Stereotypes as Dynamic Constructs: 
Women and Men of the 
Past, Present, and Future

Amanda B. Diekman
Alice H. Eagly
Northwestern University

Dynamic stereotypes characterize social groups that are thought 
to have changed from the attributes they manifested in the past 
and even to continue to change in the future. According to social 
role theory’s assumption that the role behavior of group members 
shapes their stereotype, groups should have dynamic stereotypes 
to the extent that their typical social roles are perceived to change 
over time. Applied to men and women, this theory makes two pre-
dictions about perceived change: (a) perceivers should think that 
sex differences are eroding because of increasing similarity of the 
roles of men and women and (b) the female stereotype should be 
particularly dynamic because of greater change in the roles of 
women than of men. This theory was tested and confirmed in 
five experiments that examined perceptions of the roles and the 
personality, cognitive, and physical attributes of men and 
women of the past, present, and future.

Many theories of stereotyping emphasize that stereotypes restrict the opportunities of members of disadvantaged groups and justify the societal arrangements by which these groups have low status (Jackman, 1994; Jost & Banaji, 1994; Sidanius, 1993). Our research challenges the completeness of this perspective by arguing that stereotypes can include beliefs that a group’s characteristics are changing in a direction that erodes its members’ disadvantage. Stereotypic beliefs would have less power to justify the social system to the extent that people believe that a society is changing in a direction that erodes the differences between less-advantaged and more-advantaged groups. We thus introduce the novel claim that some stereotypes are dynamic because they incorporate beliefs about changing characteristics. Although previous research has addressed actual change in stereotypic content over a number of years by comparing earlier and later data sets (e.g., Karlins, Coffman, & Walters, 1969; Lueptow, Garovich, & Lueptow, 1995), our research is different because it examines current perceptions of the characteristics possessed by group members in the past, present, and future.

Our theory of perceived change in group members’ attributes is that these dynamic aspects of stereotypes follow from perceived change in the placement of the group in the social structure. In general, a group’s stereotypic characteristics are congruent with the activities required by its typical social roles. To the extent that observers reason as implicit role theorists, they should believe that change in personal characteristics follows from change in roles. This approach to determining stereotype content thus reflects a social structural view of stereotyping that has been developed most thoroughly in relation to gender stereotypes in the context of Eagly’s (Eagly, 1987; Eagly, Wood, & Diekman, 2000) social role theory (e.g., Conway, Pizzamiglio, & Mount, 1996; Eagly & Kite, 1987; Eagly & Steffen, 1984). The approach has

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also enjoyed popularity in relation to stereotypes based on ethnicity (e.g., Brewer & Campbell, 1976; LeVine & Campbell, 1972), race (Feldman, 1972; Smedley & Bayton, 1978; Stephan & Rosenfeld, 1982), and age (Kite, 1996).

Social role theory argues that differential role occupancy in the family and occupations fosters gender stereotypes by which each sex is expected to have characteristics that equip it to function adequately in its typical roles. Gender stereotypes are thus emergents from role-bound activities, and the characteristics favored by these roles become stereotypic of each sex and facilitate its typical activities. Consistent with this perspective, Hoffman and Hurst (1990) demonstrated that stereotypes about novel groups stem from the type of work each group typically performs. To the extent that gender stereotypes reflect observations of men and women in social roles, perceivers should believe that their characteristics change as their distributions into social roles change. If perceivers believe that these distributions have become more equivalent, they should also believe that the characteristics of women and men have become more similar. Moreover, if perceivers project into the future this trend toward greater role similarity, they should also project the continued erosion of sex differences.

The roles of women and men have become more similar, mainly because of women’s increased participation in the paid labor force. Specifically, women’s labor force participation increased from 34% to 60% between 1950 and 1998 and men’s decreased from 86% to 75% (U.S. Department of Labor, 1999). Because the modal situation for women now incorporates paid employment along with domestic responsibilities (Hayghe, 1990), perceivers should believe that women’s attributes have shifted to incorporate the characteristics identified with employees. As Eagly and Steffen (1984, 1986) showed, these attributes are more agentic (e.g., competitive, individualistic) and less communal (e.g., kind, nurturing) than those identified with the domestic role.

Change in men’s roles is far more limited. Husbands have only slightly increased their participation in domestic work, even in dual-earner couples (Biernat & Wortman, 1991; Steil, 1997). Men have thus not increased their occupancy of the domestic role to the extent that women have increased their occupancy of the employee role (Shelton, 1992). Moreover, men have not entered female-dominated occupations to the same extent that women have entered male-dominated occupations (Reskin & Roos, 1990). Therefore, because the roles of women have changed more than those of men, perceivers should think that the typical attributes of women have changed more than those of men.

Our theory suggests that perceivers function as implicit role theorists by noting change in role distributions and inferring corresponding change in stereotypic characteristics. Relevant to inferences about change over time is research by Ross (1989; Ross & Newby-Clark, 1998) on people’s perceptions of their own personal histories. This research suggests that people first evaluate their present tendencies and then gauge their past by invoking an implicit theory of stability or change, depending on the available cues. Entrance into roles cues theories of personal change because of the expectation that a new role evokes new behaviors. Similarly, role entrance should also suggest change at the group level. Because recognition of women’s entry into the employee role should cue a theory of change, perceivers should view women as different in the past than the present. In contrast, because perception of a relative lack of change in men’s roles should cue a theory of stability, perceivers should view men as similar in the past and the present. The projection of these trends into the future would be consistent with Jones’s (1988) argument that future states are generally perceived as progressing from present states in a linear fashion.

**DESIGN OF THE EXPERIMENTS**

To assess perceptions of change and stability in women and men, Experiments 1, 2, 3, and 4 directed participants to imagine the average woman or man in the present or in a specific past or future year. These years spanned the century from 1950 to 2050. Participants then estimated the target individual’s masculine and feminine characteristics and the traditionalism of the social roles of men and women. To further explore whether assumptions about social roles mediate inferences about the characteristics of men and women, Experiment 5 fixed participants’ assumptions about social roles and then asked them to estimate each sex’s characteristics.

The stereotype measures included several components that may be perceived as relevant to carrying out role-related activities. Consistent with Cejka and Eagly’s (1999) research on the gender-stereotypic attributes perceived as necessary for occupational success, our experiments investigated personality, cognitive, and physical attributes. Of primary interest were the agentic and communal personality attributes first described by Bakan (1966). The agentic attributes pertain to self-promotion and individualism and tend to be associated with men and employees, whereas the communal attributes reflect connection with other people and tend to be associated with women and homemakers (Eagly & Steffen, 1984). More exploratory was our inclusion of cognitive and physical dimensions of gender stereotypes, which
have received less attention in research. The masculine cognitive stereotype emphasizes rationality and mathematical reasoning, whereas the feminine cognitive stereotype emphasizes intuition and creativity. The masculine physical stereotype focuses on strength and athleticism, whereas the feminine physical stereotype focuses on beauty and sensuality (Deaux & Lewis, 1983, 1984).

In general, the perceived similarity of women and men should increase from the past to the present and from the present to the future. The stereotype of women should be dynamic in the form of increasing masculinity and, to a lesser extent, decreasing femininity. The stereotype of men should be less dynamic, although some change in a feminine direction is expected. These predictions are held most confidently for the personality dimensions of gender stereotypes because of their known association with social roles. The prediction of similar patterns of change over time on the cognitive dimensions is more tenuous because of their much weaker relationship to sex distributions into occupational roles (Gejka & Eagly, 1999). Also, the amount of change perceived should be smaller on the physical than the personality dimensions because some physical differences are intrinsic to the sexes (e.g., in size). Yet, actual changes in athleticism and strength are surely possible, and some of the physical characteristics included in our scales are malleable because they are tinged with personal style (e.g., cute).

The roles of men and women also should be perceived to converge. If the root of gender stereotypes is observations of role distributions, perceived change in roles should mediate the effects of the target year on the characteristics ascribed to each sex.

EXPERIMENTS 1 AND 2

Method

PARTICIPANTS AND PROCEDURE

Among the 301 Experiment 1 participants (156 women, 144 men, 1 sex unreported), 214 attended a Midwestern private university and 87 a regional extension campus of a Midwestern public university. The 188 Experiment 2 participants (85 women, 99 men, 4 sex unreported) had a median age of 40 years, with 66.5% holding at least a college degree. The samples for Experiments 1 and 2, respectively, were 73.4% and 86.2% European American, 18.3% and 3.2% Asian American, 5.0% and 8.0% African American, 0.3% and 1.1% Hispanic American, and 3.0% and 1.6% unidentified by race.

For the Experiment 1 public university sample, a female surveyor distributed the questionnaires to students in a classroom setting. She informed them that they were under no obligation to participate, and 2 declined. For the other samples, surveyors randomly selected participants by asking every fifth person who was sitting alone at campus locations (Experiment 1) or in the waiting lounges at a large metropolitan airport (Experiment 2). Those who consented (Experiment 1: 85.6%; Experiment 2: 68.3%) received a questionnaire from the surveyor, who collected it approximately 5 minutes later. For Experiment 2, 17 respondents were discarded because they reported citizenship other than the United States. All participants completed the stereotype measure, followed by the role nontraditionalism measure, and then received a written debriefing.1

INDEPENDENT VARIABLES

The questionnaire asked the participant to focus on one target person, described as average. In Experiment 1, the target’s other attributes were manipulated according to a 2 (target sex) × 3 (year) between-subjects factorial design, resulting in an average man or woman in 1950, the present, or 2050. In Experiment 2, the years 1975 and 2025 were added, resulting in a 2 (target sex) × 5 (year) between-subjects factorial design. For targets in the present condition, no year was specified (e.g., the average woman), whereas for all other year conditions, a year was specified (e.g., the average man in 2050).

MEASURING INSTRUMENTS

Participant demographics. For the private university participants, the surveyor noted the sex and visible majority versus minority status of each participant (e.g., European American, African American). The public university participants reported their race or ethnicity and sex as the last items on the questionnaire; Experiment 2 participants also reported their sex, age, educational level, and citizenship, and the surveyor noted the visible majority versus minority status.

Perceived role nontraditionalism. The perceived sex distributions for traditionally male-dominated or female-dominated occupations and household activities were assessed for the experimental conditions’ year. Participants estimated the percentages of (a) workers who are male versus female in six occupations (lawyer, physician, automobile mechanic, flight attendant, elementary school teacher, and homemaker) and (b) activities performed by the husband/father versus wife/mother for six household tasks (taking care of the car, mowing the lawn, fixing things around the house, cleaning, laundry, and cooking). For the Experiment 1 public university participants and the Experiment 2 participants, the activity “caring for children” was added. With each item represented by the percentage estimated for the
counterstereotypic sex (e.g., female auto mechanics, cooking performed by the husband/father), the role nontraditionalism measure produced by averaging over the items showed high internal consistency (alphas = .91 for Experiment 1 and .89 for Experiment 2).^{2}

Gender-stereotypic characteristics. On a 7-point scale ranging from very likely to very unlikely, participants rated the likelihood that the target person would possess each of 36 predominantly positive characteristics. For Experiment 2, the instrument was shortened to 24 characteristics to simplify responding for the general public (see the appendix for all items). These characteristics represented the personality, cognitive, and physical components of the male and female stereotypes, which were factor analytically derived by Cejka and Eagly (1999). With each of these six variables represented by six items in Experiment 1 and four items in Experiment 2, the scales produced by averaging responses across the items had high internal consistency, as assessed by alphas, for the first and second experiments, respectively: .85 and .81 for masculine personality, .92 and .89 for masculine cognitive, .88 and .81 for masculine physical, .93 and .92 for feminine personality, .84 and .84 for feminine cognitive, and .88 and .86 for feminine physical.

Results
Analyses of variance (ANOVAs) are reported for each dependent variable separately. Mixed ANOVAs that treated gender typing of dimension (masculine or feminine) and stereotypic component (personality, cognitive, physical) as repeated measures produced results similar to those reported. Trend analyses are included to show whether perceptions changed over the year conditions in linear or nonlinear (e.g., quadratic, cubic) patterns (see Keppel, 1991).

PERCEPTIONS OF ROLES
Because men and women should be thought to change only if their roles are perceived to change, we first present estimates of role nontraditionalism.^{3} The main effect of year for Experiments 1 and 2 was significant, \(F(2, 293) = 291.85, p < .0001\), and \(F(4, 164) = 62.21, p < .0001\), respectively (see Table 1 for means). Participants perceived roles as much more egalitarian with the passage of time, as shown by the linear increases in nontraditionalism, \(F(1, 293) = 576.43, p < .0001\), and \(F(1, 164) = 225.05, p < .0001\). In Experiment 1, a much smaller quadratic trend, \(F(1, 293) = 6.38, p < .025\), reflected the greater shift from 1950 to the present than from the present to 2050. In Experiment 2, a cubic trend, \(F(1, 164) = 21.68, p < .0001\), reflected little growth of nontraditionalism between 1950 and 1975 and between 2025 and 2050.^{4}

<table>
<thead>
<tr>
<th>Year</th>
<th>Experiment 1</th>
<th>Experiment 2</th>
<th>Experiment 3</th>
<th>Experiment 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>1950</td>
<td>11.06</td>
<td>6.25</td>
<td>13.61</td>
<td>8.89</td>
</tr>
<tr>
<td>1975</td>
<td>13.81</td>
<td>6.43</td>
<td>16.40</td>
<td>8.19</td>
</tr>
<tr>
<td>Present</td>
<td>25.39</td>
<td>7.82</td>
<td>25.37</td>
<td>7.27</td>
</tr>
<tr>
<td>2025</td>
<td>33.83</td>
<td>8.40</td>
<td>34.72</td>
<td>6.65</td>
</tr>
<tr>
<td>2050</td>
<td>34.86</td>
<td>7.54</td>
<td>34.79</td>
<td>7.79</td>
</tr>
</tbody>
</table>

NOTE: Mean perceived nontraditionalism is presented on a scale on which 0% indicates complete sex segregation in the traditional direction and 100% indicates equal representation of the sexes.

GENDER-STEREOTYPIC CHARACTERISTICS

Experiment 1. The critical analyses were Target Sex \(\times\) Year ANOVAs. Demonstrating the stereotypicality of the dimensions was the significant main effect of target sex on all six dimensions, \(p < .005\) or smaller. The ratings were higher for female targets on the feminine dimensions and for male targets on the masculine dimensions. The main effect of year, which was significant, \(p < .005\) or smaller, on all dimensions except feminine personality, should be interpreted in the context of the Target Sex \(\times\) Year interaction.

As implied by our prediction of convergence in the perceived characteristics of women and men, the Target Sex \(\times\) Year interaction was significant on the measures, although not on the feminine cognitive dimension (see Table 2 for means). Consistent with this interaction on the masculine personality dimension, \(F(2, 294) = 36.24, p < .0001\), participants perceived female targets as increasing sharply in these characteristics and male targets as remaining stable. The significant Target Sex \(\times\) Year linear interaction, \(F(1, 294) = 72.36, p < .0001\), indicated that the linear trends over the year conditions differed for male and female targets (see Keppel, 1991). Simple effects analyses within levels of target sex revealed only a significant linear increase for female targets, \(F(1, 294) = 120.39, p < .0001\).

The masculine cognitive dimension also showed a significant Target Sex \(\times\) Year interaction, \(F(2, 294) = 8.26, p < .0005\), such that participants perceived female targets as increasing substantially and male targets as remaining relatively unchanged. The significant effects in the trend analyses were a Target Sex \(\times\) Year linear interaction, \(F(1, 294) = 15.33, p < .0001\); a linear increase for female targets, \(F(1, 294) = 47.28, p < .0001\); and a much weaker quadratic trend for male targets, \(F(1, 294) = 4.29, p < .05\).

Consistent with the interaction on the masculine physical dimension, \(F(2, 294) = 4.29, p < .025\), participants perceived female targets as increasing and male
targets as not changing. The significant effects in the trend analyses were a Target Sex × Year linear interaction, $F(1, 294) = 5.07, p < .025$, and a linear increase for female targets, $F(1, 294) = 20.75, p < .0001$.

Consistent with the interaction on the feminine personality dimension, $F(2, 294) = 19.53, p < .0001$, participants perceived female targets as decreasing and male targets as increasing. The significant effects revealed by trend analyses were a Target Sex × Year linear interaction, $F(1, 294) = 38.85, p < .0001$; a linear decrease for female targets, $F(1, 294) = 24.27, p < .0001$; and a linear increase for male targets, $F(1, 294) = 15.06, p < .0001$.

Consistent with the interaction on the feminine physical dimension, $F(2, 294) = 10.52, p < .0001$, participants perceived female targets as stable and male targets as increasing. The significant effects in the trend analyses were a Target Sex × Year linear interaction, $F(1, 294) = 21.01, p < .0001$, and for male targets, a linear increase, $F(1, 294) = 23.42, p < .0001$, and a smaller quadratic trend, $F(1, 294) = 3.96, p < .05$.

Consistent with the absence of a significant interaction on the feminine cognitive dimension, participants perceived male and female targets to be increasing similarly in these characteristics. The linear increase for the year main effect was significant, $F(1, 294) = 13.58, p < .0005$.

Experiment 2. Stereotypic sex differences yielded a significant main effect for target sex on all dimensions, $p_s < .05$ or smaller, except for masculine cognitive, on which female targets had very high ratings in 2050. The main effect of year, which was significant, $p_s < .05$ or smaller, on all dimensions except feminine physical, $p < .10$, should be interpreted in the context of the Target Sex × Year interaction.

The significant interaction obtained on all of the masculine dimensions and none of the feminine dimensions showed that convergence in gender-stereotypic characteristics was limited to the masculine dimensions (see means in Table 3). Consistent with the significant interaction on the masculine personality dimension, $F(4, 172) = 4.67, p < .001$, participants perceived female targets as increasing sharply over the years and male targets as remaining unchanged. The significant effects in the trend analyses were the Target Sex × Year linear interaction, $F(1, 172) = 18.41, p < .0001$, and a linear increase for female targets, $F(1, 172) = 50.79, p < .0001$.

For masculine cognitive characteristics, the interaction was significant, $F(4, 172) = 6.61, p < .0001$. The significant effects in the trend analyses were the linear interaction, $F(1, 172) = 21.91, p < .0001$; a linear increase for female targets, $F(1, 172) = 46.96, p < .0001$; and a much smaller cubic trend for male targets, $F(1, 172) = 5.63, p < .05$.

For masculine physical characteristics, the interaction was significant, $F(4, 172) = 4.80, p < .001$. The significant effects in the trend analyses were the linear interaction, $F(1, 172) = 16.85, p < .0001$, and a linear increase for female targets, $F(1, 172) = 25.74, p < .0001$.

For all of the feminine dimensions, the nonsignificant interaction indicated similar effects of year on female and male targets. The trend analyses for the year main effect yielded a linear decrease and a cubic trend for feminine personality, a linear increase for feminine cognitive, and a quadratic trend for feminine physical, $p_s < .05$.

**MEDIATION OF THE EFFECTS OF YEAR ON GENDER-STEREOTYPIC CHARACTERISTICS**

Path analyses tested a simple mediational model that assumed that inferences about roles accounted for the relation between the context year and beliefs about gender-stereotypic characteristics (Baron & Kenny, 1986). To obtain the appropriate statistical power, we aggre-
gated the data for 1950, the present, and 2050 from Experiments 1 and 2. We performed the analyses separately for male and female targets on each gender-stereotypic dimension with the data merged across years.

The results for female targets suggested that inferences about roles mediated the effects of year on all three masculine dimensions, although the direct path between year and the stereotypic characteristics remained significant on the masculine personality and cognitive dimensions (see Figure 1). The strength of the direct path is not surprising given that the measure of role nontraditionalism included only a few occupations and domestic activities and thus was no doubt highly imperfect. More important is the demonstration of the indirect effect of year on the female targets’ characteristics as mediated by role nontraditionalism. According to Sobel’s test of significance of this mediation, role nontraditionalism mediated the relationship between year and women’s masculine personality characteristics, Z = 4.83, p < .001, masculine cognitive characteristics, Z = 3.51, p < .0005, and masculine physical characteristics, Z = 3.10, p < .001. For models assessing female targets’ change on the feminine dimensions, one or more of the relevant paths were nonsignificant and thus failed to meet the criteria for mediation.

For male targets, the path-analytic results suggested that inferences about roles mediated the effects of year only on the feminine personality dimension (see Figure 2), and Sobel’s test was significant, Z = 3.66, p < .0005. For models assessing male targets’ change on the other five dimensions, one or more of the relevant paths were nonsignificant and thus failed to meet the criteria for mediation.

**Discussion**

These experiments confirmed our hypotheses about dynamic stereotypes by demonstrating perceptions of increasing role equality and a corresponding convergence in the perceived characteristics of women and men over 100 years. This convergence was primarily accounted for by increasing ascription of masculine characteristics to women. Also contributing to convergence in Experiment 1 were men’s gains in feminine personality and physical characteristics and women’s losses of feminine personality characteristics. In Experiment 2, these additional changes were somewhat weaker and failed to reach significance with the smaller sample size.

The perception of women’s increase in masculine characteristics generalized to Experiment 2’s sample of older participants and within this sample showed no variation accounted for by participants’ age. This consensus is impressive given that contemporary college students’ relatively egalitarian gender-role attitudes (Twenge, 1997a) might have enhanced the perception of increasing similarity of the sexes. Instead, our findings suggest that knowledge of the role transition of women and its implications for personal qualities is widely shared in the culture. Moreover, there is considerable consensus about future changes.

The dramatic perceived increase in women’s masculine personality characteristics is compatible with our reasoning that the greatest change in roles is women’s entry into traditionally male-dominated occupations. The more modest, albeit still very substantial, tendency for women to be perceived as increasing in masculine

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**TABLE 3: Experiment 2: Mean Ratings on Gender-Stereotypic Dimensions by Target Sex and Year**

<table>
<thead>
<tr>
<th>Target Sex and Year</th>
<th>Masculine</th>
<th>Feminine</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Personality</td>
<td>Cognitive</td>
</tr>
<tr>
<td></td>
<td>M  SD</td>
<td>M  SD</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>3.56 1.32</td>
<td>3.75 1.26</td>
</tr>
<tr>
<td>1975</td>
<td>4.02 1.04</td>
<td>3.96 1.26</td>
</tr>
<tr>
<td>Present</td>
<td>4.82 0.89</td>
<td>4.92 0.72</td>
</tr>
<tr>
<td>2025</td>
<td>5.28 1.66</td>
<td>5.34 1.76</td>
</tr>
<tr>
<td>2050</td>
<td>5.72 0.97</td>
<td>5.90 1.10</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>4.62 1.43</td>
<td>4.71 1.48</td>
</tr>
<tr>
<td><strong>Male</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>4.81 0.82</td>
<td>4.88 0.80</td>
</tr>
<tr>
<td>1975</td>
<td>4.93 0.79</td>
<td>4.70 1.04</td>
</tr>
<tr>
<td>Present</td>
<td>5.26 0.84</td>
<td>4.95 0.91</td>
</tr>
<tr>
<td>2025</td>
<td>5.17 0.90</td>
<td>5.53 0.96</td>
</tr>
<tr>
<td>2050</td>
<td>5.06 1.23</td>
<td>4.50 1.27</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>5.04 0.94</td>
<td>4.89 1.06</td>
</tr>
</tbody>
</table>

**Note:** Ratings were on a 7-point scale on which higher scores indicate greater likelihood of possessing each characteristic. Cell ns ranged from 15 to 21 participants.
cognitive characteristics may reflect these attributes’ association with at least a subset of male-dominated roles. Also, the tendencies for men’s increase in feminine personality and physical characteristics to be more modest may reflect the very limited movement of men into female-dominated roles. Women’s corresponding tendency to retain female-dominated roles, especially the domestic role, may have restricted their decrease in feminine personality qualities and dampened change in feminine cognitive and physical qualities as well.

In general, the path analyses supported the assumption that perceptions of role distributions mediate the impact of the context year on beliefs about targets’ characteristics. This argument does not imply that participants necessarily invoked their beliefs about roles’ sex distributions at the moment that they estimated the characteristics of men or women. Rather, through extensive prior observation, they had learned implicitly that movement into roles generally produces a shift toward the characteristics required for effective functioning in the roles. When participants observed substantial changes in social roles, they thus inferred that role occupants’ characteristics changed to accommodate these roles. That this evidence for mediation was consistently obtained for female targets’ masculine characteristics is compatible with the consistent effects of the context year on these characteristics and with the underlying tendency for women to assume traditionally male-dominated roles. Nonetheless, the path analyses also suggested that the impact of context year on inferences about men’s feminine personality attributes followed from perceptions of role nontraditionalism.

**EXPERIMENT 3**

Although Experiments 1 and 2 provide considerable evidence that the stereotype of women is dynamic due to perceived change in women’s roles, limitation of these demonstrations to evaluatively positive qualities might mean that they are contaminated by optimism. Because people are optimistic about their personal futures (Ross & Newby-Clark, 1998), they may also hold positive expectations about the future of society and therefore think that women progressively adopt desirable masculine characteristics. However, women’s entry into male-dominated roles should lead to perceived increases in all of the attributes associated with occupants of these roles. Therefore, an even more convincing demonstration that the dynamic stereotype of women is driven by perceived changes in roles would include the increasing
ascription to women of undesirable as well as desirable masculine characteristics.

Useful for this demonstration is Spence, Helmreich, and Holahan’s (1979) negative masculinity scale containing items concerned with self-aggrandizement (e.g., boastful, egotistical) and abuse of power (e.g., arrogant, hostile). Because many male-dominated roles are associated with various sources of power, such as status, expertise, and resources, perceivers may believe that some occupants of these roles become egotistical and abuse this power. Male-dominated roles may thus be associated in people’s minds with these negative qualities.

Also useful is Spence et al.’s (1979) negative femininity scale, which pertains mainly to self-subordination (e.g., spineless, servile) and indirect, disagreeable methods of influence (e.g., nagging, whiny). Because women have been concentrated in less powerful roles, self-subordination is an understandable consequence of their social position, along with indirect methods of social influence (Johnson, 1976; Lips, 1991). Therefore, these negative characteristics may become associated with the occupants of female-dominated roles.

As women enter male-dominated roles, they should be perceived as possessing negative masculine characteristics in greater measure, along with positive masculine characteristics. Consistent with the weaker trends in Experiments 1 and 2, we are less confident that male targets will be perceived as increasing in negative or positive feminine characteristics. Negative feminine characteristics should decrease in female targets to the extent that women’s role shift is perceived to raise their status and reduce their reliance on the indirect influence strategies featured in this measure.

**Method**

**PARTICIPANTS AND PROCEDURE**

Three female surveyors, following the survey procedure described for Experiment 1, recruited a total of 264 participants (130 women, 126 men, 8 sex unreported) from a Midwestern private university. Of those approached, 87.1% agreed to participate. The sample was 56.8% European American, 27.6% Asian American, 5.7% African American, 1.1% Hispanic American, and 5.3% unidentified by race. One participant was dropped for inappropriate responding.

**INDEPENDENT VARIABLES**

Using the same design as Experiment 2, the questionnaire asked the participant to focus on one target person, whose attributes were manipulated according to a 2 (target sex) × 5 (year) between-subjects factorial design.

**MEASURING INSTRUMENTS**

**Participant demographics.** The surveyor noted each participant’s sex and visible minority versus majority status.

**Perceived role nontraditionalism.** The role nontraditionalism measure from Experiments 1 and 2 showed high internal consistency (alpha = .90).

**Gender-stereotypic characteristics.** The instrument included 8 positive feminine personality items and 8 positive masculine personality items. The negative feminine and masculine personality dimensions were each represented by 8 items drawn from Spence et al. (1979) (see the appendix for all items). The four resulting scales had satisfactory alphas: .78 for positive masculine, .85 for negative masculine, .93 for positive feminine, and .77 for negative feminine.

**Results and Discussion**

**PERCEPTIONS OF ROLES**

The main effect of year on role nontraditionalism was again significant, $F(4, 246) = 98.50, p < .0001$ (see Table 1 for means). The significant effects in the trend analyses were again a very large linear increase, $F(1, 246) = 364.48, p < .0001$, and a smaller cubic trend, $F(1, 246) = 27.20, p < .0001$, reflecting less growth in nontraditionalism between 1950 and 1975 and between 2025 and 2050.

**Gender-stereotypic characteristics**

Confirming the stereotypicality of the measures was the significant main effect for target sex on all four dimensions ($ps < .05$ or smaller). The main effect of year, which was significant, $ps < .05$ or smaller, on the two masculine dimensions and the negative feminine dimension, should be interpreted in the context of the Target Sex × Year interaction.

Consistent with our hypothesis of perceived convergence of the sexes, the critical Target Sex × Year interaction was significant or marginally significant on all four dimensions (see Table 4 for means). On the positive masculine dimension, this interaction was significant, $F(4, 248) = 13.41, p < .0001$. The significant effects in the trend analyses were the linear interaction, $F(1, 248) = 45.34, p < .0001$; a very large linear increase, $F(1, 248) = 122.75, p < .0001$, and a smaller quartic trend for female targets, $F(1, 248) = 5.62, p < .025$; and a cubic trend for male targets, $F(1, 248) = 4.56, p < .05$. On the negative masculine dimension, the interaction was marginal, $F(4, 248) = 2.20, p < .10$. The significant effects in the trend analyses were the linear interaction, $F(1, 248) = 8.09, p < .005$; a large linear increase for female targets, $F(1, 248) = 36.36, p < .0001$; and a smaller linear increase for male targets, $F(1, 248) = 4.21, p < .05$. 
TABLE 4: Experiment 3: Mean Ratings on Positive and Negative Gender-Stereotypic Personality Dimensions by Target Sex and Year

<table>
<thead>
<tr>
<th>Target Sex and Year</th>
<th>Masculine Positive</th>
<th>Masculine Negative</th>
<th>Feminine Positive</th>
<th>Feminine Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>3.29</td>
<td>0.69</td>
<td>3.00</td>
<td>0.64</td>
</tr>
<tr>
<td>1975</td>
<td>3.97</td>
<td>0.85</td>
<td>3.47</td>
<td>0.68</td>
</tr>
<tr>
<td>Present</td>
<td>4.06</td>
<td>0.65</td>
<td>3.50</td>
<td>0.69</td>
</tr>
<tr>
<td>2025</td>
<td>4.87</td>
<td>0.65</td>
<td>4.11</td>
<td>0.63</td>
</tr>
<tr>
<td>2050</td>
<td>5.13</td>
<td>0.39</td>
<td>4.22</td>
<td>1.05</td>
</tr>
<tr>
<td>Overall</td>
<td>4.24</td>
<td>0.93</td>
<td>3.64</td>
<td>0.86</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>4.85</td>
<td>0.68</td>
<td>4.31</td>
<td>1.07</td>
</tr>
<tr>
<td>1975</td>
<td>4.49</td>
<td>0.72</td>
<td>4.44</td>
<td>0.79</td>
</tr>
<tr>
<td>Present</td>
<td>4.81</td>
<td>0.68</td>
<td>4.53</td>
<td>0.70</td>
</tr>
<tr>
<td>2025</td>
<td>4.97</td>
<td>0.50</td>
<td>4.73</td>
<td>1.00</td>
</tr>
<tr>
<td>2050</td>
<td>4.94</td>
<td>0.66</td>
<td>4.68</td>
<td>0.77</td>
</tr>
<tr>
<td>Overall</td>
<td>4.80</td>
<td>0.67</td>
<td>4.53</td>
<td>0.88</td>
</tr>
</tbody>
</table>

NOTE: Ratings were on a 7-point scale on which higher scores indicate greater likelihood of possessing each characteristic. Cell ns ranged from 24 to 27 participants.

On the positive feminine dimension, the interaction was marginal, $F(4, 248) = 2.05, p < .10$. The only significant effects in the trend analyses were the linear interaction, $F(1, 248) = 5.62, p < .025$, and a quadratic trend for male targets, $F(1, 248) = 3.92, p < .05$. On the negative feminine dimension, the interaction was significant, $F(4, 248) = 3.83, p < .005$. The significant effects in the trend analyses were the linear interaction, $F(1, 248) = 13.61, p < .0005$, and a substantial linear decrease for female targets, $F(1, 248) = 17.92, p < .0001$.

In summary, consistent with Experiments 1 and 2, the stereotype of women proved to be far more dynamic than the stereotype of men. As predicted, women’s negative masculine characteristics increased along with their positive masculine characteristics, although the increase in these positive characteristics was larger. A smaller, yet still notable erosion of women’s negative feminine characteristics suggested that women are perceived to relinquish weaker methods of influence and to subordinate themselves less as they enter male-dominated roles. In general, rather than reflecting an optimistic hope that women are becoming more like ideal men, participants’ beliefs approximated social role theory’s prediction that women are increasingly perceived as manifesting men’s worst qualities as well as their best qualities.

EXPERIMENT 4

Our first three experiments demonstrated belief in the convergence of the attributes of men and women, primarily through women taking on the characteristics traditionally associated with men. However, an apparent tendency to perceive that some sex differences completely disappear or even reverse their traditional direction may be contaminated by the shifting standards phenomenon (Biernat, 1995; Biernat & Manis, 1994), by which implicit stereotypes shape within-sex standards for evaluating men and women on sex-typed attributes. For example, a level of assertiveness that would be considered “somewhat assertive” for a man might be considered “very assertive” for a woman because a higher level of assertiveness is thought to be typical of men and both sexes are judged in relation to their own group. Although such shifting standards would not compromise the perceived convergence that we demonstrated, our experiments would have overestimated the perceived similarity of male and female targets and in some instances (e.g., positive masculine characteristics in the future) would have incorrectly produced the appearance that women’s masculine characteristics were thought to exceed men’s.

To minimize shifting standards, Biernat and Manis (1994) recommended that raters judge groups according to a common standard. Such a common standard can be achieved by having participants compare the groups with one another on the same scale or rate the groups separately according to a standard that is objectively or externally anchored. In the prior experiments in this series, we avoided asking for direct comparisons of men and women in an effort to reduce demand characteristics and self-presentational concerns. Although our between-subjects manipulation of target sex thus has advantages, it allows participants to use different standards in rating men and women. Therefore, Experiment 4 required that participants directly compare men and women on each characteristic. In addition, participants judged the sexes on an externally anchored standard by estimating their average annual earnings. These estimates would provide an alternative, less direct measure of the distribution of the sexes into social roles because similar roles should produce similar earnings. Of course, the role nontraditionalism measure produced from participants’ estimates of sex distributions is also externally anchored.

Method

PARTICIPANTS AND PROCEDURE

A male and a female surveyor recruited 97 students (55 women, 42 men) at a private Midwestern university according to the survey procedure described in Experiment 1. Of those approached, 85.8% agreed to complete the survey. This sample was 73.2% European American, 18.5% Asian American, 4.1% African American, 1.0% Hispanic American, and 3.1% unidentified by race.
TABLE 5: Experiment 4: Mean Comparative Ratings on Gender-Stereotypic Dimensions by Target Sex and Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Masculine Personality</th>
<th>Masculine Cognitive</th>
<th>Masculine Physical</th>
<th>Feminine Personality</th>
<th>Feminine Cognitive</th>
<th>Feminine Physical</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>1950</td>
<td>2.60</td>
<td>0.93</td>
<td>3.19</td>
<td>1.10</td>
<td>2.37</td>
<td>1.13</td>
</tr>
<tr>
<td>Present</td>
<td>3.19</td>
<td>0.64</td>
<td>3.45</td>
<td>0.71</td>
<td>2.58</td>
<td>0.73</td>
</tr>
<tr>
<td>2050</td>
<td>3.93</td>
<td>1.23</td>
<td>3.80</td>
<td>0.90</td>
<td>3.90</td>
<td>1.15</td>
</tr>
</tbody>
</table>

NOTE: Ratings were on a 7-point scale on which higher scores indicate greater likelihood of women possessing each characteristic, and a score of 4 indicates perceived equality. Cell ns ranged from 31 to 32 participants.

INDEPENDENT VARIABLE

The questionnaire indicated one of the three years used in Experiment 1 (1950, the present, or 2050). The experiment had a one-way between-subjects factorial design because participants focused on both men and women (e.g., the average man and the average woman in 1950; the order of man and woman was counterbalanced).

MEASURING INSTRUMENTS

Participant demographics. The surveyor noted each participant’s sex and visible minority versus majority status.

Perceived role nontraditionalism. The role nontraditionalism measure again showed high internal consistency (alpha = .91).

Earnings. Participants estimated the salaries (in 1997 dollars) for the average man and woman in the specified year as the last items on the questionnaire.

Gender-stereotypic characteristics. These characteristics were the same 36 used in Experiment 1 (see the appendix for items). On a 7-point scale anchored by men extremely more and women extremely more (with counterbalancing of the end of the scale anchored by men vs. women), participants rated the comparative likelihood of men and women possessing each characteristic in the specified year. For example, instructions for the future condition stated, “Please rate how the average man and the average woman in 2050 will compare with each other on the following characteristics.” The six scales had satisfactory alphas: .90 for masculine personality, .89 for masculine cognitive, .90 for masculine physical, .85 for feminine personality, .75 for feminine cognitive, and .81 for feminine physical.

Results and Discussion

PERCEPTIONS OF ROLES

The effect of year on role nontraditionalism was significant, \( F(2, 91) = 65.51, p < .0001 \) (see Table 1 for means). Participants perceived female- and male-dominated roles as becoming more egalitarian, as shown by the linear increase in nontraditionalism, \( F(1, 91) = 130.33, p < .0001 \).

Earnings estimates were entered into a mixed ANOVA, with male and female targets treated as a within-subjects factor and year as a between-subjects factor. Consistent with the main effect for target sex, \( F(1, 83) = 159.40, p < .0001 \), men were perceived to have higher salaries than women. Also, as shown by the main effect for year, \( F(2, 83) = 22.12, p < .0001 \), salaries were believed to increase over the century defined by the experimental conditions. Confirming our prediction of convergence of the sexes was the Target Sex \( \times \) Year interaction, \( F(2, 83) = 3.83, p < .05 \). Trend analyses performed within levels of target sex revealed a linear increase for male salaries, \( F(1, 83) = 27.18, p < .0001 \), as well as a larger linear increase for female salaries, \( F(1, 83) = 67.09, p < .0001 \). Thus, estimates of women’s earnings as a percentage of men’s increased from 45.4% in 1950 to 74.5% in the present and to 82.2% in 2050.

GENDER-STEREOTYPIC CHARACTERISTICS

The critical analysis was the one-way ANOVA testing for effects of year on estimates of sex differences in gender-stereotypic characteristics. A movement toward equality is shown by an increase in masculine characteristics or a decrease in feminine characteristics toward the scale midpoint of 4. On all of the masculine dimensions and the feminine personality dimension, perceived equality increased (see Table 5 for means). Thus, for masculine personality characteristics, the effect of year was significant, \( F(2, 91) = 14.81, p < .0001 \), with a significant linear shift toward equality, \( F(1, 91) = 29.48, p < .0001 \). For masculine cognitive characteristics, the effect of year was also significant, \( F(2, 91) = 3.48, p < .05 \), as was the linear shift toward equality, \( F(1, 91) = 6.90, p < .01 \). For masculine physical characteristics, the effect of year was again significant, \( F(2, 91) = 3.08, p < .05 \), as was the linear shift toward equality, \( F(1, 91) = 5.92, p < .05 \). Although the effect of year did not attain significance on feminine cognitive or physical characteristics, it was significant on feminine personality characteristics, \( F(2, 91) = \)
4.14, \( p < .05 \), as was the linear shift toward equality, \( F(1, 91) = 7.97, p < .01 \).

In summary, participants again perceived roles as becoming more egalitarian and the sexes as becoming more similar in their characteristics. Participants also estimated a decreasing gender gap in earnings, reflecting their perceptions of increased equality on this externally anchored measure. Yet, even for 2050, men’s earnings were estimated to be higher than women’s, and roles departed from the 50% value that would indicate equality, \( ps < .0001 \).

The distinctive contribution of this fourth experiment is to show that when participants directly compared men and women, they perceived the sexes as attaining virtual equality in masculine personality and cognitive characteristics, as shown by the nonsignificance of the comparison between their estimate of similarity for 2050 and the scale midpoint that indicated exact equality. Because they did not view women as exceeding men on these two dimensions in 2050, the findings from the prior experiments of higher ratings of women than men on these dimensions probably reflected the use of different standards for women and men, as Biernat (1995) has argued. Also in Experiment 4, the substantial shift toward perceived equality in masculine physical characteristics as well as feminine personality characteristics fell significantly short of the scale midpoint in the 2050 condition, \( ps < .0001 \). As in the three prior experiments, the largest effect occurred on masculine personality characteristics. In general, requiring direct comparisons showed that the perceived convergence in the characteristics of men and women is robust in relation to this important variation of experimental design.

EXPERIMENT 5

Although we have consistently argued that the perceived trajectory of the attributes of women and men was mediated by perceived change in role distributions, our demonstrations have been correlational. Therefore, we augmented this demonstration of mediation by an experiment that fixed role distributions in participants’ minds rather than leaving them free to vary. To achieve this goal, we directed participants to assume a specified division of labor existing in the future and then asked them to rate the likelihood that the typical man or woman living in such a society would possess gender-stereotypic characteristics. We expected that participants would perceive these characteristics as conforming to the role system described, especially on the masculine dimensions and the feminine personality dimension, which in the earlier experiments showed the most convergence as role similarity increased from 1950 to 2050.

Method

PARTICIPANTS AND PROCEDURE

One male and three female surveyors, following the procedure described in Experiment 1, recruited a total of 104 participants (50 women, 54 men) from a private Midwestern university. Of those approached, 88.9% agreed to participate. The sample was 64.4% European American, 26.9% Asian American, 5.8% African American, 1.9% Hispanic American, and 1.0% unidentified by race.

INDEPENDENT VARIABLES

In a 2 (target sex) \( \times 3 \) (division of labor) between-subjects design, participants were asked to imagine a future society in which the target sex occupied certain kinds of roles. The division of labor was described in one of three ways: traditional roles, roles similar to those of today, and equal roles. For example, instructions for the same-as-today role condition read as follows:

```
Imagine that it is the year 2050. Please assume that men occupy basically the same roles as they do now, even if this outcome seems unlikely to you. For example, most auto mechanics and high-level business executives are men, and very few secretaries or elementary school teachers are men. Tasks such as fixing the car and mowing the lawn are usually done by men, and men are not generally responsible for household jobs such as child care or cooking.
```

In the traditional condition, roles were described as more extremely segregated by sex (e.g., “almost all auto mechanics are men . . . extremely few secretaries are men”) and as comparable to the roles of 1950. In the equal condition, men and women were described as occupying similar roles (e.g., “only half of auto mechanics are men . . . half of secretaries are men”). For the conditions describing the female target sex, the adjectives modifying the roles were switched to convey the designated division of labor (e.g., “very few auto mechanics are women . . . most secretaries are women”; “half of auto mechanics are women . . . only half of secretaries are women”).

MEASURING INSTRUMENTS

Participant demographics. Participants reported sex, age, U.S. citizenship, and level of education as the last items on the questionnaire. The surveyor noted the visible majority versus minority status of the participant.

Earnings. Participants estimated the salary (in 1998 dollars) for an average man or woman living in the society described.
**Experiment 5: Mean Ratings on Gender-Stereotypic Dimensions by Target Sex and Division of Labor**

**Results**

**PERCEPTIONS OF ROLES**

Ratings of the likelihood of the roles that were described showed a marginal main effect of division of labor, $F(2, 93) = 2.87, p < .075$. Participants rated a shift toward equal roles as most likely ($M = 5.38$), maintenance of today’s roles as less likely ($M = 5.44$), and a return to traditional roles as least likely ($M = 5.40$). Contrasts revealed that the traditional role system was seen as significantly less likely than the equal role system, $F(1, 93) = 5.54, p < .025$.

The higher salaries estimated for men yielded a main effect of target sex, $F(1, 88) = 15.00, p < .0005$ (one outlier was removed). Consistent with our prediction of convergence is the significant Target Sex $\times$ Division of Labor interaction, $F(2, 88) = 13.44, p < .0001$, by which the shift toward equal roles was perceived to produce increased earnings for women, $F(2, 94) = 12.00, p < .0001$, and decreased earnings for men, $F(2, 94) = 3.77, p < .05$. Women’s earnings as a percentage of men’s were estimated to be 31.7% in a traditional role system, 76.5% in a system maintaining today’s division of labor, and 117.1% in an equal role system.

**NOTE:** Ratings were on a 7-point scale on which higher scores indicate greater likelihood of possessing each characteristic. Cell means within the same target and column with different subscripts were significantly different as tested using Bonferroni contrasts with a familywise error rate of .05.

**Table 6: Experiment 5: Mean Ratings on Gender-Stereotypic Dimensions by Target Sex and Division of Labor**

<table>
<thead>
<tr>
<th>Target Sex and Division of Labor</th>
<th>Personality</th>
<th>Cognitive</th>
<th>Physical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Masculine</td>
<td>Feminine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M  SD</td>
<td>M  SD</td>
<td>M  SD</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional</td>
<td>2.85a 1.39</td>
<td>3.44a 1.01</td>
<td>2.81a 1.32</td>
</tr>
<tr>
<td>Same as today</td>
<td>4.32b 0.79</td>
<td>4.57b 0.92</td>
<td>3.75ab 1.17</td>
</tr>
<tr>
<td>Equal</td>
<td>5.44c 1.25</td>
<td>5.79c 1.10</td>
<td>4.46b 1.50</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional</td>
<td>5.22a 1.00</td>
<td>5.44a 0.75</td>
<td>4.78a 1.32</td>
</tr>
<tr>
<td>Same as today</td>
<td>4.94a 1.47</td>
<td>4.57ab 1.21</td>
<td>4.48a 1.17</td>
</tr>
<tr>
<td>Equal</td>
<td>4.53b 0.93</td>
<td>4.28b 0.83</td>
<td>4.25a 1.50</td>
</tr>
</tbody>
</table>

**Gender-Stereotypic Characteristics**

The 2 (target sex) $\times$ 3 (division of labor) ANOVAs demonstrated the stereotypicality of all dimensions, except for the masculine cognitive, by significant main effects of target sex, $p < .005$ or smaller. The main effect of division of labor also was significant on masculine personality, masculine cognitive, and feminine cognitive, $p < .05$, but should be interpreted within the context of the Target Sex $\times$ Division of Labor interaction. Consistent with our hypotheses, this interaction was significant on those dimensions that showed the strongest relationships to year in Experiments 1 through 4—specifically, the masculine dimensions and the feminine personality dimension (see means and contrasts in Table 6).

For masculine personality characteristics, the interaction was significant, $F(2, 98) = 17.49, p < .0001$. Simple effects analyses within target sex showed a large, significant increase in these characteristics for female targets as the division of labor shifted toward equality, $F(2, 98) = 21.87, p < .0001$. For masculine cognitive characteristics, the interaction also was significant, $F(2, 98) = 28.03, p < .0001$. Simple effects analyses revealed that as roles moved toward equality, these characteristics were perceived to increase sharply in female targets, $F(2, 98) = 25.02, p < .0001$, and to decrease moderately in male targets, $F(2, 98) = 6.55, p < .005$. For masculine physical characteristics, the interaction was again significant, $F(2, 98) = 7.42, p < .001$. Simple effects analyses showed an increase in these characteristics in female targets as roles shifted toward equality, $F(2, 98) = 8.51, p < .0005$. The interaction was also significant on feminine personality characteristics, $F(2, 98) = 8.36, p < .0005$. Simple effects analyses revealed that as roles moved
toward equality, these characteristics increased in male targets, $F(2, 98) = 9.12, p < .0005$. The interaction did not reach significance on the feminine cognitive or physical dimensions.

Consistent with our earlier experiments and with the predictions of social role theory, participants perceived the characteristics of women and men as malleable. By manipulating roles rather than allowing participants to generate their own ideas about role distributions, this experiment lends additional credence to our assumption that people view women and men as accommodating their attributes to their social roles. Although the mention of specific past and present times in the traditional and same-as-today conditions of the manipulation of division of labor might have contributed to our findings, this manipulation included detailed information concerning role distributions. Compared with the earlier experiments’ manipulations of year, this role manipulation produced more extreme findings on some dimensions, particularly women’s increase and men’s decrease in masculine cognitive characteristics and men’s increase in feminine personality characteristics. These results probably occurred because, compared with the future condition of Experiments 1 through 4, the role distribution in the condition with an equal division of labor was perceived as more nontraditional, producing estimates of women’s wages as higher than men’s wages.

As in previous experiments, our strongest effects were women’s adoption of masculine characteristics and men’s adoption of feminine personality characteristics. The lack of convergence on the feminine physical and cognitive dimensions is generally consistent with our first four experiments and suggests that these attributes are not perceived as under the control of social roles. Instead, these feminine characteristics may be regarded as relatively intrinsic to women or at least not easily shaped by participation in domestic labor and paid labor.

GENERAL DISCUSSION

These experiments applied social role theory to one of the most neglected aspects of research on stereotyping—the question of why stereotypes have certain content—and moreover revealed the complexity of this content by showing that perceivers incorporate the implications of social change into groups’ images. These studies thus established that stereotypes about social groups can be dynamic or static. Rather than presenting an image of a group merely as having certain characteristics, a stereotype can portray a group as having a trajectory over the years as its qualities change. Stereotypes about women thus portrayed them as extremely dynamic, whereas stereotypes about men portrayed them as relatively unchanging. Specifically, people believe that women of the present are more masculine than are women of the past and that women of the future will be more masculine than women of the present, especially in personality characteristics. This perceived shift in women’s attributes was not confined to masculine qualities that are favorably evaluated but encompassed masculine qualities that are unfavorably evaluated.

Belief in complementary change by which men increase their femininity was not consistently demonstrated. Although the student participants perceived a moderate increase in men’s feminine personality qualities, the older participants recruited from airport departure lounges did not agree. There was more consensus about the decline of feminine personality characteristics in women than about their growth in men. Because a relatively larger tendency for men to take on these communal qualities was projected for the role equality condition of Experiment 5, perceivers may reason that the assumption of domestic tasks is necessary to enhance these qualities. Also, convergence was not consistently projected for feminine cognitive and physical characteristics.

In general, women and men were perceived to be converging strongly in their masculine personality characteristics and somewhat in their masculine cognitive and physical characteristics as well as their feminine personality characteristics. These perceived changes are not arbitrary but reflect the association of male-dominated occupations with masculine personality characteristics and the movement of women into these occupations (Cejka & Eagly, 1999). These results can be viewed with clarity in Table 7’s quantitative summary of the five experiments. Valid comparison of the effects across the experiments requires expressing their findings in terms of a common metric that is independent of number of participants. The most appropriate metric is the correlation coefficient, $r$, that corresponds to the linear trends for the year variable in Experiments 1 through 4 and to the contrast between the traditional and the equal division of labor conditions in Experiment 5 (see Rosenthal & Rosnow, 1985).

This display of effect sizes shows that the increase in women’s masculine personality characteristics consistently produced the largest effect sizes. In general, change in women’s masculine personality, cognitive, and physical characteristics was more substantial than was change in men’s or women’s feminine characteristics or men’s masculine characteristics. To summarize this aspect of the findings, we computed mean effect sizes (using the $r$-to-$Z$ transformation) across the three masculine dimensions and across the three feminine dimensions separately for each sex of target. Each of these means included the seven available effect sizes
from Experiments 1 through 3 (see Table 7) and excluded Experiment 3’s effect sizes for negative masculine and feminine characteristics. The means for the linear trends for female targets’ masculine and feminine characteristics were .44 and –.05, respectively, and for male targets’ masculine and feminine characteristics were .03 and .15, respectively. The increase in female targets’ masculine characteristics was much greater than the increase in male targets’ masculine characteristics, $Z = 5.97$, $p < .0001$, or feminine characteristics, $Z = 4.40$, $p < .0001$. Corresponding to these findings, Experiments 4 and 5 also demonstrated perceived convergence in men and women on the masculine dimensions, although also on the feminine personality dimension. Overall, the data from the five experiments show the perception of sharp convergence of masculine characteristics, following predominantly from women adopting these characteristics.

Despite the perception of change demonstrated by these experiments, the division of labor projected for 2050 stopped somewhat short of equality. Also, as shown most clearly by Experiment 4’s comparative judgments, equality on masculine and feminine characteristics was projected for 2050 only on masculine personality and cognitive qualities and not on feminine qualities or masculine physical qualities. This lack of equality in most domains, even in 2050, is consistent with much empirical evidence showing that some aspects of role segregation, especially occupational segregation and the division of labor in the home, have changed at what might be considered a modest pace (e.g., Jacobs, 1989; Shelton, 1992; Steil, 1997). Our participants thus believed that even given steady social change, in 2050, women will still be somewhat overrepresented in roles traditionally held by women.

IMPLICIT THEORIES OF CHANGE

In the Introduction of this article, we suggested that to infer the past or future characteristics of group members, perceivers may first evaluate members’ present characteristics and then invoke a theory of stability or change, depending on cues that come to mind. Both social role theory (Eagly, 1987) and Ross’s (1989) approach assume that entrance into roles provides an important cue that guides perceivers’ implicit theories. Several aspects of our findings support the importance of roles in participants’ reasoning—in particular, (a) the parallelism of the findings on role nontraditionalism and gender-stereotypic characteristics, (b) the successful path models suggesting that inferences about roles mediated the effects of year on the perceived characteristics of each sex, and (c) Experiment 5’s demonstration that differing assumptions about the division of labor produced different beliefs about these characteristics.

Beliefs about the present characteristics of women and men can derive from a mix of direct and indirect observations. In contrast, inferences about the past are likely based in part on a theory of stability or change, and inferences about the future would be strongly based on such a theory. This assumption that implicit theories are used to draw conclusions about the past and the future suggests a rather demanding inference process for projecting group members’ characteristics backward or forward in time, which should be reflected in more consensus about group members’ present characteristics than about their past or future characteristics. To test this idea about consensus, we compared the variances of the past, present, and future experimental conditions for the data aggregated from Experiments 1 and 2. Within levels of target sex, variance ratios were computed using the var-

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**TABLE 7: Summary of Effect Sizes on Gender-Stereotypic Dimensions**

<table>
<thead>
<tr>
<th>Gender-Stereotypic Dimension</th>
<th>Experiment 1 Female</th>
<th>Experiment 1 Male</th>
<th>Experiment 2 Female</th>
<th>Experiment 2 Male</th>
<th>Experiment 3 Female</th>
<th>Experiment 3 Male</th>
<th>Experiment 4 Comparison</th>
<th>Experiment 5 Female</th>
<th>Experiment 5 Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masculine Personality</td>
<td>.54</td>
<td>.06</td>
<td>.48</td>
<td>.07</td>
<td>.58</td>
<td>.10</td>
<td>.49</td>
<td>.56</td>
<td>.18</td>
</tr>
<tr>
<td>Cognitive</td>
<td>.37</td>
<td>.08</td>
<td>.46</td>
<td>.01</td>
<td>.26</td>
<td>.01</td>
<td>.25</td>
<td>.38</td>
<td>.13</td>
</tr>
<tr>
<td>Physical</td>
<td>.26</td>
<td>.08</td>
<td>.36</td>
<td>-.06</td>
<td>.25</td>
<td>.38</td>
<td>.25</td>
<td>.38</td>
<td>.08</td>
</tr>
<tr>
<td>Feminine Personality</td>
<td>-.28</td>
<td>.22</td>
<td>-.22</td>
<td>.00</td>
<td>-.10</td>
<td>.12</td>
<td>-.03</td>
<td>-.13</td>
<td>.38</td>
</tr>
<tr>
<td>Cognitive</td>
<td>.12</td>
<td>.18</td>
<td>.17</td>
<td>.12</td>
<td>.30</td>
<td>.08</td>
<td>.30</td>
<td>.08</td>
<td>.08</td>
</tr>
<tr>
<td>Physical</td>
<td>-.10</td>
<td>.27</td>
<td>.08</td>
<td>.11</td>
<td>.01</td>
<td>.16</td>
<td>.01</td>
<td>.16</td>
<td>.03</td>
</tr>
</tbody>
</table>

**NOTE:** For Experiments 1, 2, and 3, a positive sign for the $r$ corresponds to a linear increase in the characteristics across the years of the design and a negative sign corresponds to a linear decrease. For Experiment 4, a positive sign corresponds to a linear increase in the similarity of the female and male targets. For Experiment 5, the $r$ were calculated from the contrast between the traditional and equal role conditions; a positive sign corresponds to an increase from traditional roles to equal roles and a negative sign corresponds to a decrease. Also, for Experiment 3, on the negative masculine personality dimension, $r = .36$ for female targets and $r = .13$ for male targets; on the negative feminine personality dimension, $r = -.26$ for female targets and $r = .06$ for male targets.
ance of the present year in the denominator and the variance of either 1950 or 2050 in the numerator. As expected, these variance ratios were larger than 1.00 (M of 1.62 for future conditions and 1.62 for past conditions), showing that there was less consensus about the past or the future than the present.

**CONSIDERATIONS OF METHOD**

These experiments relied on explicit rather than implicit measures because people most likely do not possess as extensive learned associations about men and women of the past and future as about men and women of the present, and implicit measures are based on such associations (e.g., Greenwald, McGhee, & Schwartz, 1998). Given that our methods of assessing gender stereotypes were therefore direct rather than indirect, it is important to consider the possibility that demand characteristics might have contaminated our findings. The major concern is that asking about a past or future year suggested to participants that they should respond in terms of changed characteristics. If this demand were inherent in our year manipulation, participants should have responded in terms of changed characteristics for both sexes instead of predominantly for women. Another concern is that responding to the stereotype measure in terms of changed characteristics might have suggested corresponding shifts in roles, producing an artifactual association between stereotypes and roles. Contrary to this reasoning, even when participants rated men, whom they perceived as changing rather little, they indicated that role distributions were different in the past and will be different in the future. There was thus no general tendency for the past or future cue to cause participants to ascribe changed characteristics to the target sex or for responding in terms of changed or changeless characteristics to produce a corresponding perception of changed or changeless social roles. We therefore conclude that our methods were appropriate to test our hypotheses.

**THE QUESTION OF ACCURACY**

Whether perceivers have an accurate theory of change in men and women from the past to the present is an interesting question. The extent to which there is empirical evidence that North American men and women have actually converged in their gender-stereotypic attributes is controversial. Twenge’s (1997b) meta-analysis of self-report measures of masculine and feminine traits found that women’s masculinity increased linearly with the studies’ year of publication. Men’s masculinity showed a somewhat weaker increase with year, and their femininity increased slightly as well (see also Spence & Buckner, 2000). Thus, in Twenge’s meta-analysis, as in our experiments, the greatest change over time was women’s increase in masculine qualities of personality. However, Feingold’s (1994) examination of secular change in sex differences in various personality traits did not confirm this outcome. Similarly, evidence of convergence in male and female cognitive ability is mixed (see review by Halpern, 1997). Although actual convergence in the physical characteristics of the sexes would be difficult to assess, the marked increase in women’s athletic participation (National Collegiate Athletic Association, 1997) suggests that women may be physically stronger than in the past.

Also relevant to accuracy in perceiving change is evidence that gender stereotypes are generally accurate descriptors of average current sex differences (Eagly & Diekman, 1997; Hall & Carter, 1999; Swim, 1994). Even in the context of overall stereotypic accuracy, bias can occur (Judd & Park, 1993; Jussim, 1991; Lee, Jussim, & McCauley, 1995). Such systematic bias has been documented even for gender stereotypes (Beyer, 1999; Eagly, Diekman, & Kulesa, 2000), for which accuracy may be especially high because of the extensive contact between the sexes. Nevertheless, social role theory argues that to the extent that roles do produce corresponding behaviors and that people are accurate observers of the past and present roles of women and men, they are likely to be reasonably accurate about changes that have occurred in the characteristics of women and men.

**EXPANDING THINKING ABOUT STEREOTYPES TO INCLUDE DYNAMISM**

This research shows that perceivers do not necessarily see social groups as having static characteristics. Rather, perceivers take into account that a group’s situation has changed, and their best estimate of the future may be that additional change will occur. This dynamic way of thinking about women was captured by responses to the Gallup poll’s question, “In the past 5 years, do you think that the overall position of women compared to men in this country has improved, worsened, or remained about the same?” (Gallup, 1995). A solid majority of Americans (74% of men and 65% of women) saw the position of women as improving. This perception presumably reflects changes in women’s roles toward greater equality and less sex segregation. Given that change in women’s situation is thus thought to be proceeding moderately quickly, people are likely to think that society needs to accommodate this shift in multiple ways. Because people believe that women are becoming more assertive, independent, egotistical, dictatorial, rational, mathematical, and strong, women may even be thought to be an unstoppable force. The impact of belief in women’s changes is enhanced by the considerable consensus that exists about these changes. Our experiments thus showed that these beliefs were shared among public
and private university students, women and men, and students and older adults.

Social psychologists have theorized that stereotypes act as conservative forces that justify and maintain the existing relations between dominant and subordinate groups (Jackman, 1994; Jost & Banaji, 1994; Sidanius, 1993). Our research demonstrates that at least some stereotypes readily encompass the complexity of change over time. Surely, stereotypes of groups are marked by their current status (Conway et al., 1996) and by the work that their members currently do (Cejka & Eagly, 1999; Eagly & Steffen, 1984; Glick, 1991), but they are also marked by change in group members’ typical roles and responsibilities. This awareness of change could foster public policy and private actions that accommodate these changed characteristics.

Despite the dynamic character of some stereotypes, a conservative reaction—or backlash—can be triggered by shifts in role distributions. A group’s rise ordinarily elicits ambivalence because it poses a threat to society’s existing norms and arrangements. In the case of women, considerable research has demonstrated that women’s adoption of male-dominated roles and masculine behaviors is not greeted with universal enthusiasm. Attitudinal research has shown ambivalence toward women, with hostile attitudes directed mainly toward nontraditional women (Glick, Diebold, Bailey-Werner, & Zhu, 1997; Glick & Fiske, 1996; Haddock & Zanna, 1994). People who are attitudinally sexist may particularly disapprove of change on the part of women, consistent with the finding that sexism is associated with negative attitudes toward feminists (Swim & Cohen, 1997). Also, women tend to be penalized when adopting the assertive and self-promoting traits associated with men’s personalities (see review by Carli & Eagly, 1999). For example, as shown in Eagly, Makhijani, and Klonsky’s (1992) meta-analysis of studies examining evaluations of male and female leadership behavior that was experimentally equated, women were evaluated less favorably than men when using directive and autocratic styles. Carli (1990) demonstrated that female speakers were less persuasive with male listeners when speaking in an assertive rather than tentative manner. As research thus demonstrates, some degree of negative evaluation is surely one of the penalties that members of dynamic groups are made to pay as they shed their disadvantage and rise in the social structure.

In conclusion, our findings concerning stereotypes about women and men of the past, present, and future are consistent with the assumption that people are implicit role theorists who believe that personal characteristics, especially personality, adapt to social structure. When this structure undergoes change, such as women’s entrance into the paid workforce in large numbers during the 20th century, the perceived characteristics of these new role occupants are believed to change. Very important are perceivers’ extrapolations of these changes into the future. Despite some resistance to change in women’s roles and characteristics, the belief that women’s personality, cognitive, and physical attributes will continue to become more like those of men should increase women’s access to male-dominated roles and to socialization and training opportunities that will allow them to assume these roles. Stereotypes can thus be dynamic forces functioning in the service of social change.
APPENDIX

Items in Gender-Stereotypic Dimensions

<table>
<thead>
<tr>
<th>Masculine</th>
<th></th>
<th></th>
<th>Feminine</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personality</strong></td>
<td><strong>Cognitive</strong></td>
<td><strong>Physical</strong></td>
<td><strong>Negative Personality</strong></td>
<td><strong>Personality</strong></td>
<td><strong>Cognitive</strong></td>
</tr>
<tr>
<td>competitive</td>
<td>good with numbers</td>
<td>rugged</td>
<td>egotistical</td>
<td>affectionate</td>
<td>imaginative</td>
</tr>
<tr>
<td>daring</td>
<td>analytical</td>
<td>muscular</td>
<td>hostile</td>
<td>sympathetic</td>
<td>intuitive</td>
</tr>
<tr>
<td>adventurous</td>
<td>good at problem solving</td>
<td>physically strong</td>
<td>cynical</td>
<td>gentle</td>
<td>artistic</td>
</tr>
<tr>
<td>aggressive</td>
<td>quantitatively skilled</td>
<td>burly</td>
<td>arrogant</td>
<td>sensitive</td>
<td>creative</td>
</tr>
<tr>
<td>courageous</td>
<td>good at reasoning</td>
<td>physically vigorous</td>
<td>boastful</td>
<td>supportive</td>
<td>expressive</td>
</tr>
<tr>
<td>dominant</td>
<td>mathematical</td>
<td>brassy</td>
<td>greedy</td>
<td>kind</td>
<td>tasteful</td>
</tr>
<tr>
<td>unexcitable</td>
<td>dictatorship</td>
<td>unprincipled</td>
<td>warm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>stands up under pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Unmarked personality, cognitive, and physical items formed the 4-item scales used in Experiments 2 and 5. The masculine and feminine negative personality items were used in Experiment 5 only.

a. These items were added for Experiments 1 and 4’s 6-item scales.
b. These items were added for Experiment 3’s 8-item scales.

NOTES

1. For all of the experiments, if participants failed to follow instructions appropriately or responded to half or fewer items in a section, their data were omitted for the relevant measures.

2. A factor analysis performed on the role nontraditionalism measure, with data aggregated from Experiments 1 and 2, revealed a large first factor (male-dominated roles) and a weak second factor (female-dominated roles). Because the separate scales produced from these factors yielded very similar results in all analyses, we report findings only on the aggregate measure.

3. In all experiments, additional variables (e.g., sex of participant, surveyor, public or private university age) rarely interacted with year on the role nontraditionalism measure or with the crucial Target Sex ¥ Year interaction on the gender-stereotypic dimensions. Therefore, the reported analyses were combined across these variables, except where noted in the text.

4. Although Experiment 1 revealed a Participant Sex ¥ Year interaction, F(2, 293) = 12.30, p < .0001, such that the increase in perceived nontraditionalism was more pronounced for the female participants, this interaction was not replicated in Experiment 2.

5. The perceived shift toward nontraditionalism was more pronounced for female participants, consistent with the significant Participant Sex ¥ Year interaction, F(4, 246) = 3.29, p < .025, and congruent with the similar interaction obtained in Experiment 1.

6. The three-way Target Sex ¥ Division of Labor ¥ Participant Sex interaction was significant for masculine personality characteristics, F(2, 92) = 3.01, p < .05, and marginal for masculine cognitive characteristics, F(2, 92) = 2.54, p < .10. In both cases, female participants estimated more extreme change for female targets than did male participants.

REFERENCES
