliefs (Inglehart & Norris, 2003). For example, across 19 world societies, women's greater access to resources and power was associated with lesser sexism in the form of both benevolent beliefs about traditional women and hostile beliefs about nontraditional women (Glick & Fiske, 2001). Moreover, these hostile and benevolent beliefs tended to coincide in nations (Glick et al., 2000). Gender role beliefs about men similarly depend on the division of labor, with people believing more in men's inherent dominance in patriarchal societies (Glick et al., 2004). Providing causal evidence that women's labor force participation influences gender role beliefs, Seguino (2007) evaluated, for a sample of world societies, the effects of increases in women's share of economic activity. Across societies, the social experience of women moving into paid employment increased beliefs in equality between the sexes.

Sex differences in self-ratings on personality attributes and abilities across cultures are difficult to interpret because they can be influenced by various features of women's and men's roles. In particular, the extent of segregation of men and women into social roles likely influences the comparison standard that people use to evaluate themselves and others (see the discussion of shifting standards in the earlier section titled Accuracy of Gender Stereotypes). In traditional cultures in which occupational and other roles tend to be segregated by sex, men and women would judge

their own and others' psychological attributes through a comparison with salient others, who are mainly of the same sex. Thus, a man might rate himself as only moderately assertive because he is comparing himself with other men, who are generally somewhat assertive in his society. In contrast, in more egalitarian societies with less sex-segregated roles, a man might compare himself with individuals of both sexes and conclude that he is relatively assertive. The result of this shifting comparison standard is that sex differences should appear to be smaller in less egalitarian, more hierarchical societies in which individuals compare themselves with their own sex (Guimond et al., 2007; see also Lippa, in press).

In line with this shifting standards prediction, several studies have found stronger sex differences in self-reports and other reports in more egalitarian societies. For example, across world societies, men place greater value on power, social status, and prestige, whereas women place greater value on benevolence and concern for the welfare of close others. These sex differences were larger in more egalitarian societies (Schwartz & Rubel, 2005). Self-reported emotions showed a similar pattern across cultures, with larger sex differences in less traditional societies (Fischer & Manstead, 2000). In addition, in comparisons of personality traits across societies, women are generally higher in neuroticism, agreeableness, warmth, and openness to feelings, whereas men are higher in assertiveness and openness to ideas. These personality differences were more pronounced in more egalitarian societies (Costa et al., 2001). A similar pattern was found for observers' ratings of men's and women's personality traits (McCrae et al., 2005).

This variation in self-reported personality traits across cultures is less congenial with an alternative explanation in which, "in the ancestral past, as hunter gatherers, men and women naturally developed sexually selected differences in personality traits such that men were more risk taking and dominance seeking and women were more nurturing" (Schmitt, Realo, Voracek, & Allik, 2008, pp. 178–179). Supposedly, more prosperous, egalitarian societies are supportive of the expression of these innate sex differences because they are similar in crucial aspects to the egalitarian, hunter–gatherer societies in which humans evolved. However, the pattern of change in the sex differences is not consistent with this claim. Specifically, in the data from Schmitt et al., the larger sex differences in egalitarian societies were primarily due to men scoring *lower* on neuroticism, agreeableness, and conscientiousness, as well as on extroversion, which reflects men's view of themselves as less depressed and anxious, cooperative and outgoing, disciplined and dutiful, and friendly and assertive in egalitarian societies than patriarchal societies. Thus, this pattern of sex differences suggests that a "male slacker" effect is emerging in the more egalitarian societies, not an enhancement of presumably sexually selected personality traits of risk taking and dominance. However, such data remain clouded by possible shifting judgment standards across cultures.

In summary, variation over time and across cultures in the roles of men and women corresponds to variation in sex-typical psychological traits. As women have entered the workforce in increasingly large numbers in postindustrial societies, they have acquired agentic traits so that they have become more comparable to men in these qualities. In more traditional societies with greater sex segregation, fewer sex differences are evident in self-rated traits and abilities, presumably because these men and women tend to judge themselves in relation to salient others who are of the same sex. The logic of the shifting sex differences in psychological data over time and cultures thus derives from changes in men's and women's roles in society.

SUMMARY

Psychologists' debates about sex differences and similarities and their causes have important implications for people's lives, especially for women's potential to attain equality in power and status in industrialized societies. This equality issue lurks in the background of many debates about gender, especially given that the second-wave feminist movement fueled the upsurge of gender research that began in the 1970s. Relevant to equality are some researchers' claims that women and men are similar on most consequential psychological attributes (Hyde, 2005). If similarity is present, few intrinsic psychological barriers to equality exist. The implication is that both sexes should have access to all societal roles and that behavioral differences held in place by societal expectations, gender identities, and hormonal influences are likely to erode over time.

One prominent example of sex similarities is the equivalent performance of girls and boys on standardized tests of math achievement in grade school through high school (Hyde et al., 2008). Additionally provocative are contemporary findings of female advantage in domains that traditionally advantaged men—for example, in leadership styles associated with effective management (Eagly, Johannesen-Schmidt, & van Engen, 2003) and in performance in certain task-oriented groups (Wood, 1987). Reports of null sex differences and of female advantage have been enthusiastically received by those who are committed to furthering gender equality. The reaction is understandable, given that evidence of male superiority in traditionally male-advantage domains tends to disqualify women in relation to attractive roles and opportunities and even to justify unequal treatment under the law (Barnett & Rivers, 2004; Hyde, 2005).

In contrast to these concerns about impediments to women's occupancy of masculine roles, equality can be compromised by women's privileged access to feminine roles. Evidence of female advantage on communal attributes has such implications, given that nurturance and concern for other people are compatible with women's traditional caretaking roles in the family and in communally demanding occupations. Examples include Gilligan's (1982) claims that women take a caring approach to moral reasoning and Taylor and colleagues' (2000; Taylor, 2002) proposal that women react to stress not by fight or flight but by tending children and befriending allies. Other reports have highlighted women's greater social sensitivity (Hall, 2006) and emotional intelligence (e.g., Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006).

Psychologists have offered various opinions about whether sex differences that remain in agentic and communal traits are due to socialization and situational influences or to intrinsic, hardwired causes deriving from genetic differences between the sexes. Advocating for environmental influences are many developmental psychologists (e.g., Bussey & Bandura, 2004), plus social constructionists in many social science fields (e.g., Marecek, Crawford, & Popp, 2004). Advocating for intrinsic causes are evolutionary psychologists who trace sex differences in modern human psychology to sexual selection pressures on human ancestors (e.g., Browne, 2002; Kenrick, Trost, & Sundie, 2004; Schmitt et al., 2008; Sidanius & Pratto, 1999).

Our biosocial theory falls into neither of these two camps. Our review of the empirical evidence identified sex differences in several important personal attributes and behaviors, especially in natural settings. These differences take various forms, depending on men's and women's roles in society. The differences between male and female behavior that emerge in daily life reflect the immediate, proximal causes of hormonal regulation, self-regulation by gender identities, and social regulation by others' sanctions and rewards. Women's nurturing thus arises from the inclusion of caring qualities in their personal identities, as well as social expectations that they manifest such behavior, both of which recruit supportive neurochemical processes (e.g., increased OT and mechanisms of reward). In essence, female and male psychology is not fixed but emerges from interactions across multiple biological and sociocultural factors. The varying forms of this interaction depend on the division of labor within a society and the ways in which boys and girls are socialized into sex-typical roles.

The psychological attributes of men and women vary across cultures and time periods depending on the demands of their social roles: Women more than men have undergone role transitions on a major scale in the United States and many other industrialized nations. Therefore, changes in personality in recent decades have been asymmetrical, with evidence that women are adopting some of men's masculine, agentic characteristics and that men are not adopting women's feminine, communal characteristics. We ascribed this shift in women's personal attributes mainly to their increasing labor force participation, including inroads into many jobs once dominated by men.

From our social role perspective, men's psychological attributes will shift to the extent that they perform more family-caring activities and enter into more communally demanding occupations. But only modest changes can be seen in men's activities thus far, in either domestic work (Bianchi et al., 2006) or paid employment (Queneau, 2006). Men have not undergone major transitions in their daily activities in the United States or other industrialized nations.

Is it possible for men to adopt more communal roles and develop more communal-oriented personalities? The answer requires knowledge of the biosocial roots of the role structure and the limits it may impose on role flexibility. As we have explained, these roots lie mainly in the ways in which male size and strength and female reproductive activities interact with socioeconomic complexity. Through human history, as societies shifted from simple foraging through agricultural and eventually to industrial economies, patriarchy became the dominant form of relations between the sexes. This transition emerged with several societal developments, including technologies such as the plow, provisioning by hunting large animals, and societal structures such as organized warfare. The biosocial restraints of male size and strength and female reproductive activity increasingly gave men better access to the new roles (e.g., farmer, hunter, and warrior) that yielded wealth and prestige, thereby reducing women's share of economic contribution while retaining their domestic obligations.

Patriarchy has eroded in most industrialized societies, especially in the second half of the 20th century, as women have gained power and status. This shift reflects the loosening of biosocial restraints on women's roles through sharp reductions in birth rates and length of lactation, combined with shifts in the occupational structure. The occupations that now garner status, power, and resources reward brains, not brawn. This shift toward intellectual demands diminishes the male advantage once inherent in their physical prowess, which in turn derives partly from the organizing effects of male hormones. In addition, leadership roles are increasingly defined as requiring an androgynous mix of culturally masculine and feminine abilities and personality traits (Eagly & Carli, 2007). Nonetheless, these several changes have so far produced only semiequality between the sexes. Men continue to dominate leadership roles at highest levels (e.g., Helfat et al., 2006), and women continue to take responsibility for the majority of childcare

and housework (e.g., Bianchi et al., 2006). Furthermore, on many attitudinal and behavioral indicators in the United States, changes toward gender equality appear to be slowing down, and sociologists debate why this is happening (Blau, Brinton, & Grusky 2006).

The continuing wage and authority gaps in the workforce can be traced partly to women continuing to fill caretaking roles, especially childcare. Childcare roles that take women out of the labor force or reduce their employment to part time lessen their training and experience. Even many privileged women who have high educational credentials and outstanding career potential reduce their employment to accommodate family obligations (Hewlett, 2007). This reduced participation in employment is compounded by job discrimination against mothers (e.g., Correll, Benard, & Paik, 2007) and tax laws that encourage women to be primary family caretakers (McCaffery, 1999). These effects lessen women's opportunities to attain jobs that offer high wages and substantial workplace authority (Polachek, 2006). Thus, the historical origins of patriarchy continue to play out in modern times through women's childcare activities that reduce their access to roles that confer status, high wages, and prestige.

What explains men's continued low levels of childcare and limited interest in communally demanding occupations? Barriers to men taking on such roles include lower monetary compensation of communally demanding occupations (England, 2006), social expectations that men are less well endowed with the necessary communal skills (Cejka & Eagly, 1999), and stigma associated with nontraditional male communal roles such as stay-at-home dads (Brescoll & Uhlmann, 2005).

Women specialize in childcare partly because of the continuing efficiency for women of performing these roles. The energetic demands of bearing children and the health benefits of some months of breast-feeding can orient mothers away from continued paid employment and toward infant care. This arrangement is fostered by socialization of women and societal beliefs that promote sex-typical role performance. Hormonal processes also may encourage mothers' childcare, as the cascading hormones of pregnancy and lactation support women's tending (Campbell, 2008; Taylor, 2002). Research is still discovering these nurturing effects, and one possibility is that OT's activating effects on human behavior function primarily in the service of ongoing social roles, as does T. If so, then OT largely accommodates and supports the expression of self and social expectations for maternal behavior within a society. Within families, paternal behavior also is supported by hormonal processes, as fathers show parallel hormonal accommodation to parenthood (Berg & Wynne-Edwards, 2001, 2002). In both sexes, caretaking is facilitated by neurochemical mechanisms of reward learning that can undergird nurturing of infants and young children (Broad et al., 2006; Depue & Morrone-Strupinsky, 2005). Fathering activities also are supported by changing norms and attitudes in the United States, especially among younger adults, who have become considerably more accepting of men's equal participation in childcare (e.g., Milkie, Bianchi, Mattingly, & Robinson, 2002).

Change in social roles is slowed by societal ideologies and status beliefs that legitimize social inequalities on the basis of sex and other attributes (Ridgeway, 2006a; Sidanius & Pratto, 1999). To some extent, even women and members of other subordinated groups accept the system-justifying ideologies of the dominant group (Jost, Pelham, Sheldon, & Sullivan, 2003) and endorse paternalistic, benevolently sexist ideas (Glick & Fiske, 2001). However, women's attitudes and ideologies are more progressive than men's (e.g., Eagly & Diekman, 2006; Eagly et al., 2004; Seguino, 2007), and their political commitments and actions can speed social change (e.g., Dodson, 2006). For those committed to gender equality, the major challenge for the future is to encourage both men and women to occupy a wider range of social roles.

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