A quantitative evaluation of gender asymmetry in euphemism

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Abstract

Gender has long been discussed as a possible factor in how people speak differently. One gender-based difference asserted by scholars is that women use euphemisms more than men. Although there have been a number of studies investigating gender differences in language, the claim about euphemism usage has not been tested comprehensively. Using four large text corpora of English, we evaluate the claim that women use euphemisms more than men do through a quantitative analysis. We assembled a list of 106 euphemism-taboo pairs to analyze their relative use by each gender in the corpora. Our results do not show that women use euphemisms with a higher proportion than men. We repeated the analysis using different, more selective subsets of the euphemism-taboo pairs list and found that our result was robust. Our study indicates that in a broad range of settings involving both spoken and written speech, and with varying degrees of formality, women do not use euphemisms more than men.

Introduction

What role does gender play in how we speak? This question has long been a matter of discussion among scholars. In Robin Lakoff’s influential work on this topic, she proposes many ways in which language spoken by women and about women differs from language used by and about men [1,2]. Lakoff discusses the causes of these differences and what they tell us about women’s role in society. The difference we focus on in this study is one she mentions without much discussion, and no supporting evidence, namely that women use euphemisms more than men do [2, p. 78]. Lakoff is not the first to propose this difference. Jespersen [3] also claims that women use euphemisms more, and discusses this supposed characteristic of women’s language at length.

The fact that two renowned scholars agree on this subject, and with a few decades between them, may lead one to take for granted that women do use euphemisms more than men. However, both Jespersen and Lakoff base this claim primarily on anecdotal evidence. With our modern ability to access and analyze large amounts of data, we can test their claim by measuring men’s and women’s actual use of euphemisms. To our knowledge, no one has attempted to quantitatively test whether greater use of euphemisms is characteristic of women’s speech. In this paper, we analyze euphemism usage by men and women in four large text corpora of English to test this claim.

Definitions of euphemism can vary [4]. The Oxford English Dictionary (OED) defines a euphemism as “a less distasteful word or phrase used as a substitute for something harsher or more offensive” [5]. Euphemisms are a common part of everyday polite speech. For example, we might describe certain bodily functions as “going to the bathroom” or when referring to someone who has just died we might say they have “recently passed”. Euphemisms can be used to discuss any taboo topic, without directly naming the taboo. Taboo is culturally and contextually dependent, and as such so is euphemism [6,7]. While there is variation in what different people consider to be a euphemism in different contexts, people can judge words to be euphemistic without needing context,

such as when they compile euphemism dictionaries [7]. Allan and Burridge consider these judgements to be made following the “middle class politeness criterion” (MCPC) [6, p. 33], which vaguely describes a polite, “middle-class environment” where a euphemism might be preferred over a more offensive expression. This is roughly the context we assume in this study.

Following the OED definition of euphemism, we consider only words and phrases as euphemisms, though a euphemism could conceivably be any length of utterance. We also assume here that a euphemism is an expression that substitutes for a taboo expression, though some scholars argue that there is not always a direct correspondence between a euphemism expression and a taboo [4].

Euphemisms are often studied as an important driver of language change [7]. As a euphemism becomes more standard, it may become taboo by its association with a taboo topic, and thus ends up being replaced by a new euphemism. This process has been dubbed the *euphemism treadmill* by Pinker [8]. Although we do not explore this phenomenon, it is important to keep in mind whenever studying euphemism use, because it means that euphemism judgment is highly dependent on temporal context.

Throughout many different cultures and languages, it has been observed that men and women use language differently, and some of these differences have been remarked upon for centuries [1, 3, 9–12]. This conversation surrounding gender and language has historically often been framed as a characterization of “women’s language” [1, 3]. Gender differences have been proposed in a wide range of speech characteristics, including word choice, sentence structure, topic choice, and utterance length [13]. In particular, Lakoff [1] also proposed that women’s speech is more “polite” than men’s, and this has been discussed and studied extensively [10, 13, 14].

There have been many empirical studies of gender differences in language. Newman et al. [13] used text samples to comprehensively investigate a large number of proposed gender differences in language use. Their results did show evidence for some of these differences, but with small effect sizes. Among some of their findings which supported existing claims were that women use pronouns more than men, that men swear more than women, and that women use polite forms (e.g., “Would you mind...”) more than men. Newman et al. [13] did not investigate gender differences in euphemism use, but since euphemisms are often considered a form of polite speech [6, 7], their positive finding that women use polite forms more than men may lend credence to the idea that women use euphemisms more.

More recently, Park et al. [15] studied the differences in topics discussed by men and women in English on Facebook, and how these topics aligned with the interpersonal dimensions of affiliation and assertiveness. They found that women did not use more indirect language than men, contrary to the stereotype that women are less assertive than men and contrary to some of Lakoff’s [1] claims about women’s language. Since euphemisms are a form of indirect speech [6, 7], this result could be seen to provide evidence against the claim that women use euphemisms more than men.

The following sections describe the materials and methods we use to investigate the claim that women use euphemisms more than men, and discuss the results of applying these methods. We utilize a set of 106 euphemism-taboo pairs and four large diachronic corpora to test whether women use euphemisms with a higher proportion than men. To verify the robustness of our results, we run the analysis on different subsets of euphemism-taboo pairs to mitigate potential issues with our selection of pairs. Throughout these analyses, we find no evidence that women use euphemisms more than men.

Materials and Methods

We quantify euphemism usage by a proportion measure specifying how much a given euphemism is used out of the sum of counts of that euphemism and its corresponding taboo expression. This is how we interpret Lakoff and Jespersen’s claim that women use euphemisms more. If they only meant that women use euphemisms more without a higher euphemism proportion, then their claim would be simply that women discuss taboo topics more frequently than men, euphemistically or not, which we don’t think is their intention. Hence, we test whether women use euphemisms more by

testing whether they tend to have a higher euphemism proportion.

Text corpora

We analyzed four large text corpora covering different time periods. We required corpora for which the author or speaker’s gender could be determined for each data point. We chose to use longitudinal corpora because euphemisms are known to change over time, and can often be short-lived [7], and as such we might expect the usage of a given euphemism to change over time.

The corpora are: Reddit, New York Times Annotated Corpus (NYT), Canadian Parliamentary dataset (Canadian Parl.), and United States Congressional dataset (US Congr.) [16–19]. The Canadian Parl. data is publicly available from <http://lipad.ca>, the US Congr. data is publicly available from https://data.stanford.edu/congress_text, and the Reddit data is publicly available from <https://github.com/ellarabi/gender-idiomatic-language>. The NYT corpus is available under license. These corpora represent a variety of registers; two of the corpora are spoken, three are formal, and one is informal from social media. The NYT, Canadian Parl. and US Congr. likely embody the MCPC context described by Allan and Burridge [6], which makes them good candidates for analyzing euphemism usage. Reddit is a less controlled context, so it may not qualify for the MCPC, which makes it a good point of comparison for the other three corpora.

We did not analyze older historical corpora for a few reasons. It would be very difficult for us to judge what should be considered a euphemism 100 or more years ago. We also needed data with a high enough proportion of women authors that we wouldn’t have sparsity issues, and we expect later datasets to have larger proportions of women. The article in which Lakoff says women use euphemisms more was published in 1977 [2], which falls within the time span of our analysis.

The US Congr., Canadian Parl., and NYT corpora have a large gender imbalance, with only a small (but increasing) percentage of data each year having been produced by women. See S1 Fig for the gender breakdown of each corpus over time. We perform the analysis of the US Congr. and Canadian Parl. data beginning in 1951, because from this year on the number of contributions by women per year exceeds our chosen sample size of 100, as we describe later. We summarize the statistics for these corpora in Table 1.

Table 1. Corpora statistics

	Reddit	NYT	Canadian Parliament	US Congress
timespan	2006–2020	1987–2007	1951–2018	1951–2010
mean entries per year	8,138,844	88,365	40,756	138,105
initial % entries by women	28%	9%	0.4%	0.6%
final % entries by women	39%	21%	24%	41%

A summary of basic statistics for each corpus used in this study. The Canadian Parl. and US Congr. datasets are actually available for earlier years, but the year 1951 was chosen as their starting point because before that the data for women is sparse.

Euphemism-taboo pairs

In order to analyze the usage of euphemisms compared to taboo expressions on a large scale, we need a data source which pairs euphemism expressions with their equivalent taboos. For example:

- passed away (euphemism) → died (taboo)
- bust (euphemism) → breast (taboo)

While there are many euphemism dictionaries [20,21], and the online OED has a “euphemism” category by which to browse dictionary entries, the entries in these references do not provide direct correspondences between euphemisms and taboo expressions. They also tend to include antiquated,

overly specialized, and highly polysemous euphemisms. For example, Neaman and Silver include *a green hornet* as a euphemism for a motorcycle traffic policeman in Toronto, Canada [21, p. 195]. To our knowledge, there is no existing list of euphemisms paired with taboo expressions. Our contribution includes a list of 106 pairs of euphemism expressions and taboo expressions, which have been chosen to include expressions that are unambiguous and widely represented in contemporary, North American English. Some of the pairs come from articles which discuss a perceived preference for one phrase over another, while others we found in euphemism dictionaries [20, 21]. The remaining pairs were determined from our personal knowledge of euphemisms. See S1 Table for the complete list and their corresponding sources. The same expression sometimes appears in this list as both a taboo and a euphemism (in different pairs). This is because we have included pairs that represent different stages of the euphemism treadmill. An expression may be relatively more euphemistic than the expression it replaces, but still taboo enough to be replaced by an even more euphemistic expression.

The euphemisms were chosen to represent a variety of topics, such as illness, body parts, and war. Previous work has shown that men and women tend to discuss different topics [13, 15], so it was important to choose topics that would not favour only men or only women.

Procedures for quantifying euphemism usage proportion

To determine euphemism use by gender, we first divided the data according to the speaker’s gender. The Reddit data was already separated into self-reported binary gender categories, but the other three corpora did not explicitly contain this information (except for some rare entries in the US Congr. dataset). To classify, we first used the speaker’s title (e.g., Mr.) if it was clearly masculine or feminine. If the title could not be used, we relied on the R **gender** package to determine gender from the speaker’s first name. This package allows for gender retrieval given a first name and a birth year range. Using this package, we created 40-year bins for every decade from 1930 to 1990, and we considered the birth year of a given author/speaker to between 20 to 40 years before the decade that their article/speech was produced. For example, the gender of a speaker from 1951 would be determined from classification data for the birth years 1890–1930. Any texts for which a binary gender classification could not be determined were discarded. For this reason, 17% of the Canadian Parl. data was discarded, 0.04% of the US Congr. data, and 46% of the NYT data.

After dividing by gender, we selected a random sub-sample of fixed size from each gender ($n = 100$ for Canadian Parl. and US Congr., $n = 1000$ for NYT and Reddit), to make up for the gender imbalance. For each euphemism-taboo phrase pair we counted the number of times the euphemism and the taboo expression occur in the sample. For each corpus and each pair, we computed a euphemism usage proportion p for each gender, as shown in Eq 1, where f_y^g is the frequency of the expression in the sample for gender g and year y .

$$p(\text{euphemism}, \text{taboo}, g, y) = \frac{f_y^g(\text{euphemism})}{f_y^g(\text{euphemism}) + f_y^g(\text{taboo})} \quad (1)$$

To ensure plural, past tense, and other inflected forms of the euphemisms are not overlooked, both the corpora and the euphemism-taboo pairs were lemmatized using the **nlTK WordNetLemmatizer** and part-of-speech tagger. This means that each word is reduced to its base lemma, as informed by its part-of-speech (POS) tag. For example, the word *women*, when its POS is noun, becomes *woman*, and the word *deprived*, when its POS is adjective, remains *deprived*. Lemmatization was used as it provided a more comprehensive and accurate collection of euphemisms in various forms than a stemmer, which just removes affixes, would. For example, the **PorterStemmer** would return *women* and *depriv*, irrespective of POS.

To consider statistical variation in the analyses, we repeatedly sampled 25 times for each gender at each year for each corpus. To deal with data sparsity, we placed the counts for the US Congr. and Canadian Parl. in 10-year bins, and placed the data for Reddit and NYT in 2-year bins. We also excluded all pairs which did not meet a certain frequency threshold, to eliminate very sparse, unreliable results. For each euphemism-taboo pair and each corpus, we check that both the

euphemism and the taboo appear at least once in 10% or more of the 25 samples. If not, we omit that pair from the results for that corpus. The number of pairs out of the 106 that meet the frequency threshold for Reddit is 32, NYT is 80, Canadian Parl. is 35, and US Congr. is 34.

Results

We first analyze for all euphemism-taboo pairs, the number of times they are used by each gender, and for how many of these pairs women have a higher euphemism proportion than men do. We then perform focused analyses, on selected subsets of the list of euphemism-taboo pairs. These three analyses respectively examine: only those pairs for which we have recorded a source (as shown in appendix), only pairs where the euphemism or taboo is a multi-word phrase, and only pairs which meet the cut-off threshold for all four corpora (i.e., the conjunction set of euphemism-taboo pairs). We find in all the analyses that women do not use euphemisms more than men.

Analysis of complete set of euphemism-taboo pairs

Using a one-tailed Welch’s unequal variances t-test, for each pair we compared the euphemism proportions in all 25 samples between genders. We recorded the fraction of pairs for which women had a significantly higher euphemism proportion than men at $p < 0.05$, and vice versa for men. If women use euphemisms more than men, we would expect this to return a large percent of pairs where woman have a higher euphemism proportion than men, and a smaller percent of pairs for men.

Fig 1A shows the euphemism and taboo expression frequencies by gender over time for the pair *lady* (euphemism) vs. *woman*. The top two rows show binned frequencies, and the third row shows the euphemism proportion from Eq 1. This pair is one that specifically relates to women, and that Lakoff proposed and explained in detail [1]. We see as expected that women say both *lady* and *woman* more than men do. However, women do not say the euphemism *lady* with a higher proportion than men do. In fact, we find that men use this particular euphemism with a significantly higher proportion than women in three of the four corpora for almost their entire time spans.

Fig 1B shows the results for the pair *disabled* vs. *handicapped*. Though for a large portion of the time in the Reddit, Canadian Parl. and US Congress datasets, women tend to say *disabled* more than men do, they show no consistent lead in euphemism proportion over men.

To summarize the euphemism proportion results, Fig 2 shows the percent of pairs over time where either women have a significantly higher euphemism proportion than men, men have a significantly higher euphemism proportion than women, or neither gender has a significantly higher euphemism proportion. Table 2 provides this same information for only the initial and final time points of each corpus, while also indicating how many pairs remain for each corpus after imposing the frequency threshold.

The individual euphemism-taboo pair plots and the euphemism proportion summary plots show that in all corpora, across the entire time span of 1951-2018, women do not lead in their euphemism-taboo usage proportion. The majority of pairs show no clear leader between men and women. There are some euphemism-taboo pairs where both expressions are said more frequently by women than men.

We also repeated this analysis with bins three times larger for each corpus to see if data sparsity affected our results (i.e., 6 years for Reddit and NYT, 30 years for Canadian Parl. and US Congr.). This increases the number of euphemism-taboo pairs which surpass the frequency threshold for all four corpora, but we found the results still hold that women do not have a consistently higher euphemism proportion than men, and that most pairs show no significant difference in euphemism proportion. See S2 Fig for the corresponding time series plot.

Fig 1. Euphemism and taboo frequencies over time. The top row shows euphemism frequency over time, averaged over samples and time spans (span = 2 years for Reddit and NYT, 10 years for Canadian Parl. and US Congr.). The shaded area indicates a 95% confidence interval. The second row shows taboo frequency over time. The third row shows euphemism proportion over time, as defined in Eq 1. The axis indicating year differs depending on the timescale of the dataset. (A) The results for *lady* (euphemism) and *women* (taboo). (B) The results for *disabled* (euphemism) and *handicapped* (taboo).

Fig 2. Percent of significant euphemism proportion difference. These plots show, for each corpus, the percent of pairs (out of all pairs that met the threshold) for which either women have a significantly higher euphemism proportion than men, men have a significantly higher euphemism proportion than women, or neither gender has a significantly higher euphemism proportion.

Focused analyses

For the following focused analyses, we applied the same methodology as for the complete analysis, but used a constrained set of the euphemism-taboo pairs, to verify the robustness of our results.

Analysis of pairs with sources

Not all of the euphemism-taboo pairs in our list of 106 come from published sources. To verify that this negative result is not biased by our judgements of what is or isn't a euphemism, we ran the same analysis using only the euphemism-taboo pairs for which we have an external source. Fig 3 shows the significance time series for only those pairs.

Analysis of pairs containing a multi-word phrase

Some of the words in our euphemism-taboo pair list may be highly ambiguous, for example *weed* could be euphemism for *marijuana* or it could refer to an unwanted plant in a garden. To mitigate the effect of expressions with alternative non-euphemistic and non-taboo senses on our results, we ran the same analysis on only those euphemism-taboo pairs which contain a multi-word phrase. For example, the pair *armed conflict* and *war*. These multi-word phrases are not so likely to have multiple senses. Fig 4 shows the results of this constrained analysis, and continues to support our result that women do not tend to have a higher euphemism proportion than men.

Analysis of pairs which appear in all corpora

For this analysis, we look only at the pairs which pass the sparsity threshold for every corpus. There are 15 such euphemism-taboo pairs. For this restricted set, we can visualize the number of

Table 2. Comparison of euphemism proportion for men and women

	Reddit	NYT	Canadian Parliament	US Congress
total pairs	32	79	35	34
% of pairs where women have higher euphemism proportion				
initial	16%	30%	9%	9%
final	9%	22%	9%	3%
% of pairs where men have higher euphemism proportion				
initial	41%	23%	14%	12%
final	16%	25%	11%	15%

This table summarizes the euphemism proportion statistics for all four corpora. The first row indicates how many pairs remain from each corpus after removing low frequency pairs. The second section tells us for how many of these pairs women had a significantly higher euphemism proportion than men did, at the initial time point and final time point. The third section shows for how many pairs men had a significantly higher euphemism proportion than women did, at the initial and final time points.

Fig 3. Sources only: Percent of significant euphemism proportion. Same as Fig 2 but considering only the euphemism-taboo pairs which have an associated published source.

years for which each gender a significantly higher euphemism proportion for a pair as a heatmap, shown in Fig 5. The time series plot is shown in Fig 6.

The heatmap shows that there are no pairs for which women consistently have a higher euphemism proportion than men for a larger period of time across all four corpora. However, there are some pairs in some corpora that stick out. The large number of years for which women have a higher proportion of saying *weed* compared to *marijuana* than men do in the NYT dataset could likely be explained by the fact that *weed* is one of the more ambiguous words in our set of 106 pairs and may be more commonly associated with gardening than marijuana.

These results again fail to support the claim that women use euphemisms more than men, since

Fig 4. Phrases only: Percent of significant euphemism proportion. Same as Fig 2 but considering only the euphemism-taboo pairs where either one or both of the expressions is a multi-word phrase.

Fig 5. Percent of time with significantly higher euphemism proportion. The left heatmap indicates for a given pair for what percent of time women had a significantly higher euphemism proportion for that pair than men did. Darker purple blocks were higher for more time, empty blocks never had a significantly higher euphemism proportion for women. The right heatmap shows the same for men, with darker orange indicating a larger percent of time.

very few of the pairs have more than one year where women's euphemism proportion for that pair is higher than men's. There are, however, a few pairs where men consistently have a higher euphemism proportion than women. For the pair *lady-woman* and the two pairs containing *breast*, men prefer the euphemism more than women do, across all four corpora.

Fig 6. Conjunction only: Percent of significant euphemism proportion. Same as Fig 2 but considering only the euphemism-taboo pairs which meet the threshold for all of the four corpora.

Discussion

Our analysis of four large, varied datasets spanning 1951–2018 provides no support for Lakoff’s and Jespersen’s claims that women use euphemisms more than men do. This result means that we cannot assume that women use euphemisms more. In general, we should not take for granted the characterization of women’s language that has been proposed by linguists such as Jespersen and Lakoff, as our study and others have shown that they are not always supported by empirical evidence [13, 15].

The result that women do not use euphemisms more indicates that euphemisms should not be lumped in with other polite forms that women were found to use more in other studies [13]. It seems that this result fits with Park et al.’s [15] finding that women do not tend to use more indirect language than men.

Our result raises the question, why do Jespersen and Lakoff say that women use euphemisms more if this is not actually the case? One reason women might appear to use euphemisms more is that they may also talk more about certain taboo topics. For example, in our results women talk about topics associated with women more than men do, hence women say both *chest* and *breast* more than men do, but men say *chest* with a higher proportion than women. Men also say *lady* with a higher proportion, which is particularly interesting since Lakoff herself proposed this is as a euphemism pair. The topic of the euphemism seems to have some effect on whether men or women use it more, though at a glance these do not seem to correspond to topics that have been found to be discussed more by one gender or the other.

The very idea that euphemism usage can be determined by gender may be generalizing at the expense of understanding the influence of other social factors. Allan and Burrirdge’s [6, 7] use of the term “middle class politeness criterion” hints that social class is one of many social factors that might be a greater determinant of euphemism usage than gender.

There are limitations in the corpora used for this study. The language used in political proceedings and in newspapers may be regulated by political parties or the newspaper editors, and

this might minimize gender differences in language in these corpora. The Reddit data only included posts where users had self-reported gender, which may limit the topics that are included. We also did not include any natural conversation data, although that is likely to be the setting that Lakoff and Jespersen were most concerned with.

Our list of euphemism-taboo pairs is relatively small, and was manually collected. It is possible that these pairs are not representative of all euphemism-taboo pairs. They certainly do not equally account for all taboo topics in English-speaking North American culture. In future, it would be good to determine a method for automatic euphemism extraction.

Future work in this area could study which topics women versus men tend to prefer euphemisms for. There are also temporal aspects of euphemism usage (e.g., the euphemism treadmill) which were not studied here, but can be interesting to explore.

Conclusion

The subject of how women’s language and men’s language differ is one that has been extensively discussed, and one alleged difference is that women use euphemisms more than men do. However, this claim has been based on anecdotal evidence. Our comprehensive quantitative evaluation using large corpora spanning multiple decades from a variety of contexts shows that women do not use euphemisms more than men do. Our work indicates the importance of using quantitative methods to evaluate long-held beliefs about language use.

Supporting information

S1 Fig. Count of data by women and men over time. The gender breakdown of all four corpora over time.

S2 Fig. Percent of significant euphemism proportion difference with 3x bin size.

S1 Table. Table of euphemism-taboo pairs A complete table showing all 106 lemmatized euphemism-taboo pairs used in this study, indicating their corresponding sources and year of publication.

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