# All Women Shortlists Methodology

## Methodology

To account for the possible effects of age, parliamentary experience and cohort, and in order to compare women selected through all women shortlists to women who were not (but theoretically had the possibility to contest all-women shortlists), speech analysis has been restricted only to Labour MPs elected during or after the 1997 General Election, and before the 2017 General Election. Words contained in parentheses were removed, as they are added by Hansard to provide additional information not actually spoken by the MP.[1] Speeches and MP data is from a dataset previously assembled by Odell (2018). Information on all women shortlists is from the House of Commons Library (Kelly 2016). Unsuccessful General Election candidates selected through all women shortlists who were subsequently elected in a byelection are classified as having been selected on an all women shortlist.

Word classification used the `Linguistic Inquiry and Word Count 2015` (LIWC) dictionary (Pennebaker et al. 2015) and tokenising tools from the `Quanteda` R package (Benoit 2018). Word counts and words-per-sentence were calculated using `stringi` (Gagolewski 2018), a wrapper to the ICU regex library.

Previous research has found gender differences in some LIWC categories and in parts of speech usage in members of the US House of Representatives (Yu 2014). Following Yu (2014), and Jones (2016) we used the following categories:

- All Pronouns (pronoun)
- First person singular pronouns (i)
- Verbs (verb)
- Auxiliary verbs (auxverb)
- Social processes (social)
- Positive emotions (posemo)
- Negative emotions (negemo)
- Tentative words (tentat)
- Words longer than six letters (Sixltr)
- First person plural pronouns (we)
- Articles (article)
- Prepositions (preps)
- Anger words (anger)
- Swear words (swear)
- Cognitive processes (cogproc)

We also included words-per-sentence (WPS), total word count (WC) and Flesch–Kincaid grade level (FK) (Kincaid et al. 1975), calculated using `Quanteda` (Benoit 2018) and `stringi` (Gagolewski 2018). Effect sizes were calucated using Cohen's $d$ (Cohen 1988).

### Corpus creation

## Descriptive Statistics

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[1] e.g. a reference to "the member for Bethnal Green and Bow" in keeping with Parliamentary convention of identifying MPs by their seat rather than their name would be followed by "(Rushnara Ali)".

Table 2: Effect Sizes for Male and Female Labour MPs

| | Women | | Men | | Effect Size | |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Cohen's D | Magnitude |
| All Pronouns | 10.07 | 4.60 | 10.15 | 4.99 | 0.02 | negligible |
| First person singular pronouns | 1.89 | 2.42 | 2.03 | 2.55 | 0.06 | negligible |
| Verbs | 12.81 | 4.99 | 12.67 | 5.35 | -0.03 | negligible |
| Auxiliary verbs | 7.90 | 3.45 | 7.93 | 3.69 | 0.01 | negligible |
| Social processes | 8.46 | 4.82 | 8.17 | 5.11 | -0.06 | negligible |
| Positive emotions | 2.73 | 2.48 | 2.57 | 2.54 | -0.06 | negligible |
| Negative emotions | 1.16 | 1.68 | 1.08 | 1.77 | -0.05 | negligible |
| Tentative words | 1.48 | 1.74 | 1.57 | 1.90 | 0.05 | negligible |
| More than six letters | 19.82 | 6.96 | 19.08 | 7.33 | -0.11 | negligible |
| First person plural pronouns | 0.97 | 1.42 | 0.99 | 1.51 | 0.01 | negligible |
| Articles | 7.64 | 3.30 | 7.96 | 3.55 | 0.10 | negligible |
| Prepositions | 12.57 | 4.41 | 12.14 | 4.74 | -0.10 | negligible |
| Anger words | 0.24 | 0.82 | 0.24 | 0.79 | 0.01 | negligible |
| Swear words | 0.00 | 0.06 | 0.00 | 0.09 | 0.01 | negligible |
| Cognitive processes | 8.68 | 4.82 | 8.82 | 5.14 | 0.03 | negligible |
| Words per Sentence | 43.23 | 19.41 | 40.79 | 19.74 | -0.12 | negligible |
| Total Word Count | 402.34 | 689.78 | 369.53 | 645.77 | -0.05 | negligible |
| Flesh-Kincaid Grade Level | 10.64 | 7.58 | 9.63 | 7.75 | -0.13 | negligible |

| General Election | Total MPs | Total Labour MPs | Total Female Labour MPs | Newly elected MPs | Intake Women | Percentage Intake Women | Intake Shortlist | Nominated Shortlist |
|---|---|---|---|---|---|---|---|---|
| 1997 | 659 | 418 | 101 | 177 | 64 | 36% | 35 | 38 |
| 2001 | 659 | 412 | 95 | 38 | 4 | 11% | 0 | 0 |
| 2005 | 646 | 355 | 98 | 40 | 26 | 65% | 23 | 30 |
| 2010 | 650 | 258 | 81 | 64 | 32 | 50% | 28 | 63 |
| 2015 | 650 | 232 | 99 | 49 | 31 | 63% | 31 | 77 |

Data in this table is from House of Commons library reports (Kelly 2016; Audickas, Hawkins, and Cracknell 2017). All women shortlists were not used by Labour during the 2001 General Election.

Hypothesis: - Women selected through all women shortlists use more "feminine" language – pronouns, particular personal pronouns, passive voice, hedges, etc – than women selected in open selections.

Table 3: Effect Sizes for Female Labour MPs by selection process

| | All Women Shortlists | | Open Shorlists | | Effect Size | |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Cohen's D | Magnitude |
| All Pronouns | 10.01 | 4.66 | 10.18 | 4.47 | -0.04 | negligible |
| First person singular pronouns | 1.86 | 2.41 | 1.95 | 2.42 | -0.04 | negligible |
| Verbs | 12.87 | 5.09 | 12.68 | 4.79 | 0.04 | negligible |
| Auxiliary verbs | 7.93 | 3.48 | 7.85 | 3.38 | 0.02 | negligible |
| Social processes | 8.46 | 4.93 | 8.44 | 4.58 | 0.00 | negligible |
| Positive emotions | 2.69 | 2.52 | 2.81 | 2.42 | -0.05 | negligible |
| Negative emotions | 1.17 | 1.69 | 1.13 | 1.67 | 0.02 | negligible |
| Tentative words | 1.48 | 1.75 | 1.49 | 1.73 | 0.00 | negligible |
| More than six letters | 19.72 | 7.06 | 20.03 | 6.75 | -0.05 | negligible |
| First person plural pronouns | 0.88 | 1.36 | 1.15 | 1.51 | -0.19 | negligible |
| Articles | 7.69 | 3.38 | 7.55 | 3.14 | 0.04 | negligible |
| Prepositions | 12.55 | 4.54 | 12.63 | 4.15 | -0.02 | negligible |
| Anger words | 0.23 | 0.78 | 0.24 | 0.90 | -0.01 | negligible |
| Swear words | 0.00 | 0.06 | 0.00 | 0.05 | 0.01 | negligible |
| Cognitive processes | 8.59 | 4.89 | 8.85 | 4.67 | -0.06 | negligible |
| Words per Sentence | 43.61 | 20.18 | 42.48 | 17.79 | 0.06 | negligible |
| Total Word Count | 401.30 | 702.85 | 404.36 | 663.60 | 0.00 | negligible |
| Flesh-Kincaid Grade Level | 10.80 | 7.88 | 10.33 | 6.96 | 0.07 | negligible |

## LIWC creation

## Women vs Men
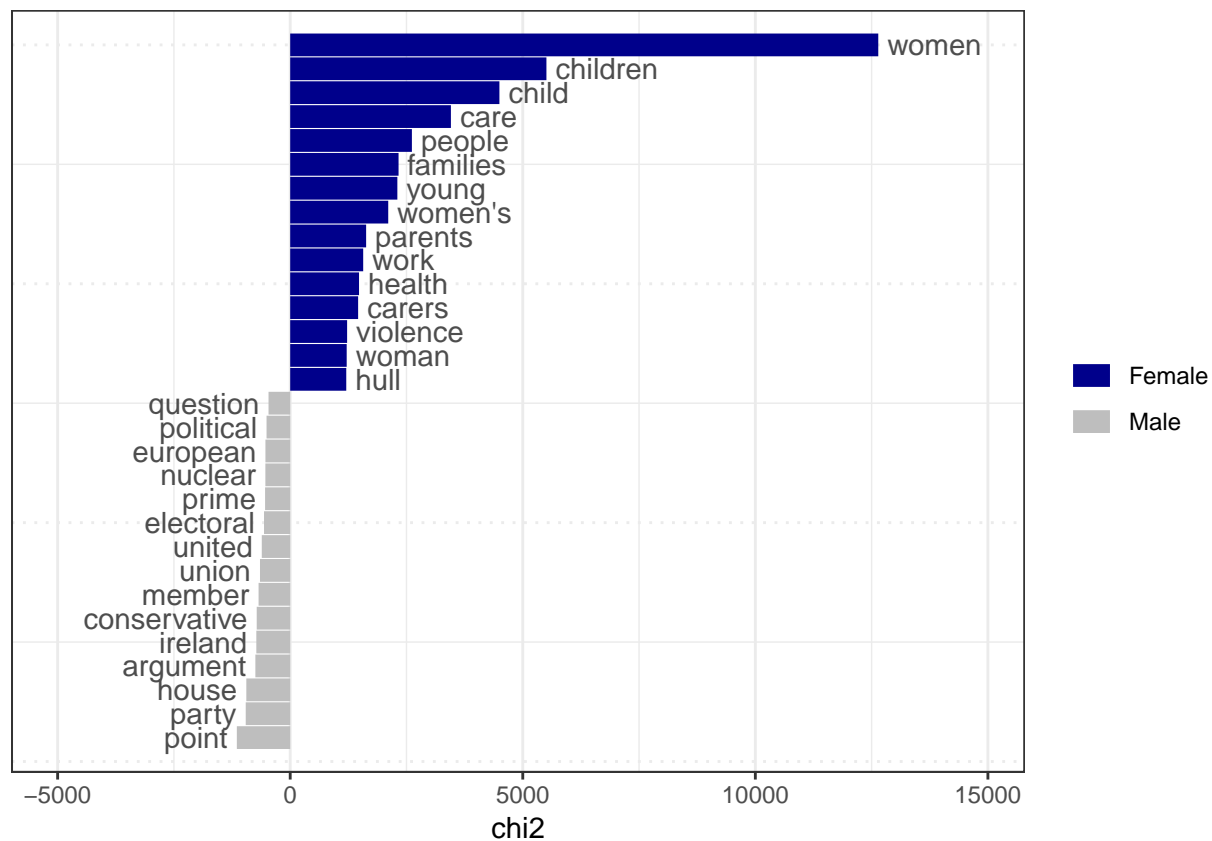
## Shortlists vs Non-Shortlists

## Spacy

## POS Analysis

## Tokenising / Keyness

The most commonly used words by both men and women would be protocol boilerplate expressions, so we calculate the keyness of words to identify gender differences in the choices of topics raised by men and women, and by short-list and non-shortlist women.

**Men vs Women**

```
##      feature      chi2 p n_target n_reference
## 1      women 12643.026 0    14428        5518
## 2   children  5508.745 0    19263       17085
## 3      child  4498.012 0    10779        7853
## 4       care  3455.167 0    17576       18082
## 5     people  2616.453 0    67516       99468
## 6   families  2329.457 0     9866        9482
```

**Shortlists vs Non-Shortlists**

```
##       feature       chi2 p n_target n_reference
## 1      police   588.2568 0     4815        5833
## 2      energy   496.9390 0     2726        2939
## 3 warrington   479.0324 0      367          72
## 4        home   451.8960 0     4964        6444
## 5   countries   446.0249 0     2221        2317
## 6       court   410.3262 0     1843        1852
```
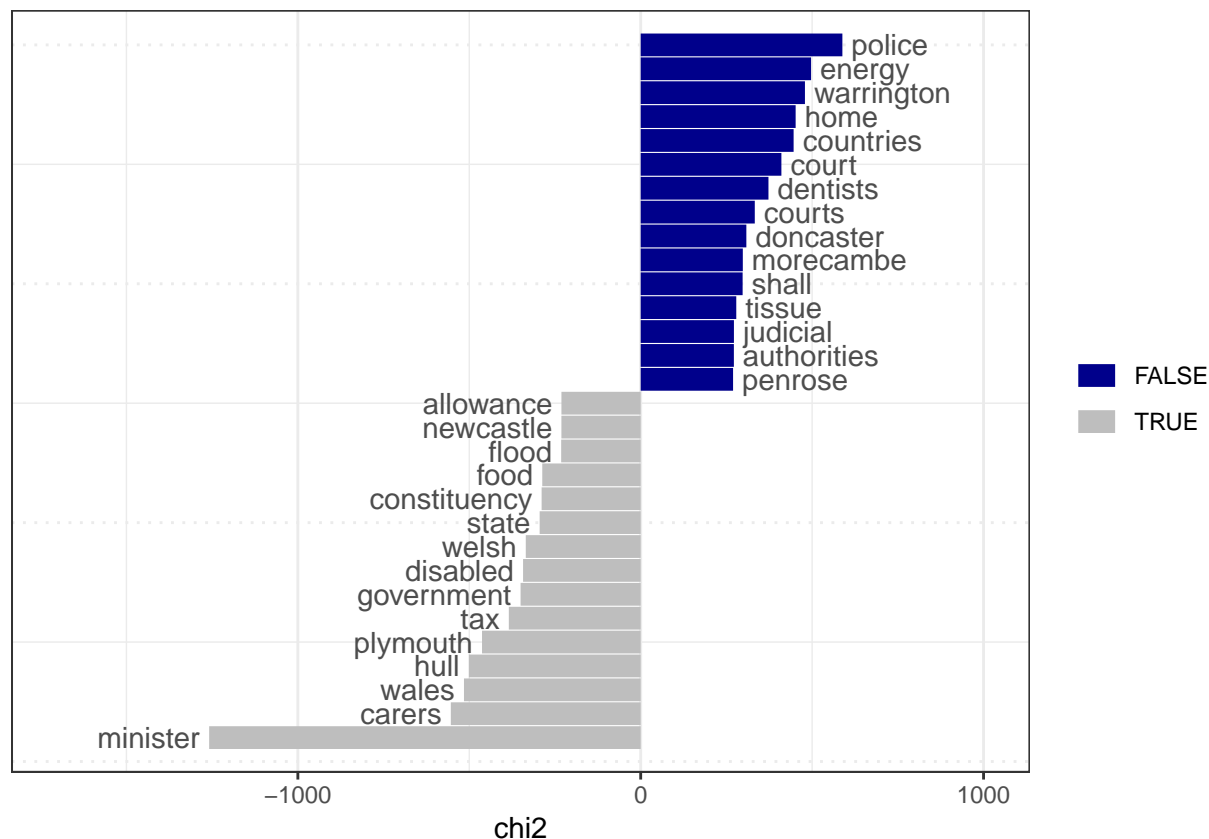
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