Package 'RKorAPClient'

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Type Package

Title 'KorAP' Web Service Client Package

Version 1.0.0

Description A client package that makes the 'KorAP' web service API accessible from R.
The corpus analysis platform 'KorAP' has been developed as a scientific tool to make potentially large, stratified and multiply annotated corpora, such as the 'German Reference Corpus DeReKo'
or the 'Corpus of the Contemporary Romanian Language CoRoLa', accessible for linguists to let them verify
hypotheses and to find interesting patterns in real language use.
The 'RKorAPClient' package provides access to 'KorAP' and the corpora behind it for user-created R code,
as a programmatic alternative to the 'KorAP' web user-interface.
You can learn more about 'KorAP' and use it directly on 'DeReKo' at <https://korap.ids-mannheim.de/>.

Depends R (>= 4.1.0)

Language en-US

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URL https://github.com/KorAP/RKorAPClient/,
https://korap.ids-mannheim.de/,
https://www.ids-mannheim.de/digspra/kl/projekte/korap

BugReports https://github.com/KorAP/RKorAPClient/issues

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Suggests lifecycle, testthat, htmlwidgets, rmarkdown, shiny, vcd, kableExtra, knitr, purrrlyr, raster, tidyverse

Collate 'KorAPConnection.R' 'KorAPCorpusStats.R'
'RKorAPClient-package.R' 'KorAPQuery.R' 'association-scores.R'
'ci.R' 'collocationAnalysis.R' 'collocationScoreQuery.R'
'hc_add_onclick_korap_search.R' 'hc_freq_by_year_ci.R' 'misc.R'
'reexports.R' 'textMetadata.R'

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Contents

`association-score-functions`
Association score functions

Description

Functions to calculate different collocation association scores between a node (target word) and words in a window around the it. The functions are primarily used by `collocationScoreQuery()`.

pmi: pointwise mutual information

mi2: pointwise mutual information squared (Daille 1994), also referred to as mutual dependency (Thanopoulos et al. 2002)

mi3: pointwise mutual information cubed (Daille 1994), also referred to as log-frequency biased mutual dependency) (Thanopoulos et al. 2002)

logDice: log-Dice coefficient, a heuristic measure that is popular in lexicography (Rychlý 2008)

ll: log-likelihood (Dunning 1993) using Stefan Evert's (2004) simplified implementation

Usage

```
defaultAssociationScoreFunctions()

pmi(O1, O2, O, N, E, window_size)

mi2(O1, O2, O, N, E, window_size)

mi3(O1, O2, O, N, E, window_size)

logDice(O1, O2, O, N, E, window_size)

ll(O1, O2, O, N, E, window_size)
```

Arguments

`O1`	observed absolute frequency of node
`O2`	observed absolute frequency of collocate
`O`	observed absolute frequency of collocation
`N`	corpus size
`E`	expected absolute frequency of collocation (already adjusted to window size)
`window_size`	total window size around node (left neighbour count + right neighbour count)

Value

```
association score
```

References

Daille, B. (1994): Approche mixte pour l'extraction automatique de terminologie: statistiques lexicales et filtres linguistiques. PhD thesis, Université Paris 7.

Thanopoulos, A., Fakotakis, N., Kokkinakis, G. (2002): Comparative evaluation of collocation extraction metrics. In: Proc. of LREC 2002: 620–625.

Rychlý, Pavel (2008): A lexicographer-friendly association score. In Proceedings of Recent Advances in Slavonic Natural Language Processing, RASLAN, 6–9. https://www.fi.muni.cz/usr/sojka/download/raslan2008/13.pdf.

Dunning, T. (1993): Accurate methods for the statistics of surprise and coincidence. Comput. Linguist. 19, 1 (March 1993), 61-74.

Evert, Stefan (2004): The Statistics of Word Cooccurrences: Word Pairs and Collocations. PhD dissertation, IMS, University of Stuttgart. Published in 2005, URN urn:nbn:de:bsz:93-opus-23714. Free PDF available from https://purl.org/stefan.evert/PUB/Evert2004phd.pdf

See Also

Other collocation analysis functions: collocationAnalysis,KorAPConnection-method, collocationScoreQuery,KorAP
synsemanticStopwords()

Examples

```
## Not run:

new("KorAPConnection", verbose = TRUE) %>%
collocationScoreQuery("Perlen", c("verziertes", "Säue"),
  scoreFunctions = append(defaultAssociationScoreFunctions(),
     list(localMI = function(O1, O2, O, N, E, window_size) {
                       O * log2(O/E)
                     })))

## End(Not run)
```

---

auth,KorAPConnection-method

Authorize RKorAPClient

Description

[Experimental]

Authorize RKorAPClient to make KorAP queries and download results on behalf of the user.

Usage

```
## S4 method for signature 'KorAPConnection'
auth(
  kco,
  app_id = generic_kor_app_id,
  app_secret = NULL,
  scope = kco@oauthScope
)
```

Arguments

kco	KorAPConnection object
app_id	OAuth2 application id. Defaults to the generic KorAP client application id.
app_secret	OAuth2 application secret. Used with confidential client applications. Defaults to NULL.
scope	OAuth2 scope. Defaults to "search match_info".

Value

KorAPConnection object with access token set in @accessToken.

See Also

persistAccessToken(), clearAccessToken()

Examples

```
## Not run:
kco <- new("KorAPConnection", verbose = TRUE) %>% auth()
df <- collocationAnalysis(kco, "focus([marmot/p=ADJA] {Ameisenplage})",
  leftContextSize=1, rightContextSize=0)

## End(Not run)
```

---

ci *Add confidence interval and relative frequency variables*

Description

Using prop.test(), ci adds three columns to a data frame:

1. relative frequency (f)
2. lower bound of a confidence interval (ci.low)
3. upper bound of a confidence interval

Convenience function for converting frequency tables to instances per million.

Convenience function for converting frequency tables of alternative variants (generated with as.alternatives=TRUE) to percent.

Converts a vector of query or vc strings to typically appropriate legend labels by clipping off prefixes and suffixes that are common to all query strings.

Experimental convenience function for plotting typical frequency by year graphs with confidence intervals using ggplot2. **Warning:** This function may be moved to a new package.

Usage

```
ci(df, x = totalResults, N = total, conf.level = 0.95)

ipm(df)

percent(df)

queryStringToLabel(data, pubDateOnly = FALSE, excludePubDate = FALSE)

geom_freq_by_year_ci(mapping = aes(ymin = conf.low, ymax = conf.high), ...)
```

Arguments

df	table returned from frequencyQuery()
x	column with the observed absolute frequency.
N	column with the total frequencies
conf.level	confidence level of the returned confidence interval. Must be a single number between 0 and 1.
data	string or vector of query or vc definition strings
pubDateOnly	discard all but the publication date
excludePubDate	discard publication date constraints
mapping	Set of aesthetic mappings created by aes() or aes_(). If specified and inherit.aes = TRUE (the default), it is combined with the default mapping at the top level of the plot. You must supply mapping if there is no plot mapping.
...	Other arguments passed to geom_ribbon, geom_line, and geom_click_point.

Details

Given a table with columns f, conf.low, and conf.high, ipm ads a column ipm und multiplies conf.low and conf.high with 10^6.

Value

original table with additional column ipm and converted columns conf.low and conf.high

original table with converted columns f, conf.low and conf.high

string or vector of strings with clipped off common prefixes and suffixes

See Also

ci is already included in frequencyQuery()

Examples

```
## Not run:

library(ggplot2)
kco <- new("KorAPConnection", verbose=TRUE)
expand_grid(year=2015:2018, alternatives=c("Hate Speech", "Hatespeech")) %>%
  bind_cols(corpusQuery(kco, .$alternatives, sprintf("pubDate in %d", .$year))) %>%
  mutate(total=corpusStats(kco, vc=vc)$tokens) %>%
  ci() %>%
  ggplot(aes(x=year, y=f, fill=query, color=query, ymin=conf.low, ymax=conf.high)) +
    geom_point() + geom_line() + geom_ribbon(alpha=.3)

## End(Not run)
## Not run:

new("KorAPConnection") %>% frequencyQuery("Test", paste0("pubDate in ", 2000:2002)) %>% ipm()
```

```
## End(Not run)
## Not run:

new("KorAPConnection") %>%
    frequencyQuery(c("Tollpatsch", "Tolpatsch"),
    vc=paste0("pubDate in ", 2000:2002),
    as.alternatives = TRUE) %>%
  percent()

## End(Not run)
queryStringToLabel(paste("textType = /Zeit.*/ & pubDate in", c(2010:2019)))
queryStringToLabel(c("[marmot/m=mood:subj]", "[marmot/m=mood:ind]"))
queryStringToLabel(c("wegen dem [tt/p=NN]", "wegen des [tt/p=NN]"))

## Not run:
library(ggplot2)
kco <- new("KorAPConnection", verbose=TRUE)

expand_grid(condition = c("textDomain = /Wirtschaft.*/", "textDomain != /Wirtschaft.*/"),
            year = (2005:2011)) %>%
  cbind(frequencyQuery(kco, "[tt/l=Heuschrecke]",
                           paste0(.$condition," & pubDate in ", .$year)))  %>%
  ipm() %>%
  ggplot(aes(year, ipm, fill = condition, color = condition)) +
  geom_freq_by_year_ci()

## End(Not run)
```

`clearAccessToken,KorAPConnection-method`
Clear access token from keyring and KorAPConnection object

Description

Clear access token from keyring and KorAPConnection object

Usage

```
## S4 method for signature 'KorAPConnection'
clearAccessToken(kco)
```

Arguments

`kco`	KorAPConnection object

Value

KorAPConnection object with access token set to `NULL`.

See Also

persistAccessToken()

Examples

```
## Not run:
kco <- new("KorAPConnection")
kco <- clearAccessToken(kco)

## End(Not run)
```

---

collocationAnalysis,KorAPConnection-method
Collocation analysis

Description

Performs a collocation analysis for the given node (or query) in the given virtual corpus.

Usage

```
## S4 method for signature 'KorAPConnection'
collocationAnalysis(
  kco,
  node,
  vc = "",
  lemmatizeNodeQuery = FALSE,
  minOccur = 5,
  leftContextSize = 5,
  rightContextSize = 5,
  topCollocatesLimit = 200,
  searchHitsSampleLimit = 20000,
  ignoreCollocateCase = FALSE,
  withinSpan = ifelse(exactFrequencies, "base/s=s", ""),
  exactFrequencies = TRUE,
  stopwords = append(RKorAPClient::synsemanticStopwords(), node),
  seed = 7,
  expand = length(vc) != length(node),
  maxRecurse = 0,
  addExamples = FALSE,
  thresholdScore = "logDice",
  threshold = 2,
  localStopwords = c(),
  collocateFilterRegex = "^[:alnum:]+-?[:alnum:]*$",
  ...
)
```

Arguments

kco	KorAPConnection() object (obtained e.g. from new("KorAPConnection")
node	target word
vc	string describing the virtual corpus in which the query should be performed. An empty string (default) means the whole corpus, as far as it is license-wise accessible.
lemmatizeNodeQuery	if TRUE, node query will be lemmatized, i.e. x -> [tt/l=x]
minOccur	minimum absolute number of observed co-occurrences to consider a collocate candidate
leftContextSize	size of the left context window
rightContextSize	size of the right context window
topCollocatesLimit	limit analysis to the n most frequent collocates in the search hits sample
searchHitsSampleLimit	limit the size of the search hits sample
ignoreCollocateCase	logical, set to TRUE if collocate case should be ignored
withinSpan	KorAP span specification (see https://korap.ids-mannheim.de/doc/ql/poliqarp-plus?embedded=true#spans) for collocations to be searched within. Defaults to base/s=s.
exactFrequencies	if FALSE, extrapolate observed co-occurrence frequencies from frequencies in search hits sample, otherwise retrieve exact co-occurrence frequencies
stopwords	vector of stopwords not to be considered as collocates
seed	seed for random page collecting order
expand	if TRUE, node and vc parameters are expanded to all of their combinations
maxRecurse	apply collocation analysis recursively maxRecurse times
addExamples	If TRUE, examples for instances of collocations will be added in a column example. This makes a difference in particular if node is given as a lemma query.
thresholdScore	association score function (see association-score-functions) to use for computing the threshold that is applied for recursive collocation analysis calls
threshold	minimum value of thresholdScore function call to apply collocation analysis recursively
localStopwords	vector of stopwords that will not be considered as collocates in the current function call, but that will not be passed to recursive calls
collocateFilterRegex	allow only collocates matching the regular expression
...	more arguments will be passed to collocationScoreQuery()

Details

The collocation analysis is currently implemented on the client side, as some of the functionality is not yet provided by the KorAP backend. Mainly for this reason it is very slow (several minutes, up to hours), but on the other hand very flexible. You can, for example, perform the analysis in arbitrary virtual corpora, use complex node queries, and look for expression-internal collocates using the focus function (see examples and demo).

To increase speed at the cost of accuracy and possible false negatives, you can decrease searchHitsSampleLimit and/or topCollocatesLimit and/or set exactFrequencies to FALSE.

Note that some outdated non-DeReKo back-ends might not yet support returning tokenized matches (warning issued). In this case, the client library will fall back to client-side tokenization which might be slightly less accurate. This might lead to false negatives and to frequencies that differ from corresponding ones acquired via the web user interface.

Value

Tibble with top collocates, association scores, corresponding URLs for web user interface queries, etc.

See Also

Other collocation analysis functions: association-score-functions, collocationScoreQuery,KorAPConnection-meth
synsemanticStopwords()

Examples

```
## Not run:

 # Find top collocates of "Packung" inside and outside the sports domain.
 new("KorAPConnection", verbose = TRUE) %>%
  collocationAnalysis("Packung", vc=c("textClass=sport", "textClass!=sport"),
                      leftContextSize=1, rightContextSize=1, topCollocatesLimit=20) %>%
  dplyr::filter(logDice >= 5)

## End(Not run)

## Not run:

# Identify the most prominent light verb construction with "in ... setzen".
# Note that, currently, the use of focus function disallows exactFrequencies.
new("KorAPConnection", verbose = TRUE) %>%
  collocationAnalysis("focus(in [tt/p=NN] {[tt/l=setzen]})",
    leftContextSize=1, rightContextSize=0, exactFrequencies=FALSE, topCollocatesLimit=20)

## End(Not run)
```

collocationScoreQuery,KorAPConnection-method
Query frequencies of a node and a collocate and calculate collocation association scores

Description

Computes various collocation association scores based on `frequencyQuery()`s for a target word and a collocate.

Usage

```
## S4 method for signature 'KorAPConnection'
collocationScoreQuery(
  kco,
  node,
  collocate,
  vc = "",
  lemmatizeNodeQuery = FALSE,
  lemmatizeCollocateQuery = FALSE,
  leftContextSize = 5,
  rightContextSize = 5,
  scoreFunctions = defaultAssociationScoreFunctions(),
  smoothingConstant = 0.5,
  observed = NA,
  ignoreCollocateCase = FALSE,
  withinSpan = "base/s=s"
)
```

Arguments

kco	`KorAPConnection()` object (obtained e.g. from `new("KorAPConnection")`
node	target word
collocate	collocate of target word
vc	string describing the virtual corpus in which the query should be performed. An empty string (default) means the whole corpus, as far as it is license-wise accessible.
lemmatizeNodeQuery	logical, set to TRUE if node query should be lemmatized, i.e. `x -> [tt/l=x]`
lemmatizeCollocateQuery	logical, set to TRUE if collocate query should be lemmatized, i.e. `x -> [tt/l=x]`
leftContextSize	size of the left context window
rightContextSize	size of the right context window

scoreFunctions named list of score functions of the form function(O1, O2, O, N, E, window_size), see e.g. pmi

smoothingConstant
smoothing constant will be added to all observed values

observed if collocation frequencies are already known (or estimated from a sample) they can be passed as a vector here, otherwise: NA

ignoreCollocateCase
logical, set to TRUE if collocate case should be ignored

withinSpan KorAP span specification (see https://korap.ids-mannheim.de/doc/ql/poliqarp-plus?embedded=true#spans) for collocations to be searched within. Defaults to base/s=s.

Value

tibble with query KorAP web request URL, all observed values and association scores

See Also

Other collocation analysis functions: association-score-functions, collocationAnalysis,KorAPConnection-method, synsemanticStopwords()

Examples

```
## Not run:

new("KorAPConnection", verbose = TRUE) %>%
  collocationScoreQuery("Grund", "triftiger")

## End(Not run)

## Not run:

new("KorAPConnection", verbose = TRUE) %>%
collocationScoreQuery("Grund", c("guter", "triftiger"),
  scoreFunctions = list(localMI = function(O1, O2, O, N, E, window_size) { O * log2(O/E) }) )

## End(Not run)

## Not run:

library(highcharter)
library(tidyr)
new("KorAPConnection", verbose = TRUE) %>%
  collocationScoreQuery("Team", "agil", vc = paste("pubDate in", c(2014:2018)),
                        lemmatizeNodeQuery = TRUE, lemmatizeCollocateQuery = TRUE) %>%
                pivot_longer(14:last_col(), names_to = "measure", values_to = "score") %>%
  hchart(type="spline", hcaes(label, score, group=measure)) %>%
  hc_add_onclick_korap_search()

## End(Not run)
```

corpusStats,KorAPConnection-method

Fetch information about a (virtual) corpus

Description

Fetch information about a (virtual) corpus

Usage

```
## S4 method for signature 'KorAPConnection'
corpusStats(kco, vc = "", verbose = kco@verbose, as.df = FALSE)
```

Arguments

kco	KorAPConnection() object (obtained e.g. from new("KorAPConnection")
vc	string describing the virtual corpus. An empty string (default) means the whole corpus, as far as it is license-wise accessible.
verbose	logical. If TRUE, additional diagnostics are printed.
as.df	return result as data frame instead of as S4 object?

Value

KorAPCorpusStats object with the slots documents, tokens, sentences, paragraphs

Examples

```
## Not run:

kco <- new("KorAPConnection")
corpusStats(kco, "pubDate in 2017 & textType=/Zeitung.*/")

## End(Not run)
```

hc_add_onclick_korap_search

Add KorAP search click events to highchart plots

Description

[Experimental]

Adds on-click events to data points of highcharts that were constructed with frequencyQuery() or collocationScoreQuery(). Clicks on data points then launch KorAP web UI queries for the given query term and virtual corpus in a separate tab.

Usage

```
hc_add_onclick_korap_search(hc)
```

Arguments

hc	A highchart htmlwidget object generated by e.g. frequencyQuery().

Value

The input highchart object with added on-click events.

See Also

Other highcharter-helpers: hc_freq_by_year_ci()

Examples

```
## Not run:

library(highcharter)
library(tidyr)

new("KorAPConnection", verbose = TRUE) %>%
  collocationScoreQuery("Team", "agil", vc = paste("pubDate in", c(2014:2018)),
                        lemmatizeNodeQuery = TRUE, lemmatizeCollocateQuery = TRUE) %>%
                         pivot_longer(c("O", "E")) %>%
  hchart(type="spline", hcaes(label, value, group=name)) %>%
  hc_add_onclick_korap_search()

## End(Not run)
```

---

hc_freq_by_year_ci *Plot interactive frequency curves with confidence intervals*

Description

[Experimental]

Convenience function for plotting typical frequency by year graphs with confidence intervals using highcharter.

Warning: This function may be moved to a new package.

Usage

```
hc_freq_by_year_ci(
  df,
  as.alternatives = FALSE,
  ylabel = if (as.alternatives) "%" else "ipm",
  smooth = FALSE,
  ...
)
```

Arguments

df	data frame like the value of a `frequencyQuery()`
as.alternatives	boolean decides whether queries should be treated as mutually exclusive and exhaustive wrt. to some meaningful class (e.g. spelling variants of a certain word form).
ylabel	defaults to % if `as.alternatives` is TRUE and to ipm otherwise.
smooth	boolean decides whether the graph is smoothed using the highcharts plot types spline and areasplinerange.
...	additional arguments passed to `highcharter::hc_add_series()`

Value

A highchart htmlwidget object containing the frequency plot.

See Also

Other highcharter-helpers: `hc_add_onclick_korap_search()`

Examples

```
## Not run:

year <- c(1990:2018)
alternatives <- c("macht []{0,3} Sinn", "ergibt []{0,3} Sinn")
new("KorAPConnection", verbose = TRUE) %>%
  frequencyQuery(query = alternatives,
                 vc = paste("textType = /Zeit.*/ & pubDate in", year),
                 as.alternatives = TRUE) %>%
  hc_freq_by_year_ci(as.alternatives = TRUE)


kco <- new("KorAPConnection", verbose = TRUE)
expand_grid(
  condition = c("textDomain = /Wirtschaft.*/", "textDomain != /Wirtschaft.*/"),
  year = (2005:2011)
) %>%
  cbind(frequencyQuery(
    kco,
```

```
    "[tt/l=Heuschrecke]",
    paste0(.$condition, " & pubDate in ", .$year)
  ))  %>%
  hc_freq_by_year_ci()

## End(Not run)
```

KorAPConnection-class *Class KorAPConnection*

Description

KorAPConnection objects represent the connection to a KorAP server. New KorAPConnection objects can be created by new("KorAPConnection").

Usage

```
## S4 method for signature 'KorAPConnection'
initialize(
  .Object,
  KorAPUrl = "https://korap.ids-mannheim.de/",
  apiVersion = "v1.0",
  apiUrl,
  accessToken = getAccessToken(KorAPUrl),
  oauthClient = NULL,
  oauthScope = "search match_info",
  authorizationSupported = TRUE,
  userAgent = "R-KorAP-Client",
  timeout = 240,
  verbose = FALSE,
  cache = TRUE
)

## S4 method for signature 'KorAPConnection'
apiCall(
  kco,
  url,
  json = TRUE,
  getHeaders = FALSE,
  cache = kco@cache,
  timeout = kco@timeout
)

## S4 method for signature 'KorAPConnection'
clearCache(kco)

## S4 method for signature 'KorAPConnection'
show(object)
```

Arguments

.Object	KorAPConnection object
KorAPUrl	URL of the web user interface of the KorAP server instance you want to access.
apiVersion	which version of KorAP's API you want to connect to.
apiUrl	URL of the KorAP web service.

accessToken	OAuth2 access token. For queries on corpus parts with restricted access (e.g. textual queries on IPR protected data), you need to authorize your application with an access token. You can obtain an access token in the OAuth settings of your KorAP web interface.
	More details are explained in the authorization section of the RKorAPClient Readme on GitHub.
	To use authorization based on an access token in subsequent queries, initialize your KorAP connection with:
	`kco <- new("KorAPConnection", accessToken="<access token>")`
	In order to make the API token persistent for the currently used KorAPUrl (you can have one token per KorAPUrl / KorAP server instance), use:
	`persistAccessToken(kco)`
	This will store it in your keyring using the keyring::keyring-package. Subsequent new("KorAPConnection") calls will then automatically retrieve the token from your keying. To stop using a persisted token, call `clearAccessToken(kco)`. Please note that for DeReKo, authorized queries will behave differently inside and outside the IDS, because of the special license situation. This concerns also cached results which do not take into account from where a request was issued. If you experience problems or unexpected results, please try `kco <- new("KorAPConnection", cache=FALSE)` or use `clearCache()` to clear the cache completely.
	An alternative to using an access token is to use a browser-based oauth2 workflow to obtain an access token. This can be done with the `auth()` method.

oauthClient	OAuth2 client object.
oauthScope	OAuth2 scope.
authorizationSupported	logical that indicates if authorization is supported/necessary for the current KorAP instance. Automatically set during initialization.
userAgent	user agent string.
timeout	tineout in seconds for API requests (this does not influence server internal timeouts).
verbose	logical that decides whether following operations will default to be verbose.
cache	logical that decides if API calls are cached locally. You can clear the cache with `clearCache()`.
kco	KorAPConnection object
url	request url

`json`	logical that determines if JSON result is expected
`getHeaders`	logical that determines if headers and content should be returned (as a list)
`object`	KorAPConnection object

Value

`KorAPConnection()` object that can be used e.g. with `corpusQuery()`

Slots

`KorAPUrl` URL of the web user interface of the KorAP server used in the connection.

`apiVersion` requested KorAP API version.

`indexRevision` indexRevision code as reported from API via `X-Index-Revision` HTTP header.

`apiUrl` full URL of API including version.

`accessToken` OAuth2 access token.

`oauthClient` OAuth2 client object.

`oauthScope` OAuth2 scope.

`authorizationSupported` logical that indicates if authorization is supported/necessary for the current KorAP instance. Automatically set during initialization.

`userAgent` user agent string used for connection the API.

`timeout` timeout in seconds for API requests (this does not influence server internal timeouts)

`verbose` logical that decides whether operations will default to be verbose.

`cache` logical that decides if API calls are cached locally.

`welcome` list containing HTTP response received from KorAP server welcome function.

Examples

```
## Not run:

kcon <- new("KorAPConnection", verbose = TRUE)
kq <- corpusQuery(kcon, "Ameisenplage")
kq <- fetchAll(kq)

## End(Not run)

## Not run:

kcon <- new("KorAPConnection", verbose = TRUE, accessToken="e739u6eOzkwADQPdVChxFg")
kq <- corpusQuery(kcon, "Ameisenplage", metadataOnly=FALSE)
kq <- fetchAll(kq)
kq@collectedMatches$snippet

## End(Not run)
```

KorAPCorpusStats-class *Class KorAPCorpusStats*

Description

KorAPCorpusStats objects can hold information about a corpus or virtual corpus. KorAPCorpusStats objects can be obtained by the corpusStats() method.

Usage

```
## S4 method for signature 'KorAPCorpusStats'
show(object)
```

Arguments

object	KorAPCorpusStats object

Slots

vc definition of the virtual corpus

tokens number of tokens

documents number of documents

sentences number of sentences

paragraphs number of paragraphs

webUIRequestUrl link to the web user interface with the current vc definition

KorAPQuery-class *Class KorAPQuery*

Description

This class provides methods to perform different kinds of queries on the KorAP API server. KorAPQuery objects, which are typically created by the corpusQuery() method, represent the current state of a query to a KorAP server.

corpusQuery performs a corpus query via a connection to a KorAP-API-server

fetchNext fetches the next bunch of results of a KorAP query.

fetchAll fetches all results of a KorAP query.

frequencyQuery combines corpusQuery(), corpusStats() and ci() to compute a table with the relative frequencies and confidence intervals of one ore multiple search terms across one or multiple virtual corpora.

Usage

```
## S4 method for signature 'KorAPQuery'
initialize(
  .Object,
  korapConnection = NULL,
  request = NULL,
  vc = "",
  totalResults = 0,
  nextStartIndex = 0,
  fields = c("corpusSigle", "textSigle", "pubDate", "pubPlace", "availability",
    "textClass", "snippet", "tokens"),
  requestUrl = "",
  webUIRequestUrl = "",
  apiResponse = NULL,
  hasMoreMatches = FALSE,
  collectedMatches = NULL
)

## S4 method for signature 'KorAPConnection'
corpusQuery(
  kco,
  query = if (missing(KorAPUrl))
   stop("At least one of the parameters query and KorAPUrl must be specified.", call. =
    FALSE) else httr2::url_parse(KorAPUrl)$query$q,
  vc = if (missing(KorAPUrl)) "" else httr2::url_parse(KorAPUrl)$query$cq,
  KorAPUrl,
  metadataOnly = TRUE,
 ql = if (missing(KorAPUrl)) "poliqarp" else httr2::url_parse(KorAPUrl)$query$ql,
  fields = c("corpusSigle", "textSigle", "pubDate", "pubPlace", "availability",
    "textClass", "snippet", "tokens"),
  accessRewriteFatal = TRUE,
  verbose = kco@verbose,
  expand = length(vc) != length(query),
  as.df = FALSE,
  context = NULL
)

## S4 method for signature 'KorAPQuery'
fetchNext(
  kqo,
  offset = kqo@nextStartIndex,
  maxFetch = maxResultsPerPage,
  verbose = kqo@korapConnection@verbose,
  randomizePageOrder = FALSE
)

## S4 method for signature 'KorAPQuery'
fetchAll(kqo, verbose = kqo@korapConnection@verbose, ...)
```

```
## S4 method for signature 'KorAPQuery'
fetchRest(kqo, verbose = kqo@korapConnection@verbose, ...)

## S4 method for signature 'KorAPConnection'
frequencyQuery(
  kco,
  query,
  vc = "",
  conf.level = 0.95,
  as.alternatives = FALSE,
  ...
)

buildWebUIRequestUrlFromString(KorAPUrl, query, vc = "", ql = "poliqarp")

buildWebUIRequestUrl(
  kco,
  query = if (missing(KorAPUrl))
   stop("At least one of the parameters query and KorAPUrl must be specified.", call. =
    FALSE) else httr2::url_parse(KorAPUrl)$query$q,
  vc = if (missing(KorAPUrl)) "" else httr2::url_parse(KorAPUrl)$query$cq,
  KorAPUrl,
  ql = if (missing(KorAPUrl)) "poliqarp" else httr2::url_parse(KorAPUrl)$query$ql
)

## S3 method for class 'KorAPQuery'
format(x, ...)

## S4 method for signature 'KorAPQuery'
show(object)
```

Arguments

.Object	...
korapConnection	KorAPConnection object
request	query part of the request URL
vc	string describing the virtual corpus in which the query should be performed. An empty string (default) means the whole corpus, as far as it is license-wise accessible.
totalResults	number of hits the query has yielded
nextStartIndex	at what index to start the next fetch of query results
fields	(meta)data fields that will be fetched for every match.
requestUrl	complete URL of the API request
webUIRequestUrl	URL of a web frontend request corresponding to the API request

apiResponse	data-frame representation of the JSON response of the API request
hasMoreMatches	logical that signals if more query results can be fetched
collectedMatches	matches already fetched from the KorAP-API-server
kco	KorAPConnection() object (obtained e.g. from new("KorAPConnection")
query	string that contains the corpus query. The query language depends on the ql parameter. Either query must be provided or KorAPUrl.
KorAPUrl	instead of providing the query and vc string parameters, you can also simply copy a KorAP query URL from your browser and use it here (and in KorAPConnection) to provide all necessary information for the query.
metadataOnly	logical that determines whether queries should return only metadata without any snippets. This can also be useful to prevent access rewrites. Note that the default value is TRUE. If you want your corpus queries to return not only metadata, but also KWICS, you need to authorize your RKorAPClient application as explained in the authorization section of the RKorAPClient Readme on GitHub and set the metadataOnly parameter to FALSE.
ql	string to choose the query language (see section on Query Parameters in the Kustvakt-Wiki for possible values.
accessRewriteFatal	abort if query or given vc had to be rewritten due to insufficient rights (not yet implemented).
verbose	print progress information if true
expand	logical that decides if query and vc parameters are expanded to all of their combinations
as.df	return result as data frame instead of as S4 object?
context	string that specifies the size of the left and the right context returned in snippet (provided that metadataOnly is set to false and that the necessary access right are met). The format of the context size specifcation (e.g. 3-token,3-token) is described in the Service: Search GET documentation of the Kustvakt Wiki. If the parameter is not set, the default context size secification of the KorAP server instance will be used. Note that you cannot overrule the maximum context size set in the KorAP server instance, as this is typically legally motivated.
kqo	object obtained from corpusQuery()
offset	start offset for query results to fetch
maxFetch	maximum number of query results to fetch
randomizePageOrder	fetch result pages in pseudo random order if true. Use set.seed() to set seed for reproducible results.
...	further arguments passed to or from other methods
conf.level	confidence level of the returned confidence interval (passed through ci() to prop.test()).
as.alternatives	LOGICAL that specifies if the query terms should be treated as alternatives. If as.alternatives is TRUE, the sum over all query hits, instead of the respective vc token sizes is used as total for the calculation of relative frequencies.

x	KorAPQuery object
object	KorAPQuery object

Value

Depending on the as.df parameter, a table or a KorAPQuery() object that, among other information, contains the total number of results in @totalResults. The resulting object can be used to fetch all query results (with fetchAll()) or the next page of results (with fetchNext()). A corresponding URL to be used within a web browser is contained in @webUIRequestUrl Please make sure to check $collection$rewrites to see if any unforeseen access rewrites of the query's virtual corpus had to be performed.

The kqo input object with updated slots collectedMatches, apiResponse, nextStartIndex, hasMoreMatches

References

https://ids-pub.bsz-bw.de/frontdoor/index/index/docId/9026

https://ids-pub.bsz-bw.de/frontdoor/index/index/docId/9026

See Also

KorAPConnection(), fetchNext(), fetchRest(), fetchAll(), corpusStats()

Examples

```
## Not run:

# Fetch metadata of every query hit for "Ameisenplage" and show a summary
new("KorAPConnection") %>% corpusQuery("Ameisenplage") %>% fetchAll()

## End(Not run)

## Not run:

# Use the copy of a KorAP-web-frontend URL for an API query of "Ameise" in a virtual corpus
# and show the number of query hits (but don't fetch them).

new("KorAPConnection", verbose = TRUE) %>%
 corpusQuery(KorAPUrl =
   "https://korap.ids-mannheim.de/?q=Ameise&cq=pubDate+since+2017&ql=poliqarp")

## End(Not run)

## Not run:

# Plot the time/frequency curve of "Ameisenplage"
new("KorAPConnection", verbose=TRUE) %>%
  { . ->> kco } %>%
  corpusQuery("Ameisenplage") %>%
  fetchAll() %>%
  slot("collectedMatches") %>%
```

```
  mutate(year = lubridate::year(pubDate)) %>%
  dplyr::select(year) %>%
  group_by(year) %>%
  summarise(Count = dplyr::n()) %>%
  mutate(Freq = mapply(function(f, y)
    f / corpusStats(kco, paste("pubDate in", y))@tokens, Count, year)) %>%
  dplyr::select(-Count) %>%
  complete(year = min(year):max(year), fill = list(Freq = 0)) %>%
  plot(type = "l")

## End(Not run)
## Not run:

q <- new("KorAPConnection") %>% corpusQuery("Ameisenplage") %>% fetchNext()
q@collectedMatches

## End(Not run)

## Not run:

q <- new("KorAPConnection") %>% corpusQuery("Ameisenplage") %>% fetchAll()
q@collectedMatches

## End(Not run)

## Not run:

q <- new("KorAPConnection") %>% corpusQuery("Ameisenplage") %>% fetchRest()
q@collectedMatches

## End(Not run)

## Not run:

new("KorAPConnection", verbose = TRUE) %>%
  frequencyQuery(c("Mücke", "Schnake"), paste0("pubDate in ", 2000:2003))

## End(Not run)
```

`mergeDuplicateCollocates` *Merge duplicate collocate rows and re-calculate association scores and URLs. Useful if collocation analyses were performed separately for collocates on the left and right side of a node.*

Description

Merge duplicate collocate rows and re-calculate association scores and URLs. Useful if collocation analyses were performed separately for collocates on the left and right side of a node.

Usage

```
mergeDuplicateCollocates(..., smoothingConstant = 0.5)
```

Arguments

`...`	tibbles with collocate rows returned from `collocationAnalysis()`
`smoothingConstant`	original smoothing constant (to be added only once to the observed values)

Value

tibble with unique collocate rows

`persistAccessToken,KorAPConnection-method` *Persist current access token in keyring*

Description

Persist current access token in keyring

Usage

```
## S4 method for signature 'KorAPConnection'
persistAccessToken(kco, accessToken = kco@accessToken)
```

Arguments

`kco`	KorAPConnection object
`accessToken`	access token to be persisted. If not supplied, the current access token of the KorAPConnection object will be used.

Value

KorAPConnection object.

See Also

`clearAccessToken()`, `auth()`

Examples

```
## Not run:
kco <- new("KorAPConnection", accessToken="e739u6eOzkwADQPdVChxFg")
persistAccessToken(kco)

kco <- new("KorAPConnection") %>% auth(app_id="<my application id>") %>% persistAccessToken()

## End(Not run)
```

`synsemanticStopwords` *Preliminary synsemantic stopwords function*

Description

[Experimental]

Preliminary synsemantic stopwords function to be used in collocation analysis.

Usage

```
synsemanticStopwords(...)
```

Arguments

...	future arguments for language detection

Details

Currently only suitable for German. See stopwords package for other languages.

Value

Vector of synsemantic stopwords.

See Also

Other collocation analysis functions: `association-score-functions`, `collocationAnalysis,KorAPConnection-method`, `collocationScoreQuery,KorAPConnection-method`

`textMetadata,KorAPConnection-method`
Retrieve metadata for a text, identified by its sigle (id)

Description

Retrieves metadata for a text, identified by its sigle (id) using the corresponding KorAP API (see Kustvakt Wiki).

Usage

```
## S4 method for signature 'KorAPConnection'
textMetadata(kco, textSigle, verbose = kco@verbose)
```

Arguments

`kco`	`KorAPConnection()` object (obtained e.g. from `new("KorAPConnection")`)
`textSigle`	unique text id (concatenation of corpus, document and text ids, separated by `/`, e.g.) or vector thereof
`verbose`	logical. If `TRUE`, additional diagnostics are printed. Defaults to `kco@verbose`.

Value

Tibble with columns for each metadata property. In case of errors, such as non-existing texts/sigles, the tibble will also contain a column called `errors`. If there are metadata columns you cannot make sense of, please ignore them. The function simply returns all the metadata it gets from the server.

Examples

```
## Not run:
new("KorAPConnection") %>% textMetadata(c("WUD17/A97/08542", "WUD17/B96/57558", "WUD17/A97/08541"))

## End(Not run)
```

Index