Comprehending Pronouns: A Role for Word-Specific Gender Stereotype Information

Shelia M. Kennison[1] and Jessie L. Trofe[2]

The research investigated how word-specific gender stereotype information can be used during language comprehension. In a rating study, the gender stereotypes for 405 noun and noun compounds were assessed. From these norms, 32 words strongly stereotyped to refer mostly to males and 32 words strongly stereotyped to refer mostly to females were selected and used in a reading experiment. Comprehenders read pairs of sentences. The subject of the first sentence was a gender stereotyped word (e.g., executive or secretary). The subject of the second sentence was either the pronoun he or she. Reading time was significantly longer when gender of the pronoun mismatched the gender stereotype of the antecedent than when the genders of pronoun and antecedent matched. This gender mismatch effect occurred on the two regions immediately following the region containing the pronoun. The results indicated that word-specific gender stereotypes can influence coreference resolution of pronouns.

KEY WORDS: Gender stereotypes; pronouns; sentence processing; lexical information; language processing.

INTRODUCTION

The cognitive processes involved in the comprehension of pronouns (e.g., he, she, they) have been the focus of many psycholinguistic investigations (Arnold, Eisenband, Brown-Schmidt, & Trueswell, 2000; Badecker & Straub, 2002; Cacciari, Carreiras, & Cionini, 1997; Caramazza, Grober,

Garvey, & Yates, 1977; Carreiras, Garnham, Oakhill, & Cain, 1996; Cloitre & Bever, 1988; Ehrlich, 1980; Garnham, & Oakhill, 1986; Gordon & Chan, 1995; Gordon, Grosz, & Gilliom, 1993; Gordon & Scearce, 1995; Greene, McKoon, & Ratcliffe, 1992; MacDonald & MacWhinney, 1995; Matthews & Chodorow, 1988; Nicol & Swinney, 1989; Osterhout, Bersick, & McLaughlin, 1997; Shillcock, 1982; Smyth, 1994). A comprehender typically must determine which previously encountered entity mentioned in the discourse is coreferent with an encountered pronoun. For example, in (1), the pronoun *he* refers to the same entity as the antecedent "the author."

(1) The author read from the new novel.
    He spoke with a heavy accent.

In English, the personal pronouns *he* and *she* are gender-specific. The pronoun *he* refers to individuals who are male; the pronoun *she* refers to individuals who are female. Recent research suggests that comprehending the pronouns *he* and *she* may be influenced by the gender stereotype associated with the antecedent of the pronoun. Carreiras *et al.* (1996) reported a self-paced reading experiment in which participants comprehended English sentence pairs. In the first sentence, the subject was either a word that was strongly stereotyped to refer to males (e.g., electrician), strongly stereotype to refer to females (e.g., baby-sitter), or gender neutral, equally likely to refer to males or females (e.g., psychologist). In the second sentence, the pronoun *he* or *she* occurred. When the antecedent was gender neutral, reading time on the second sentence did not differ for the conditions containing the pronouns *he* and *she*. However, when the antecedent was strongly stereotyped for gender, reading time on the second sentence was significantly longer when the gender of the pronoun mismatched with the gender stereotype of the antecedent. This pattern can be described as a gender mismatch effect. Carreiras *et al.* (1996) concluded that information about whether an individual is male or female is instantiated into a comprehender's mental model of the discourse when a strongly stereotyped word is used to refer to that individual. When a subsequent pronoun is encountered, processing is easy when the gender of the pronoun matches the gender stereotype of the antecedent. Processing is more difficult when the gender of the pronoun mismatches the gender stereotype of the antecedent. When the comprehender encounters the pronoun with a different gender than that introduced by the antecedent, the comprehender must revise the mental model to reflect the gender indicated by the pronoun.

Osterhout *et al.* (1997) presented additional evidence for a gender mismatch effect during reading comprehension. However, the dependent variable was not reading time, but instead was event related potentials (ERPs).

ERPs were measured as comprehenders processed sentences that contained either a gender-specific word (e.g., mother, father) or a gender stereotyped word (e.g., doctor, nurse) that served as an antecedent for the reflexive pronouns *himself* or *herself* (e.g., "The nun criticized himself/herself . . . ." and The doctor criticized himself/herself . . . ."). The results showed that there was a greater amplitude positive wave (P600) when there was a mismatch between the gender of the reflexive pronoun and the gender of the antecedent than when the genders of the reflexive pronoun and antecedent matched. Furthermore, a greater amplitude positive wave was produced following a mismatch involving a gender-specific word than following a mismatch involving a gender-stereotyped word.

The conclusion drawn by Carreiras *et al.* (1996) that gender information is activated as soon as a stereotyped word is encountered during language comprehension was further supported by the Spanish reading experiments (Experiments 2–4) of Carreiras *et al.* (1996). In Spanish, different definite articles are used to refer to males and females, *le* and *la,* respectively. Furthermore, different morphological markings are used for nouns referring to males and females, *-o* and *-a,* respectively. Reading time was compared on sentences in which the subject noun was strongly stereotyped to refer to males, strongly stereotyped to refer to females, or gender neutral. The nouns appeared either with the article and morphological marking used to refer to males (e.g., le carpintero, le enfermo, and le cantaneo) or with the article and morphological marking used to refer to females (e.g., la carpintera, la enferma, and cantanta). For strongly stereotyped nouns, reading time on the noun phrase region was longer if the gender markings and the definite article mismatched with the gender stereotype of the noun than when the gender marking and the definite article matched the gender stereotype of the noun. For gender-neutral nouns, reading time in the two gender marking conditions did not significantly differ (see Cacciari *et al.,* 1997, for a similar investigation in Italian).

The idea that specific words are strongly associated with males or females is not controversial. Recent research has shown that when single words are processed, information about gender is automatically activated. Banaji and Hardin (1994) reported two word-priming experiments in which words that exclusively referred to either males or females (e.g., father and mother) and words that stereotypically referred to males and females (e.g., doctor and nurse) were presented and immediately followed by a second word to which participants were instructed to respond. In Experiment 1, the target words were the pronouns *he* or *she,* and participants were instructed to respond to the pronoun and to judge whether the pronoun referred to a male or female. In Experiment 2, the target words were pronouns or prepo-

sitions, and participants were instructed to judge whether the word presented was a pronoun or not a pronoun. Results from both experiments showed that when the pronoun *he* was preceded by a word that referred to a male, response times were faster than when it was preceded by a word that referred to a female. When the pronoun *she* was preceded by a word that referred to a female, response times were significantly faster than when it was preceded by a word that referred to a male.

The purpose of the research described in this paper was to investigate further the role of word-specific gender stereotype information in language comprehension. The research described in this paper was conducted in two parts. Study 1 was a rating study, in which the gender stereotypes for 405 nouns and noun compounds were assessed. Prior rating studies focused on the gender stereotypes associated with specific occupations (Beggs & Doolittle, 1993; Shinar, 1975). The present study is the only known study that obtained ratings for nouns referring to social roles (e.g., student, thief, and cheerleader) and for nouns referring to occupations (e.g., doctor and nurse). From these rating data, two types of nouns and noun compounds were selected: (i) those strongly stereotyped to refer to mostly males, and (ii) those strongly stereotyped to refer to mostly females. These items were used to create sentences for a reading experiment, similar in design to the experiment in English conducted by Carreiras *et al.* (1996). In the present experiment, reading time was collected using a self-paced phrase-by-phrase moving window, rather than whole sentence reading time as in the Carreiras *et al.* (1996) experiment. In the present experiment, the pronouns *he* or *she* occurred in a single presentation region. Consequently, our results provide more information about the time course of information use than the results obtained by Carreiras *et al.* (1996).

RATING STUDY

The gender stereotypes for 405 nouns and noun compounds were assessed in a rating study. These items were randomized and divided into two sets of 204 items. These two lists were used to construct the rating questionnaires. Each list appeared in two versions. In version 1, the 7-point rating scale was labeled so that "1 = mostly female" and "7 = mostly male." In version 2, the rating scale was labeled "1 = mostly male" and "7 = mostly female." Ten males and 10 females completed the resulting four lists. A total of 80 participants were tested. All participants were undergraduates at Oklahoma State University and received course credit in exchange for participation. The following instructions were used in half of

the lists. The instructions were modified for the remaining lists to reflect the difference in the scale:

> "The following list contains everyday nouns. We would like you to consider how likely you feel that the noun represents a person who is male or a person who is female. A rating of "1" would indicate that a particular noun is very likely to represent a person who is female. A rating of "7" would indicate that a particular noun is very likely to represent a person who is male. A rating of "4" would indicate that a particular noun is equally likely to represent a person who is male or female. A rating of "2" or "3" and "5" and "6" would indicate different degrees of likelihood that a particular noun represents a person who is female or male. Circle only one rating for each item. Some nouns may seem easier to rate than others. Be sure to circle the rating that reflects your own opinion."

Results

Two of the lists were reversed scored. In all of the analyses reported in this paper, the ratings were scored so that "1" corresponded to "mostly female" and "7" corresponded to "mostly male." The mean rating for each item was calculated. These results are provided in full in Appendix A. The analyses of mean rating per item were analyzed using paired, two-tailed t tests. These analyses yielded three notable findings. Mean ratings given by male participants were significantly higher than those ratings given by female participants (males: 4.42 versus females: 4.33) [$t(404) = -4.81, p < .001$]. Scale direction significantly influenced ratings. Higher ratings were given on average when "7" corresponded to "mostly male" than when "7" corresponded to "mostly female" (4.40 versus 4.35, respectively) [$t(404) = -3.41, p < .001$]. Lastly, this scale direction effect was significantly larger for male participants than female participants (.11 versus .002, respectively), [$t(404) = -2.87, p < .005$]. These results indicate that there are small but significant differences between ratings provided by male and female participants and that male participants are influenced by the direction of the scale. Researchers planning to collect similar data in the future should note these results.

For individual items, the degree to which participants provided similar ratings can be seen in the standard deviation of the ratings. For one item (i.e., bride), there was complete agreement and the standard deviation was 0. For other items (i.e., father, mother, student, person, toddler), there was much agreement and standard deviations were low. For other items (i.e., rapist), agreement occurred infrequently and standard deviations were high. Figure 1 displays the scatterplot of mean rating for each item collapsed across participant sex by mean standard deviation for each item. The figure
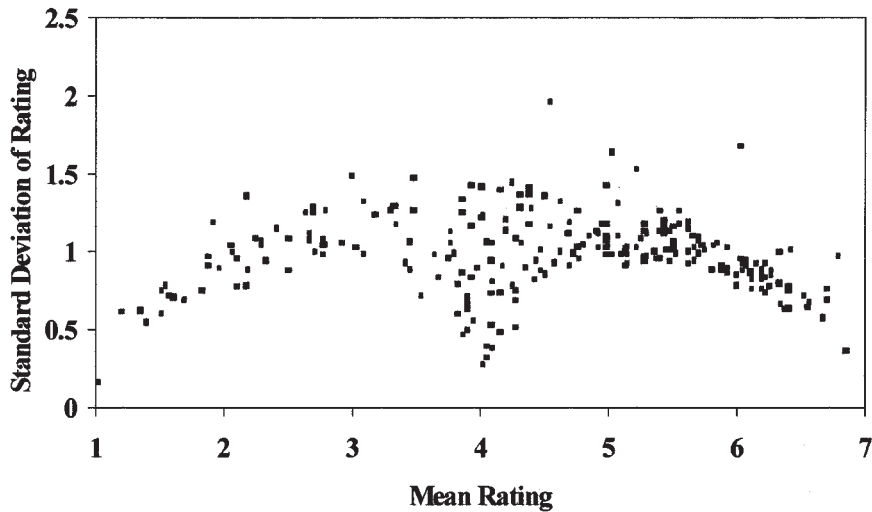
Fig. 1. Scatterplot of mean rating for each item by standard deviation for each item from Study 1.

shows that the most agreement as reflected in low standard deviations exists for items at each end of the scale and also at the middle of the scale. This pattern indicates the following: (i) there are items that are viewed as referring mostly to females, with high agreement across participants; (ii) there are items that are viewed as referring mostly to males, with high agreement across participants; and (iii) there are items that are viewed gender neutral, with high agreement across participants.

Discussion

The ratings obtained in Study 1 assessed the strength of the gender stereotypes for specific words. The strength of the gender stereotype for a specific word is likely to be represented in a language user's memory, possibly as part of the lexical information associated with the word, along with the word's part of speech, pronunciation, and meaning. The extent to which gender stereotypes for specific words have changed over the 30 years can be gleaned by comparing the results of the present study with those from prior research (Beggs & Doolittle, 1993; Shinar, 1975). Some words have become less strongly biased as referring to mostly males (e.g., doctor and lawyer). Other words have become less strongly biased as referring to mostly females (e.g., cashier). As societal norms have changed, the strength of the word-specific stereotype has also changed.

THE EXPERIMENT

The role of word-specific gender stereotype information was investigated in a reading experiment. Participants read pairs of sentences. In the first sentence, the subject was a noun that was stereotyped to refer mostly to males or mostly to females. The second sentence began with the pronoun *he* or *she*. Table I displays sample sentences. The design of the experiment was similar to one reported in Carreiras *et al.* (1996). The present experiment provides more detail about the time course of processing, because reading time was measured using a self-paced phrase-by-phrase moving window. The target pronoun was presented alone in region 5. In the experiment reported by Carreiras *et al.* (1996), whole sentence reading time was measured. Reading time on the pronoun specifically could not be observed.

Method

Participants

Sixty undergraduates (40 females and 20 males) at Oklahoma State University participated for course credit. All participants were native speakers of American English and were naïve to the purpose of the experiment.

Materials

Thirty-two words strongly stereotyped to refer mostly to males and 32 words strongly stereotyped to refer mostly to females were selected for a reading experiment. The mean rating for the words stereotyped to refer mostly to males was 5.41 ($SD = .54$). The mean rating for words stereotyped to refer mostly to females was 2.31 ($SD = .65$). Thirty-two sets of experimental sentences were created for the experiment. Each set of sentences con-

Table I. Sample Sentences From the Reading Experiment

Antecedent stereotyped to refer to mostly males
The executive *distributed *an urgent *memo. He/She *made it clear *that *work *would continue *as normal.*

Antecedent stereotyped to refer to mostly females
The secretary *distributed *an urgent *memo. He/She *made it clear *that *work *would continue *as normal.*

Note: The asterisks indicate presentation boundaries. One pronoun appeared in the second sentence (*he* or *she*).

tained a sentence pair in which a stereotyped noun occurred as the subject of the first sentence. The second sentence began either with the pronoun *he* or *she*. There were four versions created for each set. In version 1, the second sentence began with the pronoun he and the first sentence contained the antecedent that was stereotypically male (e.g., executive). In version, 2, second sentence began with the pronoun *he,* and the first sentence contained the antecedent that was sterotypically female (e.g., secretary). In version 3 and 4, the second sentence contained the pronoun *she,* and the first sentence contained either the antecedent stereotyped to refer to males (i.e., executive) or the antecedent stereotyped to refer to females (i.e., secretary). A complete list of experimental sentences is provided in Appendix B.

Procedure

Sentences were presented on a cathode ray tube (CRT) controlled by MicroExperimental Laboratory Professional II (MEL2) on an IBM compatible microcomputer. Three keys on the keyboard were used for responses. The / key was used as a NEXT key to advance the presentation of the sentence. The z key was used for NO responses to comprehension questions. The x key was used for YES responses to comprehension questions. All keys were labeled with stickers on which the words "NEXT," "NO," or "YES" were written as appropriate. Participants were instructed to use their right index fingers to press the NEXT key and their left index and middle fingers to press the YES and NO keys, respectively. Each participant viewed 16 practice sentences followed by the experimental set of sentences (32 experimental sentences randomized with 74 fillers). Each participant received a unique random order. Each sentence in the entire session was followed by a comprehension question. Comprehension questions did not refer to the sex of individuals described in the sentences. Sentences were presented using a phrase-by-phrase self-paced moving window. Readers were first presented with an array of dashes; each dash corresponded to the position of a letter in the current sentence. When the reader pressed the NEXT key, the first presentation region of the sentence appeared, replacing the corresponding dashes. When the reader pressed the NEXT key again, the second presentation region appeared, replacing the corresponding dashes, and the first presentation region was replaced with corresponding dashes, and so on. Four counterbalancing lists were used to ensure that each item was viewed in each condition equally often across participants. Each participant was randomly assigned to one of four counterbalancing conditions and tested individually in a private, well-lit cubicle. Each session lasted between 30 and 45 minutes.

Experimental Design

A repeated measures design was used. There were two within-participant factors: (i) Type of Pronoun in sentence 2 (*he* versus *she*) and (ii) Gender Stereotype of the Antecedent (Male versus Female).

Results

Mean reading time in milliseconds was calculated for each presentation region. The first sentence contained four presentation regions. The first region contained the antecedent whose gender stereotype was manipulated. The second sentence contained six presentation regions. The pronoun *he* or *she* occurred in the fifth presentation region. Table II displays mean reading time in milliseconds for each presentation region for each condition. To determine whether patterns of mean reading time varied across presentation region, the reading time difference between gender mismatch and gender match conditions was calculated for *he* and *she* conditions for each presentation region. These data were submitted to analyses of variance (ANOVAs) using presentation region and type of pronoun as within-participants factors. Separate ANOVAs were conducted for participants (F_1) and for sentences (F_2), following Clark (1973). An alpha level of .05 was used. The results indicated a significant interaction involving presentation region and type of pronoun [$F_1(9,531) = 3.05$, $MSE = 44722$, $p < .05$; $F_2(9,279) = 2.69$, $MSE = 22665$, $p < .05$]. No other effects were significant.

Subsequent ANOVAs were conducted for each presentation region using type of pronoun and gender stereotype of the Antecedent as the two within-participant factors. Reading time results on sentence 2 (regions 5–10) indicated that sentences in which the gender of the pronoun and the gender stereotype of the antecedent mismatched took longer to process than when the genders matched. Figure 1 displays the mean difference between gender mismatch and gender match conditions in milliseconds for regions 5–10. At regions 6 and 7, the interactions between type of pronoun and gender stereo-

Table II. Mean Reading Time (in ms) by Presentation Region by Condition

Condition	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10
					Presentation region					
Gender mismatch—he	832	614	734	807	471	504	583	594	559	811
Gender match—he	784	596	729	859	461	465	559	593	558	742
Gender mismatch—she	776	604	730	866	493	504	602	611	573	790
Gender match—she	868	627	715	808	492	472	550	614	567	812

Note: Region 1 (R1) contained the gender-stereotyped antecedent. Region 5 (R5) contained the pronoun *he* or *she*.
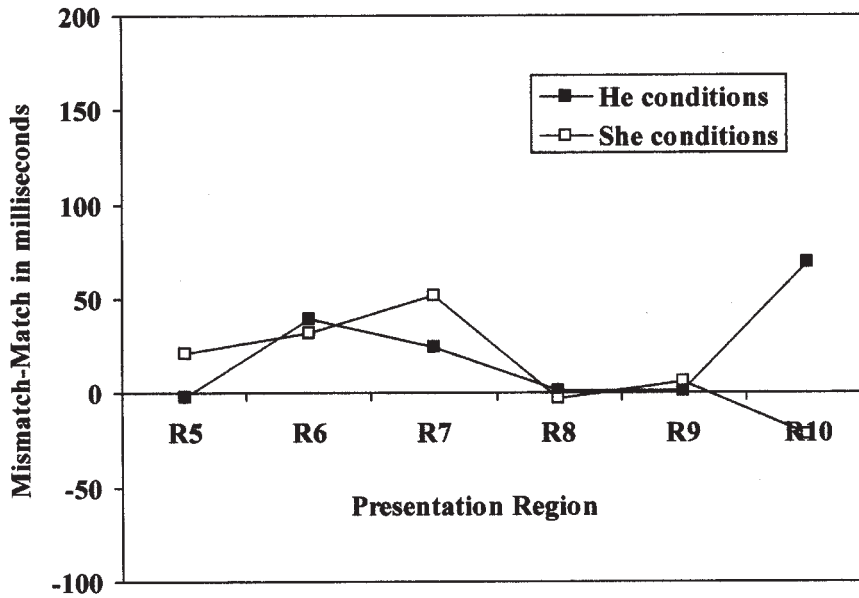
Fig. 2. Mean reading time difference (Gender Mismatch–Gender Match Conditions) for sentences containing the pronouns *he* and *she* by presentation region.

type of the antecedent were significant [region 6: $F_1(1,59) = 14.05$, $MSE = 5474$, $p < .05$; $F_2(1,31) = 6.98$, $MSE = 5872$, $p < .05$; and region 7: $F_1(1,59) = 7.88$, $MSE = 10824$, $p < .05$; $F_2(1,31) = 4.16$, $MSE = 10912$, $p < .05$]. At regions 6 and 7, no other effects or interactions approached significance. At region 5, the region containing the pronoun, reading time was not influenced by the gender stereotype of the antecedent. However, reading time was significantly longer on the pronoun *she* than the pronoun *he* [$F_1(1,59) = 6.10$, $SEM = 7005$, $p < .05$; $F_2(1,31) = 5.20$, $SEM = 4035$, $p < .05$]. The source of this main effect is likely to be differences in printed frequency. In terms of printed frequency, the pronoun *he* occurs more than three times more often than the pronoun *she* (Francis & Kučera, 1982). At region 5, no other effects or interactions approached significance. At the last region, region 10, an interaction between type of pronoun and gender stereotype of the antecedent was significant by participants only [$F_1(1,59) = 6.50$, $SEM = 19295$, $p < .05$; $F_2 < 1$]. At this region, the main effects did not approach significance. At regions 8 and 9, no main effect or interactions approach significance.

Reading time results on sentence 1 (regions 1–4) indicated that sentences containing nouns that were stereotypically male took longer to read than sentences containing nouns that were stereotypically female. At region 4, the last region of the first sentence, the main effect of gender stereotype

of the antecedent was significant by participants only [$F_1(1,59) = 7.59$, $MSE = 23697$, $p < .05$; $F_2(1,31) = 3.31$, $MSE = 29170$, $p > .05$]. The relevance of this result is unclear. Prior research has suggested that readers may engage in interpretative processing at the ends of clauses (Jarvella, 1971; Just & Carpenter, 1980; Mitchell & Green, 1978; Rayner, Kambe, & Duffy, 2000; Rayner, Sereno, Morris, Schmauder, & Clifton, 1989). The implication is that readers may carry out additional processing when the sentence contains a male protagonist than when the same sentence contains a female protagonist. At region 4, no other effects or interactions were significant. At Regions 1, 2, and 3, no effects or interactions reached significance.

Additional analyses were conducted to investigate whether the sex of the reader influenced how gender stereotypes influenced reading time. There were 40 female readers and 20 male readers tested in the experiment. In each of the four counterbalancing lists, there was an equal number of females tested and an equal number of males tested. There was no indication either numerically or statistically that female and male readers were influenced differently by gender stereotype information.

GENERAL DISCUSSION

Without a doubt, gender stereotype information is part of every language user's base of knowledge. This knowledge is accessed and used during language comprehension. The research described in this paper quantified the gender biases of 405 specific nouns and noun compounds. Many items proved to be strongly stereotyped to refer to males (e.g., executive, sheriff, hunter). Many items proved to be strongly stereotyped to refer to females (e.g., secretary, florist, cheerleader). Some items proved to be gender neutral, comparably biased to refer to males or females (e.g., person, student, child). We offer our normative ratings as a way to facilitate future research on the use of gender stereotype information during language comprehension. The data may be especially useful for student researchers for whom the time to design and to implement research may be short.

We advise researchers to take into account our observation that there may be sex differences in stereotypes. In our rating data, there was an overall difference in the ratings given by males and females. Male participants gave higher ratings for items than did female participants. These results suggest that males may view the world as composed of more males than females, or perhaps composed of more male-oriented social roles, occupations, and activities than female-oriented ones. Likewise, females may view the world as composed of more females than males or merely composed of more female-oriented social roles, occupations, and activities than male-oriented ones. We expect that such

group differences would be reflected in the gender stereotypes associated with specific words stored in memory and used during language processing.

Our reading experiment demonstrated that word-specific gender information is a type of information that is used by readers during the processing of sentences. In the experiment, readers comprehended sentence pairs. The second sentence in each pair contained either the pronoun *he* or *she*. The first sentence contained an unambiguous antecedent. The antecedent was either strongly stereotyped to refer to males or strongly stereotyped to refer to females. The processing difficulty observed in the present experiment occurred as the comprehender attempted to form a mental link between the pronoun and the antecedent. Reading time was longer on two regions following the pronoun *he* or *she* when the gender stereotype of the antecedent mismatched the gender of the pronoun than when the gender stereotype of the antecedent matched the gender of the pronoun. The results are consistent with prior research reported by Carreiras *et al.* (1996). They showed similar results for whole sentence reading time. The present results show that the effect of gender mismatch is temporally linked with the processing of the pronoun and lasts for two presentation regions (about 1200 ms).

The implication of these results is that word-specific gender information may play an even larger role in language processing than has yet been acknowledged by psycholinguistic researchers. The majority of words used every day to refer to human beings can be used to referring either to males or to females. Relatively few English words are gender-specific, referring exclusively to males or females (e.g., mother, father, wife, husband). Our view is that language users have stored in memory a representation for each word that includes information about the word's gender stereotype. The gender stereotype can be encoded as a relative frequency of usage. For each word, there would be relative frequencies associated with it reflecting the frequencies with which the word is used to refer to males and to females. During any language processing task, when the lexical information associated with such a word is accessed, the gender information is activated. Processing difficulty is predicted to occur when the activated gender information conflicts with gender information available from any other source during language processing.

APPENDIX A: MEAN RATINGS (SD) FOR FEMALE AND MALE PARTICIPANTS FOR EACH ITEM

Item	Mean rating (SD) for females	Mean rating (SD) for males
accountant	4.25 (1.07)	4.55 (1.47)
acrobat	3.85 (1.42)	4.15 (1.42)
acupuncturist	4.00 (0.46)	3.80 (0.89)

admiral	5.75 (1.29)	5.85 (1.27)
advice columnist	3.00 (1.34)	2.40 (1.10)
aerobics instructor	2.10 (1.02)	2.25 (1.21)
air stewardess	1.80 (0.89)	1.55 (0.69)
air traffic controller	5.50 (1.00)	5.45 (1.05)
alcoholic	5.25 (1.12)	5.55 (1.15)
allergist	4.55 (1.05)	3.55 (0.83)
animal caretaker	3.90 (0.91)	3.40 (0.99)
antique dealer	3.45 (1.36)	3.50 (1.61)
architect	5.55 (1.15)	5.10 (1.21)
artisan	4.20 (0.83)	4.50 (0.95)
artist	3.80 (1.01)	4.05 (0.60)
assistant	3.25 (0.85)	3.50 (0.76)
astrologist	4.35 (1.09)	4.35 (1.18)
astronaut	5.65 (0.99)	5.85 (1.04)
astronomer	5.10 (1.02)	4.50 (1.10)
athlete	4.65 (1.04)	5.20 (1.15)
attorney	4.25 (0.79)	4.50 (0.95)
auctioneer	5.55 (0.89)	5.80 (1.24)
author	3.90 (0.31)	3.95 (0.60)
auto mechanic	6.45 (0.83)	6.60 (0.60)
aviator	5.60 (0.88)	5.40 (1.14)
baby	3.85 (0.75)	3.95 (0.51)
babysitter	1.85 (0.93)	1.95 (0.89)
baker	3.30 (1.13)	3.65 (1.42)
ballerina	1.50 (0.76)	1.65 (0.67)
ballet dancer	1.60 (0.88)	1.45 (0.60)
bank teller	3.10 (1.37)	2.90 (1.62)
banker	4.65 (0.93)	5.30 (1.13)
barber	6.35 (0.75)	6.30 (0.86)
bartender	4.75 (1.33)	5.40 (1.23)
baseball player	6.20 (0.89)	6.60 (0.60)
basketball player	4.85 (0.99)	5.25 (1.25)
baton twirler	1.50 (0.61)	1.30 (0.47)
beautician	1.55 (0.51)	1.85 (0.88)
bell hop	5.85 (1.14)	5.45 (1.32)
bellboy	6.45 (0.76)	6.65 (0.49)
biker	5.35 (0.99)	4.90 (1.02)
bingo player	3.40 (0.82)	3.05 (1.00)
bird owner	3.60 (1.27)	3.10 (1.02)
bookkeeper	3.00 (1.08)	3.05 (1.00)
boss	5.10 (1.17)	5.50 (1.05)
boutique owner	2.00 (0.73)	2.20 (1.15)
bowler	4.90 (0.97)	4.90 (1.07)
boxer	6.40 (0.68)	6.10 (0.85)
bride	1.00 (0.00)	1.00 (0.00)
building contractor	5.90 (0.97)	5.95 (0.76)
butcher	6.10 (0.91)	5.95 (0.85)
butler	6.55 (0.69)	6.80 (0.41)
caddy	5.90 (1.07)	5.65 (1.14)

cake decorator	2.65 (1.04)	2.20 (0.95)
camp counselor	3.55 (1.05)	4.30 (1.17)
camper	4.60 (0.82)	5.35 (1.23)
candy maker	3.80 (0.52)	3.80 (1.32)
car racing fan	4.80 (1.47)	5.15 (1.50)
car salesman	6.20 (0.89)	6.30 (0.92)
card player	4.80 (0.83)	5.25 (1.07)
caregiver	2.74 (1.10)	2.80 (1.01)
carpenter	6.30 (0.86)	6.15 (0.81)
cashier	3.45 (0.60)	3.65 (0.81)
cat owner	2.85 (1.14)	2.75 (0.97)
caterer	3.85 (0.75)	3.60 (1.05)
celebrity	4.00 (0.32)	3.65 (0.75)
chair person	4.30 (0.66)	4.50 (0.83)
chairman	4.60 (0.68)	4.85 (1.09)
cheerleader	1.65 (0.75)	2.10 (1.12)
chef	4.55 (1.50)	5.40 (1.23)
chick	1.35 (0.81)	1.05 (0.22)
child	4.00 (0.46)	4.10 (0.31)
child advocate	2.50 (1.10)	2.90 (1.45)
child care worker	2.00 (0.86)	2.25 (0.97)
chiropractor	4.80 (1.11)	5.10 (1.25)
choreographer	3.10 (1.25)	3.25 (1.25)
cleaner	2.95 (1.00)	2.65 (1.14)
clerk	3.80 (0.70)	3.75 (1.21)
client	4.15 (0.75)	4.50 (1.28)
clinical psychologist	3.50 (1.28)	4.05 (0.89)
clown	5.30 (1.17)	5.20 (1.11)
coach	5.40 (1.05)	5.95 (0.94)
coed	3.95 (0.22)	3.70 (0.88)
colonel	6.20 (0.89)	6.60 (0.60)
comedian	4.95 (0.83)	5.35 (0.99)
company president	5.05 (1.00)	5.45 (1.32)
composer	4.90 (0.97)	5.30 (0.98)
computer programmer	5.20 (1.01)	4.80 (1.15)
computer technician	5.10 (0.91)	5.00 (0.97)
concierge	4.26 (0.93)	4.55 (0.89)
congressman	5.90 (0.97)	6.20 (0.89)
conservationist	4.50 (1.15)	3.65 (0.75)
construction worker	6.35 (0.88)	6.45 (0.60)
cook	3.95 (0.89)	3.85 (1.14)
cookie maker	2.20 (0.88)	2.00 (0.65)
cosmetologist	1.45 (0.60)	1.60 (0.94)
counseling psychologist	3.25 (1.33)	3.70 (1.17)
court reporter	2.75 (0.85)	2.25 (0.85)
craftsman	5.50 (1.24)	5.75 (1.16)
criminal	5.55 (0.94)	5.80 (0.95)
cult member	4.65 (0.99)	4.50 (0.89)
customer	3.75 (0.72)	4.05 (0.51)
customs inspector	4.75 (0.91)	5.25 (1.21)
cyclist	4.85 (1.04)	5.00 (1.03)

dance instructor	2.05 (0.89)	2.25 (0.91)
dancer	2.35 (0.88)	2.55 (1.10)
data processor	3.85 (0.59)	3.85 (1.09)
deacon	6.10 (0.97)	6.45 (0.69)
dental hygienist	3.35 (1.23)	3.25 (1.33)
dentist	5.25 (1.12)	5.30 (1.26)
deputy	6.25 (0.72)	5.85 (1.09)
dietician	2.70 (0.92)	2.65 (1.23)
diplomat	4.80 (0.95)	5.30 (1.42)
district attorney	4.80 (1.11)	5.00 (1.17)
doctor	4.65 (1.18)	4.60 (1.47)
dog groomer	3.45 (0.83)	3.40 (1.05)
dog owner	4.00 (1.08)	4.55 (1.05)
drafting worker	6.00 (0.86)	5.40 (1.05)
dress maker	2.15 (0.99)	1.70 (0.80)
drug addict	4.50 (0.89)	4.75 (1.12)
drug dealer	5.40 (1.57)	5.95 (1.50)
drummer	5.50 (1.00)	5.15 (1.35)
dude	6.30 (1.13)	6.55 (0.89)
economist	4.35 (0.88)	4.60 (1.14)
editor	4.15 (1.09)	4.95 (1.10)
electrician	6.00 (0.92)	6.00 (0.92)
elementary school principal	4.40 (1.35)	4.55 (1.15)
elementary school teacher	2.30 (1.03)	2.20 (1.11)
embezzler	5.00 (0.97)	4.95 (1.28)
emergency medical care	4.20 (0.70)	4.35 (0.67)
engineer	5.35 (1.31)	5.65 (0.99)
entertainer	4.05 (0.22)	4.15 (0.49)
etiquette expert	2.35 (0.99)	2.10 (1.02)
executive	4.55 (0.83)	5.45 (1.10)
exercise instructor	2.70 (0.92)	2.65 (1.31)
exotic dancer	2.35 (1.46)	1.50 (0.61)
explorer	5.00 (1.12)	5.70 (0.73)
fan	4.00 (0.65)	4.40 (1.47)
farmer	6.20 (0.89)	6.20 (0.89)
fashion model	1.90 (0.97)	1.85 (0.99)
father	6.95 (0.22)	7.00 (0.00)
FBI agent	5.65 (0.93)	5.95 (0.83)
federal judge	5.25 (0.91)	5.30 (0.98)
fellow	6.85 (0.49)	6.55 (0.94)
figure skater	2.25 (1.02)	2.15 (1.23)
file clerk	2.65 (1.18)	2.70 (1.03)
fire fighter	6.00 (1.03)	6.10 (1.02)
fisherman	6.05 (1.10)	6.25 (0.72)
flight attendant	1.90 (0.79)	2.15 (0.99)
florist	1.95 (0.76)	2.15 (1.14)
flute player	2.05 (1.00)	2.45 (1.15)
football coach	6.75 (0.44)	6.95 (0.22)
football player	6.65 (0.49)	6.70 (0.47)
foreman	5.65 (0.99)	5.60 (1.10)
forensic psychologist	4.10 (1.33)	4.90 (1.29)

forest ranger	5.55 (0.94)	5.70 (0.92)
forestry engineer	2.05 (0.83)	2.15 (1.09)
fortune teller	2.40 (1.05)	2.25 (0.97)
funeral director	5.55 (1.10)	5.55 (1.43)
game warden	6.05 (0.76)	6.20 (0.89)
garbage collector	6.20 (0.89)	6.20 (0.89)
general	6.15 (1.14)	6.50 (0.83)
geologist	5.35 (0.99)	4.75 (0.72)
golfer	5.70 (0.92)	4.60 (1.35)
government official	5.25 (0.97)	5.30 (0.98)
governor	5.35 (0.99)	5.70 (1.13)
graphic designer	4.20 (0.52)	4.35 (0.49)
groom	6.90 (0.31)	6.70 (1.34)
groundskeeper	5.10 (1.21)	5.85 (0.93)
guard	6.00 (0.92)	6.15 (0.93)
guidance counselor	3.15 (0.99)	3.30 (0.80)
guitar player	5.40 (1.23)	5.40 (1.10)
gunman	6.30 (0.73)	6.40 (0.60)
guy	6.85 (0.37)	6.55 (0.89)
gymnast	2.35 (1.09)	2.65 (1.09)
gynecologist	3.95 (0.94)	4.65 (1.50)
hair cutter	2.75 (1.12)	2.85 (1.42)
hairdresser	2.10 (0.97)	1.65 (0.81)
heavy equipment operator	6.50 (0.76)	6.60 (0.68)
high school principal	5.15 (1.14)	5.15 (1.31)
high school teacher	3.20 (1.01)	3.00 (0.97)
highway worker	5.90 (0.79)	5.60 (1.05)
historian	4.30 (1.69)	4.45 (1.10)
history professor	5.40 (1.14)	5.60 (0.99)
hitchhiker	5.70 (1.13)	5.55 (1.19)
homeless person	4.75 (1.02)	5.25 (1.29)
homicide detective	5.45 (1.05)	5.90 (0.79)
horse trainer	3.85 (1.35)	4.00 (1.52)
hospital orderly	4.25 (1.21)	4.50 (1.54)
hotel guest	3.95 (0.60)	4.20 (0.41)
housekeeper	1.95 (1.10)	2.20 (0.89)
hula dancer	1.45 (0.69)	1.70 (0.86)
humanitarian	3.70 (0.92)	3.65 (0.75)
humanities professor	4.40 (1.31)	4.20 (1.44)
hunter	6.35 (0.67)	6.05 (1.00)
income tax preparer	5.00 (0.97)	4.40 (1.19)
informant	4.25 (0.97)	4.75 (1.12)
inmate	5.75 (0.79)	5.55 (1.36)
innkeeper	4.00 (1.49)	4.50 (1.40)
insurance agent	4.40 (0.82)	4.50 (1.00)
interior decorator	2.30 (1.03)	2.10 (0.72)
inventor	4.85 (0.88)	5.10 (1.12)
jailor	5.80 (1.01)	5.95 (0.83)
janitor	5.45 (1.15)	5.80 (1.24)
journalist	4.15 (1.27)	3.90 (1.21)
judge	4.75 (1.02)	4.65 (1.35)

juggler	5.20 (1.28)	5.30 (0.86)
jurist	4.20 (0.83)	4.15 (0.99)
karaoke singer	3.60 (1.19)	3.90 (0.64)
kid	4.05 (0.22)	4.25 (0.64)
killer	5.55 (1.15)	5.85 (0.99)
kindergarten teacher	1.95 (0.69)	2.40 (0.82)
knitter	1.85 (0.67)	1.80 (0.83)
lab technician	4.68 (0.82)	4.35 (0.88)
labor official	5.15 (1.04)	5.30 (1.03)
landscaper	5.10 (0.85)	4.65 (1.42)
law clerk	3.70 (1.38)	4.45 (1.23)
law professor	4.50 (0.83)	4.85 (1.42)
lawyer	4.20 (0.62)	4.65 (0.93)
leader	4.30 (0.86)	5.05 (1.23)
lender	4.60 (0.94)	4.95 (0.94)
librarian	2.45 (1.00)	2.20 (1.06)
lieutenant	5.45 (0.89)	5.15 (1.04)
limo driver	5.70 (0.86)	6.15 (0.88)
logger	5.70 (0.92)	6.15 (1.09)
magician	5.65 (1.09)	5.85 (0.93)
magician's assistant	1.85 (0.88)	2.00 (1.26)
maid	1.40 (0.68)	1.30 (0.57)
mailman	5.70 (1.08)	5.10 (1.37)
manager	4.30 (0.80)	5.15 (0.99)
manicurist	1.80 (0.89)	1.30 (0.57)
massage therapist	3.20 (1.15)	2.65 (0.88)
mathematician	4.75 (1.02)	4.90 (1.37)
mayor	5.00 (1.12)	5.60 (1.27)
meat packer	5.85 (1.14)	5.40 (1.05)
meteorologist	5.35 (0.88)	4.95 (1.15)
millionaire	4.60 (1.76)	5.85 (0.93)
miner	6.10 (0.79)	6.10 (1.02)
motel manager	4.55 (0.69)	4.70 (1.13)
mother	1.05 (0.22)	1.00 (0.00)
mountain climber	5.25 (0.91)	5.70 (0.92)
movie director	5.10 (1.12)	5.10 (1.21)
movie star	3.75 (0.79)	3.89 (0.81)
murderer	5.15 (0.99)	5.45 (1.15)
nanny	1.55 (0.60)	1.50 (0.61)
neighbor	3.95 (0.22)	3.95 (0.76)
neurologist	4.85 (0.81)	5.00 (1.21)
neurosurgeon	4.40 (1.27)	5.35 (1.18)
newscaster	3.70 (0.73)	3.90 (0.45)
notary public	3.50 (0.76)	3.42 (1.02)
novelist	3.75 (1.07)	3.65 (0.75)
nun	1.05 (0.22)	1.10 (0.31)
nurse	2.30 (0.92)	2.35 (0.99)
nursing home worker	2.45 (1.19)	2.55 (1.00)
nutritionist	2.55 (0.94)	3.00 (1.17)
occupational therapist	3.55 (1.15)	3.45 (1.05)
oceanographer	4.10 (1.33)	3.90 (1.12)

orchestra conductor	5.20 (1.06)	5.60 (0.82)
orthodontist	5.40 (0.94)	5.65 (1.04)
painter	5.05 (1.19)	5.25 (1.12)
palm reader	2.10 (0.97)	2.20 (1.06)
parachutist	5.40 (0.94)	5.05 (1.23)
paralegal	3.75 (1.21)	3.75 (1.12)
parent	3.90 (0.45)	3.90 (0.55)
park manager	5.60 (0.99)	5.25 (1.21)
party planner	2.55 (1.10)	3.05 (1.23)
pastry chef	4.05 (1.15)	4.35 (1.27)
patient	4.00 (0.56)	4.15 (0.88)
pawn broker	5.80 (1.11)	5.90 (1.02)
pediatrician	3.85 (1.18)	4.10 (1.45)
person	4.00 (0.00)	4.10 (0.45)
personal trainer	4.70 (1.17)	4.80 (1.36)
pharmacist	4.45 (1.05)	4.65 (1.27)
philanthropist	4.50 (0.83)	4.10 (1.07)
phlebotomist	4.30 (0.98)	3.90 (0.55)
photographer	4.00 (0.79)	3.80 (0.52)
physical therapist	3.70 (0.80)	4.05 (1.23)
physician	4.35 (0.67)	5.20 (1.01)
physician's assistant	3.00 (0.97)	3.00 (0.92)
physicist	4.90 (0.97)	4.60 (1.10)
piano player	3.15 (1.27)	3.50 (1.32)
pilot	5.90 (1.07)	5.50 (1.10)
plumber	6.05 (0.76)	6.20 (0.77)
podiatrist	4.70 (0.80)	4.10 (0.55)
poet	3.90 (0.79)	3.90 (0.85)
police dispatcher	3.75 (1.29)	3.50 (1.36)
police officer	5.55 (1.00)	5.45 (1.05)
police sergeant	5.75 (1.02)	5.90 (1.07)
policeman	5.60 (1.10)	5.55 (1.23)
political activist	4.74 (0.93)	4.15 (0.88)
politician	5.10 (1.07)	5.80 (0.93)
pool player	5.25 (0.72)	5.50 (1.15)
postal worker	4.90 (1.12)	4.75 (0.97)
priest	6.80 (0.41)	6.45 (0.76)
prisoner	5.15 (1.04)	5.50 (1.28)
private detective	5.95 (0.83)	6.05 (0.76)
probation officer	5.55 (1.15)	5.90 (0.91)
professional athlete	5.20 (1.20)	5.90 (1.07)
professor	4.60 (0.94)	5.10 (1.21)
projectionist	4.50 (0.83)	4.00 (0.67)
proofreader	3.50 (1.28)	3.20 (1.32)
protestor	4.25 (0.91)	3.90 (0.97)
psychiatrist	3.85 (0.59)	4.25 (1.25)
public relations director	3.55 (1.23)	3.95 (1.23)
quilter	1.75 (0.79)	1.65 (0.59)
race car driver	6.25 (0.72)	6.15 (0.93)
radio announcer	4.80 (0.95)	5.50 (0.89)
radio technician	4.85 (0.99)	4.90 (0.97)

railroad conductor	6.00 (1.03)	6.20 (0.70)
rancher	5.65 (0.75)	5.60 (1.05)
rape victim	1.60 (0.94)	1.20 (0.41)
rapist	5.25 (2.07)	6.80 (0.41)
real estate agent	3.25 (0.85)	3.45 (0.94)
receptionist	2.15 (0.88)	1.75 (0.79)
registered nurse	2.20 (1.11)	2.35 (1.14)
rehabilitation counselor	3.55 (1.05)	4.00 (1.03)
reporter	3.60 (0.75)	3.50 (1.10)
research scientist	4.60 (0.99)	4.95 (1.10)
rock band groupie	2.95 (1.36)	3.55 (1.93)
rock band roadie	4.50 (1.93)	4.60 (2.04)
romance novelist	2.10 (1.02)	2.90 (1.02)
roofer	6.45 (0.69)	6.30 (0.57)
sailor	6.25 (0.85)	6.20 (0.83)
salesman	5.55 (0.94)	5.30 (1.42)
salesperson	4.45 (0.94)	4.30 (1.38)
sanitation worker	5.55 (1.19)	5.40 (1.14)
school psychologist	3.40 (1.27)	3.50 (0.83)
screenwriter	4.75 (0.97)	5.20 (0.95)
scuba diver	4.60 (0.94)	4.65 (0.81)
sculptor	4.40 (0.99)	4.55 (0.76)
secretary	1.85 (0.75)	1.80 (0.77)
senator	5.55 (1.05)	5.55 (1.23)
serial killer	5.65 (1.09)	6.50 (0.51)
server	3.75 (0.72)	3.55 (1.28)
sheriff	6.35 (0.67)	6.10 (0.79)
shoemaker	5.15 (0.67)	5.05 (1.00)
shooter	5.75 (1.02)	5.75 (1.29)
shop lifter	4.50 (1.05)	4.90 (0.91)
shopper	2.25 (0.97)	2.55 (1.28)
short order cook	4.35 (0.93)	4.30 (1.22)
singer	3.75 (0.55)	4.00 (0.32)
single parent	2.15 (1.14)	1.95 (0.94)
skier	4.20 (0.52)	4.10 (0.91)
smuggler	6.00 (0.79)	6.10 (0.97)
soap opera fan	1.65 (0.81)	1.55 (0.60)
social worker	2.70 (0.80)	3.45 (0.94)
socialite	3.35 (1.23)	3.75 (0.97)
softball player	1.50 (0.69)	2.85 (1.53)
soldier	6.15 (0.88)	6.21 (1.03)
sportscaster	5.65 (0.93)	6.35 (0.59)
spy	5.35 (1.27)	5.55 (1.39)
statistician	4.65 (0.93)	4.60 (1.19)
stenographer	4.15 (1.46)	4.15 (1.35)
stock broker	5.55 (1.05)	5.20 (1.01)
stone cutter	5.90 (0.97)	5.75 (1.25)
stripper	2.30 (1.17)	2.10 (1.33)
student	4.00 (0.00)	4.05 (0.51)
sunbather	1.95 (0.76)	1.95 (0.83)
supervisor	4.40 (0.75)	5.00 (0.97)

374 Kennison and Trofe

Supreme Court Justice	5.00 (1.08)	5.55 (1.15)
surfer	5.65 (0.93)	5.35 (1.27)
surgeon	4.90 (1.07)	5.25 (1.12)
suspect	4.95 (1.00)	5.00 (1.08)
swimmer	3.90 (0.55)	4.05 (1.00)
switchboard operator	3.15 (1.04)	3.25 (1.41)
synchronized swimmer	2.60 (1.10)	2.00 (0.97)
systems analyst	4.60 (1.10)	4.90 (0.85)
tailor	4.80 (1.74)	5.25 (1.55)
tambourine player	4.10 (1.55)	3.60 (1.05)
tap dancer	2.35 (1.18)	2.95 (1.28)
tarot card reader	2.75 (1.29)	2.10 (0.91)
tattooist	6.05 (1.00)	6.00 (0.92)
taxidermist	5.10 (1.07)	5.47 (1.17)
teenager	4.00 (0.32)	4.10 (0.31)
telephone operator	2.85 (1.04)	2.70 (0.92)
tennis player	3.85 (0.75)	3.90 (0.85)
theatrical director	4.40 (1.39)	4.70 (1.63)
thief	5.15 (0.75)	5.10 (1.07)
toddler	4.00 (0.00)	4.05 (0.39)
tool maker	6.15 (0.88)	6.30 (0.98)
tour guide	4.00 (0.79)	3.95 (1.00)
travel agent	3.25 (1.41)	2.95 (1.23)
trucker	6.40 (0.88)	6.15 (0.88)
trumpet player	4.65 (1.14)	4.95 (0.94)
tuba player	5.35 (1.14)	5.50 (1.19)
typist	2.95 (0.83)	2.47 (1.12)
university president	5.30 (1.17)	5.55 (1.32)
veterinarian	4.05 (1.10)	3.65 (1.39)
victim	2.95 (1.00)	2.95 (1.10)
waiter	5.10 (1.68)	5.95 (1.43)
waitress	1.35 (0.93)	1.40 (0.88)
warden	6.10 (0.85)	6.30 (0.66)
watchman	6.00 (0.79)	5.75 (0.97)
weaver	2.50 (0.89)	2.10 (1.17)
wedding planner	1.75 (0.72)	2.20 (1.01)
weight lifter	6.20 (0.89)	6.05 (1.05)
welder	6.10 (0.79)	6.35 (0.88)
well driller	6.35 (0.67)	6.45 (0.60)
wood carver	5.80 (1.11)	5.70 (0.92)
wood worker	6.00 (0.92)	5.60 (0.99)
wrestler	6.45 (0.76)	6.70 (0.57)
writer	4.25 (0.97)	4.05 (0.39)
x-ray technician	4.25 (1.16)	4.25 (0.85)
youngster	4.20 (0.52)	4.35 (0.93)
zoologist	4.30 (0.98)	4.20 (1.11)

APPENDIX B

The following sentences were used in the reading experiment. The nouns separated by a slash are male biased and female biased, respectively.

1. The doctor/nurse *examined *the medication *carefully. *He/She *thèn *wrote something *on the chart *and left.*
2. The executive/secretary *distributed *an urgent *memo. *He/She *made it clear *that *work *would continue *as normal.*
3. The engineer/librarian *received *an invitation to *a charity benefit. *He/She *decided *not to go *because *there was a lot *piling up at work.*
4. The lawyer/paralegal *read *the details of the case *carefully. *He/She *noticed *that *there were *problems *with the police report.*
5. The coach/baby sitter *found out *about *the practical joke. *He/She *remained calm *for several minutes, *but then *started to yell *at everyone.*
6. The pilot/flight attendant *announced *the time *and weather. *He/She *indicated *that the plane *would be *landing a little ahead *of schedule.*
7. The butcher/hairdresser *seemed *a little *distracted. *He/She *said *that there were *several family members *who were *in the hospital.*
8. The homicide detective/typist *appeared *upset *and pale. *He/She *asked *for *a glass *of *water.*
9. The guard/clerk *went *outside *to smoke. *He/She *finished *smoking *two cigarettes *before *returning inside.*
10. The attorney/bookkeeper *checked *the documents *carefully. *He/She *signed *them *and put them *in the *outgoing mail.*
11. The sheriff/florist *stopped by the diner *on the way home *from work. *He/She *ordered *the special—*catfish *sandwich *and fries.*
12. The high school principal/kindergarten teacher *greeted *students *outside of school. *He/She *gave out free pencils *that *were printed *with the school's mascot.*
13. The trucker/nanny *liked *to visit *the zoo. *He/She *found *watching the animals *to be a perfect way *to relax *after work.*
14. The deputy/exotic dancer *walked *up the street *toward the nightclub. *He/She *didn't *make *eye contact *with anyone *passing by.*
15. The astronaut/cheerleader *arrived *early *for the ceremony. *He/She *was amazed* to see *how *many people *were there.*

16. The movie director/fashion model *always *showed up late *for work. *He/She *had *a *reputation for being *difficult *to work with.*

17. The rapist/rape victim *gave *a complete account *of what happened. *He/She *seemed *dazed *during *most of the *questioning.*

18. The magician/fortune teller *traveled *with *the carnival. *He/She *had been *born into *the carnival life *and never wanted *to leave it.*

19. The weightlifter/figure skater *attended *a press conference *before the latest competition. *He/She *said *that there was *every reason *to expect *a gold medal.*

20. The basketball player/ballet dancer *spent *hours in the whirlpool *each day. *He/She *had injured *an ankle, *and the whirlpool *eased *the pain.*

21. The chef/cake decorator *was very moody *and hard *to get along with. *He/She *seemed *to be *liked *by no one *in the restaurant.*

22. The car racing fan/soap opera fan *spent hours *every week *watching television. *He/She *would *watch *even more *if it *were possible.*

23. The millionaire/party planner *inspected *the ballroom *before the gala. *He/She *found *everything *in *perfect *order.*

24. The banker/bank teller *had worked *in that town *for over thirty years. *He/She *knew *just *about everyone *who *lived there.*

25. The bartender/cashier *took *the twenty *dollar bill. *He/She *immediately *thought *it *might be *counterfeit.*

26. The history professor/romance novelist *gets *many invitations to speak *at college *campuses. *He/She *accepts *only *a few *in the *New England area.*

27. The dentist/nutritionist *made *several *recommendations. *He/She *stressed *the importance *of *avoiding *sugary snacks.*

28. The rock bank roadie/groupie *had been *a devoted fan *for three years. *He/She *knew *the band *when they *were *just starting out.*

29. The surfer/sunbather *could be found *at the beach *every weekend. *He/She *would stay *from sun up *till *sun down *most days.*

30. The stockbroker/single parent *read *the newspaper *everyday. *He/She *tried *to keep *informed about *national *and world news.*

31. The tattooist/manicurist *read the instructions *on the bottle *very carefully. *He/She *then *began "to mix *the cleaning *solution.*

32. The computer programmer/aerobics instructor *got *a sweepstakes entry *in the mail. *He/She *decided *to fill *it out *and *mail it in.*

REFERENCES

Arnold, J., Eisenband, J., Brown-Schmidt, S., & Trueswell, J. (2000). The rapid use of gender information: Evidence of the time course of pronoun resolution from eyetracking. *Cognition, 76,* B13–B26.

Badecker, W., & Straub, K. (2002). The processing role of structural constraints on the interpretation of pronouns and anaphors. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 28,* 748–769.

Banaji, M. R., & Hardin, C. D. (1996). Automatic stereotyping. *Psychological Science, 7,* 136–141.

Beggs, J. M., & Doolittle, D. C. (1993). Perceptions now and then of occupational sex typing: A replication of Shinar's 1975 study. *Journal of Applied Social Psychology, 23,* 1435–1453.

Cacciari, C., Carreiras, M., & Cionini, C. B. (1997). When words have two genders: Anaphor resolution for Italian functionally ambiguous words. *Journal of Memory and Language, 37,* 517–532.

Caramazza, A., Grober, E., Garvey, C., & Yates, J. (1977). Comprehension of anaphoric pronouns. *Journal of Verbal Learning and Verbal Behavior, 16,* 601–609.

Clark, H. H. (1973). The language-as-fixed-effect fallacy: A critique of language statistics in psychological research. *Journal of Verbal Learning and Verbal Behavior, 12,* 335–359.

Cloitre, M., & Bever, T. (1988). Linguistic anaphors, levels of representation, and discourse. *Language and Cognitive Processes, 3,* 293–322.

Erlich, K. (1980). Comprehension of pronouns. *Quarterly Journal of Experimental Psychology, 32,* 247–255.

Francis, W. N., & Kucera, H. (1982). *Frequency analysis of English usage*. Boston: Houghton Mifflin.

Garnham, A., & Oakhill, J. (1986). On-line resolution of anaphoric pronouns: Effects of inference making and verb semantics. *British Journal of Psychology, 76,* 385–393.

Gordon, P., & Chan, D. (1995). Pronouns, passives and discourse coherence. *Journal of Memory and Language, 34,* 216–231.

Gordon, P., Grosz, B., & Gilliom, L. (1993). Pronouns, names, and the centering of attention in discourse. *Cognitive Science, 17,* 331–347.

Gordon, P., & Scearce, K. (1995). Pronominalization and discourse coherence, discourse structure and pronoun interpretation. *Memory and Cognition, 23,* 313–323.

Greene, S., McKoon, G., & Ratcliff, R. (1992). Pronoun resolution and discourse models. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 18,* 266–283.

Jarvella, R. J. (1971). Syntactic processing of connected speech. *Journal of Verbal Learning and Verbal Behavior, 10,* 409–415.

Just, M. A., & Carpenter, P. A. (1980). A theory of reading: From eye fixations to comprehension. *Psychological Review, 87,* 329–354.

MacDonald, M., & MacWhinney, B. (1990). Measuring inhibition and facilitation in pronouns. *Journal of Memory and Language, 29,* 469–492.

McDonald, J., & MacWhinney, B. (1995). The time course of anaphor resolution: Effects of implicit causality and gender. *Journal of Memory and Language, 34,* 543–566.

Matthews, A. L., & Chodorow, M. (1988). Pronoun resolution in two-clause sentences: Effects of ambiguity, antecedent location, and depth of embedding. *Journal of Memory and Language, 27,* 245–260.

Mitchell, D. C., & Green, D. W. (1978). The effects of context and content on immediate processing in reading. *Quarterly Journal of Experimental Psychology, 30,* 609–636.

Nicol, J., & Swinney, D. (1989). The role of structure I coreference assignment during sentence comprehension. *Journal of Psycholinguistic Research, 18,* 5–19.

Osterhout, L., Bersick, M., & McLaughlin, J. (1997). Brain potentials reflect violations of gender stereotypes. *Memory and Cognition, 25,* 273–285.

Rayner, K., Kambe, G., & Duffy, S. (2002). The effect of clause wrap-up on eye movements during reading. *Quarterly Journal of Experimental Psychology, 53A,* 1061–1080.

Rayner, K., Sereno, S., Morris, R. K., Schmauder, A. R., & Clifton, C., Jr. (1989). Eye movements and on-line language comprehension processes. *Language and Cognitive Processes, 4,* SI21–SI49.

Shillcock, R. (1982). The on-line resolution of pronominal anaphora. *Language and Speech, 25,* 385–401.

Shinar, E. H. (1975). Sexual stereotypes of occupations. *Journal of Vocational Behavior, 7,* 99–111.

Smyth, R. (1994). Grammatical determinants of ambiguous pronoun resolution. *Journal of Psycholinguistic Research, 23,* 197–229.