

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/257663669>

The Gendering of Language: A Comparison of Gender Equality in Countries with Gendered, Natural Gender, and Genderless Languages

Article in *Sex Roles* · February 2011

DOI: 10.1007/s11199-011-0083-5

CITATIONS

57

READS

10,479

3 authors, including:



Jennifer L. Prewitt-Freilino
Rhode Island School of Design

7 PUBLICATIONS 285 CITATIONS

[SEE PROFILE](#)



T. Andrew Caswell
Gannon University

6 PUBLICATIONS 128 CITATIONS

[SEE PROFILE](#)

The Gendering of Language: A Comparison of Gender Equality in Countries with Gendered, Natural Gender, and Genderless Languages

Jennifer L. Prewitt-Freilino · T. Andrew Caswell · Emmi K. Laakso

Published online: 18 October 2011
© Springer Science+Business Media, LLC 2011

Abstract Feminists have long argued that sexist language can have real world consequences for gender relations and the relative status of men and women, and recent research suggests that grammatical gender can shape how people interpret the world around them along gender lines (Boroditsky 2009). Although others have theorized about the connection between grammatical gender in language and societal gender equality (Stahlberg et al. 2007), the current work tests this link empirically by examining differences in gender equality between countries with gendered, natural gender, and genderless language systems. Of the 111 countries investigated, our findings suggest that countries where gendered languages are spoken evidence less gender equality compared to countries with other grammatical gender systems. Furthermore, countries where natural gender languages are spoken demonstrate greater gender equality, which may be due to the ease of creating gender symmetric revisions to instances of sexist language.

Keywords Grammatical gender · Gender equality · Gendering Language

Introduction

It is quite likely, that as long as language has existed, the distinction between male and female has also been present

within it. Today, there are no languages, which do not distinguish between the genders at all, leading linguists and psychologists to believe that gender may be “so fundamental to social organization and social structure that linguistic means to refer to this category are indispensable for speech communities” (Stahlberg et al. 2007, p. 163). However, references to grammatical conventions of gender in language have prompted contemporary concerns over the power of language to shape social stereotypes about gender, and perhaps ultimately shape status distinctions between men and women. The feminist language critique, in particular, deems language to be overwhelmingly androcentric, putting girls and women at a disadvantage in personal and professional relationships (Stahlberg et al. 2007), and some countries, such as Norway, have actively reformed their languages to reflect a more genderless outlook (Gabriel and Gygas 2008).

In spite of attempts at language reform already underway, numerous questions remain regarding the relationship between the social aspects of gender and language and the potential benefits of modifying languages to be more gender-neutral. Although Stahlberg and colleagues (2007) have theorized about the link between grammatical gender in language and the relative social standing of men and women in society and recent work highlights a link between the grammatical gender of language and sexist attitudes (Wasserman and Weseley 2009), we believe more work is needed to determine the precise relationship between language conventions and gender equality. Thus, in the current work we investigate this relationship directly in an attempt to determine whether the grammatical gender of a language can predict societal markers of gender equality.

Recent theorizing suggests that language not only reflects the conventions of culture and particular patterns of thought, but systems of language can actually shape our cognitive understanding of the world around us (Boroditsky 2009; Deutscher 2010). Specifically, the gendering of

J. L. Prewitt-Freilino (✉) · E. K. Laakso
Rhode Island School of Design,
Providence, RI 02903, USA
e-mail: jprewitt@risd.edu

T. A. Caswell
University of South Florida,
Tampa, FL, USA

language (even that which appears mundane and purely grammatical, such as the use of *la* versus *le* in French) can actually impact our perceptions. For example, researchers have discovered that the grammatical gender of a term for an inanimate object can influence people's perceptions of the masculine or feminine characteristics of that object, and this cannot be due merely to the properties of the object as the researchers used terms that were grammatically masculine in one language and feminine in another (see Boroditsky et al. 2003; Konishi 1993). The same findings are true even when pictures are used instead of text (Sera et al. 1994). Furthermore, when Jakobson (1966) had participants choose voices to personify the days of the week, Russian speakers consistently selected male or female voices to match the grammatical gender of that particular day.

If conventions of grammatical gender can affect people's perceptions of gender in non-human objects, could it similarly affect the real world social relations of men and women? If so, then the extent to which a language distinguishes grammatically between the masculine and feminine could have serious consequences for the social, economic, and political standing of women relative to men. Recent work highlights how grammatical gender can increase sensitivity to the gender of a person, as relative to non-gender related questions, English speakers were faster and more accurate than Chinese speakers in responding to gender relevant questions (Chen and Su 2011), suggesting that grammatical gender aids gender-relevant processing of social information.

Although all languages distinguish between genders, the degree to which they do so varies. Grammatically, almost all languages can be divided into three gender-related groups: grammatical gender languages, natural gender languages, and genderless languages (for overview of definitions and classification of grammatical gender across language families, see Stahlberg et al. 2007). *Grammatical gender languages* (or *gendered languages*) are characterized by their nouns, which are always assigned a feminine or masculine (or sometimes neuter) gender. When said nouns refer to people, they generally reflect the gender of the individual in question, and other dependant forms, such as adjectives and pronouns carry the same gender markers as the nouns to which they refer. Generally, gendered languages belong to the following linguistic families: Slavic (Russian), Germanic (German), Romance (Spanish), Indo-Aryan (Hindi), or Semitic (Hebrew), with some exceptions. English (a West Germanic language), and Northern Germanic (or Scandinavian) languages, belong to what are called *natural gender languages*. While these natural gender languages distinguish gender through pronouns (such as he or she), most nouns have no grammatical marking of gender, unlike the gendered languages. Finally, some languages, called *genderless languages*, are characterized by their

complete lack of grammatical gender distinction in the noun system. In Finnish, for example, *hän* refers to both he and she, and so has no gender. Genderless languages generally belong to the Uralic (Finnish), Turkic (Turkish), Iranian (Persian), Sinitic (Chinese), and Bantu (Swahili) language families, along with some others.

Given recent research tying gender in language to gendered perceptions of the world (e.g., Boroditsky et al. 2003), one could infer that when language constantly calls attention to gender distinctions by discriminating between masculine and feminine nouns and pronouns—as is the case in gendered languages—that individuals may be more apt to draw distinctions between men and women. If, in fact, language plays a role in how people organize their beliefs about gender, then it stands to reason that differences in the gendered language systems across different cultures could play a role in societal differences in beliefs, attitudes, and behavioral practices about the role and status of men and women.

In an empirical test of this assumption, Wasserman and Weseley (2009) assigned suburban, New York high school students to read a passage in either English (a natural gender language) or a gendered language (either Spanish or French) and then complete a measure of sexism. Students who read the passage and completed the sexism measure in English expressed less sexist attitudes compared to students who read the passage and completed the sexism measure in a gendered language, lending support to the notion that the grammatical gender of language can impact sexist attitudes.

Although it is impossible to isolate whether the grammatical gender of a country's language system serves as a causal factor in indicators of gender equality, we can determine whether countries with gendered language systems are generally the same countries in which men and women remain unequal in their access to political and economic power. In the current work, we explore the possible links between gendered language systems and gender inequality by first reviewing the literature on the many ways gendering occurs in language (beyond conventions of grammatical gender) and how such gendering in language has been shown to impact status relevant social decision-making and behavior. We then address whether the grammatical gender of a language system can help to predict cross-cultural variations in gender equality over and above the predictive power of other cross-cultural factors by comparing countries with gendered, natural gender, and genderless language systems on archival indices of gender equality.

Gender in Language

As noted above, the use of gender specific nouns and pronouns is one way of classifying gender in language. A lack of grammatical gender, however, does not necessarily

reflect gender neutrality (Braun 2001; Engelberg 2002), and so it would be mistaken to believe that the grammatically genderless languages automatically lead to a more gender-neutral society. Linguistic asymmetries and false generics in discourse cut across grammatical gender language systems, and likely contribute to how individuals organize and interpret gender relevant information in everyday communication (Stahlberg et al. 2007). Below, we give a brief overview of several ways in which language becomes gendered and how such linguistic patterns convey status differentially to men and women.

First, lexical gender refers to whether a word is gender-specific (for example father, sister, grandmother), or gender neutral (citizen, patient, individual), and gender asymmetry is created when gender is lexically marked when it does not need to be (Hellinger and Bußmann 2001). For example, in the case of the English words *steward* and *stewardess*, *stewardess* becomes a specific marked term, or separate from the term of *steward*, and also gains a secondary meaning entirely. According to the Oxford English Dictionary (1989), *steward* is taken to primarily refer to “an official who controls the domestic affairs of a household, supervising the service of his master's table, directing the domestics, and regulating household expenditure...”; however, a *stewardess* primarily refers to either “a female steward” or “a female attendant on a passenger aircraft who attends to the needs and comfort of the passengers.” The female counterpart of *steward* references the male term, which becomes the neutral form, and while the secondary profession of *stewardess* possesses some similarities to the roles of the *steward*, the masculine counterpart implies more authority, through the use of words such as “control,” and “supervise.” Furthermore, female counterparts for male words are often derived from the masculine term, and are more complex, demonstrating that the masculine is the generic form, as the feminine form is generally only used when females are specifically involved. For example, in Norwegian, *forfatter* (meaning writer) is the generic and masculine term, where as *forfatterinne*, the feminine form, is derived from *forfatter*, is considerably longer in length, and would never be used as a generic term for a writer, unless a female writer were specifically being referenced (Bull and Swan 2002). Moreover, some languages use compounding in nouns to create gender specific structures of non-traditional professions (Hellinger and Bußmann 2001). A *male-nurse* or a *female-surgeon* points to the need to categorize, in language, which gender generally pursues which occupation, and to mark the exceptions with marked names. The marked nature of such exceptions results in specific patterns of the perceptions of social gender, or the use of stereotypes in deciding generic pronouns for specific occupations and roles.

Gender asymmetry may also be manifested through gender-related messages within a language, such as address

terms and idiomatic expressions (see Hellinger and Bußmann 2001). Address terms refer to the use of formal structure as compared to informal structure within a language depending on who one is speaking to, or the use of honorary titles, such as *Mr.*, *Mrs.*, *Miss*, and *Ms.* in English. In the Javanese language, for example, a husband addresses his wife as *dik*, or “younger sister,” where as he is called *mas*, or “older brother” regardless of his actual age.

In addition to asymmetry, the use of false generics can affect how gender intersects with language. A solely masculine or feminine term, used generically to represent both men and women, is called a false generic (Hellinger and Bußmann 2001). Most false generics are masculine and are used to refer to males as well as females, such as the word *lakimies* (literally, lawman, or lawyer) in Finnish. Another example is the general *he* in English, as in “When a student drops a pencil, *he* should also pick it up.” The only known languages in which the generic is female, are in some Iroquois languages (Seneca and Oneida), as well as some Australian aboriginal languages (Hellinger and Bußmann 2001).

Language and Gender Equality

Increasingly scholars and researchers recognize the power that asymmetries in lexical gender, male false generics, and the systematic way language becomes gendered can have on social gender stereotypes and inequities in status between men and women (Schneider 2004). For example, feminist scholars have long decried that masculine generics are androcentric, and make women seem invisible in historical and contemporary discourse (see Cameron 1998). With empirical research highlighting the real world impact that gendered language can have on people's social judgments, decisions, and behavior, many have begun to rally behind the idea that change in language is needed to curb social inequalities in society (Martyna 1980).

Although opponents of language reform argue that male false generics remain mere grammatical convention, too widespread to expect change, and irrelevant to gender inequality, empirical evidence supports what feminists have long known (see review by Martyna 1980). For example, studies have shown that the male generic is in fact not simply a grammatical convention but that speakers actually visualize males when the word “he” or “his” is used in its generic form (Gastil 1990; Hyde 1984; Moulton et al. 1978). Moreover, a “chairman” primes male pronouns and is rated as more masculine than a “chairperson” (Banaji and Hardin 1996; McConnell and Fazio 1996). If men and women interpret male generics in a gendered way, then it stands to reason that these gendered impressions could have a lasting impact on real world gender stereotyping and role behavior. For example, consider the implications for career

choice. Masculine forms of nouns, such as are found in lexical gender and gender related structures, are problematic, specifically when it comes to occupational titles and positions because women may have trouble identifying with the masculine forms, and so may choose to not pursue a career which implicitly excludes women. For example, Bem and Bem (1973) found that only 5% of female participants applied for a traditionally male job which used male generics in its description, whereas 25% of women applied when it was described in a gender neutral way. Moreover, Briere and Lanktree (1983) found that people rated women's attraction to a future career in psychology as lesser when they had read an excerpt about ethical standards for psychologists worded using male generics, as opposed to versions that were worded in a gender neutral way. Thus, over and above the influence of stereotypes about traditional gender roles associated with a particular occupation, the gendering of language may influence women's desire to seek certain employment opportunities.

Generics may also pose legal issues for women, when legal documents (especially from the past) do not clarify whether they pertain to all people, or explicitly to men. Such linguistic conventions can even have legal consequences, as Hamilton et al. (1992) have demonstrated the dangers of gendered pronouns in a legal context. In their study, students enrolled in introductory psychology courses at the University of Kentucky played the part of the jury in a mock murder case, and were asked to determine whether a woman had acted in self-defense. As a part of the 'case,' 72 participants (24 in each group) were given a definition of 'self-defense' with either the use of *he*, *he or she*, or *she*, in the description. Only five of the participants reading the description with *he* were willing to acknowledge self-defense, whereas sixteen did with *he or she*, and eleven with *she*. This suggests that male generic wording in legal proceedings can dramatically affect people's perceptions of an individual's guilt or innocence.

Given the above research demonstrating how small changes in the use of gendered language can have a dramatic impact on people's judgments, decisions, and behaviors, it is perhaps unsurprising that there have been efforts on the part of "government agencies, feminist groups, professional associations, religious organizations, educational institutions, publishing firms, and media institutions" to reduce the use of male generics (Martyna 1980, p. 491). In many languages, people have begun to shy away from the use of masculine generics.

Grammatical Gender in Language and Gender Equality

Although ample empirical research demonstrates that reducing the use of masculine generic pronouns promotes the inclusion of women, there are no empirical studies that we are aware of which attempt to investigate the overall

relationship between all three grammatical gender groups and gender equality. Wasserman and Weseley (2009) demonstrate that gendered languages promote an increase in expressed sexist attitudes. Moreover, Stahlberg and colleagues (2007) have noted that languages that create significant gender distinctions (i.e., grammatical gender languages) are often thought to lead to greater sexism, while languages that do not distinguish grammatical gender (i.e., genderless languages) may on the surface appear less sexist. However, as they note:

All language types... could in principle be used in a symmetrical and gender-fair way: In grammatical gender languages the feminine could be used consistently in referring to female persons and the masculine in reference to males. In natural gender languages symmetry could be achieved, above all, by the consistent use of sex-marking pronouns. And in genderless languages sex can be disregarded symmetrically (Stahlberg et al. 2007; p. 167).

However, as we have seen from the above examples, this is rarely the case, and all grammatical groups display gender asymmetry, as it is expressed in language through lexical structures, generic terms, social use of language, and gender related word structures.

Despite the fact that gender neutral conventions can be developed for languages within all three grammatical groups, this does not imply it is equally easy to address gendered grammar conventions across these groups. In fact, Stahlberg and colleagues (2007) note that grammatical gender languages (like German) involve much more effort to create a gender neutral configuration—compared to natural gender languages like English—because such reconfigurations require changing a large number of personal nouns in addition to pronouns.

Furthermore, although it might appear that genderless languages already exhibit a gender fair grammatical style, there is evidence that gender neutral nouns and pronouns can be interpreted with an implicit male bias (Stahlberg et al. 2007). Take, for example, research showing that different solutions to the use of masculine generics are not equally effective in natural gender languages like English. Several studies have shown that replacing masculine generics with gender-symmetrical terms, like *he/she*, led to greater visualization of female actors compared to gender neutral terms, like the singular *they* (Hyde 1984; Switzer 1990). Hyde (1984) found that when children were asked to write a story in response to the prompt "When a kid goes to school, [*he/they/he or she*] often feels excited on the first day," (p. 699) only 12% and 18% wrote about female characters when *he* and *they* were used, respectively, whereas 42% wrote about a female character when *he or*

she was used. Thus, even the use of gender neutral terminology (such as *member of congress*) may implicitly convey a gendered interpretation more often than gender-symmetrical terminology (such as *congressman/woman*), which would make it more difficult to convey a gender neutral interpretation in genderless languages that lack gendered pronouns.

Overview of Current Investigation

In the current investigation, we explored the relationship between countries' grammatical gender language systems and indices of gender equality. To do this, we categorized an extensive list of countries as having either a gendered, natural gender, or genderless orientation, and then used grammatical gender system as a fixed grouping variable to compare the average level of gender equality.

Because the gendering of language has the power to impact how we think at an individual level, systems of language have the potential to shape entire social structures (Boroditsky 2009; Deutscher 2010). Gender equality is not a unitary construct, and as such, we were interested in exploring the specific domains in which grammatical gendering of the language system predicted gender inequality. Thus, we wanted a measure of gender equality that allowed for exploring how men and women fair across a wide array of societal indicators. The World Economic Forum's Global Gender Gap Index and sub-indices (Hausmann et al. 2009) highlight the gap between men and women in economic, educational, political, and health spheres in countries around the world.

By its very nature, differential research (i.e., research that tests for differences in pre-existing groups) does not allow for the testing of causal relationships; therefore, we wanted to ensure that any differences between the grammatical groups could not be completely explained by other factors that may relate to societal indicators of gender equality. Thus, to explore whether the impact of grammatical gender remained even when other potential influences on gender equality were accounted for, we included several possible covariates of gender equality in our model.

In brainstorming for characteristics of countries that could be related to gender equality that were either easily categorizable or already reliably quantified, we arrived at the following list of covariates: geographic location, religious tradition, system of government, and relative human development. This list is not considered exhaustive of the possible influences on variation in gender equality in different countries, but was a starting place for trying to account for such variance. We believe that over time, variations in geographic location could contribute to cultural shifts that impact the relative treatment of men versus women. For example, such variation could be an impetus for divergent

evolution of not only language systems (which map onto geographical shifts in population), but the development of regionally specific cultural mores and practices that might impact everyday gender relations, as well. In line with our assumption, the global gender gap report confirms that widespread variations in gender equality by geographic region exist (Hausmann et al. 2009).

As cornerstones of culture, we believe dominant religious tradition and political systems have the power to influence gender equality at the societal level, and recent theorizing supports this view (Razavi and Jenichen 2010). Razavi and Jenichen (2010) argue that especially in the last 30 years religious fundamentalism has shaped political governance in a way that impacts women's rights. Given the link between both religious fundamentalism (Hill et al. 2010) and right wing authoritarianism (Sibley et al. 2007) with benevolent sexism, we expect that both religious and governance systems should predict variation in gender equality. Moreover, variation in human development, which comprises life expectancy, literacy, education, and standard of living (Klugman et al. 2010), may also help to explain why countries differ with regard to gender equality, as the global gender gap report also notes the importance of development of human talent as a key factor in cross-cultural variations in gender equality (Hausmann et al. 2009).

In the current analyses, we included these factors in our model because we predict that even when controlling for other characteristics of countries that could be related to gender equality (e.g., religious tradition, system of governance), we believe differences in gender equality will emerge between countries with divergent grammatical gender language systems.

Hypotheses

Given the previous research outline above demonstrating the difficulty involved in crafting gender fair communications in gendered languages, we anticipated the following:

Hypothesis 1. Countries predominated by a gendered language system should consistently evidence less gender equality across the various indexes than countries where natural gender or genderless languages are spoken, even when controlling for geographic, religious, political, and developmental variations that could also explain differences in gender equality among countries.

Although previous work has demonstrated a link between gendered languages and sexism (Wasserman and Weseley 2009), we are unaware of prior research on the impact of genderless versus natural gender language usage on sexism. Despite the fact that genderless languages generally avoid the problem of the masculine generic, even gender neutral terminology (e.g., the singular "they") can still convey a

male bias in the mind of the audience, and unlike natural gender languages, genderless languages do not always allow for adopting gender symmetric terminology (e.g., “he/she”). Thus, because natural gender languages allow for greater flexibility compared to genderless languages to address the problem of the male generic, we predicted:

Hypothesis 2. Countries predominated by a natural gender language system should evidence greater gender equality than countries with other grammatical gender systems.

Unlike our prediction about gendered languages, which we believe to be robust even when accounting for other societal influences on gender equality, our predictions about the relative differences in gender equality between countries with natural gender and genderless languages are based on assumptions about the ease of language reform. Because social factors (i.e., religious tradition, political system) can influence the desire and ability to reform language, our predictions about differences are much more circumspect, as we do not necessarily believe these differences could emerge when controlling for social factors that influence efforts at language reform. If indeed, natural gender languages demonstrate greater gender equality, we believe such a difference would shed light on the need as well as potential for effective language reform across different language systems.

Method

Sample

In the current investigation, the third author categorized 134 countries (those represented in the 2009 Global Gender Gap Report; Hausmann et al. 2009) based on the predominant language(s) spoken as either gendered (54.5%), natural gender (9%), genderless (19.4%), gendered and natural gender (4.5%), gendered and genderless (4.5%), natural gender and genderless (5.2%), or other (3%). Each country’s grammatical gender group or groups were determined by first identifying the primary language for each country. The languages spoken in each country were found through the Central Intelligence Agency’s (CIA) Factbook (2010), which lists each country, the languages spoken, as well as the percentage of population which speaks each language, or, if percentages are not available, the official language(s). Given that many of the countries listed speak multiple languages, if over 70% spoke a single language or multiple languages with a single type of grammatical gender, those languages’ linguistic families—determined using Lewis’s (2009) *Ethnologue: Languages of the World*—were used to determine the appropriate gram-

matical gender grouping. If only official languages were listed, those languages were used to determine the grammatical gender.

Using the dominate language or languages for each country, grammatical gender group was specified using the criteria put forth in Stahlberg et al. (2007) for delineating the difference between gendered, genderless, and natural gender languages. Stahlberg and colleagues categorize some languages and language families directly, and for those languages, we used their classification. For languages not classified directly by Stahlberg and colleagues (2007), we consulted information from the series *Gender across Languages* (Hellinger & Bußmann 2001–2003) and work by Ibrahim (1973) to determine the grammatical gender structure of specific languages. For the languages not covered in either of these sources we conducted online searches to ascertain the grammatical gender structure of the language in order to classify it.

If no single grammatical gender was predominant, the two most predominant grammatical genders were listed (e.g., “gendered and natural gender”). A very small percentage of countries could not be categorized into a specific grammatical gender category and comprise the “other”, either because they spoke a Creole or hybrid language without a determinable grammatical gender, or if the language did not fit into any of the groupings.

In order to validate our coding of grammatical gender group, the second author classified a random sub-set of the countries by grammatical gender group using the same process. The second author’s judgment matched that of the third author on sixty of the sixty-one randomly chosen countries, yielding a kappa of .96. Thus, we felt comfortable with the reliability of the coding procedure and used the entirety of the third authors’ categorizations in our analyses.

In the current investigation, we only analyzed the differences between countries that fell neatly into one gender language category (i.e., gendered, natural gender, or genderless), which left 111 countries in our sample (73 gendered, 12 natural gender, and 26 genderless; see Tables 1 and 2).

Indicators of Gender Equality

In order to compare countries’ level of gender equality, we utilized data from the 2009 World Economic Forum’s Global Gender Gap Report (Hausmann et al. 2009). According to its authors, the Global Gender Gap Index “benchmarks national gender gaps on economic, political, education- and health-based criteria, and provides country rankings that allow for effective comparisons across regions and income groups” (p. 3). Rather than focusing on policy, culture, or norms, the report attempts “to provide a snapshot

Table 1 Summary of data by country

Country	Lang. Group	GGG Index	Econ. Part.	Educ. Attain.	Health/Surv	Pol. Emp.	Continent	Religion	Govt	HDI
Overall Mean	–	.68	.63	.95	.97	.16	–	–	–	.77
Algeria	Gendered	.61	.47	.95	.97	.06	Africa	Islam	AR	.73
Argentina	Gendered	.72	.60	.99	.98	.31	SA	Christianity	DR	.87
Armenia	Gendered	.66	.67	1.00	.93	.04	Europe	Christianity	DR	.78
Australia	Natural	.73	.75	1.00	.97	.19	Oceania	Christianity	DCM	.96
Austria	Gendered	.70	.57	.99	.98	.27	Europe	Christianity	DR	.95
Azerbaijan	Genderless	.66	.69	.97	.94	.06	Europe	Islam	AR	.75
Bahamas	Natural	.72	.83	1.00	.98	.07	NA	Christianity	DCM	.85
Bahrain	Gendered	.61	.48	.99	.96	.02	Asia	Islam	AM	.87
Bangladesh	Gendered	.65	.46	.91	.95	.29	Asia	Islam	DR	.55
Barbados	Natural	.72	.79	1.00	.98	.13	NA	Christianity	DCM	.89
Belarus	Gendered	.71	.73	.99	.98	.16	Europe	Christianity	AR	.8
Belgium	Gendered	.72	.65	.99	.98	.24	Europe	Christianity	DCM	.95
Belize	Gendered	.66	.62	1.00	.98	.05	NA	Christianity	DCM	.78
Bolivia	Gendered	.67	.59	.97	.97	.15	SA	Christianity	DR	.7
Botswana	Genderless	.71	.74	1.00	.95	.13	Africa	Christianity	DR	.65
Brazil	Gendered	.67	.64	1.00	.98	.06	SA	Christianity	DR	.8
Brunei Darus.	Genderless	.65	.62	.99	.97	.03	Asia	Islam	AM	.89
Bulgaria	Gendered	.71	.69	.99	.98	.16	Europe	Christianity	DR	.82
Burkina Faso	Gendered	.61	.64	.73	.97	.10	Africa	Islam	DR	.37
Cambodia	Genderless	.64	.65	.86	.98	.08	Asia	Buddhism	DCM	.6
Cameroon	Genderless	.61	.55	.84	.97	.08	Africa	Other	AR	.53
Chad	Gendered	.54	.65	.47	.98	.07	Africa	Islam	AR	.39
Chile	Gendered	.69	.52	1.00	.98	.26	SA	Christianity	DR	.87
China	Genderless	.69	.70	.98	.95	.14	Asia	Other	CS	.78
Colombia	Gendered	.69	.69	1.00	.98	.10	SA	Christianity	DR	.79
Croatia	Gendered	.69	.65	.99	.98	.16	Europe	Christianity	DR	.85
Cuba	Gendered	.72	.60	1.00	.97	.29	NA	Christianity	CS	.84
Czech Republic	Gendered	.68	.64	1.00	.98	.09	Europe	Irreligion	DR	.89
Denmark	Natural	.76	.75	1.00	.97	.33	Europe	Christianity	DCM	.95
Dominican Rep.	Gendered	.69	.65	1.00	.98	.12	SA	Christianity	DR	.78
Ecuador	Gendered	.72	.63	1.00	.98	.28	SA	Christianity	DR	.77
Egypt	Gendered	.59	.45	.90	.97	.02	Africa	Islam	AR	.71
El Salvador	Gendered	.69	.58	.99	.98	.23	NA	Christianity	DR	.74
Estonia	Genderless	.71	.71	1.00	.98	.16	Europe	Other	DR	.86
Ethiopia	Gendered	.59	.60	.70	.97	.11	Africa	Christianity	DR	.41
Finland	Genderless	.83	.75	1.00	.98	.57	Europe	Christianity	DR	.95
France	Gendered	.73	.66	1.00	.98	.29	Europe	Christianity	DR	.95
Gambia	Natural	.68	.74	.85	.98	.13	Africa	Islam	AR	.5
Germany	Gendered	.74	.70	1.00	.98	.31	Europe	Christianity	DR	.94
Ghana	Genderless	.67	.75	.89	.97	.07	Africa	Christianity	DR	.55
Greece	Gendered	.67	.61	.99	.98	.09	Europe	Christianity	DR	.93
Guatemala	Gendered	.62	.51	.94	.98	.06	NA	Christianity	DR	.69
Guyana	Natural	.71	.61	1.00	.98	.25	SA	Other	DR	.75
Honduras	Gendered	.69	.60	1.00	.98	.17	NA	Christianity	DR	.7
Hungary	Genderless	.69	.67	.99	.98	.11	Europe	Christianity	DR	.87
Iceland	Natural	.83	.75	1.00	.97	.59	Europe	Christianity	DR	.97
India	Gendered	.62	.41	.84	.93	.27	Asia	Hinduism	DR	.62
Indonesia	Genderless	.66	.57	.97	.97	.12	Asia	Islam	DR	.73

Table 1 (continued)

Country	Lang. Group	GGG Index	Econ. Part.	Educ. Attain.	Health/Surv	Pol. Emp.	Continent	Religion	Govt	HDI
Iran	Genderless	.58	.38	.96	.98	.02	Asia	Islam	AR	.76
Ireland	Gendered	.76	.69	1.00	.97	.37	Europe	Christianity	DR	.96
Israel	Gendered	.70	.69	1.00	.97	.15	Asia	Judaism	DR	.93
Italy	Gendered	.68	.59	1.00	.97	.16	Europe	Christianity	DR	.94
Jamaica	Natural	.70	.74	1.00	.97	.09	NA	Christianity	DCM	.74
Jordan	Gendered	.62	.45	.99	.97	.06	Asia	Islam	DCM	.77
Kazakhstan	Gendered	.70	.76	1.00	.98	.07	Asia	Other	AR	.79
Korea Rep.	Gendered	.61	.52	.89	.97	.07	Asia	Irreligion	DR	.92
Kuwait	Gendered	.64	.56	.98	.96	.04	Asia	Islam	AM	.89
Kyrgyz Rep.	Genderless	.71	.69	.99	.98	.16	Asia	Islam	DR	.7
Latvia	Gendered	.74	.75	1.00	.98	.23	Europe	Irreligion	DR	.86
Lithuania	Genderless	.72	.75	.99	.98	.15	Europe	Christianity	DR	.86
Luxembourg	Gendered	.69	.64	1.00	.97	.14	Europe	Christianity	DCM	.94
Macedonia	Gendered	.70	.67	.99	.96	.16	Europe	Christianity	DR	.8
Malawi	Genderless	.67	.69	.88	.96	.16	Africa	Christianity	DR	.44
Malaysia	Genderless	.65	.57	.99	.97	.06	Asia	Islam	DCM	.81
Maldives	Gendered	.65	.58	1.00	.95	.06	Asia	Islam	AR	.74
Malta	Gendered	.66	.56	1.00	.97	.12	Europe	Christianity	DR	.88
Mauritania	Gendered	.61	.49	.85	.98	.12	Africa	Islam	AR	.55
Mexico	Gendered	.65	.51	.98	.98	.13	NA	Christianity	DR	.83
Moldova	Gendered	.71	.73	.99	.98	.14	Europe	Christianity	AR	.71
Mongolia	Genderless	.72	.83	1.00	.98	.08	Asia	Buddhism	DR	.7
Morocco	Gendered	.59	.45	.86	.97	.10	Africa	Islam	DCM	.65
Mozambique	Genderless	.72	.81	.78	.98	.30	Africa	Christianity	DR	.38
Namibia	Genderless	.72	.72	.98	.97	.20	Africa	Christianity	DR	.65
Nepal	Gendered	.62	.50	.82	.96	.22	Asia	Hinduism	DCM	.53
Netherlands	Gendered	.75	.69	1.00	.97	.34	Europe	Christianity	DCM	.95
Nicaragua	Gendered	.70	.56	1.00	.98	.26	NA	Christianity	DR	.71
Norway	Natural	.82	.78	1.00	.98	.53	Europe	Christianity	DCM	.97
Oman	Gendered	.59	.41	.97	.97	.02	Asia	Islam	AM	.81
Pakistan	Gendered	.55	.34	.75	.95	.15	Asia	Islam	AR	.55
Panama	Gendered	.70	.68	.99	.98	.15	NA	Christianity	DR	.81
Paraguay	Gendered	.69	.67	1.00	.98	.10	SA	Christianity	DR	.76
Peru	Gendered	.70	.64	.98	.97	.22	SA	Christianity	DR	.77
Poland	Gendered	.70	.64	1.00	.98	.18	Europe	Christianity	DR	.87
Portugal	Gendered	.70	.68	.99	.97	.16	Europe	Christianity	DR	.9
Qatar	Gendered	.59	.40	.99	.95	.02	Asia	Islam	AM	.88
Romania	Gendered	.68	.71	.99	.98	.04	Europe	Christianity	DR	.81
Russian Fed.	Gendered	.70	.74	1.00	.98	.08	Asia	Other	DR	.8
Saudi Arabia	Gendered	.57	.31	.97	.98	.00	Asia	Islam	AM	.81
Senegal	Gendered	.64	.64	.82	.97	.14	Africa	Islam	DR	.5
Slovakia	Gendered	.68	.65	1.00	.98	.11	Europe	Christianity	DR	.86
Slovenia	Gendered	.70	.72	1.00	.97	.10	Europe	Christianity	DR	.92
South Africa	Genderless	.77	.66	1.00	.98	.45	Africa	Christianity	DR	.67
Spain	Gendered	.73	.60	.99	.97	.37	Europe	Christianity	DCM	.95
Sri Lanka	Gendered	.74	.57	.99	.98	.42	Asia	Buddhism	DR	.74
Sweden	Natural	.81	.79	1.00	.97	.50	Europe	Christianity	DCM	.96
Switzerland	Gendered	.74	.69	.98	.98	.33	Europe	Christianity	DR	.96
Syria	Gendered	.61	.46	.93	.98	.06	Asia	Islam	AR	.59

Table 1 (continued)

Country	Lang. Group	GGG Index	Econ. Part.	Educ. Attain.	Health/Surv	Pol. Emp.	Continent	Religion	Govt	HDI
Tanzania	Genderless	.68	.68	.87	.97	.20	Africa	Other	DR	.47
Thailand	Genderless	.69	.72	.99	.98	.07	Asia	Buddhism	DCM	.78
Tunisia	Gendered	.62	.45	.96	.97	.11	Africa	Islam	AR	.77
Turkey	Genderless	.58	.40	.89	.97	.07	Asia	Islam	DR	.78
Ukraine	Gendered	.69	.72	1.00	.98	.06	Europe	Christianity	DR	.79
United Arab Em.	Gendered	.62	.41	.99	.96	.11	Asia	Islam	AM	.87
United States	Natural	.72	.75	1.00	.98	.14	NA	Christianity	DR	.95
Uruguay	Gendered	.69	.65	1.00	.98	.14	SA	Christianity	DR	.85
Uzbekistan	Genderless	.69	.77	.94	.98	.08	Asia	Islam	AR	.7
Venezuela	Gendered	.68	.62	1.00	.98	.14	SA	Christianity	DR	.79
Vietnam	Genderless	.68	.73	.90	.97	.12	Asia	Irreligion	CS	.73
Yemen	Gendered	.46	.23	.61	.98	.02	Asia	Islam	AR	.51
Zambia	Genderless	.63	.59	.87	.96	.11	Africa	Christianity	DR	.43
Zimbabwe	Natural	.65	.62	.93	.95	.10	Africa	Other	AR	.51

Note: GGG stands for Global Gender Gap and HDI stands for Human Development Index. The full names of the sub-scores for the Global Gender Gap Index are "Economic Participation and Opportunity", "Educational Attainment", "Health and Survival", and "Political Empowerment." All quantitative variables range from 0 to 1. Under the Continent column, NA stands for "North America" and SA stands for "South America". Under the Government column, AR stands for "Authoritarian Republic," AM for "Absolute Monarchy," DR Stands for "Democratic Republic," DCM for "Democratic Constitutional Monarchy," and CS for "Communist State"

of where men and women stand with regard to some fundamental outcome variables related to basic rights" (p. 3). The report provides scores for each country in the form of a composite rating to represent the country's overall gender gap, as well as individual scores for each of the four sub-indices that are used to calculate the un-weighted average composite rating (Economic participation and opportunity, Educational attainment, Political empowerment, and Health and survival), with scores for both the overall index and sub-indices ranging

from 0 to 1 (higher scores representing greater gender equality). The sub-indices themselves are calculated using weighted averages of individual indicators (see Hausmann et al. 2009 for further details). It is important to highlight that these ratings represent the relative gap between men and women in a given country, rather than the overall level for each indicator. Thus, countries in which the average educational attainment is relatively high might still rate as relatively low in gender equality if the gap between men and

Table 2 Descriptive statistics for indicators of gender equality by grammatical language group

Dependent measure	Grammatical language group				df
	Gendered <i>M (SD)</i>	Natural <i>M (SD)</i>	Genderless <i>M (SD)</i>	One-way p-value	
With covariates					
Overall GGG rating	.67 (.004) ^a	.72 (.011) ^b	.70 (.008) ^b	< 0.001	2,103
Economic participation	.59 (.010) ^a	.71 (.025) ^b	.68 (.019) ^b	< 0.001	2,103
Educational attainment	.95 (.007)	.95 (.016)	.98 (.012)	.13	2,103
Health and survival	.97 (.001)	.97 (.003)	.97 (.002)	.92	2,103
Political empowerment	.15 (.013)	.23 (.032)	.16 (.024)	.06	2,103
Without covariates					
Overall GGG rating	.67 (.007) ^a	.74 (.016) ^b	.68 (.011) ^a	< 0.001	2,108
Economic participation	.59 (.013) ^a	.74 (.031) ^b	.67 (.021) ^b	< 0.001	2,108
Educational attainment	.95 (.010)	.98 (.025)	.94 (.017)	.44	2,108
Health and survival	.97 (.001)	.97 (.003)	.97 (.002)	.48	2,108
Political empowerment	.15 (.014) ^a	.26 (.034) ^b	.15 (.02) ^a	.02	2,108

Note. Subscript letters indicate group differences obtained by pairwise comparisons significant at the 0.05 level. GGG stands for Global Gender Gap. Covariates included contrasts for geographic location, religious tradition, system of government, and the continuous measure of the human development index (HDI)

women's educational attainment is large, whereas countries with low average educational attainment may be represented as more equal, as both men and women fail to achieve educational attainment. For the current analyses, we utilized the overall rating, as well as the individual sub-indices as outcome variables, to determine whether differences in gender equality exist among countries with different grammatical gender language systems.

Covariates

In order to determine if any existing differences in gender equality between countries with different grammatical gender language systems would persist even when other factors that could impact gender equality were accounted for, we entered several other factors into our final model as potential covariates. Because most of the potential covariates were categorical variables with many levels, we first conducted a series of one-way analyses of variance (ANOVAs) on the Global Gender Gap Index with each potential categorical covariate as the grouping variable to determine if there were any consistent patterns in the group means that could be represented by a planned contrast in the final model. Without a planned contrast, representing each level of the variable would have required an extensive number of dummy coded variables which would have required a larger sample size to ensure enough power in the model for our primary analyses. Furthermore, some of the levels had a very small sample size (e.g., countries with a communist state as the system of government) and thus would not have allowed for comparison. Creating the planned contrast to represent the categorical covariates allowed for a reduction in the number of dummy coded variables in the final model, while still representing the variability explained by that particular factor. The contrasts chosen as covariates were those which maximized the variance in GGG ratings explained.

First, we explored whether geographic region predicted gender equality by comparing differences in gender equality by continent (Asia, Africa, North America, South America, Europe, and Australia). A series of one-way ANOVAs comparing the differences in means by continent suggested that a contrast comparing Eastern (Africa and Asia) versus Western cultures (North and South America, Europe, and Australia) would best represent the variance based on geographic location. Thus, in our final analyses, our indicator of geographic location contrasted countries in Eastern versus Western cultures.

Next, we once again used a series of one-way ANOVAs to assess the differences in gender equality among countries with various predominant religious traditions (Christianity, Islam, Judaism, Buddhism, Hinduism, irreligion, or other) and found that countries which primarily practiced Islam and Hinduism demonstrated less gender equality than other

countries. Thus, in our final analyses our indicator of religious tradition contrasted countries in which Islam and Hinduism were the primary religious traditions versus countries where Christianity, Judaism, Buddhism, irreligion, or other religions predominate.

To assess differences in gender equality in countries with varied political systems, we compared gender equality among countries with various government structures (democratic republics, democratic constitutional monarchy, absolute monarchy, authoritarian republic, military government, communist state, and transitional government). We found persistent differences in gender equality between countries with either democratic republics or democratic constitutional monarchies compared to other forms of government. Thus, in our final model we entered a contrast comparing democratic republics and constitutional monarchies versus other forms of government as a covariate.

Finally, we utilized the 2010 Human Development Index (HDI) ratings published by the United Nations as another factor which might reliably predict differences in gender equality as a covariate in our final model. The United Nations conceptualizes human development as “the expansion of people's freedoms to live long, healthy and creative lives; to advance other goals they have reason to value; and to engage actively in shaping development equitably and sustainably on a shared planet” and as an indicator of human development, the HDI “combines information on life expectancy, schooling and income in a simple composite measure” (Klugman et al. 2010; p. 2–3). The HDI is a continuous measure in which higher scores indicate greater overall development, and the HDI demonstrated a positive relationship with all five indicators of gender equality (all $ps < .01$ except the relationship with Economic participation, which merely approached significance, $p = .06$).

In order to ensure that none of our covariates interacted with our language variable, we submitted the dependent variables to a series of Multivariate Analyses of Covariance (MANCOVAs) with the dichotomous covariates (geographic location, religious tradition, and system of government), as well as a regression on the HDI scores to test for moderation with our primary predictor (grammatical gender language group). None of the interactions were significant, and thus, we felt comfortable entering our covariates into the final model.

Results

To test the effects of language classification on gender equality, we submitted the overall Global Gender Gap (GGG) ratings and four individual indices to a MANCOVA with the government contrast, religion contrast, geography contrast, and HDI scores as covariance. This yielded a

significant effect for language, $\Lambda=.69$, $F(10,198)=4.11$, $p<.001$, with religion, $\Lambda=.79$, $F(5,99)=5.12$, $p<.001$, and HDI, $\Lambda=.49$, $F(5,99)=20.46$, $p<.001$, emerging as significant covariates. The political system covariate approached significance, $\Lambda=.90$, $F(5,99)=2.16$, $p<.07$, and geography was not statistically significant, $\Lambda=.98$, $F(5,99)=.34$, $p>.89$.

We next submitted each of the five dependent variables to a separate Analysis of Covariance (ANCOVA) with the same covariates described above. To control the Type I error rate, the Bonferroni approach was employed. With five univariate follow-up tests, the alpha was set at $\alpha=.01$ (.05/5). These analyses yielded a significant effect of language classification for the overall GGG ratings, $F(2,103)=12.68$, $p<.001$, and the economic participation rate, $F(2,103)=15.85$, $p<.001$. The analyses on the remaining dependent variables did not yield significant results, $F_s<2.9$, $p_s>.06$.

As predicted in Hypothesis 1, countries with gendered language scored lower in the GGG overall rating ($M=.67$, $SE=.004$) than countries with a natural gender ($M=.72$, $SE=.011$) or a genderless language ($M=.70$, $SE=.008$). The difference between the latter two groups was not significant. An identical pattern was found among the economic participation rating with countries with a gendered language scoring lower in equality ($M=.59$, $SE=.01$) than countries with a natural gender ($M=.71$, $SE=.025$) or a genderless language ($M=.68$, $SE=.012$).

To ensure that the covariates were not masking any significant effects, we ran the analyses with the covariates removed. We submitted the five ratings of gender equality to a one-way Multivariate Analysis of Variance (MANOVA) with the language classification as the independent variable. This yielded a significant effect for language classification, $\Lambda=.69$, $F(10,198)=4.11$, $p<.001$.

We next submitted each of the five dependent variables to a separate Analysis of Variance (ANOVA) with the more conservative alpha level ($\alpha=.01$) described above. This yielded a significant effect of language classification for the overall GGG ratings, $F(2,108)=8.58$, $p<.001$, the economic participation rate, $F(2,108)=13.34$, $p<.001$, and the effect for political empowerment approached significance, $F(2,108)=4.31$, $p=.016$. The analyses on the remaining dependent variables did not yield significant results, $F_s<1$, $p_s>.43$.

In support of Hypothesis 2, countries with natural gender language scored higher in the GGG overall rating ($M=.74$, $SE=.016$) than countries with a genderless ($M=.68$, $SE=.011$) or a gendered language ($M=.67$, $SE=.007$). The difference between the latter two groups was not significant. An identical pattern was found for the political empowerment ratings. Countries with natural gender language scored higher in the political empowerment rating ($M=.26$, $SE=.034$) than countries with a genderless ($M=.15$, $SE=.023$) or a gendered

language ($M=.15$, $SE=.014$), with no significant difference between the latter two groups. For the economic participation rating, countries with a gendered language scored lower in equality ($M=.59$, $SE=.013$) than countries with a natural gender ($M=.74$, $SE=.031$) or a genderless language ($M=.67$, $SE=.021$). The difference between the latter two groups approached significance, $p=.06$.

Discussion

Previous research highlights how grammatical gender in language can shape people's perceptions (e.g., Boroditsky et al. 2003) as well as how minor changes in the gendering of everyday language can impact an individual's judgments, decisions, and behavior in ways that could influence the relative status and treatment of men and women at an interpersonal level (e.g., Bem and Bem 1973; Hamilton et al. 1992). The current work attempts to merge these two areas by exploring how grammatical gender in language relates to gender equality at the societal level. Taken together, the current findings suggest a relationship between the gendering of language at a macro level and society-wide indicators of gender equality.

In the current work, we anticipated that the grammatical gender language classification of the primary language spoken within a given country had the potential to predict overall levels of gender equality in that country. As predicted, it appears that countries that speak gendered languages evidence less gender equality than countries that speak natural gender or genderless languages—especially in terms of gender differences in economic participation—even when other factors that could influence variations in gender equality (e.g., religious tradition, system of government) are taken into account (Hypothesis 1). Moreover, the current findings suggest that countries that speak natural gender languages may be even more apt to exhibit gender equality—especially in the form of women's greater access to political empowerment—than in countries where gendered or genderless languages are spoken (support for Hypothesis 2), as countries that speak genderless languages appear to fall in between countries that speak gendered and natural gender languages in terms of the various indicators of gender equality.

As Stahlberg and colleagues (2007) have noted, despite the assumption that genderless languages are gender fair or neutral, research has shown that a seemingly gender neutral term (e.g., "they") can be interpreted in a gender biased way. For example, in their review, Stahlberg and colleagues recount research investigating possible corrections for the masculine generic in Spanish, English, German, and Turkish that have all demonstrated that gender neutral terms can continue to connote a male bias in the mind of the audience, and in cases where a gender symmetrical version is

investigated (e.g., “he or she”), the gender symmetrical version promotes greater inclusion of women (see, for example, Braun 2001; Hyde 1984; Nissen 2002; Scheele and Gauler 1993). Therefore, genderless languages—such as Finnish—can include seemingly gender neutral terms that in fact connote a male bias (just as natural and gendered languages), but because they do not possess grammatical gender, it is not possible to use female pronouns or nouns to “emphasize women’s presence in the world,” which could mean “androcentricity in a genderless language may even increase the lexical, semantic and conceptual invisibility of women” (Engelberg 2002, p.128).

In contrast, gendered languages are so fundamentally based in gender that it is complicated to attempt to reform the gender asymmetry that is present in pronouns, nouns, dependant forms, and grammatical rules of agreement (Stahlberg et al. 2007), and including gender-symmetrical forms of nouns and their dependant forms within sentences would significantly disturb one’s ability to read them (Koniuszaniec and Blaszkowska 2003). Therefore, natural gender languages may be the most successful at promoting gender-inclusive language, because unlike genderless languages they are able to include gender-symmetrical forms in pronouns and nouns (thus increasing the visibility of women), but compared to gendered languages they do not depend upon gendered structures that would limit the legibility or intelligibility of symmetrical revisions.

Although the current findings signal the existence of differences in gender equality between countries with various grammatical gender language systems, they cannot address questions about the process through which these differences emerge or if language systems play a causal role. Fortunately, by including other possible causal factors in our model, we know that the pattern of variation in gender equality cannot be completely explained by divergent geographic locations, religious traditions, government systems, or level of development alone, as differences by grammatical gender language remained even after controlling for other factors. Future research could explore other possible factors that predict gender equality cross-culturally or other ways of operationally defining the variables to be included in the model. For example, in the current study, we used continent as basis for defining the various geographic locations. However, smaller regional differences might be more appropriate for teasing apart geographic influences on gender equality. Whereas Europe did not stand out from all other continents as having greater gender equality, five of the top ten countries for overall gender equality are Nordic countries (Denmark, Finland, Iceland, Norway, and Sweden). However, in addition to a shared geographic proximity, these countries (with the exception of Finland) also share a history of Scandinavian cultural and linguistic tradition. Thus, it is difficult to tease apart these influences.

Although in the current work, we have classified languages into three distinct categories on the basis of the extent to which grammatical gender is evident, it is important to note that there are vast differences in the way grammatical gender manifests within each individual language. For instance, gendered languages differ greatly in the extent to which lexical gender is tied to the semantic categories of sex and gender (i.e., distinctions between male and female or masculine and feminine; Comrie 1999), and these differences can impact the extent to which grammatical gender influences gendered perceptions. For example, Vigliocco et al. (2005) found that grammatical gender affects meaning more when the mapping between grammatical gender and the semantic categories for sex and gender are more direct (e.g., in Italian) compared to when the relationship between grammatical gender and semantic gender are largely arbitrary (e.g., German). However, despite the variations in the way grammatical gender manifests within gendered, natural gender, and genderless languages, the fact that consistent differences between these broad categories emerged is perhaps even more impressive. Future research should investigate the extent to which semantic mapping plays a role in cross-cultural language differences and how this could impact both efforts at reforming gendered language and the extent to which grammatical gender impacts everyday gender relations. Is it the case that countries with gendered languages where the mapping is largely arbitrary demonstrate less gender inequality compared to countries where the mapping is consistent? The current findings suggest that perhaps it is less about whether the language contains grammatical gender per se, but rather the ability to reducing sexist language that predicts societal indicators of gender equality. Given this, we would expect that whichever language form allows for creating gender symmetry should be associated with greater gender equality.

It is also important to note that even in languages that are deemed “genderless” in our grammatical gender classification, language conventions exist that may allow for gender inequalities. For example, in Chinese, characters are often comprised of a collection of radicals (which themselves can be stand alone characters). Research suggests that terms comprising a radical that as a standalone character represents the word “son” are generally viewed more positively than terms comprising the character for “woman” (Cherng et al. 2009), despite the fact that both sets of terms were generally judged to be positive. Thus, grammatical gender is only one facet of how language becomes gendered which may have wider social implications.

For many years, feminist critics have been calling for language reform to reduce or eliminate the use of gender asymmetries, masculine generics, and other biases in language and make language more gender fair (Martyna 1980). There have been clear efforts on the part of

professional organizations, publishing companies, and even governmental organizations in different countries and across many different languages to address these concerns (Gabriel and Gygax 2008; Martyna 1980; Stahlberg et al. 2007). Despite the notion that grammatical gender is harmless (or even poetic; see Deutscher 2010), given the differences in gender equality that emerged in the current work, it might be worth considering how grammatical gender impacts attempts at language reform, and whether the limitations of gendered and genderless languages to adequately reform sexist language could impact real world perceptions of gender, and ultimately the everyday lives of women and men.

The current investigation explored cross-cultural variations in grammatical gender in language and gender equality. Taking such a macro approach allows for the discovery of sweeping trends, but does not allow for the discovery of nuanced differences between individual countries and languages or the understanding of how languages are communicated and social aspects of gender status are negotiated in everyday situations. Thus, we hope the current work will be a catalyst for future work to further explore how grammatical gender operates in everyday communication and how differences in the use of grammatical gender across languages may not only impact cognitive interpretations (as others have already noted; e.g., Deutscher 2010; Boroditsky et al. 2003), but possibly the gender relations of men and women. To truly understand the intersection of gender in language, cognition, and culture, researchers will ultimately need to draw connections between large-scale cross-cultural trends, cognitive process models, and experimental research on interpersonal behavior. Moreover, although language may very well play a role in gender equality and language reform could be a fruitful avenue for improving the status of women, it is important to remember that linguistic modification must be accompanied by social and political adjustments in order to truly change existing asymmetries in gender.

References

- Banaji, M., & Hardin, C. (1996). Automatic stereotyping. *Psychological Science*, 7, 136–141. doi:10.1111/j.1467-9280.1996.tb00346.x.
- Bem, S. L., & Bem, D. J. (1973). Does sex-biased job advertising “aid and abet” sex discrimination? *Journal of Applied Social Psychology*, 3, 6–18. doi:10.1111/j.1559-1816.1973.tb01290.x.
- Boroditsky, L. (2009). How does our language shape the way we think? In M. Brockman (Ed.), *What's next? Dispatches on the future of science* (pp. 116–129). New York: Vintage.
- Boroditsky, L., Schmidt, L. A., & Phillips, W. (2003). Sex, syntax, and semantics. In D. Gentner & S. Goldin-Meadow (Eds.), *Language in mind: Advances in the Study of Language and Cognition* (pp. 61–79). Cambridge: MIT.
- Briere, J., & Lanktree, C. (1983). Sex-role related effects of sex bias in language. *Sex Roles*, 9, 625–632. doi:10.1007/BF00290069.
- Braun, F. (2001). The communication of gender in Turkish. In M. Hellinger & H. Bußmann (Eds.), *Gender across languages* (Vol. 1, pp. 283–310). Philadelphia: John Benjamins Company.
- Bull, T., & Swan, T. (2002). The representation of gender in Norwegian. In M. Hellinger & H. Bußmann (Eds.), *Gender across languages* (Vol. 2, pp. 219–249). Philadelphia: John Benjamins Company.
- Cameron, D. (1998). *The feminist critique of language: A reader* (2nd ed.). New York: Routledge.
- Central Intelligence Agency. (2010). The world factbook: Languages. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/fields/2098.html>.
- Chen, J.-Y., & Su, J.-J. (2011). Differential sensitivity to the gender of a person by English and Chinese speakers. *Journal of Psycholinguistic Research*, 40, 195–203. doi:10.1007/s10936-010-9164-9.
- Cheng, R.-J., Chang, C.-L., & Chen, J.-Y. (2009). A new look at gender inequality in Chinese: A study of Chinese speakers' perception of gender-based characters. *Sex Roles*, 61, 427–433. doi:10.1007/s11199-009-9639-z.
- Comrie, B. (1999). Grammatical gender systems: A linguist's assessment. *Journal of Psycholinguistic Research*, 28, 457–466. doi:10.1023/A:1023212225540.
- Deutscher, G. (2010). *Through the language glass: Why the world looks different in other languages*. New York: Metropolitan Books.
- Engelberg, M. (2002). The communication of gender in Finnish. In M. Hellinger & H. Bußmann (Eds.), *Gender across languages* (Vol. 2, pp. 109–132). Philadelphia: John Benjamins Company.
- Gabriel, U., & Gygax, P. (2008). Can societal language amendments change gender representation? The case of Norway. *Scandinavian Journal of Psychology*, 49, 451–457. doi:10.1111/j.1467-9450.2008.00650.x.
- Gastil, J. (1990). Generic pronouns and sexist language: The oxymoronic character of masculine generics. *Sex Roles*, 23, 629–643. doi:10.1007/BF00289252.
- Hamilton, M. C., Hunter, B., & Stuart-Smith, S. (1992). Jury instructions worded in the masculine generic: Can a woman claim self-defense when “he” is threatened? In J. C. Chrisler & D. Howard (Eds.), *New directions in feminist psychology: Practice, theory, and research* (pp. 340–347). New York: Springer.
- Hausmann, R., Tyson, L.D., & Zahidi, S. (2009). *The global gender gap 2009*. Geneva, Switzerland: World Economic Forum. Retrieved from <http://www.weforum.org/pdf/gendergap/report2009.pdf>
- Hellinger, M., & Bußmann, H. (2001). The linguistic representation of women and men. In M. Hellinger & H. Bußmann (Eds.), *Gender across languages* (Vol. 1, pp. 1–25). Philadelphia: John Benjamins Company.
- Hellinger, M., & Bußmann, H. (Eds.). (2001–2003). *Gender across languages* (Vols. 1–3) Philadelphia: John Benjamins Company.
- Hill, E. D., Terrell, H. K., Cohen, A. B., & Nagoshi, C. T. (2010). The role of social cognition in the religious fundamentalism-prejudice relationship. *Journal for the Scientific Study of Religion*, 49, 724–739. doi:10.1111/j.1468-5906.2010.01542.x.
- Hyde, J. S. (1984). Children's understanding of sexist language. *Developmental Psychology*, 20, 697–706. doi:10.1037/0012-1649.20.4.697.
- Ibrahim, M. H. (1973). *Grammatical gender: Its origin and development*. The Hague: Mouton & Co.
- Jakobson, R. (1966). On linguistic aspects of translation. In R. A. Brower (Ed.), *On translation* (pp. 232–239). New York: Oxford University Press.
- Klugman, J., et al. (2010). Human development report 2010 (20th anniversary edition): The real wealth of nations: Pathways to human development. New York: United Nations Development Programme. Retrieved from http://hdr.undp.org/en/media/HDR_2010_EN_Complete_reprint.pdf

- Konishi, T. (1993). The semantics of grammatical gender: A cross-cultural study. *Journal of Psycholinguistic Research*, 22, 519–534. doi:10.1007/BF01068252.
- Koniuszaniec, G., & Blaszkowska, H. (2003). Language and gender in Polish. In M. Hellinger & H. Bußmann (Eds.), *Gender across languages* (Vol. 3, pp. 259–285). Philadelphia: John Benjamins Company.
- Lewis, M. P. (2009). *Ethnologue: Languages of the World* (16th ed). Dallas, TX.: SIL International. Retrieved from: http://www.ethnologue.com/family_index.asp.
- Martyna, W. (1980). Beyond the “he/man” approach: The case for nonsexist language. *Signs*, 5, 482–493. Retrieved from <http://www.jstor.org/stable/3173588>.
- McConnell, A. R., & Fazio, R. H. (1996). Women as men and people: Effects of gender-marked language. *Personality and Social Psychology Bulletin*, 22, 1004–1013. doi:10.1177/01461672962210003.
- Moulton, J. G., Robinson, M., & Elias, C. (1978). Sex bias in language use: “Neutral” pronouns that aren’t. *American Psychologist*, 33, 1032–1036. doi:10.1037/0003-066X.33.11.1032
- Nissen, U. K. (2002). Gender in Spanish: Tradition and innovation. In M. Hellinger & H. Bußmann (Eds.), *Gender across languages* (Vol. 2, pp. 251–277). Philadelphia: John Benjamins Company.
- Razavi, S., & Jenichen, A. (2010). The unhappy marriage of religion and politics: Problems and pitfalls for gender equality. *Third World Quarterly*, 31, 833–850. doi:10.1080/01436597.2010.502700.
- Scheele, B., & Gauler, E. (1993). Wählen wissenschaftler ihre probleme anders aus als wissenschaftler innen? Das genus-sexus-problem als paradigmatischer fall der linguistischen relativitätstheese [Do male and female scientists differ in their selection of research problems? The problem of gender-sex bias as a paradigmatic example of linguistic relativity]. *Sprache & Kognition*, 12, 59–72.
- Schneider, D. J. (2004). *The psychology of stereotyping*. New York: Guilford.
- Sera, M., Berge, C., & Del Castillo, J. (1994). Grammatical and conceptual forces in the attribution of gender by English and Spanish speakers. *Cognitive Development*, 9, 261–292.
- Sibley, C. G., Wilson, M. S., & Duckitt, J. (2007). Antecedents of men’s hostile and benevolent sexism: The dual roles of Social Dominance Orientation and Right-Wing Authoritarianism. *Personality and Social Psychology Bulletin*, 33, 160–172. doi:10.1177/0146167206294745.
- Stahlberg, D., Braun, F., Immen, L., & Sczesny, S. (2007). Representation of the sexes in language. In K. Fiedler (Ed.), *Social communication* (pp. 163–187). New York: Psychology.
- Oxford English dictionary (2nd ed.). (1989). Oxford: Clarendon Press (Vol. 16, pp. 666).
- Switzer, J. Y. (1990). The impact of generic word choices: An empirical investigation of age and sex-related differences. *Sex Roles*, 22, 69–82. doi:10.1007/BF00288155.
- Vigliocco, G., Vinson, D. P., Paganelli, F., & Dworzynski, K. (2005). Grammatical gender effects on cognition: Implications for language learning and language use. *Journal of Experimental Psychology*, 104, 501–520. doi:10.1037/0096-3445.134.4.501.
- Wasserman, B. D., & Weseley, A. J. (2009). ¿Qué? Quoi? Do languages with grammatical gender promote sexist attitudes? *Sex Roles*, 61, 634–643. doi:10.1007/s11199-009-9696-3.