Package 'receptiviti'

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Type Package

Title Text Analysis Through the 'Receptiviti' API

Version 0.2.0

Description Sends texts to the <https://www.receptiviti.com> API to be scored,
and facilitates the creation of custom norms and local results databases.

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Imports curl, jsonlite, digest, progressr, stringi

Suggests testthat (>= 3.0.0), knitr, rmarkdown, future, arrow (>=
9.0.0), dplyr, future.apply

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RoxygenNote 7.3.2

URL <https://receptiviti.github.io/receptiviti-r/>,
<https://github.com/Receptiviti/receptiviti-r>

BugReports <https://github.com/Receptiviti/receptiviti-r/issues>

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receptiviti	*Receptiviti API*

Description

The main function to access the Receptiviti API.

Usage

```
receptiviti(text = NULL, output = NULL, id = NULL, text_column = NULL,
  id_column = NULL, files = NULL, dir = NULL, file_type = "txt",
  encoding = NULL, return_text = FALSE, context = "written",
  custom_context = FALSE, api_args = getOption("receptiviti.api_args",
  list()), frameworks = getOption("receptiviti.frameworks", "all"),
  framework_prefix = TRUE, as_list = FALSE, bundle_size = 1000,
  bundle_byte_limit = 7500000, collapse_lines = FALSE, retry_limit = 50,
  clear_cache = FALSE, clear_scratch_cache = TRUE, request_cache = TRUE,
  cores = detectCores() - 1, collect_results = TRUE, use_future = FALSE,
  in_memory = TRUE, verbose = FALSE, overwrite = FALSE,
  compress = FALSE, make_request = TRUE, text_as_paths = FALSE,
  cache = Sys.getenv("RECEPTIVITI_CACHE"), cache_overwrite = FALSE,
  cache_format = Sys.getenv("RECEPTIVITI_CACHE_FORMAT", "parquet"),
  key = Sys.getenv("RECEPTIVITI_KEY"),
  secret = Sys.getenv("RECEPTIVITI_SECRET"),
  url = Sys.getenv("RECEPTIVITI_URL"),
  version = Sys.getenv("RECEPTIVITI_VERSION"),
  endpoint = Sys.getenv("RECEPTIVITI_ENDPOINT"))

receptiviti_status(url = Sys.getenv("RECEPTIVITI_URL"),
  key = Sys.getenv("RECEPTIVITI_KEY"),
  secret = Sys.getenv("RECEPTIVITI_SECRET"), verbose = TRUE,
  include_headers = FALSE)
```

Arguments

text	A character vector with text to be processed, path to a directory containing files, or a vector of file paths. If a single path to a directory, each file is collapsed to a single text. If a path to a file or files, each line or row is treated as a separate text, unless collapse_lines is TRUE (in which case, files will be read in as part of bundles at processing time, as is always the case when a directory). Use files to more reliably enter files, or dir to more reliably specify a directory.
output	Path to a .csv file to write results to. If this already exists, set overwrite to TRUE to overwrite it.
id	Vector of unique IDs the same length as text, to be included in the results.
text_column, id_column	
	Column name of text/id, if text is a matrix-like object, or a path to a csv file.

files	A list of file paths, as alternate entry to text.
dir	A directory to search for files in, as alternate entry to text.
file_type	File extension to search for, if text is the path to a directory containing files to be read in.
encoding	Encoding of file(s) to be read in. If not specified, this will be detected, which can fail, resulting in mis-encoded characters; for best (and fasted) results, specify encoding.
return_text	Logical; if TRUE, text is included as the first column of the result.
context	Name of the analysis context.
custom_context	Name of a custom context (as listed by receptiviti_norming), or TRUE if context is the name of a custom context.
api_args	A list of additional arguments to pass to the API (e.g., list(sallee_mode = "sparse")). Defaults to the receptiviti.api_args option. Custom norming contexts can be established with the receptiviti_norming function, then referred to here with the custom_context argument (only available in API V2).
frameworks	A vector of frameworks to include results from. Texts are always scored with all available framework – this just specifies what to return. Defaults to all, to return all scored frameworks. Can be set by the receptiviti.frameworks option (e.g., options(receptiviti.frameworks = c("liwc", "sallee"))).
framework_prefix	Logical; if FALSE, will remove the framework prefix from column names, which may result in duplicates. If this is not specified, and 1 framework is selected, or as_list is TRUE, will default to remove prefixes.
as_list	Logical; if TRUE, returns a list with frameworks in separate entries.
bundle_size	Number of texts to include in each request; between 1 and 1,000.
bundle_byte_limit	Memory limit (in bytes) of each bundle, under 1e7 (10 MB, which is the API's limit). May need to be lower than the API's limit, depending on the system's requesting library.
collapse_lines	Logical; if TRUE, and text contains paths to files, each file is treated as a single text.
retry_limit	Maximum number of times each request can be retried after hitting a rate limit.
clear_cache	Logical; if TRUE, will clear any existing files in the cache. Use cache_overwrite if you want fresh results without clearing or disabling the cache. Use cache = FALSE to disable the cache.
clear_scratch_cache	Logical; if FALSE, will preserve the bundles written when in_memory is TRUE, after the request has been made.
request_cache	Logical; if FALSE, will always make a fresh request, rather than using the response from a previous identical request.
cores	Number of CPU cores to split bundles across, if there are multiple bundles. See the Parallelization section.
collect_results	Logical; if FALSE, will not retain bundle results in memory for return.

use_future	Logical; if TRUE, uses a future back-end to process bundles, in which case, parallelization can be controlled with the [plan](#) function (e.g., plan("multisession") to use multiple cores); this is required to see progress bars when using multiple cores. See the Parallelization section.
in_memory	Logical; if FALSE, will write bundles to temporary files, and only load them as they are being requested.
verbose	Logical; if TRUE, will show status messages.
overwrite	Logical; if TRUE, will overwrite an existing output file.
compress	Logical; if TRUE, will save as an xz-compressed file.
make_request	Logical; if FALSE, a request is not made. This could be useful if you want to be sure and load from one of the caches, but aren't sure that all results exist there; it will error out if it encounters texts it has no other source for.
text_as_paths	Logical; if TRUE, ensures text is treated as a vector of file paths. Otherwise, this will be determined if there are no NAs in text and every entry is under 500 characters long.
cache	Path to a directory in which to save unique results for reuse; defaults to Sys.getenv("RECEPTIVITI_CACH See the Cache section for details.
cache_overwrite	
	Logical; if TRUE, will write results to the cache without reading from it. This could be used if you want fresh results to be cached without clearing the cache.
cache_format	Format of the cache database; see [FileFormat](#). Defaults to Sys.getenv("RECEPTIVITI_CACHE_FORMAT"
key	API Key; defaults to Sys.getenv("RECEPTIVITI_KEY").
secret	API Secret; defaults to Sys.getenv("RECEPTIVITI_SECRET").
url	API URL; defaults to Sys.getenv("RECEPTIVITI_URL"), which defaults to "https://api.receptiviti.com/".
version	API version; defaults to Sys.getenv("RECEPTIVITI_VERSION"), which defaults to "v1".
endpoint	API endpoint (path name after the version); defaults to Sys.getenv("RECEPTIVITI_ENDPOINT"), which defaults to "framework".
include_headers	
	Logical; if TRUE, receptiviti_status's verbose message will include the HTTP headers.

Value

Nothing if collect_results is FALSE. Otherwise, a data.frame with columns for text (if return_text is TRUE; the originally entered text), id (if one was provided), text_hash (the MD5 hash of the text), a column each for relevant entries in api_args, and scores from each included framework (e.g., summary.word_count and liwc.i). If as_list is TRUE, returns a list with a named entry containing such a data.frame for each framework.

Request Process

This function (along with the internal manage_request function) handles texts and results in several steps:

1. Prepare bundles (split `text` into `<= bundle_size` and `<= bundle_byte_limit` bundles).
   (a) If `text` points to a directory or list of files, these will be read in later.
   (b) If `in_memory` is `FALSE`, bundles are written to a temporary location, and read back in when the request is made.
2. Get scores for texts within each bundle.
   (a) If texts are paths, or `in_memory` is `FALSE`, will load texts.
   (b) If `cache` is set, will skip any texts with cached scores.
   (c) If `request_cache` is `TRUE`, will check for a cached request.
   (d) If any texts need scoring and `make_request` is `TRUE`, will send unscored texts to the API.
3. If a request was made and `request_cache` is set, will cache the response.
4. If `cache` is set, will write bundle scores to the cache.
5. After requests are made, if `cache` is set, will defragment the cache (combine bundle results within partitions).
6. If `collect_results` is `TRUE`, will prepare results:
   (a) Will realign results with `text` (and `id` if provided).
   (b) If `output` is specified, will write realigned results to it.
   (c) Will drop additional columns (such as `custom` and `id` if not provided).
   (d) If `framework` is specified, will use it to select columns of the results.
   (e) Returns results.

Cache

If the `cache` argument is specified, results for unique texts are saved in an [Arrow] database in the cache location (`Sys.getenv("RECEPTIVITI_CACHE")`), and are retrieved with subsequent requests. This ensures that the exact same texts are not re-sent to the API. This does, however, add some processing time and disc space usage.

If `cache` is `TRUE`, a default directory (`receptiviti_cache`) will be looked for in the system's temporary directory (which is usually the parent of `tempdir()`). If this does not exist, you will be asked if it should be created.

The primary cache is checked when each bundle is processed, and existing results are loaded at that time. When processing many bundles in parallel, and many results have been cached, this can cause the system to freeze and potentially crash. To avoid this, limit the number of cores, or disable parallel processing.

The `cache_format` arguments (or the `RECEPTIVITI_CACHE_FORMAT` environment variable) can be used to adjust the format of the cache.

You can use the cache independently with `open_database(Sys.getenv("RECEPTIVITI_CACHE"))`.

You can also set the `clear_cache` argument to `TRUE` to clear the cache before it is used again, which may be useful if the cache has gotten big, or you know new results will be returned. Even if a cached result exists, it will be reprocessed if it does not have all of the variables of new results, but this depends on there being at least 1 uncached result. If, for instance, you add a framework to your account and want to reprocess a previously processed set of texts, you would need to first clear the cache.

Either way, duplicated texts within the same call will only be sent once.

The request_cache argument controls a more temporary cache of each bundle request. This is cleared when the R session ends. You might want to set this to FALSE if a new framework becomes available on your account and you want to process a set of text you already processed in the current R session without restarting.

Another temporary cache is made when in_memory is FALSE, which is the default when processing in parallel (when cores is over 1 or use_future is TRUE). This contains a file for each unique bundle, which is read in as needed by the parallel workers.

Parallelization

texts are split into bundles based on the bundle_size argument. Each bundle represents a single request to the API, which is why they are limited to 1000 texts and a total size of 10 MB. When there is more than one bundle and either cores is greater than 1 or use_future is TRUE (and you've externally specified a [plan](#)), bundles are processed by multiple cores.

If you have texts spread across multiple files, they can be most efficiently processed in parallel if each file contains a single text (potentially collapsed from multiple lines). If files contain multiple texts (i.e., collapse_lines = FALSE), then texts need to be read in before bundling in order to ensure bundles are under the length limit.

Whether processing in serial or parallel, progress bars can be specified externally with [handlers](#); see examples.

Examples

```
## Not run:

# check that the API is available, and your credentials work
receptiviti_status()

# score a single text
single <- receptiviti("a text to score")

# score multiple texts, and write results to a file
multi <- receptiviti(c("first text to score", "second text"), "filename.csv")

# score many texts in separate files
## defaults to look for .txt files
file_results <- receptiviti(dir = "./path/to/txt_folder")

## could be .csv
file_results <- receptiviti(
  dir = "./path/to/csv_folder",
  text_column = "text", file_type = "csv"
)

# score many texts from a file, with a progress bar
## set up cores and progress bar
## (only necessary if you want the progress bar)
future::plan("multisession")
progressr::handlers(global = TRUE)
progressr::handlers("progress")
```

```
## make request
results <- receptiviti(
  "./path/to/largefile.csv",
  text_column = "text", use_future = TRUE
)

## End(Not run)
```

---

receptiviti_frameworks

List Available Frameworks

Description

Retrieve the list of frameworks available to your account.

Usage

```
receptiviti_frameworks(url = Sys.getenv("RECEPTIVITI_URL"),
  key = Sys.getenv("RECEPTIVITI_KEY"),
  secret = Sys.getenv("RECEPTIVITI_SECRET"))
```

Arguments

url, key, secret   Request arguments; same as those in [receptiviti](#).

Value

A character vector containing the names of frameworks available to your account.

Examples

```
## Not run:

# see which frameworks are available to your account
frameworks <- receptiviti_frameworks()

## End(Not run)
```

---

receptiviti_norming   *View or Establish Custom Norming Contexts*

Description

Custom norming contexts can be used to process later texts by specifying the `custom_context` API argument in the `receptiviti` function (e.g., `receptiviti("text to score"`, `version = "v2"`,`options = list(custom_context = "norm_name"))`, where `norm_name` is the name you set here).

Usage

```
receptiviti_norming(name = NULL, text = NULL, options = list(),
  delete = FALSE, name_only = FALSE, id = NULL, text_column = NULL,
  id_column = NULL, files = NULL, dir = NULL, file_type = "txt",
  collapse_lines = FALSE, encoding = NULL, bundle_size = 1000,
  bundle_byte_limit = 7500000, retry_limit = 50,
  clear_scratch_cache = TRUE, use_future = FALSE, in_memory = TRUE,
  url = Sys.getenv("RECEPTIVITI_URL"), key = Sys.getenv("RECEPTIVITI_KEY"),
  secret = Sys.getenv("RECEPTIVITI_SECRET"), verbose = TRUE)
```

Arguments

name	Name of a new norming context, to be established from the provided `text`. Not providing a name will list the previously created contexts.
text	Text to be processed and used as the custom norming context. Not providing text will return the status of the named norming context.
options	Options to set for the norming context (e.g., `list(min_word_count = 350, max_punctuation = .25)`).
delete	Logical; If `TRUE`, will request to remove the `name` context.
name_only	Logical; If `TRUE`, will return a character vector of names only, including those of build-in contexts.
id, text_column, id_column, files, dir, file_type, collapse_lines, encoding	
	Additional arguments used to handle `text`; same as those in [receptiviti]().
bundle_size, bundle_byte_limit, retry_limit, clear_scratch_cache, use_future, in_memory	
	Additional arguments used to manage the requests; same as those in [receptiviti]().
key, secret, url	Request arguments; same as those in [receptiviti]().
verbose	Logical; if `TRUE`, will show status messages.

Value

Nothing if `delete` if `TRUE`. Otherwise, if `name` is not specified, a character vector containing names of each available norming context (built-in and custom). If `text` is not specified, the status of the named context in a `list`. If `texts` are provided, a `list`:

- `initial_status`: Initial status of the context.
- `first_pass`: Response after texts are sent the first time, or NULL if the initial status is `pass_two`.
- `second_pass`: Response after texts are sent the second time.

Examples

```
## Not run:

# get status of all existing custom norming contexts
contexts <- receptiviti_norming(name_only = TRUE)

# create or get the status of a single custom norming context
status <- receptiviti_norming("new_context")

# send texts to establish the context

## these texts can be specified just like
## texts in the main receptiviti function

## such as directly
full_status <- receptiviti_norming("new_context", c(
  "a text to set the norm",
  "another text part of the new context"
))

## or from a file
full_status <- receptiviti_norming(
  "new_context", "./path/to/text.csv",
  text_column = "texts"
)

## or from multiple files in a directory
full_status <- receptiviti_norming(
  "new_context",
  dir = "./path/to/txt_files"
)

## End(Not run)
```

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