Package 'MeSHSim'

November 3, 2016

Type Package

Author Jing Zhou, Yuxuan Shui

Maintainer Jing ZHou <12210240050@fudan.edu.cn>

Title MeSH(Medical Subject Headings) Semantic Similarity Measures

Version 1.6.0

Date 2015-01-12

Imports XML, RCurl

Depends R(>= 3.0.0)

Description Provide for measuring semantic similarity over MeSH headings and MEDLINE documents

License GPL-2

biocViews Clustering, Software

NeedsCompilation no

R topics documented:

docInfo *Get details of documents*

Description

Fetch information of a given article from PubMed.

Usage

```
docInfo(pmid, verbose=FALSE, major=FALSE)
```

Arguments

pmid	pmid of the desired article.
verbose	whether the title and abstract of the article should be print out.
major	whether only major terms should be returned.

Value

Document information of given PMID including titile, abstract, MeSH headings

Note

Network connection is required for using this function.

Examples

```
docInfo("1111111")
```

docSim *Similarity between articles*

Description

Calculate the similarity between two articles.

Usage

```
docSim(pmid1, pmid2, method="SP", frame="node", major=FALSE, env=NULL)
```

Arguments

pmid1, pmid2	pmids of two articles whose similarity is needed to be calculated.
method	similarity measurment method, see Details for available methods.
frame	available options are node and heading, decide whether using node-based or heading-based methods.
env	the dataset to use.
major	whether the calculation should only be based on major terms

Details

Available methods: SP: Shortest Path method, WL: Weighted Link method, WP: Wu and Palmer's method, LC: Leacock and Chodorow's method, Li: Li's method, Lord: Lord's method, Resnik: Resnik's method, Lin: Lin's method, JC: Jiang and Conrath's method.

Value

Semantic similarity between two MEDLINE documents, whose value is between 0 and 1.

Note

Network connection is required for using this function.

Examples

```
docSim("1111113","1111111")
```

---

headingSetSim *Similarity between two MeSH heading sets*

Description

Calculate similarity between two MeSH heading sets.

Usage

```
headingSetSim(headingSet1, headingSet2, method="SP", frame="node", env=NULL)
```

Arguments

headingSet1, headingSet2	two lists of headings
method	similarity measurment method, see Details for available methods.
frame	available options are node and heading, decide whether using node-based or heading-based methods.
env	the dataset to use.

Details

Available methods: SP: Shortest Path method, WL: Weighted Link method, WP: Wu and Palmer's method, LC: Leacock and Chodorow's method, Li: Li's method, Lord: Lord's method, Resnik: Resnik's method, Lin: Lin's method, JC: Jiang and Conrath's method.

Value

Semantic similarity between two MeSH heading sets, whose value is between 0 and 1.

Examples

```
headingSet1<-c("Lumbosacral Region", "Body Regions")
headingSet2<-c("Body Regions", "Abdomen", "Abdominal Cavity")
headingSetSim(headingSet1,headingSet2,'SP','node')
```

headingSim *Similarity between headings*

Description

Calculate similarity between two headings.

Usage

```
headingSim(heading1, heading2, method="SP", frame="node", env=NULL)
```

Arguments

heading1, heading2	two headings or two lists of headings
method	similarity measurment method, see Details for available methods.
frame	available options are node and heading, decide whether using node-based or heading-based methods.
env	the dataset to use.

Details

Available methods: SP: Shortest Path method, WL: Weighted Link method, WP: Wu and Palmer's method, LC: Leacock and Chodorow's method, Li: Li's method, Lord: Lord's method, Resnik: Resnik's method, Lin: Lin's method, JC: Jiang and Conrath's method.

Value

Semantic similarity between two MeSH headings, whose value is between 0 and 1.

Examples

```
headingSim("Lumbosacral Region", "Body Regions")
```

MeshSimData *MeSH Dataset*

Description

These contents data of the whole MeSH tree, as well as information contents for every node and term.

This dataset will be auto loaded by the first invoked function of this package, if no other dataset is specified.

mheadingSim *Similarity between heading lists*

Description

Calculate similarity matrix between two heading lists.

Usage

```
mheadingSim(headingList1, headingList2, method="SP", frame="node", env=NULL)
```

Arguments

headingList1, headingList2	two headings or two lists of headings
method	similarity measurment method, see Details for available methods.
frame	available options are node and heading, decide whether using node-based or heading-based methods.
env	the dataset to use.

Details

Available methods: SP: Shortest Path method, WL: Weighted Link method, WP: Wu and Palmer's method, LC: Leacock and Chodorow's method, Li: Li's method, Lord: Lord's method, Resnik: Resnik's method, Lin: Lin's method, JC: Jiang and Conrath's method.

Value

Semantic similarity matrix between two MeSH heading lists.

Examples

```
headingList1<-c("Body Regions", "Abdomen", "Abdominal Cavity")
headingList2<-c("Lumbosacral Region", "Body Regions")
mheadingSim(headingList1,headingList2)
```

mnodeSim *Similarity between node lists*

Description

Calculate similarity matrix between two MeSH node lists.

Usage

```
mnodeSim(nodeList1, nodeList2, method="SP", frame="node", env=NULL)
```

Arguments

nodeList1, nodeList2	two nodes or two lists of nodes
method	similarity measurment method, see Details for available methods.
frame	available options are node and heading, decide whether using node-based or heading-based methods.
env	the dataset to use.

Details

Available methods: SP: Shortest Path method, WL: Weighted Link method, WP: Wu and Palmer's method, LC: Leacock and Chodorow's method, Li: Li's method, Lord: Lord's method, Resnik: Resnik's method, Lin: Lin's method, JC: Jiang and Conrath's method.

Value

Semantic similarity matrix between two MeSH node lists.

Examples

```
nodeList1<-c("B03.440.400.425.340.590", "B03.440.400.425.117.800.200")
nodeList2<-c("B03.440.400.425.340.590", "B03.440.400.425.117.800.200", "B03.440.400.425.127.100")
mnodeSim(nodeList1,nodeList2)
```

---

nodeInfo *Details of nodes*

Description

This function returns a tree contains the given node.

Usage

```
nodeInfo(node, brief, env=NULL)
```

Arguments

node	a node name.
brief	brief model for nodeInfo
env	the dataset to use.

Value

Hierarchy information of node a

Examples

```
nodeInfo("B03.440.400.425.127")
    nodeInfo("B03.440.400", brief=TRUE)
```

nodeSim *Similarity between nodes*

Description

Calculate similarity between two MeSH nodes.

Usage

```
nodeSim(node1, node2, method="SP", frame="node", env=NULL)
```

Arguments

node1, node2	two nodes or two lists of nodes
method	similarity measurment method, see Details for available methods.
frame	available options are node and heading, decide whether using node-based or heading-based methods.
env	the dataset to use.

Details

Available methods: SP: Shortest Path method, WL: Weighted Link method, WP: Wu and Palmer's method, LC: Leacock and Chodorow's method, Li: Li's method, Lord: Lord's method, Resnik: Resnik's method, Lin: Lin's method, JC: Jiang and Conrath's method.

Value

Semantic similarity between two MeSH nodes, whose value is between 0 and 1.

Examples

```
nodeSim("B03.440.400.425.340.590", "B03.440.400.425.117.800.200")
```

termInfo *Details of MeSH terms*

Description

This function returns a tree contains the given term.

Usage

```
termInfo(term, brief,env=NULL)
```

Arguments

term	a term name.
brief	whether to retrive breif tree information of MeSH term
env	the dataset to use.

Value

Hierarchy information of a given term

Examples

```
termInfo("Body Regions")
```

Index