array Quality Metrics

November 11, 2009

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aqm.boxplot	Performs boxplots on aqmobj.prepdata objects.	
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Description

aqm.boxplot performs boxplots, outlier detection from it and formats the output for aqm.plot usage.

Usage

```
aqm.boxplot(expressionset, dataprep, intgroup = "Covariate", grouprep = FALSE,
```

Arguments

```
Same input as for the function arrayQualityMetrics

dataprep An object of class aqmobj.prepdata

intgroup Same input as for the function arrayQualityMetrics

grouprep Same input as for the function arrayQualityMetrics

... Any arguments to bwplot
```

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.box.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

```
aqm.prepdata,aqmobj.prepdata,aqmobj.box
```

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aqm.density	Performs density plots on aqmobj.prepdata objects.	
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Description

aqm.density performs density curves, outlier detection from it and formats the output for aqm.plot usage.

Usage

```
aqm.density(expressionset, dataprep, intgroup = "Covariate", grouprep = FALSE,
```

Arguments

```
expressionset
```

Same input as for the function arrayQualityMetrics

dataprep An object of class agmobj.prepdata

intgroup Same input as for the function arrayQualityMetrics grouprep Same input as for the function arrayQualityMetrics

... Any arguments to xyplot

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.dens.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.prepdata, aqmobj.prepdata, aqmobj.dens
```

aqm.heatmap

Performs dendrogram on aqmobj.prepdata objects.

Description

 $\verb|aqm.heatmap| performs a dendrogram of the distances between arrays, outlier detection from it and formats the output for aqm.plot usage.$

```
aqm.heatmap(expressionset, dataprep, intgroup = "Covariate", ...)
```

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Arguments

```
expressionset
```

Same input as for the function arrayQualityMetrics

dataprep An object of class aqmobj.prepdata

intgroup Same input as for the function arrayQualityMetrics

... Any arguments to levelplot

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.heat.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.prepdata, aqmobj.prepdata, aqmobj.heat
```

aqm.maplot

Performs MA-plots on aqmobj.prepdata objects.

Description

aqm.maplot performs MA-plots, outlier detection from it and formats the output for aqm.plot usage.

Usage

```
aqm.maplot(dataprep, ...)
```

Arguments

```
dataprep An object of class aqmobj.prepdata
... Any arguments to panel.smoothScatter
```

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.ma.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

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See Also

```
aqm.prepdata,aqmobj.prepdata,aqmobj.ma
```

aqm.meansd

Performs Mean/SD plot on aqmobj.prepdata objects.

Description

aqm.meansd performs Mean/SD plot, and formats the output for aqm.plot usage.

Usage

```
aqm.meansd(dataprep, ...)
```

Arguments

```
dataprep An object of class aqmobj.prepdata
... Any arguments to meanSdPlot
```

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.msd.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.prepdata,aqmobj.prepdata,aqmobj.msd
```

aqm.nuse

Performs NUSE plot on aqmobj.prepaffy objects.

Description

aqm.nuse performs NUSE boxplots and outlier detection from it and formats the output for aqm.plot usage.

```
aqm.nuse(affyproc, ...)
```

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Arguments

```
affyproc An object of class aqmobj.prepaffy... Any arguments to boxplot
```

Details

See the aqm.prepaffy help or the aqm Vignette for example of this object.

Value

```
An object of class aqmobj.nuse
```

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.prepaffy, aqmobj.prepaffy, aqmobj.nuse
```

aqmobj.box-class

Class to contain data generated from aqm.boxplot.

Description

Class to contain data generated from aqm.boxplot.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object if one channel arrays and a list of trellis.object if several channels arrays.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

scores: A numeric for each array corresponding to the scores assessed from the plot.

outliers: List or integer of the arrays that are outliers using boxplot.stats on the scores.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

```
aqm.boxplot,aqm.plot
```

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```
aqmobj.dens-class Class to contain data generated from aqm.density.
```

Description

Class to contain data generated from aqm.density.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object if one channel arrays and a list of trellis.object if several channels arrays.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.density,aqm.plot
```

```
aqmobj.heat-class Class to contain data generated from aqm.heatmap.
```

Description

Class to contain data generated from aqm.heatmap.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

scores: A numeric for each array corresponding to the scores assessed from the plot.

outliers: List or integer of the arrays that are outliers using boxplot.stats on the scores.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

8 aqmobj.ma-class

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.heatmap, aqm.plot.
```

aqmobj.ma-class

Class to contain data generated from aqm.maplot.

Description

Class to contain data generated from aqm.maplot.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

scores: A numeric for each array corresponding to the scores assessed from the plot.

outliers: List or integer of the arrays that are outliers using boxplot.stats on the scores.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

```
aqm.maplot,aqm.plot
```

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aqmobj.msd-class

Class to contain data generated from agm.meansd.

Description

Class to contain data generated from aqm.meansd.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: A matrix to be represented calling the MeanSdPlot function.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.meansd, aqm.plot
```

aqmobj.nuse-class Class to contain data generated from aqm.nuse.

Description

Class to contain data generated from aqm.nuse.

Details

See the aqm.prepaffy help or the aqm Vignette for example of this object.

Slots

 ${\tt plot:}\ A\ {\tt matrix}\ to\ be\ represented\ calling\ the\ {\tt aqm.plot}\ function.$

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

scores: A numeric for each array corresponding to the scores assessed from the plot.

outliers: List or integer of the arrays that are outliers using boxplot.stats on the scores.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

10 aqmobj.pmmm-class

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.nuse, aqm.plot
```

aqmobj.pca-class

Class to contain data generated from aqm.pca.

Description

Class to contain data generated from aqm.pca.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.pca, aqm.plot.
```

aqmobj.pmmm-class Class to contain data generated from aqm.pmmm.

Description

Class to contain data generated from aqm.pmmm.

Details

See the aqm.pmmm help or the aqm Vignette for example of this object.

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Slots

plot: A list to be represented calling the aqm.plot function.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.pmmm, aqm.plot
```

```
aqmobj.prepaffy-class
```

Class to contain data generated from aqm.prepaffy.

Description

Container for the output of aqm.prepaffy and for the input of the aqm.rle and aqm.nuse functions.

Details

See the aqm.prepaffy help or the aqm Vignette for example of this object.

Slots

```
dataPLM: A PLMset.
```

sn: Integers numbering the arrays to be used to label the plots.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

```
aqmobj.prepdata-class
```

Class to contain data generated from aqm.prepdata.

Description

Container for the output of aqm.prepdata and for the input of the aqm functions.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

- **M:** A matrix of the M values (log-ratio). The log-ratio is computed with the second channel being the median of the intensities across arrays in the case of one channel arrays.
- **A:** A matrix of the A values. The A value is the mean of the two intensities. The second channel is computed as for the M values in the case of one channel arrays.
- dat: A matrix with the log-ratio if two channels or the intensities if one channel.
- rc: A matrix with the red channel intensities in the case of two channels arrays.
- gc: A matrix with the green channel intensities in the case of two channels arrays.
- **rcb:** A matrix with the red channel background intensities if two channels arrays and if available.
- **gcb:** A matrix with the green channel background intensities if two channels arrays and if available.
- **outM:** The distance between each pairs of arrays, computed using dist2 from the genefilter package.
- **sn:** Integers numbering the arrays to be used to label the plots.
- numArrays: An integer giving the number of arrays.
- **nchannels:** A numeric giving the number of channels.
- logtransformed: A logical telling if the data have been log transformed by the function aqm.prepdata.
- **classori:** A character string of the class of the object that was given as an input of the aqm.prepdata function.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

```
aqm.prepdata, aqm.boxplot, aqm.density, aqm.heatmap, aqm.maplot, aqm.meansd, aqm.probesmap, aqm.spatial, aqm.spatialbg
```

```
aqmobj.probesmap-class
```

Class to contain data generated from aqm.probesmap.

Description

Class to contain data generated from aqm.probesmap.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

```
plot: An object of class trellis.object.
```

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.probesmap, aqm.plot
```

```
aqmobj.qcs-class
```

Class to contain data generated from aqm.qcs.

Description

Class to contain data generated from aqm.qcs.

Details

See the aqm.qcstats help or the aqm Vignette for example of this object.

Slots

```
plot: An object of class trellis.object.
```

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

14 aqmobj.rle-class

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.qcstats,aqm.plot
```

aqmobj.rle-class

Class to contain data generated from aqm.rle.

Description

Class to contain data generated from aqm.rle.

Details

See the aqm.prepaffy help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

scores: A numeric for each array corresponding to the scores assessed from the plot.

outliers: List or integer of the arrays that are outliers using boxplot.stats on the scores.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

```
aqm.rle, aqm.plot
```

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```
aqmobj.rnadeg-class
```

Class to contain data generated from aqm.rnadegplot.

Description

Class to contain data generated from aqm.rnadegplot.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: A list to be represented calling the plotAffyRNAdeg function.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.rnadeg, aqm.plot
```

```
aqmobj.spatialbg-class
```

Class to contain data generated from aqm.spatialbg.

Description

Class to contain data generated from aqm.spatialbg.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object if one channel arrays and a list of trellis.object if several channels arrays.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

16 aqmobj.spatial-class

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.spatialbg,aqm.plot
```

```
aqmobj.spatial-class
```

Class to contain data generated from aqm.spatial.

Description

Class to contain data generated from aqm.spatial.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Slots

plot: An object of class trellis.object if one channel arrays and a list of trellis.object if several channels arrays.

type: A character string with a name for the section the plot belongs to in the report.

title: A character string with the title of the plot to be written in the report.

legend: A character string with the legend of the plot to be written in the report.

scores: A numeric for each array corresponding to the scores assessed from the plot.

outliers: List or integer of the arrays that are outliers using boxplot.stats on the scores.

shape: A character "square" or "rect" depending on the aspect ratio desired in the report.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

```
aqm.spatial,aqm.plot
```

aqm.pca

aqm.pca

Performs Principal Component Analysis on aqmobj.prepdata objects.

Description

aqm.pca performs a PCA of the arrays and formats the output for aqm.plot usage.

Usage

```
aqm.pca(expressionset, dataprep, intgroup = "Covariate", ...)
```

Arguments

```
expressionset
```

Same input as for the function arrayQualityMetrics

dataprep An object of class aqmobj.prepdata

intgroup Same input as for the function arrayQualityMetrics

... Any arguments to levelplot

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.pca.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.prepdata,aqmobj.prepdata,aqmobj.pca
```

aqm.plot

Performs plots from aqm objects.

Description

```
aqm.plot performs plots.
```

18 aqm.pmmm

Usage

```
## S4 method for signature 'aqmTrellis':
aqm.plot(obj)
aqm.plot(obj)
## S4 method for signature 'aqmobj.box':
aqm.plot(obj)
## S4 method for signature 'aqmobj.dens':
aqm.plot(obj)
## S4 method for signature 'aqmobj.msd':
aqm.plot(obj)
## S4 method for signature 'aqmobj.nuse':
aqm.plot(obj)
## S4 method for signature 'aqmobj.pmmm':
aqm.plot(obj)
## S4 method for signature 'aqmobj.qcs':
aqm.plot(obj)
## S4 method for signature 'aqmobj.rle':
aqm.plot(obj)
```

Arguments

obj an object of class aqmobj

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

A plot in the x11 device.

Author(s)

Audrey Kauffmann. Maintainer: <audrey@ebi.ac.uk>

aqm.pmmm

Performs perfect match versus mismatch density plots.

Description

 $\verb|aqm.pmmm| performs PM MM density curves on objects of class \verb|AffyBatch| and formats the output for \verb|aqm.plot| usage.$

```
aqm.pmmm(expressionset, ...)
```

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Arguments

Value

An object of class aqmobj.pmmm.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqmobj.pmmm
```

Examples

```
library(ALLMLL)
data(MLL.A)
pm = aqm.pmmm(MLL.A)
class(pm)
aqm.plot(pm)
```

aqm.prepaffy

Preparation of Affymetrix experiments for RLE and NUSE.

Description

aqm.prepaffy performs data preprocessing on AffyBatch and formats the output for aqm.rle and aqm.nuse usage.

Usage

```
aqm.prepaffy(expressionset, sN)
```

Arguments

Value

A preprocessed affy object of class aqmobj.prepaffy.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

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See Also

```
aqm.rle, aqm.nuse
```

Examples

```
library(ALLMLL)
data(MLL.A)
MLLaffyprep = aqm.prepaffy(MLL.A, sampleNames(MLL.A))
nuse = aqm.nuse(MLLaffyprep)
class(nuse)
aqm.plot(nuse)
```

aqm.prepdata

Generate an object agmobj.prepdata to be called by the agm functions.

Description

aqm.prepdata formats an ExpressionSet, an AffyBatch, a NChannelSet, or a BeadLevelList into a aqmobj.prepdata object which can be used as an input of the aqm functions.

Usage

```
## S4 method for signature 'ExpressionSet':
aqm.prepdata(expressionset, do.logtransform)

aqm.prepdata(expressionset, do.logtransform = TRUE)

## S4 method for signature 'AffyBatch':
aqm.prepdata(expressionset, do.logtransform)

## S4 method for signature 'NChannelSet':
aqm.prepdata(expressionset, do.logtransform)

## S4 method for signature 'BeadLevelList':
aqm.prepdata(expressionset, do.logtransform)

## S4 method for signature 'aqmOneCol':
aqm.prepdata(expressionset, do.logtransform)
```

Arguments

expressionset

An object of class ExpressionSet for one colour non Affymetrix data, AffyBatch for Affymetrix data, NChannelSet for two colour arrays, or BeadLevelList for Illumina bead arrays.

do.logtransform

TRUE or FALSE whether or not you want to log transform the data.

Value

An object of class aqmobj.prepdata.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

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See Also

aqmobj.prepdata,aqm.boxplot,aqm.density,aqm.heatmap,aqm.maplot,aqm.meansd,aqm.probesmap,aqm.spatial,aqm.spatialbq

Examples

```
## Load an example of a NChannelSet
library(CCl4)
data(CC14)
## Normalization of CCl4 using vsn
library(vsn)
CC14norm = justvsn(CC14, subsample=2000)
## Add a column in the phenoData to annotate samples
cond = paste(pData(CCl4norm)$RIN.Cy3,pData(CCl4norm)$RIN.Cy5,sep="/")
poor = grep(cond,pattern="2.5")
medium = grep(cond, pattern="^5/|/5")
good = grep(cond,pattern="9.7")
cov = rep(0, length = nrow(pData(CCl4norm)))
cov[good] = "Good"
cov[medium] = "Medium"
cov[poor] = "Poor"
phenoData(CCl4norm)$RNAintegrity = cov
## Add X and Y columns in the featureData to allow spatial representations
featureData(CCl4norm)$X = featureData(CCl4norm)$Row
featureData(CCl4norm)$Y = featureData(CCl4norm)$Column
## Add a hasTarget column in the featureData to call aqm.probesmap
featureData(CCl4norm)$hasTarget = (regexpr("^NM",
                                   featureData(CCl4norm)$Name)> 0)
## Prepare the data for aqm.xxx calls
CCl4prep = aqm.prepdata(CCl4norm, do.logtransform = FALSE)
## Draw MA plots
ma = aqm.maplot(dataprep = CCl4prep)
class(ma)
aqm.plot(ma)
## Draw heatmap making use of the RNAintegrity
## column of the phenoData
hm = aqm.heatmap(expressionset = CCl4norm,
                 dataprep = CCl4prep,
                 intgroup = "RNAintegrity")
class(hm)
aqm.plot(hm)
## Draw probes mapping density curves making use of the hasTarget
## column of the featureData
sp = aqm.spatial(expressionset = CCl4norm,
                 dataprep = CCl4prep,
                 scale = "Rank")
class(sp)
aqm.plot(sp)
```

22 aqm.qcstats

```
## Draw probes mapping density curves making use of the hasTarget
## column of the featureData
pm = aqm.probesmap(expressionset = CCl4norm, dataprep = CCl4prep)
class(pm)
aqm.plot(pm)
```

aqm.probesmap

Performs probes mapping on aqmobj.prepdata objects.

Description

aqm.probesmap performs probes mapping, and formats the output for aqm.plot usage.

Usage

```
aqm.probesmap(expressionset, dataprep, ...)
```

Arguments

```
expressionset

Same input as for the function arrayQualityMetrics

dataprep

An object of class aqmobj.prepdata

Any arguments to densityplot
```

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmob j.probesmap

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

aqm.qcstats

Performs QCstats plot on AffyBatch.

Description

 $\verb|aqm.qcstats|| performs|| QCstats|| on objects|| of class|| \verb|AffyBatch|| and formats|| the output for aqm.plot|| usage.$

```
aqm.qcstats(expressionset, ...)
```

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Arguments

```
expressionset
is an object of class AffyBatch
... Any arguments to qc
```

Value

An object of class aqmobj.qcs.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqmobj.qcs
```

Examples

```
library(ALLMLL)
data(MLL.A)
qm = aqm.qcstats(MLL.A)
class(qm)
aqm.plot(qm)
```

aqm.rle

Performs RLE plot on aqmobj.prepaffy objects.

Description

 $\verb|aqm.rle|| performs RLE| boxplots and outlier detection from it and formats the output for \verb|aqm.plot|| usage.$

Usage

```
aqm.rle(affyproc, ...)
```

Arguments

```
affyproc An object of class aqmobj.prepaffy
... Any arguments to Mbox
```

Details

See the aqm.prepaffy help or the aqm Vignette for example of this object.

Value

```
An object of class aqmobj.rle
```

24 aqm.rnadeg

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.prepaffy,aqmobj.prepaffy,aqmobj.rle
```

aqm.rnadeg

Performs RNA degradation plot on AffyBatch.

Description

 $\verb|aqm.rnadeg| performs| RNA | degradation| on objects of class | \verb|AffyBatch| and formats| the output | for | aqm.plot| usage.$

Usage

```
aqm.rnadeg(expressionset, ...)
```

Arguments

```
is \ an \ object \ of \ class \ \texttt{AffyBatch} \\ \dots \\ Any \ arguments \ to \ \texttt{AffyRNAdeg}
```

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

An object of class aqmobj.rnadeg.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

```
aqmobj.rnadeg
```

aqm.spatialbg 25

aqm.spatialbg	Performs spatial distribution representation of background intensities of the arrays from aqmobj.prepdata objects.
	of the arrays from aigmooth, opened cojects.

Description

aqm.spatialbg performs representation of the spatial distribution of the background intensities on the arrays, outlier detection and formats the output for aqm.plot usage.

Usage

```
aqm.spatialbg(expressionset, dataprep, scale)
```

Arguments

expressionset

Same input as for the function arrayQualityMetrics

dataprep An object of class aqmobj.prepdata

scale The spatial distribution can be represented on the rank of the intensities or on

the logarithm scale. Possible options are thus 'Rank' and 'Log'.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

```
An object of class aqmobj.spatialbg.
```

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.prepdata, aqmobj.prepdata, aqmobj.spatialbg
```

aqm.spatial	Performs spatial distribution representation of the arrays from aq-
	mobj.prepdata objects.

Description

aqm.spatial performs representation of the spatial distribution of the intensities on the arrays, outlier detection and formats the output for aqm.plot usage.

```
aqm.spatial(expressionset, dataprep, scale)
```

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Arguments

expressionset

Same input as for the function <code>arrayQualityMetrics</code>

dataprep An object of class aqmobj.prepdata

scale The spatial distribution can be represented on the rank of the intensities or on

the logarithm scale. Possible options are thus 'Rank' and 'Log'.

Details

See the aqm.prepdata help or the aqm Vignette for example of this object.

Value

```
An object of class agmobj.spatial.
```

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

See Also

```
aqm.prepdata, aqmobj.prepdata, aqmobj.spatial
```

aqm.writereport

Writes a report from objects produced with aqm.xxx functions.

Description

aqm.writereport performs an html report from a list of aqmobj objects. It includes a summary with the outliers detected, titles, plots and legends.

Usage

```
aqm.writereport(name, expressionset, obj)
```

Arguments

name A name to customize the title of the report that will be "name quality metrics

report"

expressionset

The expressionset on which the metrics have been run

obj A list of aqmobj.xxx objects

Value

An html report named 'QMreport.html' in the working directory.

Author(s)

Audrey Kauffmann <audrey@ebi.ac.uk>

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Examples

```
library("ALLMLL")
data(MLL.A)
MLLprep = aqm.prepdata(MLL.A, TRUE)
bo = aqm.boxplot(MLL.A, MLLprep)
de = aqm.density(MLL.A, MLLprep)
obj = list("Boxplot" = bo, "Density" = de)
aqm.writereport("Test", MLL.A, obj)
```

arrayQualityMetrics

Quality metrics on microarray experiments

Description

arrayQualityMetrics performs quality metrics on ExpressionSet, AffyBatch, NChannelSet, BeadLevelList, RGList, MAList, aqmInputObj, marrayRaw or marrayNorm containing microarray data from any platforms, one or two channels. The results, presented in a HTML report, are designated to allow the user to rapidly assess the quality of a set of arrays.

```
## S4 method for signature 'ExpressionSet':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
arrayQualityMetrics(expressionset,
                    outdir = getwd(),
                    force = FALSE,
                    do.logtransform = FALSE,
                    intgroup = "Covariate",
                    grouprep = FALSE)
## S4 method for signature 'AffyBatch':
arrayQualityMetrics(expressionset, outdir, force,
do.logtransform, intgroup, grouprep)
## S4 method for signature 'NChannelSet':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
## S4 method for signature 'BeadLevelList':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
## S4 method for signature 'RGList':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
## S4 method for signature 'MAList':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
## S4 method for signature 'aqmInputObj':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
```

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```
## S4 method for signature 'marrayRaw':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
## S4 method for signature 'marrayNorm':
arrayQualityMetrics(expressionset, outdir,
force, do.logtransform, intgroup, grouprep)
```

Arguments

expressionset

is an object of class ExpressionSet, AffyBatch, NChannelSet, BeadLevelList

, RGList , MAList , aqmInputObj , marrayRaw or marrayNorm .

outdir is the name of the directory in which the results are created.

force if TRUE, outdir will be overwritten if it already exists.

do.logtransform

If TRUE, the data are log transformed before the analysis.

intgroup Name of the column of the phenoData to be used to draw a colour side bar next

to the heatmap.

grouprep Decide if you want the boxplots and density plots to be coloured function of the

groups set by 'intgroup'. The default is FALSE meaning that the boxplot and density plots will not be represented function of the groups of 'intgroup'.

Details

See the arrayQualityMetrics Vignette for examples of this function.

Value

A directory outdir containing a HTML report named QMreport.html and all the PNG and PDF plots is created.

Author(s)

Audrey Kauffmann, Wolfgang Huber. Maintainer: <audrey@ebi.ac.uk>

addXYfromGAL

Computing the coordinates of the spots on a slide

Description

From the coordinates of the blocks of a microarray slide and the Row and Column locations of the spots within the blocks, addXYfromGAL computes the X and Y coordinates of the spots of a slide.

```
addXYfromGAL(x, gal.file, nBlocks, skip, ...)
```

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Arguments

x is an AnnotatedDataFrame representing the featureData of an object.
gal.file name of the file .gal that contains the coordinates of the blocks.

nBlocks number of blocks on the slide.

skip number of header lines to skip when reading the gal.file.

... Arguments that get passed on to read.table.

Value

The object x of class AnnotatedDataFrame will be returned with two added columns: X and Y corresponding to the absolute position of the probes on the array.

Author(s)

Audrey Kauffmann, Wolfgang Huber. Maintainer: <audrey@ebi.ac.uk>

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