

# Package ‘politeness’

December 4, 2017

**Type** Package

**Title** Detecting Politeness Features in Text

**Version** 0.1.2

**Author** Mike Yeomans, Alejandro Kantor, Dustin Tingley

**Maintainer** Mike Yeomans <yeomans@fas.harvard.edu>

**Description** Detecting markers of politeness in English natural language. This package allows researchers to easily visualize and quantify politeness between groups of documents. This package combines prior research on the linguistic markers of politeness (Brown & Levinson, 1987 <<http://psycnet.apa.org/record/1987-97641-000>>; Danescu-Niculescu-Mizil et al., 2013 <[arXiv:1306.6078](https://arxiv.org/abs/1306.6078)>; Voigt et al., 2017 <[doi:10.1073/pnas.1702413114](https://doi.org/10.1073/pnas.1702413114)>). We thank the Spencer Foundation, the Hewlett Foundation, and Harvard's Institute for Quantitative Social Science for support.

**License** MIT + file LICENSE

**Encoding** UTF-8

**LazyData** true

**Depends** R (>= 2.10)

**Imports** tm, quanteda, ggplot2, parallel, spacyr, textir, glmnet,  
data.table, stringr

**RoxygenNote** 6.0.1

**Suggests** knitr, rmarkdown, testthat

**VignetteBuilder** knitr

**NeedsCompilation** no

**Repository** CRAN

**Date/Publication** 2017-12-04 16:16:25 UTC

## R topics documented:

bowl_offers	2
feature_table	2
findPoliteTexts	3
hedge_list	4

negative_list . . . . .	4
phone_offers . . . . .	5
politeness . . . . .	5
politenessPlot . . . . .	7
politenessProjection . . . . .	8
polite_dicts . . . . .	9
positive_list . . . . .	10

## Index 11

---

bowl\_offers *Purchase offers for bowl*

---

### Description

A dataset containing the purchase offer message and a label indicating if the writer was assigned to be warm (1) or tough (0)

### Usage

bowl\_offers

### Format

A data frame with 70 rows and 2 variables:

**message** character of purchase offer message

**condition** binary label indicating if message is warm or tough

### Source

Jeong, M., Minson, J., Yeomans, M. & Gino, F. (working paper).

"Communicating Warmth in Distributed Negotiations is Surprisingly Ineffective." Study 3.

Study 3. <https://osf.io/t7sd6/>

---

feature\_table *Table of Politeness Features*

---

### Description

This table describes all the text features extracted in this package. See vignette for details.

### Usage

feature\_table

### Format

A data.frame with information about 36 politeness features.

---

findPoliteTexts	<i>Find polite text</i>
-----------------	-------------------------

---

### Description

Finds examples of most or least polite text in a corpus

### Usage

```
findPoliteTexts(text, df_polite, covar, type = c("most", "least", "both"),
  num_docs = 5L, ...)
```

### Arguments

text	a character vector of texts.
df_polite	a data.frame with politeness features, as outputed by <a href="#">politeness</a> , used to train model.
covar	a vector of politeness labels, or other covariate.
type	a string indicating if function should return the most or least polite texts or both. If length > 1 only first value is used.
num_docs	integer of number of documents to be returned. Default is 5.
...	additional parameters to be passed to <code>politenessProjection</code> .

### Details

Function returns a data.frame ranked by (more or least) politeness. If type == 'most', the num\_docs most polite texts will be returned. If type == 'least', the num\_docs least polite texts will be returned. If type == 'both', both most and least polite text will be returned. if num\_docs is even, half will be most and half least polite else half + 1 will be most polite.

df\_polite must have the same number of rows as the length(text) and length(covar).

### Value

data.frame with texts ranked by (more or least) politeness. See details for more information.

### Examples

```
data("phone_offers")
polite.data<-politeness(phone_offers$message, parser="none", drop_blank=FALSE)

findPoliteTexts(phone_offers$message,
  polite.data,
  phone_offers$condition,
  type = "most",
  num_docs = 5)
```

```
findPoliteTexts(phone_offers$message,  
                polite.data,  
                phone_offers$condition,  
                type = "least",  
                num_docs = 10)
```

---

hedge_list	<i>Hedge Words List</i>
------------	-------------------------

---

**Description**

Hedges

**Usage**

hedge\_list

**Format**

A list of 99 hedging words.

---

negative_list	<i>Negative Emotions List</i>
---------------	-------------------------------

---

**Description**

Negative words.

**Usage**

negative\_list

**Format**

A list of 4783 negatively-valenced words

---

phone\_offers

*Purchase offers for phone*

---

### Description

A dataset containing the purchase offer message and a label indicating if the writer was assigned to be warm (1) or tough (0)

### Usage

```
phone_offers
```

### Format

A data frame with 355 rows and 2 variables:

**message** character of purchase offer message

**condition** binary label indicating if message is warm or tough

### Source

Jeong, M., Minson, J., Yeomans, M. & Gino, F. (working paper).

"Communicating Warmth in Distributed Negotiations is Surprisingly Ineffective."

Study 1. <https://osf.io/t7sd6/>

---

politeness

*Politeness Features*

---

### Description

Detects linguistic markers of politeness in natural language. This function is the workhorse of the politeness package, taking an N-length vector of text documents and returning an N-row data.frame of feature counts.

### Usage

```
politeness(text, parser = c("none", "spacy"), binary = FALSE,  
           drop_blank = TRUE, num_mc_cores = 1)
```

**Arguments**

text	character	A vector of texts, each of which will be tallied for politeness features.
parser	character	Name of dependency parser to use (see details). Without a dependency parser, some features will be approximated, while others cannot be calculated at all.
binary	logical	Return a binary indicator for the presence of a feature instead of total counts? Default is TRUE
drop_blank	logical	Should features that were not found in any text be removed from the data.frame? Default is TRUE
num_mc_cores	integer	Number of cores for parallelization. Default is <code>parallel::detectCores()</code> .

**Details**

Some politeness features depend on part-of-speech tagged sentences (e.g. "bare commands" are a particular verb class). To include these features in the analysis, a POS tagger must be initialized beforehand - we currently support SpaCy which must be installed separately in Python (see example for implementation).

**Value**

a data.frame of politeness features, with one row for every item in 'text'. Possible politeness features are listed in [feature\\_table](#)

**References**

- Brown, P., & Levinson, S. C. (1987). *Politeness: Some universals in language usage* (Vol. 4). Cambridge university press.
- Danescu-Niculescu-Mizil, C., Sudhof, M., Jurafsky, D., Leskovec, J., & Potts, C. (2013). A computational approach to politeness with application to social factors. *arXiv preprint arXiv:1306.6078*.
- Voigt, R., Camp, N. P., Prabhakaran, V., Hamilton, W. L., ... & Eberhardt, J. L. (2017). Language from police body camera footage shows racial disparities in officer respect. *Proceedings of the National Academy of Sciences*, 201702413.

**Examples**

```
data("phone_offers")

politeness(phone_offers$message, parser="none",drop_blank=FALSE)

colMeans(politeness(phone_offers$message, parser="none", binary=TRUE, drop_blank=FALSE))
colMeans(politeness(phone_offers$message, parser="none", binary=FALSE, drop_blank=FALSE))

dim(politeness(phone_offers$message, parser="none",drop_blank=FALSE))
dim(politeness(phone_offers$message, parser="none",drop_blank=TRUE))

## Not run:
# Detect multiple cores automatically for parallel processing
```

```

politeness(phone_offers$message, num_mc_cores=parallel::detectCores())

# Connect to SpaCy installation for part-of-speech features
install.packages("spacyr")
spacyr::spacy_initialize(python_executable = PYTHON_PATH)
politeness(phone_offers$message, parser="spacy",drop_blank=FALSE)

## End(Not run)

```

---

politenessPlot

*Politeness plot*


---

### Description

Plots the prevalence of politeness features in documents, divided by a binary covariate.

### Usage

```

politenessPlot(df_polite, split = NULL, split_levels = NULL,
  split_name = NULL, split_cols = c("firebrick", "navy"), top_title = "",
  drop_blank = 0.05, middle_out = 0.5)

```

### Arguments

<code>df_polite</code>	a data.frame with politeness features calculated from a document set, as output by <a href="#">politeness</a> .
<code>split</code>	a vector of covariate values. must have a length equal to the number of documents included in <code>df_polite</code> .
<code>split_levels</code>	character vector of length 2 default NULL. Labels for covariate levels for legend. If NULL, this will be inferred from <code>split</code> .
<code>split_name</code>	character default NULL. Name of the covariate for legend.
<code>split_cols</code>	character vector of length 2. Name of colors to use.
<code>top_title</code>	character default "". Title of plot.
<code>drop_blank</code>	Features less prevalent than this in the sample value are excluded from the plot. To include all features, set to 0
<code>middle_out</code>	Features less distinctive than this value (measured by p-value of t-test) are excluded. Defaults to 1 (i.e. include all).

### Details

Length of `split` must be the same as number of rows of `df_polite`. Typically `split` should be a two-category variable. However, if a continuous covariate is given, then the top and bottom terciles of that distribution are treated as the two categories (while dropping data from the middle tercile).

**Value**

a ggplot of the prevalence of politeness features, conditional on split. Features are sorted by variance-weighted log odds ratio.

**Examples**

```
data("phone_offers")

polite.data<-politeness(phone_offers$message, parser="none", binary=FALSE, drop_blank=FALSE)

politeness::politenessPlot(polite.data,
                           split=phone_offers$condition,
                           split_levels = c("Tough", "Warm"),
                           split_name = "Condition",
                           top_title = "Average Feature Counts")

polite.data<-politeness(phone_offers$message, parser="none", binary=TRUE, drop_blank=FALSE)

politeness::politenessPlot(polite.data,
                           split=phone_offers$condition,
                           split_levels = c("Tough", "Warm"),
                           split_name = "Condition",
                           top_title = "Binary Feature Use")
```

---

politenessProjection *Politeness projection*

---

**Description**

Projection of Multinomial Inverse Regression estimation for a politness matrix and covariates.

**Usage**

```
politenessProjection(df_polite_train, covar = NULL, df_polite_test = NULL,
                    classifier = c("glmnet", "mnir"), ...)
```

**Arguments**

df_polite_train	a data.frame with politeness features as outputed by <a href="#">politeness</a> used to train model.
covar	a vector of politeness labels, or other covariate.
df_polite_test	optional data.frame with politeness features as outputed by <a href="#">politeness</a> used for model testing. Must have same feature set as polite_train (most easily acheived by setting dropblank=FALSE in both call to politeness).



classifier name of classification algorithm. Defaults to "glmnet" (see glmnet) but "mnir" (see mnlm) is also available.

... additional parameters to be passed to the classification algorithm.

### Details

List:

- train\_proj matrix of projection of mlmn using covar and df\_polite\_train.
- test\_proj matrix of projection of mlmn using covar and df\_polite\_train on df\_polite\_test data.
- train\_coef coefficients of mnlm model using covar and df\_polite\_train.

### Value

List of df\_polite\_train and df\_polite\_test with projection. See details.

### Examples

```
data("phone_offers")
data("bowl_offers")

polite.data<-politeness(phone_offers$message, parser="none",drop_blank=FALSE)

polite.holdout<-politeness(bowl_offers$message, parser="none",drop_blank=FALSE)

project<-politenessProjection(polite.data,
                             phone_offers$condition,
                             polite.holdout)

# Difference in average politeness across conditions in the new sample.

mean(project$test_proj[bowl_offers$condition==1])
mean(project$test_proj[bowl_offers$condition==0])
```

---

polite\_dicts

*Feature Dictionaries*

---

### Description

Six dictionary-like features for the detector: Negations; Pauses; Swearing; Pronouns; Formal Titles; and Informal Titles.

### Usage

```
polite_dicts
```

**Format**

A list of six quanteda::dictionary objects

---

positive\_list

*Positive Emotions List*

---

**Description**

Positive words.

**Usage**

positive\_list

**Format**

A list of 2006 positively-valenced words

# Index

## \*Topic **datasets**

- bowl\_offers, 2
- feature\_table, 2
- hedge\_list, 4
- negative\_list, 4
- phone\_offers, 5
- polite\_dicts, 9
- positive\_list, 10

bowl\_offers, 2

feature\_table, 2, 6  
findPoliteTexts, 3

hedge\_list, 4

negative\_list, 4

phone\_offers, 5  
polite\_dicts, 9  
politeness, 3, 5, 7, 8  
politenessPlot, 7  
politenessProjection, 8  
positive\_list, 10