

Package ‘Robocoap’

July 6, 2017

Type Package

Title Generation of Dynamic Coappearance Matrices Within Texts

Version 0.1-1

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Depends R (>= 2.10)

Imports data.table, igraph, markovchain, tm

Suggests testthat

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Description Generation of dynamic coappearance matrices for elements within a text along with utilities to aid in the generation of Gephi dynamic networks.

License GPL-3

NeedsCompilation no

Repository CRAN

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Robocoap-package	<i>Robocoap</i>
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Description

Generation of co-appearance matrices for a text in txt and pdf format along with utilities to aid the generation of Gephi diagrams.

Currently only novels format is analyzed, future versions will handle theater plays and research papers.

Details

Package: Robocoap
 Type: Package
 License: GPL3

Author(s)

Maintainer: Fran Urbano <viraltux@gmail.com> [copyright holder]

See Also

Useful links:

- Main Repository at <https://github.com/viraltux/Robocoap>
- Robocoap website at <https://viraltux.github.io/Robocoap>
- Report bugs at <https://github.com/viraltux/Robocoap/issues>
- Gephi website at <https://gephi.org>

novel.coap

novel.coap

Description

Function to generate a characters co-apperance matrix and characters timeline dataset within a novel plus files formatted to be used in the Gephi network analysis tool.

Usage

```
novel.coap(novel, characters, split = "Chapter", language = "english",
           encoding = "UTF-8", gephi = FALSE, plot = FALSE)
```

Arguments

novel	path to a TXT or PDF file containing a novel or text itself.
characters	regexp expression containing characters names to analyze co-apperance.
split	keyword used to recognize different parts of the novel to establish co-apperance dynamics.
language	the language the novel is written on
encoding	text econding in the TXT file
gephi	flag to generate files formatted to be use with Gephi. The files name are 'novel.coapnet.csv' and 'novel.coapnet.timeset.csv'.
plot	flag to plot the adjacency co-apperance matrix

Details

In novels co-apperance (defined as the apperance of two consecutive characters within split sections) will be similar to interactions among characters (defined as characters being object of actions by other characters). Check the example for further details.

Follow these steps in order to load the dynamic graph of coapperances in Gephi:

1- 'novel.coapnet.csv': Gephi -> File -> Open [Directed] -> Ok 2- 'novel.coapnet.timeset.csv': Gephi -> File -> Import Spreadsheet -> Next -> Finish

Value

A list contatining the following components:

coapmat	directed graph matrix describing co-apperance of the characters members
dynamic	data set describing characters appearances considering the 'split' separator

Optionally a plot of the adjacency co-apperance matrix or a set of two Gephi friendly files will be saved.

Author(s)

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Examples

```
## Co-apperance vs Interaction Plots
## Co-apperance can be automatized, detect interactions is however a hard AI problem
## than can be approximated by the co-apperances when the story is long enough.

txt <- paste("A woman gets on a bus with her baby. The bus driver says:", "'Ugh,
that's the ugliest baby I've ever seen!' The woman walks", "to the rear of the
bus and sits down, fuming. She says to a man", "next to her: 'The driver just
insulted me!\n\nPun\n\n' The man says:", "'What? you just go back there and tell him
off. Go on, I'll hold", "your monkey for you.'")

res <- Robocoap::novel.coap(novel = txt, characters = c('woman','driver','baby|monkey','man'),
                          split = 'Pun', language = 'english', plot = FALSE)

res$coapmat
layout(matrix(c(1,2), ncol=2))
par(ask=FALSE)
plot(igraph::graph.adjacency(res$coapmat), main = 'Coapperances')

# Manually creating a matrix of interactions (A action on B)
inter <- res$coapmat
inter[] <- 0
# A woman gets on a bus with her baby ...
inter[4,1] <- 1
# The bus driver says ...
inter[2,4] <- 1
# She says to a man next to her: ...
inter[4,3] <- 1
# The man says: ...
```

```
inter[3,4] <- 1

plot(igraph::graph.adjacency(inter), main = 'Interactions')
layout(1)

## TODO Write instructions to load files into Gephi when gephi = TRUE
## To import the results into gephi set the gephi parameter to TRUE
```

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