Running head: LANGUAGE AMENDMENTS AND GENDER REPRESENTATION

Can societal language amendments change gender representation?

The case of Norwegian

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Abstract

This study investigates the influence of stereotypical information and the grammatical masculine on the representation of gender in Norwegian by applying a sentence evaluation paradigm. In this study, as in Gygax et al. (2007), participants had to decide whether a second sentence containing explicit information about the gender of one of more of the characters (e.g. *...one of the women…*) was a sensible continuation of a first sentence introducing a role name (e.g. *The spies came out…*). Participants' representations were biased by the stereotypicality of the role names when reading female (e.g. *nurses*) and male (e.g. *pilots*) stereotyped role names (replicating findings from the English sample of Gygax et al.), but male biased when reading neutral role names (replicating findings from the French and the German samples of Gygax et al.).

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When people read and comprehend a text, their basic goal is to have a coherent understanding of what they are reading. To accomplish this, readers construct mental representations, or mental models, of the texts (e.g. Garnham & Oakhill, 1996) that include explicit information from the text as well as elements implied by the text. For example, when reading that *Mary heard the ice-cream van coming. She remembered the pocket money. She rushed into the house* (from Rumelhart & Ortony, 1977), we most likely build a representation that includes *Mary* and the *ice-cream van*, but also that *Mary wanted to buy an ice cream*, although the latter is not explicitly stated in the text. Such *inferences* combine the text with stored knowledge (McKoon & Ratcliff, 1992; Graesser, Singer & Tabasso, 1994) and are considered to provide the basis for the construction of a *complex* and *life-like* mental model. For example, readers construct a spatial mental model mirroring the spatial properties inferred or described in the text (e.g., Dutke, 2003). As texts increase in length or complexity, readers might include an accumulating number of inferences in their mental representation. Some of these inferences will be crucial to understand the text, i.e. they link different parts of the text, whereas some will not improve readers' understanding of the text. Consequently, some inferences will not be made, as making all the possible inferences would take too much effort. Psycholinguistics research has often investigated which inferences are made during reading, as well as what *background* and/or *textual information* is needed to generate those inferences. In this paper, we investigated the complex interaction between textual information and background knowledge in the production of inferences about the *gender of main protagonist*. In essence, we investigated the incorporation of the main protagonist's gender in readers' mental model.

With reference to the mental representation of gender, two different sources have been shown to be of importance, namely grammatical features and gender stereotypical knowledge. The notion of gender representations being dominated by grammatical features is, for example, supported by research in French (Colé & Segui, 1994) and in Italian (Bates, Devescovi, Hernandez & Pizzamiglio, 1996), showing that morphological gender plays an inhibitory role when subsequent input is gender incongruent. For example, in Colé and Segui (1994), participants had more trouble processing pairs of words (i.e. double lexical decision task) when they constituted a plausible semantic structure but were gender incongruent (e.g. jolie – chat) than when they were gender congruent (e.g. joli – chat). Others have found no such inhibitory processes, but instead some facilitation effect when morphological gender was followed by gender congruent stimuli (Bentrovato, Devescovi, D'Amico, Wicha & Bates, 2003). While those studies provide valuable insight into the lexical access of grammatically marked nouns, the present study explores a different aspect of the influence of grammatical gender. More specifically our focus is not on the lexical access per se, but on the influence of grammatical information in building an elaborative *representation of the protagonist*, here on the basis of a role name. In essence, we explore the interaction of grammatical gender and stereotypical information in the construction of an elaborative representation of gender.

With reference to stereotypes, Garnham, Oakhill and Reynolds (2002) showed that in English, readers build a representation of gender by relying on stereotype information. In their studies using a sentence evaluation paradigm, in which participants have to judge whether a sentence is a good continuation of the preceding text, they found that participants had most trouble with, and took longer to respond to, sentences that were incongruent with stereotypical gender of the role names in the preceding text (see also Banaji & Hardin, 1996; Carreiras, Garnham, Oakhill & Cain, 1996; Duffy & Keir, 2004; Kennison & Trofe, 2003; Ousterhout, Bersick & McLaughlin, 1997; Sturt, 2003 as well as Cacciari & Padovani, 2007, for Italian). In a later

study, Oakhill, Garnham, and Reynolds (2005) found that participants were strongly inclined

to form a representation that was biased by stereotypic gender information. Indeed, even

when the experimenters attempted to suppress participants' use of such information, by

encouraging them to respond strategically (as opposed to automatically), the participants'

mental representation of gender was still stereotyped.

Incorporating both grammatical and stereotypical information, Flaherty (2001) found that

(except for five- to seven-year-olds) there was a strong correlation in English between gender

and typical attributes (gender stereotyped concepts) that were both assigned by participants to

animate and inanimate objects, whereas in Spanish, gender was predominantly assigned

according to the grammatical gender of the referent noun. For German, Irmen & Roßberg

(2004) and Irmen (in press) provided data from reading time experiments and from eye-

movement experiments that suggest additional influences of grammatical and conceptual

gender.

To summarise, it seems as if stereotypical information plays an important role in the mental

representation of gender in languages with gender-unmarked nouns such as English, whereas

in gender-marked languages, grammatical information also comes into play and at times

seems to be predominant.

To further investigate the interplay of grammar and stereotypicality, Norwegian is a

particularly interesting case: for role names, such as musicians, nurses or tennis players, the

feminine gender marking has disappeared in Norwegian throughout the last thirty years due to

a language policy of gender-neutralisation that resulted in the previous masculine form

meanwhile being used as a common gender class (Swan, 1992). Thus, with reference to role

names, Norwegian lies somewhere between semantic gender languages, such as English, that

lack formal gender markings, and languages with a formal gender system, such as French,

Italian or German, since there is only one form used to refer to human agents, but at the same

time this present common gender form is the previous masculine form while nearly all their feminine forms have disappeared.

In a systematic comparative study, conducted in English, French and German, Gygax et al. (2007) investigated closely the interaction between *stereotype* and *grammar* in the construction of a representation of gender when reading role names. More specifically, they focused on the influence of the grammatical *masculine* form that is used in gender-marked languages, such as French and German, not only as a male specific form but also as a *generic*. If, for example, a group of people is referred to and is composed of women and men, it is common to use the masculine plural form (e.g. *Studenten* – male students) but not the feminine form (*Studentinnen* – female students) even if there is a majority of women. This masculine plural form is supposed to result in a gender-open representation, although it nevertheless carries the grammatical information of "male" (for a discussion see Stahlberg, Braun, Irmen & Sczesny, 2007). Gygax et al. (2007) were interested in whether the grammatical information ("masculine" provided in French and German) would override stereotype information, whether stereotype information would override grammatical information or whether both would influence gender representations.

The basic procedure of their experiment, which was applied in the current study, was to present their participants with pairs of sentences. The first sentence introduced a role name, stereotyped *male*, *female* or *neutral* (e.g. *The social workers* were walking through the station), and the second mentioned the gender of some of the members of the group (e.g. Since sunny weather was forecast several of the *women* weren't wearing a coat). Participants had to decide as fast as possible whether the second sentence was a sensible continuation of the first one. In English, where no formal marking of gender was present, the proportion of positive and negative judgements depended on the stereotype of the role names, replicating previous research (e.g. Carreiras, Garnham, Oakhill & Cain, 1996). So, for instance, English

participants were more likely to respond negatively when a sentence composed of *women* followed a sentence in which a stereotypically male role name (e.g. *mechanics*) was presented. In contrast, in French and German, where role names were written in the masculine form, the proportion of negative answers was higher when the second sentence represented women, *independently* of the stereotype portrayed by the role names. In sum, their results indicated that when role names were written in the masculine plural form, grammatical information overrode stereotype information in constructing a mental representation of gender. This override happened both in French and in German. When no grammatical gender information was available, as in English, the mental representation of gender was solely based on stereotype information. From this they concluded that the representation of gender is based on stereotypicality when no grammatical marking of gender is provided by role names or their accompanying definite articles, whereas the representation of gender is based on the grammatical marking of gender if provided, and *not* on stereotype information.

The aim of the present study was to extend this research by investigating the interplay of grammar and stereotypicality on the gender representation while focusing on Norwegian. As mentioned before, the possibility to gender mark human agent names by suffixing also exists in Norwegian (as in French or German), such as *lærer* vs. *lærerinne* (male vs. female teacher) or *sykepleier* vs. *sykepleierske* (male vs. female nurse). However, in contrast to French or German, this gender marking has disappeared in Norwegian since the early 1970s (Swan, 1992). The reason for this lies in the principally different strategies of solving the problem of linguistic sexism. Whereas the official Norwegian guidelines follow a strategy of gender-neutralisation (e.g. Norsk Språkråd, 1997), i.e. eliminating differential treatment, German-speaking countries prefer a gender-specification strategy (e.g. Schweizerische Bundeskanzlei, 1996), i.e. making women linguistically visible by feminisation of human agent nouns (gender-balancing, e.g. *Jeder Bürger und jede Bürgerin* … Each male citizen and each female

citizen). In French, although there are no formal regulations or guidelines, those eager to establish better visibility of women in language also adopt a gender-specification strategy (Baudino, 2001).

As in Norwegian the feminine form was abandoned, the (former) masculine now also is used to refer to a woman or to a group exclusively composed of women. Furthermore, if the gender composition of a group would be of importance a mark for both genders would be used, i.e. male politicians would be referred to as "mannlige politikere" and female politicians as "kvinnelige politikere". Thus, in Norwegian the "masculinity" of the masculine form disappeared, as neither the feminine nor the masculine form are used in a gender specific way (although single forms are still in use, such as *venn* and *vennine*, referring to a male vs. a female friend). In contrast, in German or French the masculine and feminine nouns (Politiker - Politikerinnen, politicien – politicienne) would be used.

By now, the Norwegian strategy of antiquating the specific feminine forms should have led to a similar situation as in English, namely to mostly gender-unmarked role names. However, in contrast to English, the role names might still carry the grammatical information. Thus, in Norwegian, a grammatical bias of the generic form would have to be considered a sort of historical heritage (or spillover) from when the generic form was additionally used in a gender specific way, but not a contemporary bias as in French and German where the masculine is still used in both a generic and a specific way. Therefore, the question arises of how much of a grammatical influence is left in Norwegian.

In principle, there are three different possible outcomes: (1) the experiment in Norwegian replicates the results of the English experiment, i.e. representation of gender based on stereotypicality. This would indicate that the grammatical information the Norwegian role names had in the past does not influence gender inferences and would be a strong empirical argument for the success of the linguistic policy. (2) The experiment in Norwegian replicates

the results of the French and German experiments, i.e. stereotype information has no influence on the representation of gender. This would indicate that the grammatical information of the Norwegian role names is still dominant in recipients' language processing despite the effort to make them a common-gender class. Thus, such a result would document the failure of the political strategy of gender-neutralisation by way of declaring the previously masculine form as generic and dropping its gender specific use. (3) The representation of gender is built on both grammatical and stereotypical information. In comparison to a result pattern that is built on stereotypical information only, the grammatical (masculine) information would slightly modify the result pattern in that it should amplify the effect for stereotypical male role names and attenuate the effect for stereotypically female role names. Furthermore, due to the grammatical information, the stereotypical neutral role names should lead (at least slightly) to a male-oriented representation. Such an outcome would demonstrate that although the linguistic policy works, it has not been successful in definitely establishing a common gender class.

Method

Participants

Thirty-six students (18 males and 18 females) from the Norwegian University of Science and Technology (NTNU) volunteered to participate in this experiment. Each participant was paid 25 Norwegian Kroner. The participants were aged 19 to 25 years (Mean = 21.36). The participants were chosen as to match the English, French and German-speaking participants of Gygax et al. (in press).

Materials and Design

All materials used in the English experiment from Gygax et al. (2007) were translated into Norwegian (including the information used to attract participants and the information sheet to be handed out after the experiment). The materials to run the experiment consisted of the

instructions, 36 experimental passages and 36 filler passages that comprised two sentences each. The first sentence introduced a group of people using a role name in the plural form, and the second sentence specified that there were some men or women in the group (i.e. it provided a partial constraint on the sex of the people in the group). An example of a passage is (1a) followed by (1b):

(1a) The social workers were walking through the station.

(1b) Since sunny weather was forecast several of the women weren't wearing a coat.

For the above example, the corresponding pairs in Norwegian are:

(1a) Sosialarbeiderne gikk gjennom stasjonen.

(1b) Ettersom det var meldt sol, hadde noen av kvinnene ikke på seg jakke.

For the *first sentences*, twelve stereotypically female role names were used, twelve stereotypically male and twelve neutral (cf. Table 1). Gygax et al. (in press) had chosen these role names from a norming-study (Gabriel et al., in press) on 126 role names that was run in English, French and German. In the norming-study participants had to indicate the percentage of men and women they thought occupy these roles. Gygax et al. (in press) selected the most female stereotyped role names (in French, German and English) and matched them with similarly strong male stereotyped role names and neutral stereotypes.

To inspect the stereotypicality of those role names in Norwegian, they were translated and pre-tested applying the questionnaire format from Gabriel et al. (in press, Study 2). Thirty psychology students (fifteen female and fifteen male) from the NTNU were instructed to estimate on an eleven-point rating scale (labeled from "100% females, 0% males" to "0% females, 100% males") to what extent the groups denoted by the role names are actually made up of women or men. Table 1 shows the mean ratings of male percentages in comparison with those Gabriel et al. (in press) reported for their English sample. By and large, the ratings from

the Norwegian sample support the role names' stereotypicality classification that was based on the English, French and German ratings. However, there are two exceptions: *dressmakers* and *sales assistants*, which are seen to be female-dominated roles in English, were perceived as comprising more men than women in Norwegian. Nevertheless, we decided to stick to the original role names for the sake of compatibility, but to run all analyses with and without these two deviating role names.

The *second sentences* differed first, and most importantly, in their mention of *women* or *men*. Each participant saw eighteen continuations about *women*, six following sentences with a female stereotyped role name, six following sentences with a neutral stereotyped role name and six following sentences with a male stereotyped role name, and eighteen about *men*. The second sentences qualified the "men" or the "women" with one of *some of, most of, several of, few of, one of* or *the majority of the men/women*.

Across the experiment, six lists had been created to ensure that each role name was followed equally often by *men* and *women*. Each participant saw one list. The crucial experimental manipulations were the nature of the role name (female, neutral, male stereotyped), which varied between items, but within participants, and whether the continuation mentioned men or women (and hence whether it matched the stereotype, if any, of the role name). This factor varied within both items and participants.

In all experimental conditions the intended response was *yes* (the second sentence is a sensible continuation of the first). To ensure that the participants read the passages, 36 filler texts, requiring *no* answers had been constructed. These filler pairs were similar to the experimental ones (but using different role names), though they were intended to elicit a clear *no* answer. The filler pairs were the same in each list and were randomly interspersed with the experimental items. For more details on the construction and pre-testing of the experimental sentences see Gygax et al. (in press).

Apparatus

The passages were presented on a Macintosh computer (Power Macintosh 4400) using the PsyScope Software (Cohen, MacWhinney, Flatt & Provost, 1993). Responses were collected using a button box attached to the computer, which permits millisecond accuracy.

Procedure

The participants were tested individually in a small quiet room. Their task was to read each passage, presented one sentence at a time, and to decide whether the second sentence was a sensible continuation of the first one (in Norwegian: *om den andre setningen kunne være en fortsettelse av den første*). Participants were asked to make a prompt decision, based on their first impression and not on a prolonged reflection. A prompt (i.e. **Neste?**) appeared on the screen before each passage. The participants pressed the *yes* button to make the first sentence appear, and then pressed the *yes* button again to make the second sentence (target sentence) appear. They had to make a prompt decision by pressing either the *yes* button (i.e. I think it is a sensible continuation) or the *no* button (i.e. I do not think that it is a sensible continuation). Participants were asked to keep the index finger of their dominant hand on the *yes* button and the index finger of their non dominant hand on the *no* button.

Before the experiment, there was a trial session with twelve passages, to familiarize the participants with the procedure.

<div align="center">Results</div>

We recorded the participants' responses (i.e. *yes* or *no*) and the time it took them to respond. Both measures were intended to evaluate the ease of integration of the information in the target sentence. In essence, if participants have trouble integrating that information, they are more likely to respond *no*. In addition, if they respond *yes*, it should take them longer to respond if they have trouble integrating the information. All analyses were run twice: firstly including all role names; secondly excluding those presumably female stereotyped role names

that received ratings above 50% male in our pre-test (*dressmakers* and *sales assistants*). As both analyses yielded predominantly identical results, all results from the first analyses but only diverging results from the second analysis are reported.

The *proportion of positive judgements* for the experimental passages is shown in Table 2. All the data were analysed using ANOVAs, considering first participants and then items as random effects.

A 3 (Stereotype: male vs. female vs. neutral) x 2 (Continuation: men vs. women) ANOVA showed no main effect of Stereotype, F_1 (2, 70) <1; F_2 (2, 33) <1, but a main effect of Continuation (men vs. women mentioned), F_1 (1, 35) = 11.54, $p < .05$; F_2 (1, 33) = 8.50, $p < .05$, which was qualified by a disordinal interaction effect F_1 (2, 70) = 10.12, $p < .05$; F_2 (2, 33) = 7.86, $p < .05$. As shown in Table 2, after sentences containing female stereotyped role names, there were more positive judgements when the second sentence mentioned *women* (.79) than when it mentioned *men* (.73). Conversely, after sentences containing male stereotyped role names, there were more positive judgements when the second sentence mentioned *men* (.83) than when it mentioned *women* (.67). Furthermore, the same hold true for sentences containing neutral role names: there were more positive judgements when the second sentence mentioned *men* (.80) than when it mentioned *women* (.66). To further explore the interaction effect, three additional analyses were performed, adjusting all *p-values* to account for multiple comparisons. First, a 2 (Stereotype: male vs. female) x 2 (Continuation: men vs. women) ANOVA showed no main effect of Stereotype, F_1 (2, 70) <1; F_2 (2, 33) <1), no effect of Continuation (men vs. women mentioned), F_1 (1, 35) = 2.45, ns; F_2 (1, 33) = 1.22, ns, but an interaction effect F_1 (2, 70) = 17.38, $p < .02$; F_2 (2, 33) = 11.01, $p < .02$. Second, a 2 (Stereotype: female vs. neutral) x 2 (Continuation: men vs. women) ANOVA showed no main effect of Stereotype, F_1 (2, 70) <1; F_2 (2, 33) <1, no effect of Continuation (men vs. women mentioned), F_1 (1, 35) = 2.13, ns; F_2 (1, 33) <1, but an interaction effect, F_1

$(2, 70) = 11.67$, p < .05; F_2 $(2, 33) = 8.78$, $p < .02$. Third and finally, a 2 (Stereotype: male vs. neutral) x 2 (Continuation: men vs. women) ANOVA showed no main effect of Stereotype, F_1 $(2, 70)$ <1; F_2 $(2, 33)$ <1, but a main effect of Continuation (men vs. women mentioned), F_1 $(1, 35) = 23.96$, $p < .02$; F_2 $(1, 33) = 35.20$, $p < .02$, and no interaction effect, F_1 $(2, 70) =$ 1.12, ns; F_2 $(2, 33)$ <1.

Together this indicates that the representation of gender was based on both grammatical and stereotypical information as the female stereotyped role names heightened the agreement with female continuations, but, in contrast to the "stereotype only"-effect that had been found for English (Gygax et al., in press), not only did the male stereotyped role names but also the neutral role names heighten the agreement with male continuations.

Interestingly, further by-participant simple contrast analyses to evaluate proportional differences between the *men* and the *women* continuations in each stereotyped group indicated, when taking all items, significant differences in the male stereotyped group, F $(1, 35) = 15.21$; $p < .001$; $r = .30$, and in the neutral group, F $(1, 35) = 12.32$; $p < .005$; $r = .26$ but not in the female stereotyped group, F $(1, 35) = 3.38$; ns. When excluding the female stereotyped role names that received ratings above 50% male in our pre-test (*dressmakers* and *sales assistants*), the difference in the female stereotyped group also became significant, although the size effect was smaller, F $(1, 35) = 10.34$; $p < .005$; $r = .23$. These analyses indicated that the effect of the role names on the decision on the male vs. female continuations was bigger for the male stereotyped role names than for the neutral role names and lowest for the female stereotyped role names. This pattern could be interpreted as a hint for the joint influence of grammatical and stereotype information leading (1) to a male bias in the neutral condition due to the influence of the grammatical form used (namely the former masculine) that (2) is amplified when the noun carries male stereotyped information but (3) attenuated and even flipped into a female bias when the noun carries stereotypical information

that opposes the grammatical information as in the female stereotyped role names condition. This latter comment is to be taken cautiously though, as the difference of effect sizes was not tremendous.

Only *response times for positive judgements* were analysed. The mean times to make positive judgements are shown in Table 3.

A 3 (Stereotype: male vs. female vs. neutral) x 2 (Continuation: men vs. women) ANOVA showed no main effect of Stereotype, F_1 (2, 70) <1; F_2 (2, 33) <1, but a main effect of Continuation (men vs. women mentioned), F_1 (1, 35) = 6.46, p < .05; F_2 (1, 33) = 3.74, p = .06 [without *dressmaker* and *salesassistant*: F_2 (1, 33) = 3.28, p = .08], and no interaction effect (F_1 (2, 70) <1; F_2 (2, 33) <1). Thus, it took participants longer to respond to female continuations (M =3376) than to male continuations (M =3152).

Discussion

The present research was conducted to address the issue of a possible interplay of grammatical and stereotypicality information on the mental representation of gender. The results of the experiment demonstrate (a) that if stereotypical role names are read, the stereotypicality, at least in the proportion of positive answers, does influence the representation of gender in Norwegian, but (b) that if neutral role names are presented, readers nevertheless rely on the grammatical information, resulting in a male biased representation. This is further corroborated by the findings that the difference between male and female continuations in the proportion of positive answers is slightly smaller in the female role name conditions, indicating that grammar may have had an attenuating effect on the effect of stereotype. Thus, our results suggest the grammatical information (former masculine) to have an influence on the representation of gender by biasing gender-stereotypically neutral role names, by lowering the impact of the stereotypical information when reading female stereotyped role names and by generally, as hinted by the response

times, inhibiting the incorporation of females into readers' mental representations.

Compared to the findings of Gygax et al. (in press) for English, German and French, the findings in Norwegian can be ranked between English on the one hand and German and French on the other hand. In contrast to Gygax et al.'s findings for German and French (both gender marked languages) in our study readers relied on stereotypical information when building a mental representation. But at the same time and in contrast to Gygax et al.'s finding for English (a language whith few gender marked nouns) a male bias showed up in the condition where no stereotypical information was provided.

Thus, our current findings suggest that the Norwegian language amendment so far has partly been successful as readers rely on other then grammatical information when building a mental representation. But for the time being the gender representations seem to be overshadowed by a male bias that could be called the "aftertaste" of the historical gender-marking of nouns. Replicating this study in twenty years' time might show, though, that the nouns that were formerly used as masculines have lost their semantic reflex as a cue of natural gender. This would give strong support that such a policy is one that successfully diminishes discrimination based on language.

In line with that, it should be noted, that in our study all participants were less than 30 years old, i.e. were brought up after the language use had changed. Rerunning the experiment with participants of heigher age might therefore reveal a stronger male bias due to fact that the familiarity with the feminine forms should be related to the year of birth. Thus, it can be doubted that our findings hold across birth-cohorts, but it nevertheless remains an empirical question whether the age of participants moderates the influence of the grammatical form on the representation of gender.

With reference to stereotypes and grammatical information as two different sources of mental representations, the current study provides further evidence for the notion that both are

included and do interact (as in Irmen & Roßberg, 2004; Irmen, in press). Future research should focus on the sequential processes of such an interaction. As stereotypical information is considered elaborative in this instance (Oakhill et al., 2005) and by considering theories of text comprehension (e.g. Zwaan, Langston & Graesser, 1995), grammatical information, as it is a particular text feature or surface feature, might be activated first. Still, eye-tracking data on anaphor resolutions provided by Irmen (in press) equally hint at the opposite sequence: when cues of conceptual gender and grammatical gender were present, world knowledge on gender typicality was used in the early stages of lexical access of the anaphoric expressions. With reference to language amendments, our study provides empirical evidence that such amendments do influence mental representations. It would be interesting to model such changes experimentally. On the one hand, this refers to the question of whether one could train/practice participants to inhibit the activation of the grammatical cue(s), and on the other hand, this refers to the question of how to deactivate the stereotypical information and hold a gender-neutral representation. One might still argue, however, that basing one's gender representation on world knowledge (i.e. stereotypical information) is more accurate than basing it on grammatical cues that do not hold for half of the population (masculinity). Furthermore, gender representations might then be more likely to change along with changes in the world - if we perceive more female *fire fighters* and more male *nurses,* these role names will become less gendered. Nevertheless, such changes in the real world could also be facilitated by changes in our representations: if we were able to discuss such roles in an ungendered way, the threshold to take up such a role would become equally high or low for both sexes.

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Table 1

Mean ratings of male percentage for each role name in English (from Gabriel et al., in press)

and Norwegian (N = 30)

English	%	Norwegian	%
Male stereotyped			
Spies	73	Spionene	73
Golfers	73	Golfspillerne	65
Politicians	71	Politikerne	56
Police officers	63	Politifolkene	73
Statisticians	70	Statistikerne	68
Bosses	62	Sjefene	72
Computer specialists	70	Dataekspertene	87
Surgeons	62	Kirurgene	70
Technicians	72	Teknikerne	78
Engineers	78	Ingeniørene	68
Physics students	56	Fysikkstudentene	72
Pilots	70	Pilotene	83
Mean	*68*		*72*
Neutral			
Singers	53	Sangerne	43
Pedestrians	49	Fotgjengerne	49
Cinema goers	51	Kinobesøkerne	48
Concert goers	47	Konsertilhørerne	52
Schoolchildren	53	Skolebarna	49
Spectators	55	Tilskuerne	51
Neighbours	50	Naboene	52
Swimmers	50	Svømmerne	56
Tennis players	53	Tennisspillerne	54
Authors	48	Forfatterne	52
Musicians	54	Musikerne	56
Skiers	55	Skiløperne	59
Mean	*52*		*52*
Female stereotyped			
Beauticians	29	Hudpleierne	18
Birth attendants	29	Fødselshjelperne	18
Fortune tellers	32	De synske	24
Cashiers	39	Kassererne	48
Nurses	30	Sjukepleierne	27
Hairdressers	48	Frisørene	26
Psychology students	38	Psykologistudentene	29
Dieticians	39	Kostholdsrådgiverne	40
Dressmakers	43	Skredderne	68
Dancers	32	Danserne	24
Sales assistants	34	Selgerne	60
Social workers	29	Sosialarbeiderne	35
Mean	*35*		*35*

Table 2

Proportion of positive judgements across conditions

	Stereotypes		
Continuation	Female	Male	Neutral
Men	0.73 [0.70]	0.83	0.80
Women	0.79 [0.83]	0.67	0.66

Note. The results for the reduced number of female stereotyped role names are shown in brackets.

Table 3

Mean positive judgement times and standard deviations (in brackets) across conditions

	Stereotypes		
Continuation	Female[a]	Male	Neutral
Men	3116 (*977*)	3228 (*1271*)	3113 (*904*)
Women	3363 (*1251*)	3403 (*1349*)	3360 (*1245*)

[a] Results for the reduced number of female stereotyped role names: Male continuation: $M = 3082$, $SD = 983$; Female continuation: $M = 3367$, $SD = 1306$.