Package ‘politeness’

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Type Package

Title Detecting Politeness Features in Text

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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. We thank the Spencer Foundation, the Hewlett Foundation, and Harvard’s Institute for Quantitative Social Science for support.

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Encoding UTF-8

LazyData true

Depends R (>= 3.5.0)

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

RoxygenNote 7.1.1

Suggests knitr, rmarkdown, testthat

VignetteBuilder knitr

NeedsCompilation no

Repository CRAN

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bowl_offers

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

"Communicating Warmth in Distributed Negotiations is Surprisingly Ineffective." Study 3.
Study 3. https://osf.io/t7sd6/
**Description**

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

**Usage**

```r
feature_table
```

**Format**

A data.frame with information about the politeness features.

**findPoliteTexts**

*Find polite text*

**Description**

Finds examples of most or least polite text in a corpus

**Usage**

```r
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 `politeness`, 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 `politenessProjection`.  

---

Table of Politeness Features

<table>
<thead>
<tr>
<th>Description</th>
<th>Find polite text</th>
</tr>
</thead>
<tbody>
<tr>
<td>This table describes all the text features extracted in this package. See vignette for details.</td>
<td>Finds examples of most or least polite text in a corpus</td>
</tr>
</tbody>
</table>

```r
feature_table
```
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  

Hedge Words List

Description

Hedges

Usage

hedge_list

Format

A list of 72 hedging words.
negative_list  Negative Emotions List

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
"Communicating Warmth in Distributed Negotiations is Surprisingly Ineffective."
Study 1. https://osf.io/t7sd6/
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"),
  metric = c("count", "binary", "average"),
  drop_blank = FALSE,
  uk_english = FALSE,
  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.
metric character What metric to return? Raw feature count totals, Binary presence/absence of features, or feature counts per word Default is "count".
drop_blank logical Should features that were not found in any text be removed from the data.frame? Default is FALSE
uk_english logical Does the text contain any British English spelling? Including variants (e.g. Canadian). Default is FALSE
num_mc_cores integer Number of cores for parallelization. Default is 1, but we encourage users to try parallel::detectCores() if possible.

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


Examples

data("phone_offers")

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

colMeans(politeness(phone_offers$message, parser="none", metric="binary", drop_blank=FALSE))
colMeans(politeness(phone_offers$message, parser="none", metric="count", 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,
  CI = 0.68
)

Arguments

df_polite a data.frame with politeness features calculated from a document set, as output by `politeness`.

split a vector of covariate values. must have a length equal to the number of documents included in df_polite. No NA values allowed.

split_levels character vector of length 2 default NULL. Labels for covariate levels for legend. If NULL, this will be inferred from split.

split_name character default NULL. Name of the covariate for legend.

split_cols character vector of length 2. Name of colors to use.

top_title character default "". Title of plot.

drop_blank Features less prevalent than this in the sample value are excluded from the plot. To include all features, set to 0.

middle_out Features less distinctive than this value (measured by p-value of t-test) are excluded. Defaults to 1 (i.e. include all).

CI Coverage of error bars. Defaults to 0.68 (i.e. standard error).

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", drop_blank=FALSE)
politenessProjection

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", metric="binary", 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
Training and projecting a regression model of politeness.

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

Arguments

df_polite_train
  a data.frame with politeness features as outputed by politeness 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 politeness used for out-of-sample fitting. Must have same feature set as polite_train (most easily achieved by setting dropblank=FALSE in both calls to politeness).
classifier
  name of classification algorithm. Defaults to "glmnet" (see glmnet) but "mnir" (see mnlm) is also available.
Number of outer folds for projection of training data. Default is NULL (i.e. no nested cross-validation). However, positive values are highly recommended (e.g. 10) for in-sample accuracy estimation.

additional parameters to be passed to the classification algorithm.

Details

List:

- train_proj projection of politeness model within training set.
- test_proj projection of politeness model onto test set (i.e. out-of-sample).
- train_coef coefficients from the trained model.

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
**positive_list**

Format

A list of six `quanteda::dictionary` objects

---

<table>
<thead>
<tr>
<th>positive_list</th>
<th>Positive Emotions List</th>
</tr>
</thead>
</table>

**Description**

Positive words.

**Usage**

`positive_list`

**Format**

A list of 2006 positively-valenced words

---

<table>
<thead>
<tr>
<th>receptiveness</th>
<th>Conversational Receptiveness</th>
</tr>
</thead>
</table>

**Description**

Pre-trained model to detect conversational receptiveness

**Usage**

`receptiveness(texts, num_mc_cores = 1)`

**Arguments**

- **texts** character A vector of texts, each of which will be tallied for politeness features.
- **num_mc_cores** integer Number of cores for parallelization.

**Details**

This is a wrapper around a pre-trained model of "conversational receptiveness". The model trained from Study 1 of that paper can be applied to new text with a single function. This model requires grammar parsing via SpaCy. Please see `spacyr` for details on installation.

**Value**

A vector with receptiveness scores
References

Examples

```r
## Not run:
data("phone_offers")
receptiveness(phone_offers$message)
## End(Not run)
```

---

**receptive_polite**  
*Pre-Trained Receptiveness Data*

**Description**
A dataset to train a model for detecting conversational receptiveness.

**Usage**
receptive_polite

**Format**
Pre-calculated politeness features for the receptive_train dataset

---

**receptive_train**  
*Pre-Trained Receptiveness Data*

**Description**
A dataset to train a model for detecting conversational receptiveness.

**Usage**
receptive_train
Format

A data frame with 2860 rows and 2 variables:

- **text** character written response about policy disagreement
- **receptive** numeric standardized average of annotator ratings for "receptiveness"

Primarily for use within the receptiveness() function. The data was compiled from Studies 1 and 4 of the original paper, as well as an unpublished study with a very similar design, in which text responses were rated by disagreeing others.

Source

https://osf.io/2n59b/

---

**uk2us**  
*UK to US Conversion dictionary*

**Description**

For internal use only. This dataset contains a quanteda dictionary for converting UK words to US words. The models in this package were all trained on US English.

**Usage**

uk2us

**Format**

A quanteda dictionary with named entries. Names are the US version, and entries are the UK version.

**Source**

Borrowed from the quanteda.dictionaries package on github (from user kbenoit)
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