

Package ‘tableMatrix’

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Title Combines 'data.table' and 'matrix' Classes

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Description Provides two classes extending 'data.table' class. Simple 'tableList' class wraps 'data.table' and any additional structures together. More complex 'tableMatrix' class combines 'data.table' and 'matrix'. See <<http://github.com/InferenceTechnologies/tableMatrix>> for more information and examples.

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aid

S3 tableMatrix generic to get or set aid attribute

Description

S3 tableMatrix generic to get or set aid attribute

Usage

```
aid(obj, ...)
```

```
aid(obj) <- value
```

Arguments

| | |
|-------|-------------------|
| obj | Object. |
| ... | Passed arguments. |
| value | User defined |

Value

User aid data.

| | |
|---------------|---------------------------------|
| aid.tableList | <i>Get or set aid attribute</i> |
|---------------|---------------------------------|

Description

tableList method to get or set aid attribute.

Usage

```
## S3 method for class 'tableList'  
aid(obj, ...)  
  
## S3 replacement method for class 'tableList'  
aid(obj) <- value
```

Arguments

| | |
|-------|-------------------|
| obj | tablelist object. |
| ... | Passed arguments. |
| value | User defined. |

Value

Aid part.

| | |
|-----------------|-----------------------|
| cbind.tableList | <i>Column binding</i> |
|-----------------|-----------------------|

Description

Column binding

Column binding of tab part of tableMatrix or tableList object.

Usage

```
## S3 method for class 'tableList'  
cbind(x, y, ...)
```

```
## S3 method for class 'tableMatrix'  
cbind(x, y, ...)
```

Arguments

| | |
|-----|----------------------------------|
| x | tableList or tableMatrix object. |
| y | tableList or tableMatrix object. |
| ... | Passed arguments. |

Value

Matrix object.

| | |
|----------------|-------------|
| copy.tableList | <i>Copy</i> |
|----------------|-------------|

Description

Copy of a tableList object.

Usage

```
## S3 method for class 'tableList'  
copy(obj)
```

Arguments

| | |
|-----|-------------------|
| obj | tableList object. |
|-----|-------------------|

Value

tableList object.

| | |
|------------------|-------------|
| copy.tableMatrix | <i>Copy</i> |
|------------------|-------------|

Description

Copy of a tableMatrix object.

Usage

```
## S3 method for class 'tableMatrix'  
copy(obj)
```

Arguments

obj tableMatrix object.

Value

tableMatrix object.

| | |
|----------|--|
| dataType | <i>S3 tableMatrix generic to get or set dataType attribute</i> |
|----------|--|

Description

S3 tableMatrix generic to get or set dataType attribute

Usage

```
dataType(obj, ...)  
  
dataType(obj) <- value
```

Arguments

obj Object.
... Passed arguments.
value Named list.

Value

List.

data`Type`.tableList *Get or set data`Type` attribute*

Description

tableList and tableMatrix method to get or set data`Type` attribute.

Usage

```
## S3 method for class 'tableList'
dataType(obj, ...)

## S3 replacement method for class 'tableList'
dataType(obj) <- value

## S3 method for class 'tableMatrix'
dataType(obj, ...)

## S3 replacement method for class 'tableMatrix'
dataType(obj) <- value
```

Arguments

| | |
|-------|----------------------------------|
| obj | tableMatrix or tableList object. |
| ... | Passed arguments. |
| value | List of datatypes. |

Value

List of datatypes.

dim.tableList *Dimensions*

Description

tableList method, returns dimensions of the table attribute.

Usage

```
## S3 method for class 'tableList'
dim(x)
```

Arguments

| | |
|---|-------------------|
| x | tableList object. |
|---|-------------------|

Value

Dimensions of the table part.

| | |
|--------------------|------------------------|
| dimnames.tableList | <i>Dimension names</i> |
|--------------------|------------------------|

Description

tableList method, returns dimension names of the table attribute.

Usage

```
## S3 method for class 'tableList'
dimnames(x)
```

Arguments

x tableList object.

Value

Column and row names of the table part.

| | |
|--------|---|
| getRow | <i>S3 tableMatrix generic to get or set row from matrix attribute</i> |
|--------|---|

Description

S3 tableMatrix generic to get or set row from matrix attribute

Usage

```
getRow(...)
setRow(...)
```

Arguments

... Passed arguments.

Value

numeric vector.

getRow.tableMatrix *Get or set row from the matrix attribute*

Description

tableMatrix method to get or set a row from the matrix attribute.

Usage

```
## S3 method for class 'tableMatrix'  
getRow(obj, i = NULL, repo = NULL, ...)  
  
## S3 method for class 'tableMatrix'  
setRow(obj, value, i = NULL, repo = NULL, ...)
```

Arguments

| | |
|-------|---|
| obj | tableMatrix object. |
| i | Integer. Row index in tab. |
| repo | Numeric vector. Vector with 2 elements - matN and matRow. |
| ... | Passed arguments. |
| value | Vector for setting value. |

Value

Row from the matrix part.

Examples

```
data(images8By8)  
data(images10By10)  
  
# Create tableMatrix from images8By8 and images10By10  
TM <- tableMatrix(list(images8By8, images10By10), list(1:3, 1:3),  
list(4:ncol(images8By8),4:ncol(images10By10)))  
  
# Row 91 in tab(TM) corresponds to second matrix, first row  
row <- getRow(TM, 91)  
  
# Row 91 in tab(TM) corresponds to second matrix, first row  
getRow(TM, repo=c(2,1))  
  
# Change matrix row corresponding to row 91 in tab(TM)  
TM <- setRow(TM, rep(2,length(row)), 91)  
getRow(TM, 91)
```

| | |
|-----------|--|
| getRowDim | <i>S3 tableMatrix generic to get row dim</i> |
|-----------|--|

Description

S3 tableMatrix generic to get row dim

Usage

```
getRowDim(...)
```

Arguments

... Passed arguments.

Value

integer vector.

| | |
|-----------------------|---------------------------|
| getRowDim.tableMatrix | <i>Get row dimensions</i> |
|-----------------------|---------------------------|

Description

tableMatrix method to get row dimensions from matDim attribute.

Usage

```
## S3 method for class 'tableMatrix'
getRowDim(obj, i = NULL, repo = NULL, ...)
```

Arguments

| | |
|------|---|
| obj | tableMatrix object. |
| i | Integer. Row index in tab. |
| repo | Numeric vector. Vector with 2 elements - matN and matRow. |
| ... | Passed arguments. |

Value

Dimensions corresponding to the row.

Examples

```
data(images8By8)
data(images10By10)

# Create tableMatrix from images8By8 and images10By10
TM <- tableMatrix(list(images8By8, images10By10),
  list(r=c(1,3), r=c(1,3)),
  list(r=c(4,ncol(images8By8)),r=c(4,ncol(images10By10))),list(c(8,8),c(10,10)),
  dimNames =c("dimX", "dimY"))
matDim(TM)
tab(TM)

# Dimensions corresponding to row 1 in tab(TM)
getRowDim(TM, 1)

# Dimensions corresponding to row 91 in tab(TM)
getRowDim(TM, 91)

# Dimensions corresponding to row 1 in second matrix in mat(TM)
getRowDim(TM, repo=c(2,1))
```

getRowRepo

S3 tableMatrix generic to get row repo for matrix attribute

Description

S3 tableMatrix generic to get row repo for matrix attribute

Usage

```
getRowRepo(...)
```

Arguments

... Passed arguments.

Value

numeric vector.

`getRowRepo.tableMatrix`*Get row repo*

Description

tableMatrix method to get row repo (vector of matN and matRow) for the matrix attribute

Usage

```
## S3 method for class 'tableMatrix'  
getRowRepo(obj, i = NULL, repo = NULL, ...)
```

Arguments

| | |
|------|---|
| obj | tableMatrix object. |
| i | Integer. Row index in tab. |
| repo | Numeric vector. Vector with 2 elements - matN and matRow. |
| ... | Passed arguments. |

Value

Vector of matN and matRow.

Examples

```
data(images8By8)  
data(images10By10)  
  
# Create tableMatrix from images8By8 and images10By10  
TM <- tableMatrix(list(images8By8, images10By10), list(1:3, 1:3),  
list(c(4:ncol(images8By8)),c(4:ncol(images10By10))))  
tab(TM)  
  
# Row 2 in tab(TM) corresponds to first matrix, second row  
getRowRepo(TM, 2)  
  
# Row 91 in tab(TM) corresponds to second matrix, first row  
getRowRepo(TM, 91)
```

images10By10

Images of distributions

Description

Dataset containing samples of multivariate normal distributions. Each row in the dataset represents a generated matrix. Dimensions are stored in dimX and dimY columns. Directions "up" and "down" correspond to different covariance matrices. Direction "both" was created as a combination of "up" and "down".

Usage

images10By10

Format

Data frame with 90 rows and 103 variables:

- direction direction of diagonal, factor "up", "down", "both"
- dimX dimension x of image, in pixels
- dimY dimension y of image, in pixels
- pixel1:pixel100 pixel of image, in number

images8By8

Images of distributions

Description

Dataset containing samples of multivariate normal distributions. Each row in the dataset represents a generated matrix. Dimensions are stored in dimX and dimY columns. Directions "up" and "down" correspond to different covariance matrices. Direction "both" was created as a combination of "up" and "down".

Usage

images8By8

Format

Data frame with 90 rows and 67 variables:

- direction direction of diagonal, factor "up", "down", "both"
- dimX dimension x of image, in pixels
- dimY dimension y of image, in pixels
- pixel1:pixel64 pixel of image, in number

`is.tableList` *tableList test*

Description

Tests if passed object is of class `tableList`

Usage

`is.tableList(obj)`

Arguments

`obj` `tableList` object

Value

logical vector.

`is.tableMatrix` *tableMatrix test*

Description

Tests if passed object is of class `tableMatrix`

Usage

`is.tableMatrix(obj)`

Arguments

`obj` `tableTable` object

Value

logical vector.

| | |
|-----|--|
| mat | <i>S3 tableMatrix generic to get or set matrix attribute</i> |
|-----|--|

Description

S3 tableMatrix generic to get or set matrix attribute

Usage

```
mat(obj, ...)  
mat(obj) <- value
```

Arguments

| | |
|-------|-------------------|
| obj | Object. |
| ... | Passed arguments. |
| value | List of matrices. |

Value

List of matrices

| | |
|-----------------|------------------------------------|
| mat.tableMatrix | <i>Get or set matrix attribute</i> |
|-----------------|------------------------------------|

Description

tableMatrix method to get or set matrix part attribute. Matrix part is a list of matrices.

Usage

```
## S3 method for class 'tableMatrix'  
mat(obj, matN = NULL, ...)  
  
## S3 replacement method for class 'tableMatrix'  
mat(obj) <- value
```

Arguments

| | |
|-------|---|
| obj | tableMatrix object. |
| matN | Integer. Matrix number in the matrix part list. |
| ... | Passed arguments. |
| value | List of matrices. |

Value

Full matrix part of tableMatrix or a matrix.

Examples

```
data(images8By8)

# Create tableMatrix from images8By8 and images10By10
TM <- tableMatrix(list(images8By8, images10By10), list(1:3, 1:3),
list(4:ncol(images8By8),4:ncol(images10By10)))

# Full matrix part of TM
mat(TM)

# Matrix part of TM corresponding to matrix type 2
mat(TM, 2)
```

matDim

S3 tableMatrix generic to get or set matDim attribute

Description

S3 tableMatrix generic to get or set matDim attribute

Usage

```
matDim(obj, ...)
```

```
matDim(obj) <- value
```

Arguments

| | |
|-------|-------------------|
| obj | Object. |
| ... | Passed arguments. |
| value | data.table |

Value

data.table

matDim.tableMatrix *Get or set matDim attribute*

Description

tableMatrix method to get or set matDim attribute.

Usage

```
## S3 method for class 'tableMatrix'  
matDim(obj, matN = NULL, resetN = FALSE, ...)  
  
## S3 replacement method for class 'tableMatrix'  
matDim(obj) <- value
```

Arguments

| | |
|--------|---|
| obj | tableMatrix object. |
| matN | Integer. Matrix number in the matrix part list. |
| resetN | Logical. When FALSE tm.matN of returned matDim won't be reset to 1. |
| ... | Passed arguments. |
| value | data.table |

Value

Full dimensions part of tableMatrix or a subset of dimensions part.

Examples

```
data(images8By8)  
data(images10By10)  
  
# Create tableMatrix from images8By8 and images10By10  
TM <- tableMatrix(list(images8By8, images10By10), list(1:3, 1:3),  
list(r=c(4,ncol(images8By8)),r=c(4,ncol(images10By10))))  
  
# Dimensions part of TM  
matDim(TM)  
  
# Dimensions part of TM corresponding to matrix type 2  
matDim(TM, 2)
```

| | |
|-----------------|--------------------------|
| merge.tableList | <i>Merging tableList</i> |
|-----------------|--------------------------|

Description

Merging tableList

tableMatrix method, merges tableMatrix or tableList objects with data.table, data.frame, tableList or tableMatrix.

Usage

```
## S3 method for class 'tableList'  
merge(x, y, key, ...)  
  
## S3 method for class 'tableMatrix'  
merge(x, y, key, ...)
```

Arguments

| | |
|-----|--|
| x | tableMatrix object |
| y | data.table, data.frame, tableList, tableMatrix object. |
| key | Shared columns as merging key. |
| ... | Passed arguments. |

Value

tableMatrix object.

Examples

```
data(images8By8)  
  
# Create tableMatrix from images8By8  
TM <- tableMatrix(images8By8, c("direction", "dimX", "dimY"), 4:ncol(images8By8), c(8,8))  
  
# Merge tableMatrix object with a data.frame  
merge(TM, data.frame(direction="down", flag=TRUE), key="direction")
```

`print.tableList` *Print*

Description

`tableList` method, prints table attribute.

Usage

```
## S3 method for class 'tableList'  
print(x, ...)
```

Arguments

`x` `tableList` object.
`...` Passed arguments.

`print.tableMatrix` *Print*

Description

`tableMatrix` method, prints table attribute without `tmName` columns.

Usage

```
## S3 method for class 'tableMatrix'  
print(x, ...)
```

Arguments

`x` `tableMatrix` object.
`...` Passed arguments.

| | |
|-----------------|------------------------|
| rbind.tableList | <i>Combine by rows</i> |
|-----------------|------------------------|

Description

tableList method, binds rows of tableList objects.

Usage

```
## S3 method for class 'tableList'  
rbind(..., use.names = TRUE, fill = FALSE)
```

Arguments

| | |
|-----------|-----------------------------|
| ... | tableList objects. |
| use.names | Passed to rbind.data.table. |
| fill | Passed to rbind.data.table. |

Value

tableList object.

Examples

```
data(images8By8)  
data(images10By10)  
  
# Create tableList objects from images8By8[,1:3] and images10By10[,1:3]  
TL1 <- tableList(images8By8[,1:3])  
TL2 <- tableList(images10By10[,1:3])  
  
# Bindind rows of two tableList objects  
rbind(TL1, TL2)
```

| | |
|-------------------|------------------------|
| rbind.tableMatrix | <i>Combine by rows</i> |
|-------------------|------------------------|

Description

tableMatrix method, binds rows of tableMatrix objects. If matrix parts have the same dimensions, it combines rows in table and matrix parts using data.table and matrix rbind methods respectively. In case when dimensions differ it combines rows in table part and adds new matrix to the matrix part.

Usage

```
## S3 method for class 'tableMatrix'  
rbind(..., use.names = TRUE, fill = FALSE)
```

Arguments

| | |
|------------------------|---|
| <code>...</code> | tableMatrix objects. |
| <code>use.names</code> | Passed to <code>rbind.data.table</code> . |
| <code>fill</code> | Passed to <code>rbind.data.table</code> . |

Value

tableMatrix object.

Examples

```
data(images8By8)  
dim(images8By8)  
  
data(images10By10)  
dim(images10By10)  
  
# Create tableMatrix objects from images8By8 and images10By10  
TM1 <- tableMatrix(images8By8, 1:3, 4:ncol(images8By8))  
TM2 <- tableMatrix(images10By10, 1:3, 4:ncol(images10By10))  
  
# Combining tableMatrix objects with same dimensions  
TM <- rbind(TM1, TM1)  
# Combined table part  
tab(TM)  
# One matrix in the matrix part  
length(mat(TM))  
# One dimension type  
matDim(TM)  
  
# Combining tableMatrix objects with different dimensions  
TM <- rbind(TM1, TM2)  
# Combined table part  
tab(TM)  
# Two matrices in the matrix part  
length(mat(TM))  
# Two dimension types  
matDim(TM)
```

| | |
|-----|---|
| tab | <i>S3 tableMatrix generic to get or set table attribute</i> |
|-----|---|

Description

S3 tableMatrix generic to get or set table attribute

Usage

```
tab(obj, ...)
```

```
tab(obj) <- value
```

Arguments

| | |
|-------|-------------------|
| obj | Object. |
| ... | Passed arguments. |
| value | data.table |

Value

data.table

| | |
|---------------|-----------------------------------|
| tab.tableList | <i>Get or set table attribute</i> |
|---------------|-----------------------------------|

Description

tableList method to get or set table attribute.

Usage

```
## S3 method for class 'tableList'
tab(obj, ...)
```

```
## S3 replacement method for class 'tableList'
tab(obj) <- value
```

Arguments

| | |
|-------|-------------------|
| obj | tableList object. |
| ... | Passed arguments. |
| value | data.table |

Value

Table part.

| | |
|-----------------|-----------------------------------|
| tab.tableMatrix | <i>Get or set table attribute</i> |
|-----------------|-----------------------------------|

Description

tableMatrix method to get or set table attribute of tableMatrix object.

Usage

```
## S3 method for class 'tableMatrix'
tab(obj, matN = NULL, addRow = FALSE, resetN = TRUE,
     ...)
```

Arguments

| | |
|--------|---|
| obj | tableMatrix object. |
| matN | Integer. Matrix number in mat list. |
| addRow | Logical. If TRUE column tm.allRow with row indexes before subsetting is added. |
| resetN | Logical. Used when matN is specified. When FALSE tm.matN of returned tab won't be reset to 1. Default TRUE. |
| ... | Passed arguments. |

Value

Full table part of tableMatrix or a subset of table part.

Examples

```
data(images8By8)
data(images10By10)

# Create tableMatrix from images8By8 and images10By10
TM <- tableMatrix(list(images8By8, images10By10), list(1:3, 1:3),
                  list(4:ncol(images8By8), 4:ncol(images10By10)))
matDim(TM)

# Table part of TM
tab(TM)

# Table part of TM corresponding to matrix type 2
tab(TM, 2)

# Add row indexes
tab(TM, 2, TRUE)
```

| | |
|-----------|------------------------------|
| tableList | <i>tableList constructor</i> |
|-----------|------------------------------|

Description

tableList constructor, creates tableList object from a data.frame or a data.table and from aid data. The goal is to wrap data.table and any additional data structures together. tableList behaves like a data.table object. Groups of attributes can be stored together via dataType.

Usage

```
tableList(tabData, aidData = list(), dataType = NULL)
```

Arguments

| | |
|----------|--|
| tabData | A data.frame or a data.table. |
| aidData | Aid structures, generally in the form of a list. |
| dataType | Named list. Contains names of groups of attributes, elements are attributes which belong to the group. |

Value

A tableList object

See Also

[dim.tableList](#), [dimnames.tableList](#) [rbind.tableList](#)

Examples

```
data(chickwts)

# Bundle chickwts data.frame together with a linear model
TL <- tableList(chickwts, lm(weight~feed, chickwts))

# tableList behaves like a data.table
mean(TL[feed=="casein", weight])

# Aid part of the tableList object carries the linear model
aid(TL)

# dataType support
TL <- tableList(chickwts, lm(weight~feed, chickwts), dataType=list(group1="weight", group2="feed"))
```

| | |
|-------------|--------------------------------|
| tableMatrix | <i>tableMatrix constructor</i> |
|-------------|--------------------------------|

Description

tableMatrix constructor, creates tableMatrix object from a list of data.frames or data.tables. It is useful for datasets with the following structure: first set of columns of varying types is intended as meta data, second set of columns of the same type is intended as main data. tableMatrix combines strengths of data.table (access via bracket to the meta data part) and matrix (main data). It also stores dimensions of main data, thus allowing to combine rows of varying lengths into one object. As in tableList, tableMatrix can carry any additional aid data and data types groups.

Usage

```
tableMatrix(dataList, tabCol, matCol, dims = NULL, dimNames = NULL,
            aidData = list(), dataType = NULL)
```

Arguments

| | |
|----------|---|
| dataList | Dataset(s) in the form of data.frame or data.table or list of data.frames or data.tables. All datasets must have the same meta data columns, matrix parts can be different. |
| tabCol | Integer or character vector or list of these vectors. Specifies column names or indices of meta data part. For list input, names j or r can be used. List name j indicates that column names or indices are specified, name r indicates range of column names or indices. By default or when a vector is provided, j is used. |
| matCol | Integer or character vector or list of these vectors. Specifies column names or indices of main data part. For list input, names j or r can be used as in tabCol. |
| dims | Numeric vector or list of vectors. Specifies dimensions for the matDim part. By default with no dimension details given by user, main data is considered to be vectors with one dimension. |
| dimNames | Character vector. Specifies dimension names in matDim for each element of dims parameter. If not specified these names are generated automatically. |
| aidData | Aid structures generally in the form of a list. |
| dataType | Named list. Contains names of groups of attributes, elements are attributes which belong to the group. |

Details

tableMatrix is a S3 class that consists of 4 parts. tab - table part - is used for storing meta data, mat - matrix part - for storing main data and matDim - dimensions part - for dimensions of main data. mat is a list of matrices. tab is a data.table. In tab first column tm.matN is the matrix number in mat, second column tm.matRow is the row in the matrix. matDim is data.table. In matDim for each matrix number tm.matN dimensions can be specified with user defined dimensions. dataType is a list which contains names of groups of attributes and vectors of attributes belonging to it. Default print of tableMatrix is the print of the tab part without tm.matN and tm.matRow columns.

Value

A tableMatrix object

See Also

[getRowRepo.tableMatrix](#), [getRowDim.tableMatrix](#), [merge.tableMatrix](#), [rbind.tableMatrix](#)

Examples

```

data(images8By8)
dim(images8By8)

data(images10By10)
dim(images10By10)
images10By10DT <- data.table::as.data.table(images10By10)

# Generate tableMatrix from data.frame images8By8: use columns 1:3 as meta data and
# columns 4:ncol(images8By8) as main data
TM <- tableMatrix(images8By8, 1:3, 4:ncol(images8By8))
matDim(TM) # show matDim
tab(TM) # show meta data part of tableMatrix
head(mat(TM)[[1]]) # show head of main data part

# Generate tableMatrix from data.frame images8By8: use columns "direction" and "dimY"
# as meta data and columns 4:ncol(images8By8) as main data
tableMatrix(images8By8, c("direction","dimY"), 4:ncol(images8By8))

# User defined dimensions with default names
TM <- tableMatrix(images8By8, c("direction","dimX","dimY"), 4:ncol(images8By8), c(8,8))
matDim(TM)

# User defined dimensions with custom names
dims <- c(8,8)
names(dims) <- c("dimX", "dimY")

TM <- tableMatrix(images8By8, 1:3, 4:ncol(images8By8), dims)
matDim(TM)

# tabCol and matCol list input with "j" option
# Column indices: first 3 columns in tab, rest in mat
tableMatrix(images8By8, list(j=1:3), list(j=4:ncol(images8By8)))
# Column names: columns "direction" and "dimY" in tab,
# columns "pixel1" and "pixel2" in mat
tableMatrix(images8By8, list(j=c("direction","dimY")), list(j=c("pixel1","pixel2")))

# tabCol and matCol list input with "r" option
# Column indices: first 3 columns in tab, rest in mat
tableMatrix(images8By8, list(r=c(1,3)), list(r=c(4,ncol(images8By8))))
# Same with column names
tableMatrix(images8By8, list(r=c("direction","dimY")), list(r=c("pixel1","pixel100")))

```

```

# data.table as the start dataset
tableMatrix(images10By10DT, 1:3, 4:ncol(images10By10DT))

# data.frame and data.table with different main data parts -> two matrices in mat.
# Elements in tabCol and matCol lists correspond to images8By8 and images10By10DT
# respectively
TM <- tableMatrix(list(images8By8, images10By10DT),
list(r=c("direction","dimY"), j=c("direction","dimX","dimY")),
list(4:ncol(images8By8),4:ncol(images10By10DT)))
matDim(TM)
length(mat(TM)) # 2 matrices in mat

# User defined named dimensions
TM <- tableMatrix(list(images8By8, images10By10),
list(r=c("direction","dimY"), j=c("direction","dimX","dimY")),
list(c(4:ncol(images8By8)),c(4:ncol(images10By10))),list(c(8,8),c(10,10)),
dimNames =c("dimX", "dimY"))
matDim(TM)

# Same main data parts -> only one matrix in mat
TM <- tableMatrix(list(images8By8, images8By8),
list(r=c("direction","dimY"), j=c("direction","dimX","dimY")),
list(j=4:ncol(images8By8),4:ncol(images8By8)))
matDim(TM)
length(mat(TM)) # 1 matrix in mat

# dataType support
TM <- tableMatrix(images10By10, 1:3, 4:ncol(images10By10),
dataType=list("group1"="direction", "group2"=c("dimX","dimY")))
dataType(TM)

```

[.tableList

Bracket

Description

tableList method, passes data.table bracket functionality to the table attribute. Usage is the same as in data.table[] and data.table[] <-. Assigning works only for tab part and only i and j from data.table is used.

Bracket

Usage

```

## S3 method for class 'tableList'
x[...]

## S3 replacement method for class 'tableList'
x[i, j] <- value

```

Arguments

| | |
|-------|-------------------------|
| x | tableList object. |
| ... | Passed arguments. |
| i | Same as i in data.table |
| j | Same as j in data.table |
| value | Value to be set. |

Value

tableList or vector.

Examples

```
data(images8By8)

# Create tableList from images8By8[,1:3]
TL <- tableList(images8By8[,1:3])

# Apply data.table bracket on a tableList object
TL[direction=="both"]

TL[2,1] <- "aaa"

# setting row
TL[2,] <- list("aaa", 1000, 1000)

# setting column
TL[,2] <- 1
```

[.tableMatrix *Bracket*

Description

tableMatrix method, passes data.table bracket functionality to the table attribute. Assigning works only for tab part and only i and j from data.table is used. If j is numeric, it corresponds to first attribute after tmName names.

Bracket

Usage

```
## S3 method for class 'tableMatrix'
x[...]

## S3 replacement method for class 'tableMatrix'
x[i, j] <- value
```

Arguments

| | |
|-------|-------------------------|
| x | tableMatrix object. |
| ... | Passed arguments. |
| i | Same as i in data.table |
| j | Same as j in data.table |
| value | Value to be set. |

Value

tableMatrix or vector.

Examples

```
data(images8By8)

# Create tableMatrix from images8By8
TM <- tableMatrix(images8By8, 1:3, 4:ncol(images8By8))

TM[2,1] <- "aaa"

TM[1,"dimX"] <- 1000

# setting row
TM[2,] <- list("aaa", 1000, 1000)

# setting column
TM[,2] <- 1
```

[[.tableList

Double bracket

Description

tableList method, passes double bracket functionality to the table attribute.

Usage

```
## S3 method for class 'tableList'
x[[...]]
```

Arguments

| | |
|-----|-------------------|
| x | tableList object. |
| ... | Passed arguments. |

[[.tableList

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Value

vector

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