

Package ‘ICON’

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Type Package

Title Provides Easy Access to Complex Systems Datasets

Version 0.4.0

Description Provides easy-to-use and easy-to-access datasets from the Index of COmplex Networks (ICON) database available on the University of Colorado website. All datasets can be loaded with a single function call and new datasets are being slowly added from ICON at <<https://icon.colorado.edu>>. Specific ICON datasets of interest can be requested at the BugReports URL <<https://github.com/rrrlw/ICON/issues>>.

Depends R (>= 2.10)

Imports network (>= 1.16), utils (>= 3.6.1)

License CC0

Encoding UTF-8

LazyData true

URL <https://rrrlw.github.io/ICON/>

BugReports <https://github.com/rrrlw/ICON/issues>

RoxygenNote 7.1.1

Suggests covr (>= 3.5), ggnetwork (>= 0.5), ggplot2 (>= 3.3), knitr (>= 1.30), testthat (>= 2.3), rmarkdown (>= 2.4)

VignetteBuilder knitr

NeedsCompilation no

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as.network.ICON	<i>Coerce ICON objects into network objects</i>
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Description

'ICON::get_data' returns data frames that also have class 'ICON'. However, conducting network analysis could require using another R package and its associated network structure and class. The 'as.network.ICON' method is an S3 generic for the 'network::as.network' method and the 'ICON' class. It allows 'ICON' users to take full advantage of the functionality provided in the 'network' package using 'network' objects.

Usage

```
## S3 method for class 'ICON'
as.network(x, directed = FALSE, return_relabeled = FALSE)
```

Arguments

x	edgelist of classes 'ICON' and 'data.frame' to be coerced
directed	'TRUE' if network has directed edges; 'FALSE' otherwise
return_relabeled	nodes are likely to be relabeled to fit naming conventions of the 'network' package; if the names are important, setting 'return_relabeled' to 'TRUE' returns the resulting 'network' object and a relabeling key-pair vector

Value

if 'return_relabeled' is 'FALSE', a 'network' object; if 'return_relabeled' is 'TRUE', a 'list' containing the 'network' object and the relabeling key-pair vector

Examples

```
## Not run:
# download dataset using ICON
get_data("aishihik_intensity")

# don't care about relabeled vertices
converted <- as.network(aishihik_intensity, directed = TRUE)

# we care about relabeled vertices
```

```
converted2 <- as.network(aishihik_intensity, directed = TRUE,
                        return_relabeled = TRUE)

# get the network
converted_network <- converted2$network

# get the relabeling key-pair vector
converted_relabel <- converted2$labels

## End(Not run)
```

get_data

Download and Load Complex Network Datasets

Description

Downloads the binary complex network dataset (rda format), then loads the dataset into the R environment, and deletes the downloaded file from the user's file system.

Usage

```
get_data(dataset_name, destdir = ".", envir = parent.frame())
```

Arguments

dataset_name	dataset variable name (corresponds to var_name in ICON_data)
destdir	location to temporarily download binary file
envir	environment to which data should be loaded

Examples

```
## Not run:
# load single dataset
get_data("chess")

# load multiple datasets
get_data(c("karate_club", "word_adj"))

# fail to load dataset not in the ICON R package
get_data("not_a_dataset")

## End(Not run)
```

 ICON

ICON: Provides Easy Access to Complex Systems Datasets

Description

Provides easy-to-use and easy-to-access datasets from the Index of COMplex Networks (ICON) database available on the University of Colorado website. All datasets can be loaded with a single function call and new datasets are being slowly added from ICON.

 ICON_data

Details about ICON datasets

Description

Data frame containing relevant details of each network dataset included in the ICON R package.

Usage

ICON_data

Format

A data frame with 10 columns and 22 rows:

Var_name character; variable name to access dataset in R

Edges integer; number of edges in network

Directed logical; 0 if undirected network, 1 if directed

Weighted logical; 0 if unweighted network, 1 if weighted

Name character; network title

Domain character; network knowledge domain/discipline

Year integer; year network was published/released

Source character; usually URL to access raw network data

Description character; short description of network

Citation character; how to cite network if used

Details

Citation: Aaron Clauset, Ellen Tucker, and Matthias Sainz, "The Colorado Index of Complex Networks." <https://icon.colorado.edu/> (2016).

Raoul R. Wadhwa and Jacob G. Scott, "ICON" R package. <https://cran.r-project.org/package=ICON> (2019).

Source

<https://icon.colorado.edu>

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