

# Package ‘a4Core’

October 8, 2015

**Type** Package

**Title** Automated Affymetrix Array Analysis Core Package

**Version** 1.16.0

**Date** 2011-06-04

**Author** Willem Talloen, Tobias Verbeke

**Maintainer** Tobias Verbeke <tobias.verbeke@openanalytics.eu>, Willem  
Ligtenberg <willem.ligtenberg@openanalytics.eu>

**Description** Automated Affymetrix Array Analysis Core Package

**Depends** methods, Biobase, glmnet

**License** GPL-3

**biocViews** Microarray

**NeedsCompilation** no

## R topics documented:

confusionMatrix . . . . .	1
simulateData . . . . .	2
topTable . . . . .	3
topTable-methods . . . . .	3

<b>Index</b>	<b>5</b>
--------------	----------

---

confusionMatrix	<i>Generic function to produce a confusion matrix (related to a classification problem)</i>
-----------------	---

---

## Description

Generic function to produce a confusion matrix (related to a classification problem)

**Usage**

```
confusionMatrix(x, ...)
```

**Arguments**

`x` object (usually a model fit object) that contains all information needed to produce the confusion matrix.

`...` further arguments for a specific method

**Author(s)**

Tobias Verbeke

---

simulateData

*Simulate Data for Package Testing and Demonstration Purposes*

---

**Description**

Simulate Data for Package Testing and Demonstration Purposes

**Usage**

```
simulateData(nCols = 40, nRows = 1000, nEffectRows = 5, nNoEffectCols = 5,
             betweenClassDifference = 1, withinClassSd = 0.5)
```

**Arguments**

`nCols` number of samples; currently this should be an even number

`nRows` number of features (genes)

`nEffectRows` number of differentially expressed features

`nNoEffectCols` number of samples for which the profile of a differentially expressed feature will be set similar to the other class

`betweenClassDifference` Average mean difference between the two classes to simulate a certain signal in the features for which an effect was introduced; the default is set to 1

`withinClassSd` Within class standard deviation used to add a certain noise level to the features for which an effect was introduced; the default standard deviation is set to 0.5

**Value**

object of class `ExpressionSet` with the characteristics specified

**Note**

The simulation assumes the variances are equal between the two classes. Heterogeneity could easily be introduced in the simulation if this would be requested by the users.

**Author(s)**

W. Talloen and T. Verbeke

**Examples**

```
someEset <- simulateData(nCols = 40, nRows = 1000, nEffectRows = 5, nNoEffectCols = 5)
someEset
```

---

topTable

*S4 Generic for obtaining a top table*


---

**Description**

a top table is a rectangular object (e.g. data frame) which lists the top n most relevant variables

**Usage**

```
topTable(fit, n, ...)
```

**Arguments**

fit	object for which to obtain a top table, generally a fit object for a given model class
n	number of features (variables) to list in the top table, ranked by importance
...	further arguments for specific methods

**Author(s)**

Tobias Verbeke

---

topTable-methods

*Methods for topTable*


---

**Description**

Methods for topTable. topTable extracts the top n most important features for a given classification or regression procedure

**Arguments**

fit	object resulting from a classification or regression procedure
n	number of features that one wants to extract from a table that ranks all features according to their importance in the classification or regression model; defaults to 10 for limma objects

**Methods**

glmnet and lognet

glmnet objects are produced by lassoClass (a4Classif) or lassoReg (a4Base)

**fit = "glmnet", n = "numeric"** lognet objects are produced by lassoClass (a4Classif) or lassoReg (a4Base)

**fit = "elnet", n = "numeric"** lognet objects are produced by lassoClass (a4Classif) or lassoReg (a4Base)

# Index

\*Topic **manip**

simulateData, 2

topTable-methods, 3

\*Topic **methods**

topTable-methods, 3

\*Topic **models**

confusionMatrix, 1

topTable, 3

confusionMatrix, 1

simulateData, 2

topTable, 3

topTable, elnet-method

(topTable-methods), 3

topTable, glmnet-method

(topTable-methods), 3

topTable, lognet-method

(topTable-methods), 3

topTable-methods, 3