Package ‘rtrek’

June 1, 2021

Version 0.3.3
Title Datasets and Functions Relating to Star Trek
Description Provides datasets related to the Star Trek fictional universe and functions for working with the data.
The package also provides access to real world datasets based on the televised series and other related licensed media productions.
It interfaces with the Star Trek API (STAPI) (<http://stapi.co/>), Memory Alpha (<https://memory-alpha.fandom.com/wiki/Portal:Main>), and Memory Beta (<https://memory-beta.fandom.com/wiki/Main_Page>) to retrieve data, metadata and other information relating to Star Trek.
It also contains several local datasets covering a variety of topics.
The package also provides functions for working with data from other Star Trek-related R data packages containing larger datasets not stored in ‘rtrek’.
License MIT + file LICENSE
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LazyData true
ByteCompile true
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BugReports https://github.com/leonawicz/rtrek/issues
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Read Memory Alpha article

Description

Read Memory Alpha article content and metadata.
ma_image

Usage

ma_image(url, file, keep = FALSE)

Arguments

url character, the short url of the image, for example as returned by memory_alpha. See example.
file character, output file name. Optional. See details.
keep logical, if FALSE (default) then file is only temporary.

Description

Download a Memory Alpha image and return a ggplot object.
ma_search

Details
By default the downloaded file is not retained (keep = FALSE). The filename is derived from url if file is not provided. Whether or not the output file is kept, a ggplot object of the image is returned.

Value
a ggplot object

Examples
## Not run: ma_image("File:Gowron_attempts_to_recruit_Worf.jpg")

ma_search

Memory Alpha site search

Description
Perform a Memory Alpha site search.

Usage
ma_search(text, browse = FALSE)

Arguments
text character, search query.
browse logical, open search results page in browser.

Details
This function returns a data frame containing the title, truncated text preview, and relative URL for the first page of search results. It does not recursively collate search results through subsequent pages of results. There could be an unexpectedly high number of pages of results depending on the search query. Since the general nature of this search feature seems relatively casual anyway, it aims only to provide a first page preview.

Value
a data frame

Examples
ma_search("Worf")
### mb_article

**Read Memory Beta article**

**Description**

Read Memory Beta article content and metadata.

**Usage**

```r
mb_article(
  url,
  content_format = c("xml", "character"),
  content_nodes = c("h2", "h3", "h4", "p", "b", "ul", "dl", "table"),
  browse = FALSE
)
```

**Arguments**

- `url` character, article URL. Expects package-style short URL. See examples.
- `content_format` character, the format of the article main text, "xml" or "character".
- `content_nodes` character, which top-level nodes in the article main text to retain.
- `browse` logical, also open `url` in browser.

**Details**

Article content is returned in a nested, tidy data frame.

**Value**

a nested data frame

**Examples**

```r
mb_article("Azetbur")
```

---

### mb_image

**Memory Beta images**

**Description**

Download a Memory Beta image and return a ggplot object.

**Usage**

```r
mb_image(url, file, keep = FALSE)
```
Arguments

url character, the short url of the image, for example as returned by `memory_beta`. See example.

file character, output file name. Optional. See details.

keep logical, if FALSE (default) then file is only temporary.

Details

By default the downloaded file is not retained (keep = FALSE). The filename is derived from `url` if `file` is not provided. Whether or not the output file is kept, a ggplot object of the image is returned.

Value

a ggplot object

Examples

```r
## Not run: mb_image("File:DataBlaze.jpg")
```

---

**mb_search**

*Memory Beta site search*

Description

Perform a Memory Beta site search.

Usage

```r
mb_search(text, browse = FALSE)
```

Arguments

- `text` character, search query.
- `browse` logical, open search results page in browser.

Details

This function returns a data frame containing the title, truncated text preview, and relative URL for the first page of search results. It does not recursively collate search results through subsequent pages of results. There could be an unexpectedly high number of pages of results depending on the search query. Since the general nature of this search feature seems relatively casual anyway, it aims only to provide a first page preview.

Value

a data frame
mb_timeline

Examples

mb_search("Worf")

Description

Access curated data frames containing Star Trek timeline data.

Usage

mb_timeline(x)

Arguments

x numeric or character, description of the desired timeline window. See details.

Details

The timeline data is from the Memory Beta Chronology.
x can be a numeric vector of years, e.g. \( x = 2371:2364 \). This should only be used if you know (or can safely assume) a year exists as a page on Memory Beta. Check there first if unsure. \( x \) may otherwise be scalar character. This can be a specific decade in the form, e.g., "2370s". If a decade, it must fall in the range from "1900s" through "2490s". The decade option pulls back data from the decade page entry, or if individual year pages exist within the given decade, it will pull the data for each existing year.

Special values: For the more distant past or future, use the character options \( x = "past" \) or \( x = "future" \). \( x = "main" \) will pull from the main part of the timeline, 1900 - 2499. \( x = "complete" \) combines past, main, and future in order.

The distant past and future have few entries, and thus few pages. However, both of these last two options, "main" and complete, must download a large number of pages. For this reason, rtrek employs anti-DOS measures to prevent an unwitting user from making too many requests too quickly from Memory Beta. The function would otherwise be far faster. However, to be a friendly neighbor in the cosmos, rtrek enforces a minimum one-second wait between timeline requests. This can lead to downloading the full timeline to take ten minutes or so even if you have a fast connection; most of the time it takes is spent waiting patiently.

Also, like other functions that work with Memory Alpha and Memory Beta data, mb_timeline wraps around internal functions that are sensibly memoized. This means that if you make the same call twice in your R session, you won’t have to wait at all, because the result is cached in memory. The call will appear to run instantaneously the second time around, but that’s because nothing is happening other than returning the cached result from the initial call.

Value

a list of two data frames
Examples

```r
mb_timeline(2360)
## Not run:
mb_timeline("2360s")
mb_timeline("past")
mb_timeline("future")
mb_timeline("main")
mb_timeline("complete")
## End(Not run)
```

---

**memory_alpha**  
*Memory Alpha API*

### Description

Access Star Trek content from Memory Alpha ([https://memory-alpha.fandom.com/wiki/Portal:Main](https://memory-alpha.fandom.com/wiki/Portal:Main)).

### Usage

```r
memory_alpha(endpoint)
```

### Arguments

- `endpoint` character, See details.

### Details

The content returned is always a data frame. The structure changes slightly depending on the nature of the endpoint, but results from different endpoints can be merged easily.

**Portals:** At the highest level, passing `endpoint = "portals"` returns a data frame listing the available Memory Alpha portals supported by `rtrek`. A column of relative URLs is also included for reference, but can be ignored.

**Portal Categories:** In all other cases, the endpoint string must begin with one of the valid portal IDs. Passing only the ID returns a data frame with IDs and relative URLs associated with the available categories in the specific portal. There are two additional columns, `group` and `subgroup`, that may provide additional grouping context for the entry IDs in larger tables. As with the relative URLs, you do not have to make explicit use of these variables.

Selecting a specific category within a portal is done by appending the portal ID in `endpoint` with the category ID, separated by a forward slash. You can append nested subcategory IDs with forward slashes, provided they subcategories exist.
Articles: When the endpoint is neither a top-level portal or one of a portal’s categories (or subcategories, if available), it is an article. An article is a terminal node, meaning you cannot nest further. An article will be any entry whose URL does not begin with Category:. In this case, the content returned is still a data frame for consistency, but differs substantially from the results of non-terminal endpoints.

Memory Alpha is not a database containing convenient tables. Articles comprise the bulk of what Memory Alpha has to offer. They are not completely unstructured text, but are loosely structured. Some assumptions are made and memory_alpha returns a data frame containing article text and links. It is up to the user what to do with this information, e.g., performing text analyses.

Additional notes: The url column included in results for context uses relative paths to save space. The full URLs all begin the same. To visit a URL directly, prepend it with https://memory-alpha.fandom.com/wiki/.

Also note that once you know the relative URL for an article, e.g., "Worf", you do not need to traverse through one of the portals using an endpoint string to retrieve its content. You can instead use ma_article("Worf").

memory_alpha provides an overview perspective on how content available at Memory Alpha is organized and can be searched for through a variety of hierarchical layouts. And in some cases this structure that can be obtained in table form can be useful as data or metadata in itself. Alternatively, ma_article is focused exclusively on pulling back content from known articles.

Value

a data frame

See Also

ma_article, memory_beta

Examples

memory_alpha("portals") # show available portals
memory_alpha("people") # show portal categories for People portal
memory_alpha("people/Klingons") # show people in Klingons subcategory
memory_alpha("people/Klingons/Worf") # return terminal article content
Usage

memory_beta(endpoint)

Arguments

epsilonnt  character, See details.

Details

The content returned is always a data frame. The structure changes slightly depending on the nature of the endpoint, but results from different endpoints can be merged easily.

Portals: At the highest level, passing endpoint = "portals" returns a data frame listing the available Memory Beta portals supported by rtrek. A column of relative URLs is also included for reference, but can be ignored. Compared to Memory Alpha, Memory Beta does not technically offer "portals", but for consistency in rtrek, several high level categories on Memory Beta are treated as portal options. See memory_alpha for comparison.

Portal categories: In all other cases, the endpoint string must begin with one of the valid portal IDs. Passing only the ID returns a data frame with IDs and relative URLs associated with the available categories in the specific portal. Unlike memory_alpha, there are no group or subgroup columns. Memory Beta offers a more consistent reliance on the simple hierarchy of categories and articles.

Selecting a specific category within a portal is done by appending the portal ID in endpoint with the category ID, separated by a forward slash. You can append nested subcategory IDs with forward slashes, provided the subcategories exist.

Articles: When the endpoint is neither a top-level portal or one of a portal’s categories (or subcategories, if available), it is an article. An article is a terminal node, meaning you cannot nest further. An article will be any entry whose URL does not begin with Category:. In this case, the content returned is still a data frame for consistency, but differs substantially from the results of non-terminal endpoints.

Memory Beta is not a database containing convenient tables. Articles comprise the bulk of what Memory Beta has to offer. They are not completely unstructured text, but are loosely structured. Some assumptions are made and memory_beta returns a data frame containing article text and links. It is up to the user what to do with this information, e.g., performing text analyses.

Additional notes: The url column included in results for context uses relative paths to save space. The full URLs all begin the same. To visit a URL directly, prepend it with https://memory-beta.fandom.com/wiki.

Also note that once you know the relative URL for an article, e.g., "Worf,_son_of_Mogh", you do not need to traverse through one of the portals using an endpoint string to retrieve its content. You can instead use mb_article("Worf,_son_of_Mogh").

memory_beta provides an overview perspective on how content available at Memory Beta is organized and can be searched for through a variety of hierarchical layouts. And in some cases this structure that can be obtained in table form can be useful as data or metadata in itself. Alternatively, mb_article is focused exclusively on pulling back content from known articles.
rtrek

Value

a data frame

See Also

mb_article, memory_alpha

Examples

memory_beta("portals") # show available portals
endpoint <- "characters/Characters by races and cultures/Klingonoids/Klingons"

x <- memory_beta(endpoint)
x <- x[grep("Worf", x$Klingons),]
x
memory_beta(paste0(endpoint, "/Worf, son of Mogh")) # return terminal article content

rtrek: Star Trek datasets and related R functions.

Description

The rtrek package contains a collection of Star Trek-themed datasets and R functions to assist with their use. The package interfaces with the Star Trek API (STAPI), Memory Alpha and Memory Beta to retrieve data, metadata and other information relating to the Star Trek fictional universe.

Details

The package also contains several local datasets covering a variety of topics such as Star Trek timeline data, universe species data and geopolitical data. Some of these are more information-rich, while others are toy examples useful for simple demonstrations. The bulk of Star Trek data is accessed from external sources by API. A future version of rtrek will also include summary datasets resulting from text mining analyses of Star Trek novels.

stapi

Retrieve Star Trek data from STAPI

Description

Retrieve Star Trek data from the Star Trek API (STAPI).

Usage

stapi(id, page = 1, uid = NULL, page_count = FALSE)
Arguments

id character, name of STAPI entity. See details.
page integer vector, defaults to first page.
uid NULL for search mode, character for extraction mode. See details.
page_count logical, set to TRUE to do a preliminary check of the total number a pages of results available for a potential entity search. This will only have the impact of searching the first page.

Details

See stapiEntities for all the currently available API entities. These are the IDs for dataset collections or categories passed to id.

The universal ID uid can be supplied to retrieve a more specific subset of data. By default, uid = NULL and stapi operates in search mode. As part of a stepwise process, you can first use search mode. Then if the resulting data frame includes a uid column, you can make a second call to the function providing a specific uid. This puts stapi into extraction mode and will return satellite data associated with the unique entry from the original general sweep of the entity id.

rtrek employs anti-DOS measures. It will not perform an API call to STAPI more than once per second. To be an even better neighbor, you can increase this wait time using options, e.g., options(rtrek_antidos = 10) to increase the minimum time between API calls to ten seconds. Values less than one are ignored (defaulting back to one second) and a warning will be thrown when making any API call if this is the case.

Currently STAPI contains primarily real world data such as episode air dates, movie metadata, or production company information. Fictional world data is secondary and more limited.

Value

a data frame in search mode, a list in extraction mode, and nothing is returned in page count check mode but the result is printed to the console.

Examples

library(dplyr)
stapi("character", page_count = TRUE) # check first
stapi("character", page = 2) %>% select(1:2)
Q <- stapi("character", uid = "CHMA00000025118")
Q$episodes %>% select(uid, title, stardateFrom, stardateTo)
stapiEntities

Star Trek API entities.

Description
A data frame with 40 rows and 4 columns listing the available STAPI entity IDs that can be passed to stapi, along with additional metadata regarding the content returned from an API call to each entity. This data frame helps you see what you will obtain from API calls beforehand. Every entity search returns a tibble data frame, with varying numbers of columns and different names depending on the entity content. There is also one nested column containing the column names of the data frame returned for each entity. This can be inspected directly for specific entities or stapiEntities can be unnested with a function like tidy::unnest.

Usage
stapiEntities

Format
A data frame

See Also
stapi

stBooks

Star Trek novel metadata.

Description
A data frame with 783 rows and 11 columns containing metadata on Star Trek novels and other books taken directly from original books. The data frame contains most of the novels but is not comprehensive and may be out of date temporarily whenever new novels are published. It is largely complete through the end of 2017, though some older entries are still missing.

Usage
stBooks

Format
A data frame
Details

stBooks: There may be some irregularities or erroneous entries based on the imperfect methods use to compile the metadata, but it is overall an accurate dataset.

The nchap column is largely accurate, but imperfect. Some entries suggest a book has an unusual number of chapters, but the parser is not perfect at determining what constitutes a chapter. However, many of the books with unusually high numbers of chapters are not erroneous but rather indicate a reference book, omnibus or anthology, as opposed to a standard novel.

See Also

stSeries, st_books_wiki

---

stGeo

**Raster grid location data for stellar cartographic map tile sets.**

Description

A data frame of with 18 rows and 4 columns. This data frame has an ID column for map tile set, a column of location names, and columns of respective column and row number of each location per map tile set.

Usage

stGeo

Format

A data frame

---

stLogos

**Star Trek logos metadata.**

Description

A data frame with 236 rows and 3 columns containing Star Trek logo metadata: category, description and URL. Logo artwork credited to Kris Trigwell. The logo images are served by st-minutiae.com for personal and fair use.

Usage

stLogos

Format

A data frame
**stSeries**

**See Also**

- [st_logo](#)

**stSeries**

*Star Trek series.*

**Description**

A data frame with 35 rows and 3 columns containing names and abbreviations of Star Trek series and anthologies. There are so many because the table pertains to written works, which is inclusive of the more limited televised series.

**Usage**

- stSeries

**Format**

A data frame

**Details**

Some entries listed as series can be interpreted as miniseries, but that distinction is not made here. The official line between the two is not always clear and can also change as more novels are released.

Anthologies are listed as such, rather than as series. Reference manuals have a distinct entry. The Miscellaneous category can be considered synonymous with All-Series/Crossover, abbreviated elsewhere as simply ST for Star Trek in general, rather than as MISC.

**See Also**

- [st_books_wiki](#)

---

**stSpecies**

*Species names and avatars, linked primarily from Memory Alpha.*

**Description**

A data frame with 9 rows and 2 columns.

**Usage**

- stSpecies

**Format**

A data frame
stTiles

Available Star Trek map tile sets.

Description

A data frame with 2 row and 8 columns.

Usage

stTiles

Format

A data frame

st_books_wiki

Go to Wikipedia entry for a specific book series

Description

This function opens a browser tab to the main Wikipedia entry for all Star Trek novels. For a more complete set of Star Trek series, miniseries and anthology names and acronyms, see the stSeries and stBooks datasets.

Usage

st_books_wiki()

Value

opens a browser tab, nothing is returned.

See Also

stBooks stSeries

Examples

## Not run: st_books_wiki()
### Description

List the available datasets in the rtrek package.

### Usage

```r
st_datasets()
```

### Value

a character vector.

### Examples

```r
st_datasets()
```

---

### Description

This function produces a plot showing a preview of a Star Trek font from the trekfont package. It will return a message if any of trekfont, showtext or ggplot2 are not installed. If family is missing, it will return a vector of all available font families.

### Usage

```r
st_font(family, size = 11)
```

### Arguments

- **family** character, font family.
- **size**, numeric, font size passed to ggplot.

### Details

In RStudio on Windows the font may not show in the RStudio graphics device. Try using the regular R GUI.

### Value

a character vector, or a plot side effect. See details.
Examples

```r
if(all(c("trekfont", "showtext", "ggplot2") %in% installed.packages())){
  st_font()
}
```

```r
## Not run: st_font("Federation") # should be run in an interactive session
```

---

**st_logo**  
*Star Trek logos*

Description

Download an image of a Star Trek logo and return a ggplot object.

Usage

```r
st_logo(url, file, keep = FALSE)
```

Arguments

- **url** character, the url of the image, must be one from the dataset `stLogos`. See example.
- **file** character, output file name. Optional. See details.
- **keep** logical, if FALSE (default) then file is only temporary.

Details

By default the downloaded file is not retained (keep = FALSE). The filename is derived from url if file is not provided. These files are all .gif. Whether or not the output file is kept, a ggplot object of the image is returned. For more information on attribution, see `stLogos`.

Value

a ggplot object

See Also

`stLogos`

Examples

```r
## Not run: st_logo(stLogos$url[1])
```
st_tiles

Return the url associated with a tile set

Description
This function returns the url associated with a tile set matching id.

Usage
st_tiles(id)

Arguments
id character, name of map tile set ID. See stTiles.

Details
Tile set data are stored in the stTiles dataset. See for available IDs.

Value
a character string.

See Also
stTiles, st_tiles_data

Examples
st_tiles("galaxy1")

st_tiles_data
Ancillary location data for map tiles

Description
Obtain a table of ancillary data associated with various locations of interest, given a specific map tile set ID.

Usage
st_tiles_data(id)

Arguments
id character, name of a map tile set.
st_transcripts

Details

This function returns a small example data frame of location-specific data along with grid cell coordinates that are specific to the requested map tile set ID.

Value

a data frame

See Also

stTiles, st_tiles

Examples

st_tiles_data("galaxy2")

st_transcripts

Import transcripts

Description

Download a curated data frame based on episode and movie transcripts containing metadata and variables for analysis of scenes, character presence, dialog, sentiment, etc.

Usage

st_transcripts(type = c("clean", "raw"))

Arguments

  type character, "clean" for curated nested data frame or "raw" for unprocessed text. See details.

Details

The data frame contains metadata associated with each transcript, one row per episode. It also contains a list column. By default (type = "clean"), this is a nested data frame of preprocessed text split into several variables including the speaking character, line spoken, scene descriptions, etc. For the raw text version, the list column contains vectors of unprocessed plain text.

Metadata includes the format (episode or movie), series, season, overall episode number, title, production order and original airdate if available and applicable. The two columns url and url2 show where source material can be browsed online, though not in a useful format for data analysis. The first set is used if possible because it contains more complete, higher quality data. When necessary, the derived data is based on text from the alternate source.

The dataset is nicely curated, but imperfect. There are text-parsing edge cases that are difficult to handle generally. The quality varies substantially across series. Datasets assembled based on
original transcripts are more informative, but not universally available. Other episodes are based on transcripts derived from closed captioning, in which case more fields will contain NA values.

This function downloads and returns a sizable tibble data frame. Each version is about 13-15 MB compressed. The returned tibble contains 726 rows (716 episodes and 10 movies), but each row has nested data.

Value

a tibble data frame

Examples

```r
## Not run: stTranscripts <- st_transcripts()
```

<table>
<thead>
<tr>
<th>theme_rtrek</th>
<th>ggplot2 themes</th>
</tr>
</thead>
</table>

Description

A collection of ggplot2 themes.

Usage

```r
theme_rtrek(
  base_size = 11,
  base_family = "",
  base_line_size = base_size/22,
  base_rect_size = base_size/22
)
```

```r
theme_rtrek_dark(
  base_size = 11,
  base_family = "",
  base_line_size = base_size/22,
  base_rect_size = base_size/22
)
```

Arguments

- `base_size`: base font size.
- `base_family`: base font family.
- `base_line_size`: base size for line elements.
- `base_rect_size`: base size for rect elements.
tile_coords

Description

Convert (column,row) numbers to (x,y) coordinates for a given tile set.

Usage

tile_coords(data, id)

Arguments

data a data frame containing columns named col and row. These contain column-row number pairs defining matrix cells in tile set id. See details.
id character, name of map tile set ID. See stTiles.

Details

This function converts column and row indices for an available map tile set matrix to coordinates that can be used in a Leaflet map. See stTiles for available tile sets.

data cannot contain columns named x or y, which are reserved for the column-appended output data frame.

Each tile set has a simple/non-geographical coordinate reference system (CRS). Respective coordinates are based on the dimensions of the source image used to generate each tile set. The same column and row pair will yield different map coordinates for different tile sets. Typical for matrices, columns are numbered increasing from left to right and rows increasing from top to bottom. The output of tile_coords is a typical Cartesian coordinate system, increasing from left to right and bottom to top.

Value

a data frame.

Examples

d <- data.frame(row = c(0, 3222, 6445), col = c(0, 4000, 8000))
tile_coords(d, "galaxy1")
tlBooks

Star Trek novel-based timeline.

Description
A data frame with 2122 rows and 14 columns containing Star Trek timeline data. This dataset is novel-driven, meaning that the timeline entries (rows) provide a chronologically ordered list of licensed Star Trek novels.

Usage
tlBooks

Format
A data frame

Details
Specifically, this curated dataset includes data derived from historical timeline information in the appendix of the Star Trek reference manual, Voyages of the Imagination, which provides information on the large collection of licensed Star Trek literature. The authors note that the original timeline includes "novels, short stories, eBooks, novelizations, Simon & Schuster Audio original audio books, Minstrel Books young adult books, and classic novels from Bantam and Ballantine Books, published through October 2006."

While this data is very informative, it is clearly many years out of date. It is also necessarily speculative. Settings are determined based in part on what is interpreted to be the intention of a given author for a given production. Nevertheless, it still represents possibly the highest quality representation of the chronological ordering of Star Trek fiction that combines episodes and movies with written works. The concurrent timeline of Star Trek TV episodes and movies are interleaved with the novels and other written fiction for fuller context resulting in a much richer timeline. See the tlEvents dataset for an event-driven timeline.

See Also
tlEvents tlFootnotes

---

tlEvents

Star Trek event-based timeline.

Description
A data frame with 1241 rows and 6 columns containing Star Trek timeline data. This dataset is event-driven, meaning that the timeline entries (rows) provide chronologically ordered historical events from the Star Trek universe. See the tlBooks dataset for an novel-driven timeline.
Usage
tlEvents

Format
A data frame

Details
As with tlBooks, this timeline is quite out of date. In fact it is at least somewhat more out of date than tlBooks. This timeline is also more problematic than the other, and less relevant moving forward. Its updating essentially ceased as the other began.

However, it is included because unlike tlBooks, which is a timeline of production titles, this timeline dataset is event-driven. While it may now be erroneous in places even independent from being out of date, it is useful for its informative textual entries referencing historically significant events in Star Trek lore.

See Also
  
tlBooks tlFootnotes

---

**tlFootnotes**  
*Star Trek timeline footnotes.*

**Description**
A data frame with 605 rows and 3 columns containing footnotes associated by ID with various entries in package timeline datasets, tlBooks and tlEvents.

Usage
tlFootnotes

Format
A data frame

See Also
  
tlBooks tlEvents
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