

Package ‘aroma.core’

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Title Core Methods and Classes Used by 'aroma.*' Packages Part of the
Aroma Framework

Description Core methods and classes used by higher-level aroma.* packages
part of the Aroma Project, e.g. aroma.affymetrix and aroma.cn.

License LGPL (>= 2.1)

URL <https://github.com/HenrikBengtsson/aroma.core>,
<http://www.aroma-project.org/>

BugReports <https://github.com/HenrikBengtsson/aroma.core/issues>

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aroma.core-package *Package aroma.core*

Description

Core methods and classes used by higher-level aroma.* packages part of the Aroma Project, e.g. aroma.affymetrix and aroma.cn.

This package is a support package for **aroma.affymetrix**. This package should be considered to be in an alpha or beta phase. You should expect the API to be changing over time. For practical purposes, consider this package a private package.

Installation and updates

This package is available on CRAN, i.e. to install do `install.packages("aroma.core")`.

License

The releases of this package is licensed under LGPL version 2.1 or newer.

The development code of the packages is under a private licence (where applicable) and patches sent to the author fall under the latter license, but will be, if incorporated, released under the "release" license above.

Author(s)

Henrik Bengtsson

References

[1] H. Bengtsson, *The R.oo package - Object-Oriented Programming with References Using Standard R Code*, In Kurt Hornik, Friedrich Leisch and Achim Zeileis, editors, Proceedings of the 3rd International Workshop on Distributed Statistical Computing (DSC 2003), March 20-22, Vienna, Austria. <http://www.ci.tuwien.ac.at/Conferences/DSC-2003/Proceedings/>

AbstractCNData

*The AbstractCNData class***Description**

Package: aroma.core

Class AbstractCNData

data.frame

~~|

~~+---RichDataFrame

~~~~~|

~~~~~+---RawGenomicSignals

~~~~~|

~~~~~+---AbstractCNData

Directly known subclasses:[AbstractPSCNData](#), [NonPairedPSCNData](#), [PairedPSCNData](#)public class **AbstractCNData**extends [RawGenomicSignals](#)

An AbstractCNData object holds copy number data.

Usage

AbstractCNData(chromosome=NULL, x=NULL, y=NULL, ..., name=NULL, .virtuals=NULL)

Arguments

chromosome (Optional) An [integer](#) scalar (or a [vector](#) of length J), which can be used to specify which chromosome each locus belongs to in case multiple chromosomes are segments. This argument is also used for annotation purposes.

x Optional [numeric vector](#) of J genomic locations. If [NULL](#), index locations 1:J are used.

| | |
|-----------|--|
| y | Optional numeric vector of J genomic locations. |
| ... | Optional named locus-specific signal vectors of length J. |
| name | Optional character string. |
| .virtuals | (Internal) a list with virtual column name functions . |

Fields and Methods

Methods:

```

findLargeGaps -
getChipType -
getLocusData -
getPlatform -
setChipType -
setPlatform -

```

Methods inherited from RawGenomicSignals:

*, +, -, addBy, append, applyBinaryOperator, as.character, as.data.frame, assertOneChromosome, binnedSmoothing, binnedSmoothingByField, clearCache, clone, divideBy, drawDensity, estimateStandardDeviation, extractChromosome, extractChromosomes, extractDataForSegmentation, extractRegion, extractRegions, extractSubset, gaussianSmoothing, getBasicField, getCX, getChromosome, getChromosomes, getDefaultLocusFields, getLocusFields, getPositions, getSigma, getSignalColumnName, getSignalColumnNames, getSignals, getWeights, getXScale, getXY, getYScale, hasWeights, kernelSmoothing, lines, multiplyBy, nbrOfChromosomes, nbrOfLoci, plot, points, print, segmentByCBS, segmentByGLAD, segmentByHaarSeg, segmentByMPCBS, setBasicField, setSigma, setSignals, setWeights, setXScale, setYScale, signalRange, sort, subtractBy, xMax, xMin, xRange, xSeq, yMax, yMin, yRange

Methods inherited from RichDataFrame:

\$, \$<-, [, [[, [[<-, as.data.frame, as.list, dim, dropVirtualColumn, getColumnNames, getColumnNamesTranslator, getFullName, getName, getTags, getVirtualColumn, getVirtualColumnFunction, getVirtualColumnNames, hasColumn, hasColumns, hasVirtualColumn, hasVirtualColumns, length, names, newInstance, print, rbind, setAttributes, setColumnNamesMap, setColumnNamesTranslator, setName, setTags, setVirtualColumn, subset, translateColumnNames

Methods inherited from data.frame:

Math, Ops, Summary, [, [<-, [[, [[<-, aggregate, anyDuplicated, as.NonPairedPSCNData, as.PairedPSCNData, as.data.frame, as.list, as.matrix, attachLocally, by, callSegmentationOutliers, cbind, dim, dimnames, dimnames<-, dropSegmentationOutliers, droplevels, duplicated, edit, findLargeGaps, format, formula, head, is.na, merge, na.exclude, na.omit, plot, print, prompt, rbind, row.names, row.names<-, rowsum, segmentByCBS, segmentByPairedPSCBS, split, split<-, stack, str, subset, summary, t, tail, transform, unique, unstack, unwrap, within, wrap, writeDataFrame

Author(s)

Henrik Bengtsson

AbstractPSCNData *The AbstractPSCNData class*

Description

Package: aroma.core

Class AbstractPSCNData

```

data.frame
~~|
~~+--RichDataFrame
~~~~~|
~~~~~+--RawGenomicSignals
~~~~~|
~~~~~+--AbstractCNData
~~~~~|
~~~~~+--AbstractPSCNData

```

Directly known subclasses:

[NonPairedPSCNData](#), [PairedPSCNData](#)

```

public class AbstractPSCNData
extends AbstractCNData

```

A AbstractPSCNData object holds parent-specific copy number data.

Usage

```
AbstractPSCNData(chromosome=NULL, x=NULL, isSNP=NULL, mu=NULL, ...)
```

Arguments

| | |
|------------|--|
| chromosome | (Optional) An integer scalar (or a vector of length J), which can be used to specify which chromosome each locus belongs to in case multiple chromosomes are segments. This argument is also used for annotation purposes. |
| x | Optional numeric vector of J genomic locations. If NULL , index locations 1:J are used. |
| isSNP | An optional logical vector of length J specifying whether each locus is a SNP or not (non-polymorphic loci). |
| mu | An optional numeric vector of J genotype calls in {0,1/2,1} for AA, AB, and BB, respectively, and NA for non-polymorphic loci. |
| ... | Optional named locus-specific signal vectors of length J. |

Fields and Methods

Methods:

No methods defined.

Methods inherited from AbstractCNData:

findLargeGaps, getChipType, getLocusData, getPlatform, hasKnownPositions, orderAlongGenome, setChipType, setPlatform

Methods inherited from RawGenomicSignals:

*, +, -, addBy, append, applyBinaryOperator, as.character, as.data.frame, assertOneChromosome, binnedSmoothing, binnedSmoothingByField, clearCache, clone, divideBy, drawDensity, estimateStandardDeviation, extractChromosome, extractChromosomes, extractDataForSegmentation, extractRegion, extractRegions, extractSubset, gaussianSmoothing, getBasicField, getCXY, getChromosome, getChromosomes, getDefaultLocusFields, getLocusFields, getPositions, getSigma, getSignalColumnName, getSignalColumnNames, getSignals, getWeights, getXScale, getX, getYScale, hasWeights, kernelSmoothing, lines, multiplyBy, nbrOfChromosomes, nbrOfLoci, plot, points, print, segmentByCBS, segmentByGLAD, segmentByHaarSeg, segmentByMPCBS, setBasicField, setSigma, setSignals, setWeights, setXScale, setYScale, signalRange, sort, subtractBy, xMax, xMin, xRange, xSeq, yMax, yMin, yRange

Methods inherited from RichDataFrame:

\$, \$<-, [, [[, [[<-, as.data.frame, as.list, dim, dropVirtualColumn, getColumnNames, getColumnNamesTranslator, getFullName, getName, getTags, getVirtualColumn, getVirtualColumnFunction, getVirtualColumnNames, hasColumn, hasColumns, hasVirtualColumn, hasVirtualColumns, length, names, newInstance, print, rbind, setAttributes, setColumnNamesMap, setColumnNamesTranslator, setName, setTags, setVirtualColumn, subset, translateColumnNames

Methods inherited from data.frame:

\$, \$<-, Math, Ops, Summary, [, [<-, [[, [[<-, aggregate, anyDuplicated, as.NonPairedPSCNData, as.PairedPSCNData, as.data.frame, as.list, as.matrix, attachLocally, by, callSegmentationOutliers, cbind, dim, dimnames, dimnames<-, dropSegmentationOutliers, droplevels, duplicated, edit, findLargeGaps, format, formula, head, is.na, merge, na.exclude, na.omit, plot, print, prompt, rbind, row.names, row.names<-, rowsum, segmentByCBS, segmentByPairedPSCBS, split, split<-, stack, str, subset, summary, t, tail, transform, unique, unstack, unwrap, within, wrap, writeDataFrame

Author(s)

Henrik Bengtsson

AromaCellCpgFile

A binary file holding local CpG density for each cell (probe/feature)

Description

A binary file holding local CpG density for each cell (probe/feature).

Usage

AromaCellCpgFile(...)

Arguments

... Arguments passed to constructor of [AromaCellTabularBinaryFile](#).

Details

Note that this class does *not* assume a rectangular chip layout. In other words, there is no concept of mapping a *spatial* location on the array to a cell index and vice versa. The reason for this to be able to use this class also for non-rectangular chip types.

Author(s)

Mark Robinson

AromaCellPositionFile *A binary file holding chromosome/position for each cell*

Description

A binary file holding chromosome/position for each cell.

Usage

```
AromaCellPositionFile(...)
```

Arguments

... Arguments passed to constructor of [AromaCellTabularBinaryFile](#).

Details

Note that this class does *not* assume a rectangular chip layout. In other words, there is no concept of mapping a *spatial* location on the array to a cell index and vice versa. The reason for this to be able to use this class also for non-rectangular chip types.

Author(s)

Henrik Bengtsson

AromaCellTabularBinaryFile

The AromaCellTabularBinaryFile class

Description

Package: aroma.core

Class AromaCellTabularBinaryFile

Object

```

~~|
~~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFile
~~~~~|
~~~~~+--ColumnNamesInterface
~~~~~|
~~~~~+--GenericTabularFile
~~~~~|
~~~~~+--CacheKeyInterface
~~~~~|
~~~~~+--FileCacheKeyInterface
~~~~~|
~~~~~+--AromaTabularBinaryFile
~~~~~|
~~~~~+--AromaPlatformInterface
~~~~~|
~~~~~+--AromaMicroarrayTabularBinaryFile
~~~~~|
~~~~~+--AromaCellTabularBinaryFile

```

Directly known subclasses:

[AromaCellCpgFile](#), [AromaCellPositionFile](#), [AromaCellSequenceFile](#)

```
public abstract static class AromaCellTabularBinaryFile
```

```
extends AromaMicroarrayTabularBinaryFile
```

An AromaCellTabularBinaryFile is an [AromaTabularBinaryFile](#) with the constraint that the rows map one-to-one to the cells (features) of a microarray.

Usage

```
AromaCellTabularBinaryFile(...)
```

Arguments

... Arguments passed to [AromaTabularBinaryFile](#).

Fields and Methods**Methods:**

byChipType -
 nbrOfCells -

Methods inherited from AromaMicroarrayTabularBinaryFile:

allocate, as.character, byChipType, findByChipType, getChipType, getFilenameExtension, getPlatform

Methods inherited from AromaPlatformInterface:

getAromaPlatform, getAromaUflFile, getAromaUgpFile, getChipType, getPlatform, getUnitAnnotationDataFile, getUnitNamesFile, getUnitTypesFile, isCompatibleWith

Methods inherited from AromaTabularBinaryFile:

[, [<-, [[, allocate, as.character, colApply, colMeans, colStats, colSums, dimnames<-, getBytesPerColumn, getColClasses, getDefaultColumnNames, getRootName, importFrom, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, readFooter, readHeader, readRawFooter, setAttributesByTags, subset, summary, updateData, updateDataColumn, writeFooter, writeRawFooter

Methods inherited from FileCacheKeyInterface:

getCacheKey

Methods inherited from CacheKeyInterface:

getCacheKey

Methods inherited from GenericTabularFile:

[, as.character, dim, extractMatrix, head, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, tail, writeColumnsToFiles

Methods inherited from ColumnNamesInterface:

appendColumnNamesTranslator, appendColumnNamesTranslatorByNULL, appendColumnNamesTranslatorBycharacter, appendColumnNamesTranslatorByfunction, appendColumnNamesTranslatorBylist, clearColumnNamesTranslator, clearListOfColumnNamesTranslators, getColumnNames, getColumnNamesTranslator, getDefaultColumnNames, getListOfColumnNamesTranslators, nbrOfColumns, setColumnNames, setColumnNamesTranslator, setListOfColumnNamesTranslators, updateColumnNames

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

See Also

[AromaUnitTabularBinaryFile](#).

AromaGenomeTextFile *The AromaGenomeTextFile class*

Description

Package: aroma.core

Class AromaGenomeTextFile**Object**

```

~~|
~~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFile
~~~~~|
~~~~~+--ColumnNamesInterface
~~~~~|
~~~~~+--GenericTabularFile
~~~~~|
~~~~~+--TabularTextFile
~~~~~|
~~~~~+--CacheKeyInterface
~~~~~|
~~~~~+--FileCacheKeyInterface
~~~~~|
~~~~~+--AromaGenomeTextFile

```

Directly known subclasses:*AromaUcscGenomeTextFile*

public abstract static class **AromaGenomeTextFile**
 extends [FileCacheKeyInterface](#)

An AromaGenomeTextFile represents a annotation tabular text file that specifies the number of bases (nucleotides) per chromosome for a particular genome/organism.

Usage

```
AromaGenomeTextFile(...)
```

Arguments

... Arguments passed to [TabularTextFile](#).

Details

An AromaGenomeTextFile is a tab-delimited text file with a header containing (at least) column names 'chromosome' and 'nbrOfBases'. The 'chromosome' column specifies the chromosomes (character strings) and the 'nbrOfBases' column specifies the lengths (integer) of the chromosomes in number of bases (nucleotides).

The filename of an AromaGenomeTextFile should have format "<genome>,chromosomes(<tag>)*.txt", and be located in annotationData/genomes/<genome>/, e.g. annotationData/genomes/Human/Human,chromosomes,max,200

Fields and Methods**Methods:**

```
byGenome      -
readDataFrame -
```

Methods inherited from FileCacheKeyInterface:

```
getCacheKey
```

Methods inherited from CacheKeyInterface:

```
getCacheKey
```

Methods inherited from TabularTextFile:

```
as.character, getCommentChar, getDefaultColumnClassPatterns, getDefaultColumnClasses, getDe-
faultColumnNames, getHeader, getReadArguments, hasColumnHeader, nbrOfLines, nbrOfRows,
readColumnNames, readColumns, readDataFrame, readLines, readRawHeader, setCommentChar
```

Methods inherited from GenericTabularFile:

```
[, as.character, dim, extractMatrix, head, nbrOfColumns, nbrOfRows, readColumns, readDataFrame,
tail, writeColumnsToFiles
```

Methods inherited from ColumnNamesInterface:

appendColumnNamesTranslator, appendColumnNamesTranslatorByNULL, appendColumnNamesTranslatorBycharacter, appendColumnNamesTranslatorByfunction, appendColumnNamesTranslatorBylist, clearColumnNamesTranslator, clearListOfColumnNamesTranslators, getColumnNames, getColumnNamesTranslator, getDefaultColumnNames, getListOfColumnNamesTranslators, nbrOfColumns, setColumnNames, setColumnNamesTranslator, setListOfColumnNamesTranslators, updateColumnNames

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

Examples

```
# Locate a Human,chromosomes(,.*).txt file
db <- AromaGenomeTextFile$byGenome("Human")
print(db)

# Read the data
df <- readDataFrame(db)
print(df)
str(df)

# Details on the file format
oopts <- options(width=40)
print(readLines(db))
options(oopts)
```

AromaMicroarrayDataFile

The abstract AromaMicroarrayDataFile class

Description

Package: aroma.core

Class AromaMicroarrayDataFile

Object

```

~|
~+---FullNameInterface
~~~~~|
~~~~~+---GenericDataFile
~~~~~|
~~~~~+---CacheKeyInterface
~~~~~|
~~~~~+---FileCacheKeyInterface
~~~~~|
~~~~~+---AromaMicroarrayDataFile

```

Directly known subclasses:

```

public abstract static class AromaMicroarrayDataFile
extends FileCacheKeyInterface

```

An AromaMicroarrayDataFile object represents a single microarray data file. Each such file originates from a specific chip type on a given platform.

Usage

```
AromaMicroarrayDataFile(...)
```

Arguments

```
... Arguments passed to GenericDataFile.
```

Fields and Methods

Methods:

```

getChipType -
getPlatform -
isAverageFile -

```

Methods inherited from FileCacheKeyInterface:

getCacheKey

Methods inherited from CacheKeyInterface:

getCacheKey

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$. \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

See Also

An object of this class is typically part of an [AromaMicroarrayDataSet](#).

AromaMicroarrayDataSet

The AromaMicroarrayDataSet class

Description

Package: aroma.core

Class AromaMicroarrayDataSet[Object](#)

~~|

~~+--[FullNameInterface](#)

```

~~~~~|
~~~~~+---GenericDataFileSet
~~~~~|
~~~~~+---AromaMicroarrayDataSet

```

Directly known subclasses:

```

public abstract static class AromaMicroarrayDataSet
extends GenericDataFileSet

```

An AromaMicroarrayDataSet object represents a set of [AromaMicroarrayDataFiles](#) with *identical* chip types.

Usage

```
AromaMicroarrayDataSet(files=NULL, ...)
```

Arguments

```

files          A list of AromaMicroarrayDataFiles.
...           Arguments passed to GenericDataFileSet.

```

Fields and Methods

Methods:

```

as.AromaMicroarrayDataSetList -
as.AromaMicroarrayDataSetTuple -
getAverageFile                 -
getChipType                    -
getPlatform                    -

```

Methods inherited from [GenericDataFileSet](#):

```

[, [[, anyDuplicated, anyNA, append, appendFiles, appendFullNamesTranslator, appendFullNamesTranslatorByNULL, appendFullNamesTranslatorByTabularTextFile, appendFullNamesTranslatorByTabularTextFileSet, appendFullNamesTranslatorBydata.frame, appendFullNamesTranslatorByfunction, appendFullNamesTranslatorBylist, as.character, as.list, byName, byPath, c, clearCache, clearFullNamesTranslator, clone, copyTo, dsApply, dsApplyInPairs, duplicated, equals, extract, findByName, findDuplicated, getChecksum, getChecksumFileSet, getChecksumObjects, getDefaultFullName, getFile, getFileClass, getFileSize, getFiles, getFullNames, getNames, getOneFile, getPath, getPathnames, getSubdirs, gunzip, gzip, hasFile, indexOf, is.na, names, nbrOfFiles, rep, resetFullNames, setFullNamesTranslator, sortBy, unique, update2, updateFullName, updateFullNames, validate, getFullNameTranslatorSet, getParentName

```

Methods inherited from [FullNameInterface](#):

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaMicroarrayDataSetTuple

The AromaMicroarrayDataSetTuple class

Description

Package: aroma.core

Class AromaMicroarrayDataSetTuple

Object

~~|

~~+---FullNameInterface

~~~~~|

~~~~~+---GenericDataFileSetList

~~~~~|

~~~~~+---AromaMicroarrayDataSetTuple

Directly known subclasses:

AromaUnitTotalCnBinarySetTuple

```
public abstract static class AromaMicroarrayDataSetTuple
```

```
extends GenericDataFileSetList
```

Usage

```
AromaMicroarrayDataSetTuple(..., .setClass="AromaMicroarrayDataSet")
```

Arguments

... Arguments passed to [GenericDataFileSetList](#).
 .setClass The name of the class of the input set.

Fields and Methods**Methods:**

| | |
|--------------------------------|--------------------------------|
| as | - |
| as.AromaMicroarrayDataSetTuple | - |
| getChipTypes | - |
| getFullNames | - |
| getSets | - |
| getTags | - |
| nbrOfChipTypes | Gets the number of chip types. |

Methods inherited from GenericDataFileSetList:

as, as.GenericDataFileSetList, as.character, as.data.frame, as.list, assertDuplicates, clone, extract, getAsteriskTags, getDefaultFullName, getFileList, getFileListClass, getFullNames, getNames, getSet, getSets, getTags, indexOf, length, nbrOfFiles, nbrOfSets, setTags

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaMicroarrayTabularBinaryFile

The AromaMicroarrayTabularBinaryFile class

Description

Package: aroma.core

Class AromaMicroarrayTabularBinaryFile**Object**

```

~~|
~~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFile
~~~~~|
~~~~~+--ColumnNamesInterface
~~~~~|
~~~~~+--GenericTabularFile
~~~~~|
~~~~~+--CacheKeyInterface
~~~~~|
~~~~~+--FileCacheKeyInterface
~~~~~|
~~~~~+--AromaTabularBinaryFile
~~~~~|
~~~~~+--AromaPlatformInterface
~~~~~|
~~~~~+--AromaMicroarrayTabularBinaryFile

```

Directly known subclasses:

[AromaCellCpgFile](#), [AromaCellPositionFile](#), [AromaCellSequenceFile](#), [AromaCellTabularBinaryFile](#), [AromaUfiFile](#), [AromaUgcFile](#), [AromaUgpFile](#), [AromaUnitChromosomeTabularBinaryFile](#), [AromaUnitGcContentFile](#), [AromaUnitTabularBinaryFile](#)

public abstract static class **AromaMicroarrayTabularBinaryFile**
 extends [AromaPlatformInterface](#)

An [AromaMicroarrayTabularBinaryFile](#) is an abstract [AromaTabularBinaryFile](#).

Usage

```
AromaMicroarrayTabularBinaryFile(...)
```

Arguments

... Arguments passed to [AromaTabularBinaryFile](#).

Fields and Methods**Methods:**

byChipType -

```

getChipType           -
getFilenameExtension  -
getPlatform           -

```

Methods inherited from AromaPlatformInterface:

getAromaPlatform, getAromaUfflFile, getAromaUgpFile, getChipType, getPlatform, getUnitAnnotationDataFile, getUnitNamesFile, getUnitTypesFile, isCompatibleWith

Methods inherited from AromaTabularBinaryFile:

[, [<-, [[, allocate, as.character, colApply, colMeans, colStats, colSums, dimnames<-, getBytesPerColumn, getColClasses, getDefaultColumnNames, getRootName, importFrom, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, readFooter, readHeader, readRawFooter, setAttributesByTags, subset, summary, updateData, updateDataColumn, writeFooter, writeRawFooter

Methods inherited from FileCacheKeyInterface:

getCacheKey

Methods inherited from CacheKeyInterface:

getCacheKey

Methods inherited from GenericTabularFile:

[, as.character, dim, extractMatrix, head, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, tail, writeColumnsToFiles

Methods inherited from ColumnNamesInterface:

appendColumnNamesTranslator, appendColumnNamesTranslatorByNULL, appendColumnNamesTranslatorBycharacter, appendColumnNamesTranslatorByfunction, appendColumnNamesTranslatorBylist, clearColumnNamesTranslator, clearListOfColumnNamesTranslators, getColumnNames, getColumnNamesTranslator, getDefaultColumnNames, getListOfColumnNamesTranslators, nbrOfColumns, setColumnNames, setColumnNamesTranslator, setListOfColumnNamesTranslators, updateColumnNames

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach,

equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

See Also

[AromaTabularBinaryFile](#).

| | |
|---------------|--------------------------------|
| AromaPlatform | <i>The AromaPlatform class</i> |
|---------------|--------------------------------|

Description

Package: aroma.core

Class AromaPlatform

[Object](#)

~~|

~~+--AromaPlatform

Directly known subclasses:

public abstract static class **AromaPlatform**

extends [Object](#)

An AromaPlatform provides methods for a given platform, e.g. Affymetrix, Agilent, Illumina.

Usage

AromaPlatform(...)

Arguments

... Not used.

Methods

Methods:

| | |
|-----------------|---|
| byName | - |
| equals | - |
| getAromaUgpFile | - |

```

getName           -
getUnitNamesFile -
getUnitTypesFile -

```

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

Examples

```

## Not run:
library("aroma.affymetrix")
platform <- AromaPlatform$byName("Affymetrix")
print(platform)
stopifnot(getName(platform) == "Affymetrix")

## End(Not run)

```

AromaPlatformInterface

The AromaPlatformInterface class

Description

Package: aroma.core

Class AromaPlatformInterface**Interface**

~~|

~~+--AromaPlatformInterface

Directly known subclasses:

[AromaCellCpgFile](#), [AromaCellPositionFile](#), [AromaCellSequenceFile](#), [AromaCellTabularBinaryFile](#), [AromaMicroarrayTabularBinaryFile](#), [AromaUflFile](#), [AromaUgcFile](#), [AromaUgpFile](#), [AromaUnitCallFile](#), [AromaUnitChromosomeTabularBinaryFile](#), [AromaUnitFracBCnBinaryFile](#), [AromaUnitGcContentFile](#), [AromaUnitGenotypeCallFile](#), [AromaUnitPscnBinaryFile](#), [AromaUnitSignalBinaryFile](#), [AromaUnitTabularBinaryFile](#), [AromaUnitTotalCnBinaryFile](#), [AromaUnitTypesFile](#)

public abstract class **AromaPlatformInterface**
 extends [Interface](#)

An AromaPlatformInterface provides methods for a given platform, e.g. Affymetrix, Agilent, Illumina.

Usage

```
AromaPlatformInterface(...)
```

Arguments

... Not used.

Methods

Methods:

| | |
|----------------------------------|---------------------|
| getAromaPlatform | Gets the platform. |
| getAromaUflFile | - |
| getAromaUgpFile | - |
| getChipType | Gets the chip type. |
| getPlatform | Gets the platform. |
| getUnitNamesFile | - |
| getUnitTypesFile | - |

Methods inherited from Interface:

extend, print, uses

Author(s)

Henrik Bengtsson

AromaRepository

The AromaRepository class

Description

Package: aroma.core

Class AromaRepository

[Object](#)

~~|

~~+--AromaRepository

Directly known subclasses:

public static class **AromaRepository**
 extends [Object](#)

An AromaRepository object provides methods for downloading annotation data from the Aroma repository.

Usage

```
AromaRepository(urlPath="http://www.aroma-project.org/data", verbose=FALSE, ...)
```

Arguments

| | |
|---------|---|
| urlPath | The URL to the Aroma repository. |
| verbose | The Verbose to be used during processing. |
| ... | Not used. |

Methods**Methods:**

| | |
|--------------------------------------|--|
| downloadACC | - |
| downloadACM | - |
| downloadACP | - |
| downloadACS | - |
| downloadAll | - |
| downloadCDF | - |
| downloadChipTypeFile | Download a particular chip type annotation file. |
| downloadProbeSeqsTXT | - |
| downloadTXT | - |
| downloadUFL | - |
| downloadUGC | - |
| downloadUGP | - |

Methods inherited from Object:

\$, \$<-, [, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaTabularBinaryFile

The AromaTabularBinaryFile class

Description

Package: aroma.core

Class AromaTabularBinaryFile

Object

```

~~|
~~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFile
~~~~~|
~~~~~+--ColumnNamesInterface
~~~~~|
~~~~~+--GenericTabularFile
~~~~~|
~~~~~+--CacheKeyInterface
~~~~~|
~~~~~+--FileCacheKeyInterface
~~~~~|
~~~~~+--AromaTabularBinaryFile

```

Directly known subclasses:

[AromaCellCpgFile](#), [AromaCellPositionFile](#), [AromaCellSequenceFile](#), [AromaCellTabularBinaryFile](#), [AromaMicroarrayTabularBinaryFile](#), [AromaUfflFile](#), [AromaUgcFile](#), [AromaUgpFile](#), [AromaUnitCallFile](#), [AromaUnitChromosomeTabularBinaryFile](#), [AromaUnitFracBCnBinaryFile](#), [AromaUnitGcContentFile](#), [AromaUnitGenotypeCallFile](#), [AromaUnitPscnBinaryFile](#), [AromaUnitSignalBinaryFile](#), [AromaUnitTabularBinaryFile](#), [AromaUnitTotalCnBinaryFile](#), [AromaUnitTypesFile](#)

public abstract static class **AromaTabularBinaryFile**

extends [FileCacheKeyInterface](#)

A [AromaTabularBinaryFile](#) represents a file with a binary format. It has a well defined header, a data section, and a footer.

Usage

```
AromaTabularBinaryFile(...)
```

Arguments

... Arguments passed to [GenericTabularFile](#).

Fields and Methods**Methods:**

| | |
|-------------------|---|
| [| - |
| [<- | - |
| colMeans | - |
| colSums | - |
| getBytesPerColumn | - |
| getColClasses | - |
| importFrom | - |
| nrOfColumns | - |
| nrOfRows | - |
| readColumns | - |
| readFooter | Reads the file footer in XML format into a named nested list. |
| subset | - |
| summary | - |
| writeFooter | Writes a named nested list to the file footer in XML format. |

Methods inherited from FileCacheKeyInterface:

getCacheKey

Methods inherited from CacheKeyInterface:

getCacheKey

Methods inherited from GenericTabularFile:

[, as.character, dim, extractMatrix, head, nrOfColumns, nrOfRows, readColumns, readDataFrame, tail, writeColumnsToFiles

Methods inherited from ColumnNamesInterface:

appendColumnNamesTranslator, appendColumnNamesTranslatorByNULL, appendColumnNamesTranslatorBycharacter, appendColumnNamesTranslatorByfunction, appendColumnNamesTranslatorBylist, clearColumnNamesTranslator, clearListOfColumnNamesTranslators, getColumnNames, getColumnNamesTranslator, getDefaultColumnNames, getListOfColumnNamesTranslators, nrOfColumns, setColumnNames, setColumnNamesTranslator, setListOfColumnNamesTranslators, updateColumnNames

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFull-

NameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [], [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

See Also

[GenericDataFile](#).

AromaTabularBinarySet *The AromaTabularBinarySet class*

Description

Package: aroma.core

Class AromaTabularBinarySet

Object

```

~~|
~~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFileSet
~~~~~|
~~~~~+--GenericTabularFileSet
~~~~~|
~~~~~+--AromaTabularBinarySet

```

Directly known subclasses:

[AromaUnitCallSet](#), [AromaUnitFracBCnBinarySet](#), [AromaUnitGenotypeCallSet](#), [AromaUnitPscnBinarySet](#), [AromaUnitSignalBinarySet](#), [AromaUnitTotalCnBinarySet](#)

```

public static class AromaTabularBinarySet
extends GenericTabularFileSet

```

An AromaTabularBinarySet object represents a set of [AromaTabularBinaryFiles](#) with *identical* chip types.

Usage

```
AromaTabularBinarySet(files=NULL, ...)
```

Arguments

files A list of [AromaTabularBinaryFile](#)s.
 ... Arguments passed to [GenericDataFileSet](#).

Fields and Methods**Methods:**

No methods defined.

Methods inherited from [GenericTabularFileSet](#):

extractMatrix, calculateAverageColumnAcrossFiles

Methods inherited from [GenericDataFileSet](#):

[, [[, anyDuplicated, anyNA, append, appendFiles, appendFullNamesTranslator, appendFullNamesTranslatorByNULL, appendFullNamesTranslatorByTabularTextFile, appendFullNamesTranslatorByTabularTextFileSet, appendFullNamesTranslatorBydata.frame, appendFullNamesTranslatorByfunction, appendFullNamesTranslatorBylist, as.character, as.list, byName, byPath, c, clearCache, clearFullNamesTranslator, clone, copyTo, dsApply, dsApplyInPairs, duplicated, equals, extract, findByName, findDuplicated, getChecksum, getChecksumFileSet, getChecksumObjects, getDefaultFullName, getFile, getFileClass, getFileSize, getFiles, getFullNames, getNames, getOneFile, getPath, getPathnames, getSubdirs, gunzip, gzip, hasFile, indexOf, is.na, names, nbrOfFiles, rep, resetFullNames, setFullNamesTranslator, sortBy, unique, update2, updateFullName, updateFullNames, validate, getFullNameTranslatorSet, getParentName

Methods inherited from [FullNameInterface](#):

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from [Object](#):

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaTransform *The AromaTransform class*

Description

Package: aroma.core

Class AromaTransform

Object

~~|

~~+--ParametersInterface

~~~~~|

~~~~~+--AromaTransform

Directly known subclasses:

public abstract static class **AromaTransform**

extends [ParametersInterface](#)

This abstract class represents a transform (algorithm/operator) that transforms data. A transform has an input data set, which is transformed into an output data set.

Usage

```
AromaTransform(dataSet=NULL, tags="*", ..., .reqSetClass="AromaMicroarrayDataSet")
```

Arguments

| | |
|--------------|--|
| dataSet | The input data set as an AromaMicroarrayDataSet . |
| tags | A character vector of tags to be appended to the tags of the input data set. |
| ... | Not used. |
| .reqSetClass | Internal argument. |

Details

Subclasses must implement the process() method.

Fields and Methods

Methods:

| | |
|---------------------------------|--|
| getFullName | Gets the full name of the output data set. |
| getInputDataSet | Gets the input data set. |

| | |
|----------------------------------|---|
| getName | Gets the name of the output data set. |
| getOutputDataSet | Gets the transformed data set. |
| getPath | Gets the path of the output directory. |
| getRootPath | Gets the root path of the output directory. |
| getTags | Gets the tags of the output data set. |
| isDone | Checks if the data set is processed or not. |
| process | Processes the data set. |
| setTags | - |

Methods inherited from ParametersInterface:

[getParameterSets](#), [getParameters](#), [getParametersAsString](#)

Methods inherited from Object:

[\\$](#), [\\$<-](#), [\[\[](#), [\[\[<-](#), [as.character](#), [attach](#), [attachLocally](#), [clearCache](#), [clearLookupCache](#), [clone](#), [detach](#), [equals](#), [extend](#), [finalize](#), [getEnvironment](#), [getFieldModifier](#), [getFieldModifiers](#), [getFields](#), [getInstantiationTime](#), [getStaticInstance](#), [hasField](#), [hashCode](#), [ll](#), [load](#), [names](#), [objectSize](#), [print](#), [save](#), [asThis](#)

Author(s)

Henrik Bengtsson

AromaUnitCallFile

The AromaUnitCallFile class

Description

Package: aroma.core

Class AromaUnitCallFile**Object**

~~|

~~+--FullNameInterface

~~~~~|

~~~~~+--GenericDataFile

~~~~~|

~~~~~+--ColumnNamesInterface

~~~~~|

~~~~~+--GenericTabularFile

~~~~~|

~~~~~+--CacheKeyInterface

~~~~~|

~~~~~+--FileCacheKeyInterface

~~~~~|

~~~~~+--AromaTabularBinaryFile

~~~~~|

~~~~~+--AromaPlatformInterface

```

~~~~~|
~~~~~+---AromaUnitSignalBinaryFile
~~~~~|
~~~~~+---AromaUnitCallFile

```

Directly known subclasses:

[AromaUnitGenotypeCallFile](#)

```

public static class AromaUnitCallFile
extends AromaUnitSignalBinaryFile

```

An [AromaUnitCallFile](#) is a [AromaUnitSignalBinaryFile](#).

Usage

```
AromaUnitCallFile(...)
```

Arguments

... Arguments passed to [AromaUnitSignalBinaryFile](#).

Fields and Methods**Methods:**

```

extractCallArray -
extractCalls     -
extractMatrix    -
findUnitsTodo    -

```

Methods inherited from [AromaUnitSignalBinaryFile](#):

allocate, allocateFromUnitAnnotationDataFile, allocateFromUnitNamesFile, as.character, extractMatrix, extractRawGenomicSignals, fromFile, getChipType, getExtensionPattern, getFilenameExtension, getNumberOfFilesAveraged, getPlatform, isAverageFile, nbrOfUnits, readDataFrame, writeDataFrame

Methods inherited from [AromaPlatformInterface](#):

getAromaPlatform, getAromaUflFile, getAromaUgpFile, getChipType, getPlatform, getUnitAnnotationDataFile, getUnitNamesFile, getUnitTypesFile, isCompatibleWith

Methods inherited from [AromaTabularBinaryFile](#):

[, [<-, [[, allocate, as.character, colApply, colMeans, colStats, colSums, dimnames<-, getBytesPerColumn, getColClasses, getDefaultColumnNames, getRootName, importFrom, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, readFooter, readHeader, readRawFooter, setAttributesByTags, subset, summary, updateData, updateDataColumn, writeFooter, writeRawFooter

Methods inherited from [FileCacheKeyInterface](#):

getCacheKey

Methods inherited from CacheKeyInterface:

getCacheKey

Methods inherited from GenericTabularFile:

[, as.character, dim, extractMatrix, head, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, tail, writeColumnsToFiles

Methods inherited from ColumnNamesInterface:

appendColumnNamesTranslator, appendColumnNamesTranslatorByNULL, appendColumnNamesTranslatorBycharacter, appendColumnNamesTranslatorByfunction, appendColumnNamesTranslatorBylist, clearColumnNamesTranslator, clearListOfColumnNamesTranslators, getColumnNames, getColumnNamesTranslator, getDefaultColumnNames, getListOfColumnNamesTranslators, nbrOfColumns, setColumnNames, setColumnNamesTranslator, setListOfColumnNamesTranslators, updateColumnNames

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaUnitCallSet

The AromaUnitCallSet class

Description

Package: aroma.core

Class AromaUnitCallSet


```

Object
~~|
~~+---FullNameInterface
~~~~~|
~~~~~+---GenericDataFileSet
~~~~~|
~~~~~+---GenericTabularFileSet
~~~~~|
~~~~~+---AromaTabularBinarySet
~~~~~|
~~~~~+---AromaUnitSignalBinarySet
~~~~~|
~~~~~+---AromaUnitCallSet

```

Directly known subclasses:

[AromaUnitGenotypeCallSet](#)

```

public static class AromaUnitCallSet
extends AromaUnitSignalBinarySet

```

An `AromaUnitCallSet` object represents a set of `AromaUnitCallFiles` with *identical* chip types.

Usage

```
AromaUnitCallSet(...)
```

Arguments

... Arguments passed to `AromaUnitSignalBinarySet`.

Fields and Methods**Methods:**

```

extractCallArray -
extractCalls -
extractGenotypeMatrix -
findUnitsTodo -

```

Methods inherited from `AromaUnitSignalBinarySet`:

`byName`, `findByName`, `getAromaFullNameTranslatorSet`, `getAromaUgpFile`, `getChipType`, `getPlatform`, `validate`, `writeDataFrame`

Methods inherited from `AromaTabularBinarySet`:

`getDefaultFullName`, `getRootName`, `setAttributesBy`, `setAttributesBySampleAnnotationFile`, `setAttributesBySampleAnnotationSet`, `setAttributesByTags`

Methods inherited from GenericTabularFileSet:

extractMatrix, calculateAverageColumnAcrossFiles

Methods inherited from GenericDataFileSet:

[, [[, anyDuplicated, anyNA, append, appendFiles, appendFullNamesTranslator, appendFullNamesTranslatorByNULL, appendFullNamesTranslatorByTabularTextFile, appendFullNamesTranslatorByTabularTextFileSet, appendFullNamesTranslatorBydata.frame, appendFullNamesTranslatorByfunction, appendFullNamesTranslatorBylist, as.character, as.list, byName, byPath, c, clearCache, clearFullNamesTranslator, clone, copyTo, dsApply, dsApplyInPairs, duplicated, equals, extract, findByName, findDuplicated, getChecksum, getChecksumFileSet, getChecksumObjects, getDefaultFullName, getFile, getFileClass, getFileSize, getFiles, getFullNames, getNames, getOneFile, getPath, getPathnames, getSubdirs, gunzip, gzip, hasFile, indexOf, is.na, names, nbrOfFiles, rep, resetFullNames, setFullNamesTranslator, sortBy, unique, update2, updateFullName, updateFullNames, validate, getFullNameTranslatorSet, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaUnitFracBCnBinaryFile*The AromaUnitFracBCnBinaryFile class*

Description

Package: aroma.core

Class AromaUnitFracBCnBinaryFile**Object**

```

~~|
~~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFile
~~~~~|
~~~~~+--ColumnNamesInterface

```

```

~~~~~|
~~~~~+--GenericTabularFile
~~~~~|
~~~~~+--CacheKeyInterface
~~~~~|
~~~~~+--FileCacheKeyInterface
~~~~~|
~~~~~+--AromaTabularBinaryFile
~~~~~|
~~~~~+--AromaPlatformInterface
~~~~~|
~~~~~+--AromaUnitSignalBinaryFile
~~~~~|
~~~~~+--AromaUnitFracBCnBinaryFile

```

Directly known subclasses:

```

public static class AromaUnitFracBCnBinaryFile
extends AromaUnitSignalBinaryFile

```

An [AromaUnitFracBCnBinaryFile](#) is a [AromaUnitTabularBinaryFile](#).

Usage

```
AromaUnitFracBCnBinaryFile(...)
```

Arguments

... Arguments passed to [AromaUnitTabularBinaryFile](#).

Fields and Methods**Methods:**

```
extractRawAlleleBFractions -
```

Methods inherited from [AromaUnitSignalBinaryFile](#):

allocate, allocateFromUnitAnnotationDataFile, allocateFromUnitNamesFile, as.character, extractMatrix, extractRawGenomicSignals, fromFile, getChipType, getExtensionPattern, getFilenameExtension, getNumberOfFilesAveraged, getPlatform, isAverageFile, nbrOfUnits, readDataFrame, writeDataFrame

Methods inherited from [AromaPlatformInterface](#):

getAromaPlatform, getAromaUflFile, getAromaUgpFile, getChipType, getPlatform, getUnitAnnotationDataFile, getUnitNamesFile, getUnitTypesFile, isCompatibleWith

Methods inherited from AromaTabularBinaryFile:

[, [<-, [[, allocate, as.character, colApply, colMeans, colStats, colSums, dimnames<-, getBytesPerColumn, getColClasses, getDefaultColumnNames, getRootName, importFrom, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, readFooter, readHeader, readRawFooter, setAttributesByTags, subset, summary, updateData, updateDataColumn, writeFooter, writeRawFooter

Methods inherited from FileCacheKeyInterface:

getCacheKey

Methods inherited from CacheKeyInterface:

getCacheKey

Methods inherited from GenericTabularFile:

[, as.character, dim, extractMatrix, head, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, tail, writeColumnsToFiles

Methods inherited from ColumnNamesInterface:

appendColumnNamesTranslator, appendColumnNamesTranslatorByNULL, appendColumnNamesTranslatorBycharacter, appendColumnNamesTranslatorByfunction, appendColumnNamesTranslatorBylist, clearColumnNamesTranslator, clearListOfColumnNamesTranslators, getColumnNames, getColumnNamesTranslator, getDefaultColumnNames, getListOfColumnNamesTranslators, nbrOfColumns, setColumnNames, setColumnNamesTranslator, setListOfColumnNamesTranslators, updateColumnNames

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaUnitFracBCnBinarySet

The AromaUnitFracBCnBinarySet class

Description

Package: aroma.core

Class AromaUnitFracBCnBinarySet

Object

~~|

~~+--FullNameInterface

~~~~~|

~~~~~+--GenericDataFileSet

~~~~~|

~~~~~+--GenericTabularFileSet

~~~~~|

~~~~~+--AromaTabularBinarySet

~~~~~|

~~~~~+--AromaUnitSignalBinarySet

~~~~~|

~~~~~+--AromaUnitFracBCnBinarySet

Directly known subclasses:

public static class **AromaUnitFracBCnBinarySet**

extends [AromaUnitSignalBinarySet](#)

An AromaUnitFracBCnBinarySet object represents a set of [AromaUnitFracBCnBinaryFiles](#) with *identical* chip types.

Usage

AromaUnitFracBCnBinarySet(...)

Arguments

... Arguments passed to [AromaUnitSignalBinarySet](#).

Details

The term "allele B fraction" is also know as "allele B frequency", which was coined by Peiffer et al. (2006). Note that the term "frequency" is a bit misleading since it is not a frequency in neither the statistical nor the population sense, but rather only proportion relative to the total amount of allele A and allele B signals, which is calculated for each sample independently.

Fields and Methods**Methods:**

byName -
writeDataFrame -

Methods inherited from AromaUnitSignalBinarySet:

byName, findByName, getAromaFullNameTranslatorSet, getAromaUgpFile, getChipType, getPlatform, validate, writeDataFrame

Methods inherited from AromaTabularBinarySet:

getDefaultFullName, getRootName, setAttributesBy, setAttributesBySampleAnnotationFile, setAttributesBySampleAnnotationSet, setAttributesByTags

Methods inherited from GenericTabularFileSet:

extractMatrix, calculateAverageColumnAcrossFiles

Methods inherited from GenericDataFileSet:

[, [[, anyDuplicated, anyNA, append, appendFiles, appendFullNamesTranslator, appendFullNamesTranslatorByNULL, appendFullNamesTranslatorByTabularTextFile, appendFullNamesTranslatorByTabularTextFileSet, appendFullNamesTranslatorBydata.frame, appendFullNamesTranslatorByfunction, appendFullNamesTranslatorBylist, as.character, as.list, byName, byPath, c, clearCache, clearFullNamesTranslator, clone, copyTo, dsApply, dsApplyInPairs, duplicated, equals, extract, findByName, findDuplicated, getChecksum, getChecksumFileSet, getChecksumObjects, getDefaultFullName, getFile, getFileClass, getFileSize, getFiles, getFullNames, getNames, getOneFile, getPath, getPathnames, getSubdirs, gunzip, gzip, hasFile, indexOf, is.na, names, nbrOfFiles, rep, resetFullNames, setFullNamesTranslator, sortBy, unique, update2, updateFullName, updateFullNames, validate, getFullNameTranslatorSet, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

References

[1] Peiffer et al., *High-resolution genomic profiling of chromosomal aberrations using Infinium whole-genome genotyping*, Genome Res, 2006.

AromaUnitGenotypeCallFile

The AromaUnitGenotypeCallFile class

Description

Package: aroma.core

Class AromaUnitGenotypeCallFile

Object

```

~~|
~~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFile
~~~~~|
~~~~~+--ColumnNamesInterface
~~~~~|
~~~~~+--GenericTabularFile
~~~~~|
~~~~~+--CacheKeyInterface
~~~~~|
~~~~~+--FileCacheKeyInterface
~~~~~|
~~~~~+--AromaTabularBinaryFile
~~~~~|
~~~~~+--AromaPlatformInterface
~~~~~|
~~~~~+--AromaUnitSignalBinaryFile
~~~~~|
~~~~~+--AromaUnitCallFile
~~~~~|
~~~~~+--AromaUnitGenotypeCallFile
    
```

Directly known subclasses:

```

public static class AromaUnitGenotypeCallFile
extends AromaUnitCallFile
    
```

An AromaUnitGenotypeCallFile is a [AromaUnitTabularBinaryFile](#).

Usage

```
AromaUnitGenotypeCallFile(...)
```

Arguments

... Arguments passed to [AromaUnitTabularBinaryFile](#).

Fields and Methods**Methods:**

```
extractGenotypeMatrix -
extractGenotypes      -
isHeterozygous        -
isHomozygous          -
updateGenotypes       -
```

Methods inherited from AromaUnitCallFile:

allocate, extractCallArray, extractCalls, extractMatrix, findUnitsTodo

Methods inherited from AromaUnitSignalBinaryFile:

allocate, allocateFromUnitAnnotationDataFile, allocateFromUnitNamesFile, as.character, extractMatrix, extractRawGenomicSignals, fromFile, getChipType, getExtensionPattern, getFilenameExtension, getNumberOfFilesAveraged, getPlatform, isAverageFile, nbrOfUnits, readDataFrame, writeDataFrame

Methods inherited from AromaPlatformInterface:

getAromaPlatform, getAromaUflFile, getAromaUgpFile, getChipType, getPlatform, getUnitAnnotationDataFile, getUnitNamesFile, getUnitTypesFile, isCompatibleWith

Methods inherited from AromaTabularBinaryFile:

[, [<-, [[, allocate, as.character, colApply, colMeans, colStats, colSums, dimnames<-, getBytesPerColumn, getColClasses, getDefaultColumnNames, getRootName, importFrom, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, readFooter, readHeader, readRawFooter, setAttributesByTags, subset, summary, updateData, updateDataColumn, writeFooter, writeRawFooter

Methods inherited from FileCacheKeyInterface:

getCacheKey

Methods inherited from CacheKeyInterface:

getCacheKey

Methods inherited from GenericTabularFile:

[, as.character, dim, extractMatrix, head, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, tail, writeColumnsToFiles

Methods inherited from ColumnNamesInterface:

appendColumnNamesTranslator, appendColumnNamesTranslatorByNULL, appendColumnNamesTranslatorBycharacter, appendColumnNamesTranslatorByfunction, appendColumnNamesTranslatorBylist, clearColumnNamesTranslator, clearListOfColumnNamesTranslators, getColumnNames,

getColumnNamesTranslator, getDefaultColumnNames, getListOfColumnNamesTranslators, nbrOfColumns, setColumnNames, setColumnNamesTranslator, setListOfColumnNamesTranslators, updateColumnNames

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaUnitGenotypeCallSet

The AromaUnitGenotypeCallSet class

Description

Package: aroma.core

Class AromaUnitGenotypeCallSet

Object

~~|

~~+--FullNameInterface

~~~~~|

~~~~~+--GenericDataFileSet

~~~~~|

~~~~~+--GenericTabularFileSet

~~~~~|

~~~~~+--AromaTabularBinarySet

```

~~~~~|
~~~~~+--AromaUnitSignalBinarySet
~~~~~|
~~~~~+--AromaUnitCallSet
~~~~~|
~~~~~+--AromaUnitGenotypeCallSet

```

Directly known subclasses:

```

public static class AromaUnitGenotypeCallSet
extends AromaUnitCallSet

```

An `AromaUnitGenotypeCallSet` object represents a set of `AromaUnitGenotypeCallFiles` with *identical* chip types.

Usage

```
AromaUnitGenotypeCallSet(...)
```

Arguments

... Arguments passed to `AromaUnitCallSet`.

Fields and Methods

Methods:

```

byName -
extractGenotypes -

```

Methods inherited from `AromaUnitCallSet`:

`byPath`, `extractCallArray`, `extractCalls`, `extractGenotypeMatrix`, `findByName`, `findUnitsTodo`

Methods inherited from `AromaUnitSignalBinarySet`:

`byName`, `findByName`, `getAromaFullNameTranslatorSet`, `getAromaUgpFile`, `getChipType`, `getPlatform`, `validate`, `writeDataFrame`

Methods inherited from `AromaTabularBinarySet`:

`getDefaultFullName`, `getRootName`, `setAttributesBy`, `setAttributesBySampleAnnotationFile`, `setAttributesBySampleAnnotationSet`, `setAttributesByTags`

Methods inherited from `GenericTabularFileSet`:

`extractMatrix`, `calculateAverageColumnAcrossFiles`

Methods inherited from `GenericDataFileSet`:

`[]`, `[[`, `anyDuplicated`, `anyNA`, `append`, `appendFiles`, `appendFullNamesTranslator`, `appendFullNamesTranslatorByNULL`, `appendFullNamesTranslatorByTabularTextFile`, `appendFullNamesTranslatorByTabularTextFileSet`, `appendFullNamesTranslatorBydata.frame`, `appendFullNamesTranslatorBy-`

function, appendFullNamesTranslatorBylist, as.character, as.list, byName, byPath, c, clearCache, clearFullNamesTranslator, clone, copyTo, dsApply, dsApplyInPairs, duplicated, equals, extract, findByName, findDuplicated, getChecksum, getChecksumFileSet, getChecksumObjects, getDefaultFullName, getFile, getFileClass, getFileSize, getFiles, getFullNames, getNames, getOneFile, getPath, getPathnames, getSubdirs, gunzip, gzip, hasFile, indexOf, is.na, names, nbrOfFiles, rep, resetFullNames, setFullNamesTranslator, sortBy, unique, update2, updateFullName, updateFullNames, validate, getFullNameTranslatorSet, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaUnitPscnBinaryFile

The AromaUnitPscnBinaryFile class

Description

Package: aroma.core

Class AromaUnitPscnBinaryFile

Object

```

~~|
~~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFile
~~~~~|
~~~~~+--ColumnNamesInterface
~~~~~|
~~~~~+--GenericTabularFile
~~~~~|
~~~~~+--CacheKeyInterface
~~~~~|
~~~~~+--FileCacheKeyInterface

```

```

~~~~~|
~~~~~+--AromaTabularBinaryFile
~~~~~|
~~~~~+--AromaPlatformInterface
~~~~~|
~~~~~+--AromaUnitSignalBinaryFile
~~~~~|
~~~~~+--CopyNumberDataFile
~~~~~|
~~~~~+--AromaUnitPscnBinaryFile

```

Directly known subclasses:

public abstract static class **AromaUnitPscnBinaryFile**
 extends *CopyNumberDataFile*

An *AromaUnitPscnBinaryFile* is a *AromaUnitSignalBinaryFile* that holds total copy number signals (TCNs) and allele B fractions (BAFs). The TCNs can either be on an unknown scale or ratios relative to a reference. The signals are always stored on the original scale, i.e. they are never stored on the logarithmic scale. The BAFs are always on a $[0-\text{eps}, 1+\text{eps}]$ scale, where $\text{eps} \geq 0$.

Usage

```
AromaUnitPscnBinaryFile(...)
```

Arguments

... Arguments passed to *AromaUnitSignalBinaryFile*.

Fields and Methods

Methods:

```

extractRawCopyNumbers    -
hasAlleleBFractions     -
hasStrandiness          -
hasTotalCopyNumberRatios -

```

Methods inherited from *CopyNumberDataFile*:

as, as.CopyNumberDataFile, getNumberOfFilesAveraged, hasAlleleBFractions, hasStrandiness

Methods inherited from *AromaUnitSignalBinaryFile*:

allocate, allocateFromUnitAnnotationDataFile, allocateFromUnitNamesFile, as.character, extractMatrix, extractRawGenomicSignals, fromFile, getChipType, getExtensionPattern, getFilenameExtension, getNumberOfFilesAveraged, getPlatform, isAverageFile, nbrOfUnits, readDataFrame, writeDataFrame

Methods inherited from AromaPlatformInterface:

getAromaPlatform, getAromaUflFile, getAromaUgpFile, getChipType, getPlatform, getUnitAnnotationDataFile, getUnitNamesFile, getUnitTypesFile, isCompatibleWith

Methods inherited from AromaTabularBinaryFile:

[, [<-, [[, allocate, as.character, colApply, colMeans, colStats, colSums, dimnames<-, getBytesPerColumn, getColClasses, getDefaultColumnNames, getRootName, importFrom, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, readFooter, readHeader, readRawFooter, setAttributesByTags, subset, summary, updateData, updateDataColumn, writeFooter, writeRawFooter

Methods inherited from FileCacheKeyInterface:

getCacheKey

Methods inherited from CacheKeyInterface:

getCacheKey

Methods inherited from GenericTabularFile:

[, as.character, dim, extractMatrix, head, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, tail, writeColumnsToFiles

Methods inherited from ColumnNamesInterface:

appendColumnNamesTranslator, appendColumnNamesTranslatorByNULL, appendColumnNamesTranslatorBycharacter, appendColumnNamesTranslatorByfunction, appendColumnNamesTranslatorBylist, clearColumnNamesTranslator, clearListOfColumnNamesTranslators, getColumnNames, getColumnNamesTranslator, getDefaultColumnNames, getListOfColumnNamesTranslators, nbrOfColumns, setColumnNames, setColumnNamesTranslator, setListOfColumnNamesTranslators, updateColumnNames

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

 AromaUnitPscnBinarySet

The AromaUnitPscnBinarySet class

Description

Package: aroma.core

Class AromaUnitPscnBinarySet

Object

```

~|
~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFileSet
~~~~~|
~~~~~+--GenericTabularFileSet
~~~~~|
~~~~~+--AromaTabularBinarySet
~~~~~|
~~~~~+--AromaUnitSignalBinarySet
~~~~~|
~~~~~+--CopyNumberDataSet
~~~~~|
~~~~~+--AromaUnitPscnBinarySet
  
```

Directly known subclasses:

```

public static class AromaUnitPscnBinarySet
  extends CopyNumberDataSet
  
```

An AromaUnitPscnBinarySet object represents a set of [AromaUnitPscnBinaryFiles](#) with *identical* chip types.

Usage

```
AromaUnitPscnBinarySet(...)
```

Arguments

... Arguments passed to [AromaUnitSignalBinarySet](#).

Fields and Methods

Methods:

byName -
 getAverageFile -
 writeDataFrame -

Methods inherited from CopyNumberDataSet:

as, as.CopyNumberDataSet, doCBS, hasAlleleBFractions, hasStrandiness

Methods inherited from AromaUnitSignalBinarySet:

byName, findByName, getAromaFullNameTranslatorSet, getAromaUgpFile, getChipType, getPlatform, validate, writeDataFrame

Methods inherited from AromaTabularBinarySet:

getDefaultFullName, getRootName, setAttributesBy, setAttributesBySampleAnnotationFile, setAttributesBySampleAnnotationSet, setAttributesByTags

Methods inherited from GenericTabularFileSet:

extractMatrix, calculateAverageColumnAcrossFiles

Methods inherited from GenericDataFileSet:

[, [[, anyDuplicated, anyNA, append, appendFiles, appendFullNamesTranslator, appendFullNamesTranslatorByNULL, appendFullNamesTranslatorByTabularTextFile, appendFullNamesTranslatorByTabularTextFileSet, appendFullNamesTranslatorBydata.frame, appendFullNamesTranslatorByfunction, appendFullNamesTranslatorBylist, as.character, as.list, byName, byPath, c, clearCache, clearFullNamesTranslator, clone, copyTo, dsApply, dsApplyInPairs, duplicated, equals, extract, findByName, findDuplicated, getChecksum, getChecksumFileSet, getChecksumObjects, getDefaultFullName, getFile, getFileClass, getFileSize, getFiles, getFullNames, getNames, getOneFile, getPath, getPathnames, getSubdirs, gunzip, gzip, hasFile, indexOf, is.na, names, nbrOfFiles, rep, resetFullNames, setFullNamesTranslator, sortBy, unique, update2, updateFullName, updateFullNames, validate, getFullNameTranslatorSet, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaUnitSignalBinaryFile

The AromaUnitSignalBinaryFile class

Description

Package: aroma.core

Class AromaUnitSignalBinaryFile

Object

```

~~|
~~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFile
~~~~~|
~~~~~+--ColumnNamesInterface
~~~~~|
~~~~~+--GenericTabularFile
~~~~~|
~~~~~+--CacheKeyInterface
~~~~~|
~~~~~+--FileCacheKeyInterface
~~~~~|
~~~~~+--AromaTabularBinaryFile
~~~~~|
~~~~~+--AromaPlatformInterface
~~~~~|
~~~~~+--AromaUnitSignalBinaryFile

```

Directly known subclasses:

[AromaUnitCallFile](#), [AromaUnitFracBCnBinaryFile](#), [AromaUnitGenotypeCallFile](#), [AromaUnitPsc-nBinaryFile](#), [AromaUnitTotalCnBinaryFile](#), [AromaUnitTypesFile](#)

public static class **AromaUnitSignalBinaryFile**

extends [AromaPlatformInterface](#)

An AromaUnitSignalBinaryFile is a [AromaTabularBinaryFile](#).

Usage

```
AromaUnitSignalBinaryFile(...)
```

Arguments

... Arguments passed to [AromaTabularBinaryFile](#).

Fields and Methods**Methods:**

| | |
|--------------------------|--|
| extractMatrix | - |
| getChipType | - |
| getNumberOfFilesAveraged | - |
| getPlatform | - |
| isAverageFile | - |
| nbrOfUnits | - |
| readDataFrame | - |
| writeDataFrame | Writes the data file as a tab-delimited text file. |

Methods inherited from AromaPlatformInterface:

getAromaPlatform, getAromaUffFile, getAromaUgpFile, getChipType, getPlatform, getUnitAnnotationDataFile, getUnitNamesFile, getUnitTypesFile, isCompatibleWith

Methods inherited from AromaTabularBinaryFile:

[, [<-, [[, allocate, as.character, colApply, colMeans, colStats, colSums, dimnames<-, getBytesPerColumn, getColClasses, getDefaultColumnNames, getRootName, importFrom, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, readFooter, readHeader, readRawFooter, setAttributesByTags, subset, summary, updateData, updateDataColumn, writeFooter, writeRawFooter

Methods inherited from FileCacheKeyInterface:

getCacheKey

Methods inherited from CacheKeyInterface:

getCacheKey

Methods inherited from GenericTabularFile:

[, as.character, dim, extractMatrix, head, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, tail, writeColumnsToFiles

Methods inherited from ColumnNamesInterface:

appendColumnNamesTranslator, appendColumnNamesTranslatorByNULL, appendColumnNamesTranslatorBycharacter, appendColumnNamesTranslatorByfunction, appendColumnNamesTranslatorBylist, clearColumnNamesTranslator, clearListOfColumnNamesTranslators, getColumnNames, getColumnNamesTranslator, getDefaultColumnNames, getListOfColumnNamesTranslators, nbrOfColumns, setColumnNames, setColumnNamesTranslator, setListOfColumnNamesTranslators, updateColumnNames

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTab-

ularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [], [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

See Also

[AromaTabularBinaryFile](#).

AromaUnitSignalBinarySet

The AromaUnitSignalBinarySet class

Description

Package: aroma.core

Class AromaUnitSignalBinarySet

Object

```

~~|
~~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFileSet
~~~~~|
~~~~~+--GenericTabularFileSet
~~~~~|
~~~~~+--AromaTabularBinarySet
~~~~~|
~~~~~+--AromaUnitSignalBinarySet

```

Directly known subclasses:

[AromaUnitCallSet](#), [AromaUnitFracBCnBinarySet](#), [AromaUnitGenotypeCallSet](#), [AromaUnitPscnBinarySet](#), [AromaUnitTotalCnBinarySet](#)

```

public static class AromaUnitSignalBinarySet
extends AromaTabularBinarySet

```

An AromaUnitSignalBinarySet object represents a set of [AromaUnitSignalBinaryFiles](#) with *identical* chip types.

Usage

```
AromaUnitSignalBinarySet(...)
```

Arguments

... Arguments passed to [AromaTabularBinarySet](#).

Fields and Methods

Methods:

| | |
|------------------------------|---|
| <code>byName</code> | - |
| <code>getAromaUgpFile</code> | - |
| <code>getChipType</code> | - |
| <code>getPlatform</code> | - |
| <code>writeDataFrame</code> | Writes the data set as a tab-delimited text file. |

Methods inherited from [AromaTabularBinarySet](#):

`getDefaultFullName`, `getRootName`, `setAttributesBy`, `setAttributesBySampleAnnotationFile`, `setAttributesBySampleAnnotationSet`, `setAttributesByTags`

Methods inherited from [GenericTabularFileSet](#):

`extractMatrix`, `calculateAverageColumnAcrossFiles`

Methods inherited from [GenericDataFileSet](#):

`[`, `[[`, `anyDuplicated`, `anyNA`, `append`, `appendFiles`, `appendFullNamesTranslator`, `appendFullNamesTranslatorByNULL`, `appendFullNamesTranslatorByTabularTextFile`, `appendFullNamesTranslatorByTabularTextFileSet`, `appendFullNamesTranslatorBydata.frame`, `appendFullNamesTranslatorByfunction`, `appendFullNamesTranslatorBylist`, `as.character`, `as.list`, `byName`, `byPath`, `c`, `clearCache`, `clearFullNamesTranslator`, `clone`, `copyTo`, `dsApply`, `dsApplyInPairs`, `duplicated`, `equals`, `extract`, `findByName`, `findDuplicated`, `getChecksum`, `getChecksumFileSet`, `getChecksumObjects`, `getDefaultFullName`, `getFile`, `getFileClass`, `getFileSize`, `getFiles`, `getFullNames`, `getNames`, `getOneFile`, `getPath`, `getPathnames`, `getSubdirs`, `gunzip`, `gzip`, `hasFile`, `indexOf`, `is.na`, `names`, `nbrOfFiles`, `rep`, `resetFullNames`, `setFullNamesTranslator`, `sortBy`, `unique`, `update2`, `updateFullName`, `updateFullNames`, `validate`, `getFullNameTranslatorSet`, `getParentName`

Methods inherited from [FullNameInterface](#):

`appendFullNameTranslator`, `appendFullNameTranslatorByNULL`, `appendFullNameTranslatorByTabularTextFile`, `appendFullNameTranslatorByTabularTextFileSet`, `appendFullNameTranslatorBycharacter`, `appendFullNameTranslatorBydata.frame`, `appendFullNameTranslatorByfunction`, `appendFullNameTranslatorBylist`, `clearFullNameTranslator`, `clearListOfFullNameTranslators`, `getDefaultFullName`, `getFullName`, `getFullNameTranslator`, `getListOfFullNameTranslators`, `getName`, `getTags`, `hasTag`, `hasTags`, `resetFullName`, `setFullName`, `setFullNameTranslator`, `setListOfFullNameTranslators`, `setName`, `setTags`, `updateFullName`

Methods inherited from [Object](#):

\$, \$<-, [], [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaUnitTabularBinaryFile

The AromaUnitTabularBinaryFile class

Description

Package: aroma.core

Class AromaUnitTabularBinaryFile

Object

~~|

~~+--FullNameInterface

~~~~~|

~~~~~+--GenericDataFile

~~~~~|

~~~~~+--ColumnNamesInterface

~~~~~|

~~~~~+--GenericTabularFile

~~~~~|

~~~~~+--CacheKeyInterface

~~~~~|

~~~~~+--FileCacheKeyInterface

~~~~~|

~~~~~+--AromaTabularBinaryFile

~~~~~|

~~~~~+--AromaPlatformInterface

~~~~~|

~~~~~+--AromaMicroarrayTabularBinaryFile

~~~~~|

~~~~~+--UnitAnnotationDataFile

~~~~~|

~~~~~+--AromaUnitTabularBinaryFile

Directly known subclasses:

[AromaUfiFile](#), [AromaUgcFile](#), [AromaUgpFile](#), [AromaUnitChromosomeTabularBinaryFile](#), [AromaUnitGcContentFile](#)

```
public abstract static class AromaUnitTabularBinaryFile
  extends UnitAnnotationDataFile
```

A `AromaUnitTabularBinaryFile` is an `AromaTabularBinaryFile` with the constraint that the rows map one-to-one to, and in the same order as, the units in a annotation chip type file (e.g. CDF file). The (full) chip type of the annotation chip type file is given by the mandatory file footer `chipType`.

Usage

```
AromaUnitTabularBinaryFile(...)
```

Arguments

```
... Arguments passed to AromaTabularBinaryFile.
```

Fields and Methods

Methods:

```
byChipType -
nbrOfUnits -
writeDataFrame Writes the data file as a tab-delimited text file.
```

Methods inherited from `UnitAnnotationDataFile`:

```
byChipType, getAromaUflFile, getAromaUgpFile, getChipType, getDefaultExtension, getPlatform,
nbrOfUnits
```

Methods inherited from `AromaMicroarrayTabularBinaryFile`:

```
allocate, as.character, byChipType, findByChipType, getChipType, getFilenameExtension, getPlatform
```

Methods inherited from `AromaPlatformInterface`:

```
getAromaPlatform, getAromaUflFile, getAromaUgpFile, getChipType, getPlatform, getUnitAnnotationDataFile,
getUnitNamesFile, getUnitTypesFile, isCompatibleWith
```

Methods inherited from `AromaTabularBinaryFile`:

```
[, [<-, [[, allocate, as.character, colApply, colMeans, colStats, colSums, dimnames<-, getBytesPerColumn,
getColClasses, getDefaultColumnNames, getRootName, importFrom, nbrOfColumns, nbrOfRows, readColumns,
readDataFrame, readFooter, readHeader, readRawFooter, setAttributesByTags, subset, summary, updateData,
updateDataColumn, writeFooter, writeRawFooter
```

Methods inherited from `FileCacheKeyInterface`:

```
getCacheKey
```

Methods inherited from `CacheKeyInterface`:

```
getCacheKey
```

Methods inherited from `GenericTabularFile`:

```
[, as.character, dim, extractMatrix, head, nbrOfColumns, nbrOfRows, readColumns, readDataFrame,
tail, writeColumnsToFiles
```

Methods inherited from ColumnNamesInterface:

appendColumnNamesTranslator, appendColumnNamesTranslatorByNULL, appendColumnNamesTranslatorBycharacter, appendColumnNamesTranslatorByfunction, appendColumnNamesTranslatorBylist, clearColumnNamesTranslator, clearListOfColumnNamesTranslators, getColumnNames, getColumnNamesTranslator, getDefaultColumnNames, getListOfColumnNamesTranslators, nbrOfColumns, setColumnNames, setColumnNamesTranslator, setListOfColumnNamesTranslators, updateColumnNames

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaUnitTotalCnBinaryFile

The AromaUnitTotalCnBinaryFile class

Description

Package: aroma.core

Class AromaUnitTotalCnBinaryFile

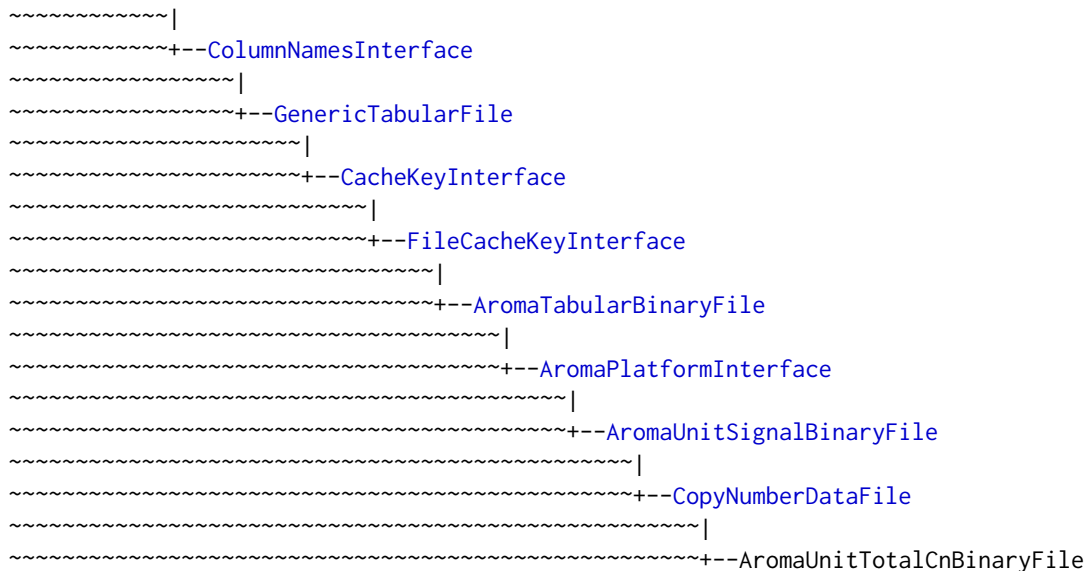
Object

~~|

~~+--FullNameInterface

~~~~~|

~~~~~+--GenericDataFile



Directly known subclasses:

public abstract static class **AromaUnitTotalCnBinaryFile**
 extends *CopyNumberDataFile*

An AromaUnitTotalCnBinaryFile is a *AromaUnitSignalBinaryFile*.

Usage

AromaUnitTotalCnBinaryFile(...)

Arguments

... Arguments passed to *AromaUnitSignalBinaryFile*.

Fields and Methods

Methods:

- extractPSCNArray -
- extractPSCNMatrix -
- extractRawCopyNumbers -
- getAM -
- hasAlleleBFractions -
- hasStrandiness -

Methods inherited from CopyNumberDataFile:

as, as.CopyNumberDataFile, getNumberOfFilesAveraged, hasAlleleBFractions, hasStrandiness

Methods inherited from AromaUnitSignalBinaryFile:

allocate, allocateFromUnitAnnotationDataFile, allocateFromUnitNamesFile, as.character, extractMatrix, extractRawGenomicSignals, fromFile, getChipType, getExtensionPattern, getFilenameExtension, getNumberOfFilesAveraged, getPlatform, isAverageFile, nbrOfUnits, readDataFrame, writeDataFrame

Methods inherited from AromaPlatformInterface:

getAromaPlatform, getAromaUflFile, getAromaUgpFile, getChipType, getPlatform, getUnitAnnotationDataFile, getUnitNamesFile, getUnitTypesFile, isCompatibleWith

Methods inherited from AromaTabularBinaryFile:

[, [<-, [[, allocate, as.character, colApply, colMeans, colStats, colSums, dimnames<-, getBytesPerColumn, getColClasses, getDefaultColumnNames, getRootName, importFrom, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, readFooter, readHeader, readRawFooter, setAttributesByTags, subset, summary, updateData, updateDataColumn, writeFooter, writeRawFooter

Methods inherited from FileCacheKeyInterface:

getCacheKey

Methods inherited from CacheKeyInterface:

getCacheKey

Methods inherited from GenericTabularFile:

[, as.character, dim, extractMatrix, head, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, tail, writeColumnsToFiles

Methods inherited from ColumnNamesInterface:

appendColumnNamesTranslator, appendColumnNamesTranslatorByNULL, appendColumnNamesTranslatorBycharacter, appendColumnNamesTranslatorByfunction, appendColumnNamesTranslatorBylist, clearColumnNamesTranslator, clearListOfColumnNamesTranslators, getColumnNames, getColumnNamesTranslator, getDefaultColumnNames, getListOfColumnNamesTranslators, nbrOfColumns, setColumnNames, setColumnNamesTranslator, setListOfColumnNamesTranslators, updateColumnNames

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [], [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaUnitTotalCnBinarySet

The AromaUnitTotalCnBinarySet class

Description

Package: aroma.core

Class AromaUnitTotalCnBinarySet**Object**

```

~~|
~~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFileSet
~~~~~|
~~~~~+--GenericTabularFileSet
~~~~~|
~~~~~+--AromaTabularBinarySet
~~~~~|
~~~~~+--AromaUnitSignalBinarySet
~~~~~|
~~~~~+--CopyNumberDataSet
~~~~~|
~~~~~+--AromaUnitTotalCnBinarySet

```

Directly known subclasses:

```

public static class AromaUnitTotalCnBinarySet
extends CopyNumberDataSet

```

An AromaUnitTotalCnBinarySet object represents a set of [AromaUnitTotalCnBinaryFiles](#) with *identical* chip types.

Usage

```

AromaUnitTotalCnBinarySet(...)

```

Arguments

... Arguments passed to [AromaUnitSignalBinarySet](#).

Fields and Methods**Methods:**

```

as.AromaUnitTotalCnBinarySetTuple -
as.CopyNumberDataSetTuple        -
byName                             -
exportAromaUnitPscnBinarySet      -
exportTotalCnRatioSet             -
extractPSCNArray                  -
getAverageFile                     -
getUnitNamesFile                  -
writeDataFrame                     -

```

Methods inherited from CopyNumberDataSet:

as, as.CopyNumberDataSet, doCBS, hasAlleleBFractions, hasStrandiness

Methods inherited from AromaUnitSignalBinarySet:

byName, findByName, getAromaFullNameTranslatorSet, getAromaUgpFile, getChipType, getPlatform, validate, writeDataFrame

Methods inherited from AromaTabularBinarySet:

getDefaultFullName, getRootName, setAttributesBy, setAttributesBySampleAnnotationFile, setAttributesBySampleAnnotationSet, setAttributesByTags

Methods inherited from GenericTabularFileSet:

extractMatrix, calculateAverageColumnAcrossFiles

Methods inherited from GenericDataFileSet:

[, [[, anyDuplicated, anyNA, append, appendFiles, appendFullNamesTranslator, appendFullNamesTranslatorByNULL, appendFullNamesTranslatorByTabularTextFile, appendFullNamesTranslatorByTabularTextFileSet, appendFullNamesTranslatorBydata.frame, appendFullNamesTranslatorByfunction, appendFullNamesTranslatorBylist, as.character, as.list, byName, byPath, c, clearCache, clearFullNamesTranslator, clone, copyTo, dsApply, dsApplyInPairs, duplicated, equals, extract, findByName, findDuplicated, getChecksum, getChecksumFileSet, getChecksumObjects, getDefaultFullName, getFile, getFileClass, getFileSize, getFiles, getFullNames, getNames, getOneFile, getPath, getPathnames, getSubdirs, gunzip, gzip, hasFile, indexOf, is.na, names, nbrOfFiles, rep, resetFullNames, setFullNamesTranslator, sortBy, unique, update2, updateFullName, updateFullNames, validate, getFullNameTranslatorSet, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags,

hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [], [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

AromaUnitTypesFile *The AromaUnitTypesFile class*

Description

Package: aroma.core

Class AromaUnitTypesFile

Object

```

~~|
~~+--FullNameInterface
~~~~~|
~~~~~+--GenericDataFile
~~~~~|
~~~~~+--ColumnNamesInterface
~~~~~|
~~~~~+--GenericTabularFile
~~~~~|
~~~~~+--CacheKeyInterface
~~~~~|
~~~~~+--FileCacheKeyInterface
~~~~~|
~~~~~+--AromaTabularBinaryFile
~~~~~|
~~~~~+--AromaPlatformInterface
~~~~~|
~~~~~+--AromaUnitSignalBinaryFile
~~~~~|
~~~~~+--UnitAnnotationDataFile
~~~~~|
~~~~~+--UnitTypesFile
~~~~~|
~~~~~+--AromaUnitTypesFile

```

Directly known subclasses:

public static class **AromaUnitTypesFile**
 extends *UnitTypesFile*

Usage

AromaUnitTypesFile(...)

Arguments

... Arguments passed to [AromaUnitTabularBinaryFile](#).

Fields and Methods**Methods:**

| | |
|-------------------------|---|
| getChipType | - |
| getPlatform | - |
| getUnitTypes | - |
| importFromUnitTypesFile | - |

Methods inherited from UnitTypesFile:

getUnitTypes, nbrOfUnits

Methods inherited from UnitAnnotationDataFile:

byChipType, getAromaUflFile, getAromaUgpFile, getChipType, getDefaultExtension, getPlatform, nbrOfUnits

Methods inherited from AromaUnitSignalBinaryFile:

allocate, allocateFromUnitAnnotationDataFile, allocateFromUnitNamesFile, as.character, extractMatrix, extractRawGenomicSignals, fromFile, getChipType, getExtensionPattern, getFilenameExtension, getNumberOfFilesAveraged, getPlatform, isAverageFile, nbrOfUnits, readDataFrame, writeDataFrame

Methods inherited from AromaPlatformInterface:

getAromaPlatform, getAromaUflFile, getAromaUgpFile, getChipType, getPlatform, getUnitAnnotationDataFile, getUnitNamesFile, getUnitTypesFile, isCompatibleWith

Methods inherited from AromaTabularBinaryFile:

[, [<-, [[, allocate, as.character, colApply, colMeans, colStats, colSums, dimnames<-, getBytesPerColumn, getColClasses, getDefaultColumnNames, getRootName, importFrom, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, readFooter, readHeader, readRawFooter, setAttributesByTags, subset, summary, updateData, updateDataColumn, writeFooter, writeRawFooter

Methods inherited from FileCacheKeyInterface:

getCacheKey

Methods inherited from CacheKeyInterface:

getCacheKey

Methods inherited from GenericTabularFile:

[, as.character, dim, extractMatrix, head, nbrOfColumns, nbrOfRows, readColumns, readDataFrame, tail, writeColumnsToFiles

Methods inherited from ColumnNamesInterface:

appendColumnNamesTranslator, appendColumnNamesTranslatorByNULL, appendColumnNamesTranslatorBycharacter, appendColumnNamesTranslatorByfunction, appendColumnNamesTranslatorBylist, clearColumnNamesTranslator, clearListOfColumnNamesTranslators, getColumnNames, getColumnNamesTranslator, getDefaultColumnNames, getListOfColumnNamesTranslators, nbrOfColumns, setColumnNames, setColumnNamesTranslator, setListOfColumnNamesTranslators, updateColumnNames

Methods inherited from GenericDataFile:

as.character, clone, compareChecksum, copyTo, equals, fromFile, getAttribute, getAttributes, getChecksum, getChecksumFile, getCreatedOn, getDefaultFullName, getExtension, getExtensionPattern, getFileSize, getFileType, getFilename, getFilenameExtension, getLastAccessedOn, getLastModifiedOn, getOutputExtension, getPath, getPathname, gunzip, gzip, hasBeenModified, is.na, isFile, isGzipped, linkTo, readChecksum, renameTo, renameToUpperCaseExt, setAttribute, setAttributes, setAttributesBy, setAttributesByTags, setExtensionPattern, testAttributes, validate, validateChecksum, writeChecksum, getParentName

Methods inherited from FullNameInterface:

appendFullNameTranslator, appendFullNameTranslatorByNULL, appendFullNameTranslatorByTabularTextFile, appendFullNameTranslatorByTabularTextFileSet, appendFullNameTranslatorBycharacter, appendFullNameTranslatorBydata.frame, appendFullNameTranslatorByfunction, appendFullNameTranslatorBylist, clearFullNameTranslator, clearListOfFullNameTranslators, getDefaultFullName, getFullName, getFullNameTranslator, getListOfFullNameTranslators, getName, getTags, hasTag, hasTags, resetFullName, setFullName, setFullNameTranslator, setListOfFullNameTranslators, setName, setTags, updateFullName

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

BinnedScatter*The BinnedScatter class*

Description

Package: aroma.core

Class BinnedScatter

```
list
~~|
~~+--BinnedScatter
```

Directly known subclasses:

```
public class BinnedScatter
extends list
```

Usage

```
BinnedScatter(data=NULL, density=NULL, map=NULL, params=NULL)
```

Arguments

| | |
|---------|---|
| data | A Nx2 @numeric matrix . |
| density | ... |
| map | ... |
| params | A list of parameters. |
| ... | Not used. |

Fields and Methods

Methods:

| | |
|-----------|---|
| plot | - |
| points | - |
| reorder | - |
| subsample | - |
| subset | - |

Methods inherited from list:

all.equal, as.CopyNumberDataSetTuple, as.data.frame, attachLocally, callHooks, exportAromaUnitPscnBinarySet, listToXml, mergeBoxplotStats, relist, within

Author(s)

Henrik Bengtsson

See Also

The spatial density is estimated by internal functions of the **smoothScatter** package.

Examples

```

# Sample scatter data
n <- 10e3
x <- rnorm(n=n)
y <- rnorm(n=n)
xy <- cbind(x=x, y=sin(x)+y/5)

# Bin data and estimate densities
xyd <- binScatter(xy)

layout(matrix(1:4, nrow=2))
par(mar=c(5,4,2,1))

# Plot data
plot(xyd, pch=1)

# Thin scatter data by subsampling
rhos <- c(1/3, 1/4, 1/6)
for (kk in seq_along(rhos)) {
  xyd2 <- subsample(xyd, size=rhos[kk])
  points(xyd2, pch=1, col=kk+1)
}

for (kk in seq_along(rhos)) {
  xyd2 <- subsample(xyd, size=rhos[kk])
  plot(xyd2, pch=1, col=kk+1)
  mtext(side=3, line=0, sprintf("Density: %.1f%%", 100*rhos[kk]))
}

```

CbsModel

*The CbsModel class***Description**

Package: aroma.core

Class CbsModel**Object**

```

~~|
~~+--ChromosomalModel
~~~~~|
~~~~~+--CopyNumberChromosomalModel
~~~~~|
~~~~~+--CopyNumberSegmentationModel
~~~~~|
~~~~~+--CbsModel

```

Directly known subclasses:

public static class **CbsModel**
 extends *CopyNumberSegmentationModel*

This class represents the Circular Binary Segmentation (CBS) model [1].

Usage

```
CbsModel(cesTuple=NULL, ..., seed=NULL)
```

Arguments

| | |
|----------|---|
| cesTuple | A <i>CopyNumberDataSetTuple</i> . |
| ... | Arguments passed to the constructor of <i>CopyNumberSegmentationModel</i> . |
| seed | An (optional) <i>integer</i> that if specified will (temporarily) set the random seed each time before calling the segmentation method. For more information, see <i>segmentByCBS()</i> . |

Fields and Methods**Methods:**

No methods defined.

Methods inherited from CopyNumberSegmentationModel:

fit, getAsteriskTags, getFitFunction, getFullNames, getRegions, getTags, plot, plotCopyNumberRegionLayers, writeRegions

Methods inherited from CopyNumberChromosomalModel:

as.character, calculateChromosomeStatistics, calculateRatios, estimateSds, extractRawCopyNumbers, fit, getChromosomeLength, getDataFileMatrix, getMaxNAFraction, getNames, getOptionalArguments, getPairedNames, getRefSetTuple, getReference, getReferenceSetTuple, isPaired, newPlot, plotAxesLayers, plotChromosomesLayers, plotCytobandLayers, plotFitLayers, plotGridHorizontalLayers, plotRawCopyNumbers, plotSampleLayers, setReference

Methods inherited from ChromosomalModel:

as.character, fit, getAlias, getAromaGenomeTextFile, getAsteriskTags, getChipType, getChipTypes, getChromosomes, getFullName, getFullNames, getGenome, getGenomeData, getGenomeFile, getListOfAromaUgpFiles, getName, getNames, getParentPath, getPath, getReportPath, getRootPath, getSetTuple, getSets, getTags, indexOf, nbrOfArrays, nbrOfChipTypes, setChromosomes, setGenome

Methods inherited from Object:

\$, \$<-, [, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Author(s)

Henrik Bengtsson

References

- [1] Olshen, A. B., Venkatraman, E. S., Lucito, R., Wigler, M. *Circular binary segmentation for the analysis of array-based DNA copy number data*. *Biostatistics* 5: 557-572, 2004.
- [2] Venkatraman, E. S. & Olshen, A. B. *A faster circular binary segmentation algorithm for the analysis of array CGH data*. *Bioinformatics*, 2007.

See Also

[CopyNumberSegmentationModel](#).

ChromosomalModel *The ChromosomalModel class*

Description

Package: aroma.core

Class ChromosomalModel**Object**

~~|

~~+--ChromosomalModel

Directly known subclasses:

[CbsModel](#), [CopyNumberChromosomalModel](#), [CopyNumberSegmentationModel](#), [GladModel](#), [HaarSegmentationModel](#), [RawCopyNumberModel](#)

public abstract static class **ChromosomalModel**
 extends [Object](#)

This *abstract* class represents a chromosomal model.

Usage

```
ChromosomalModel(cesTuple=NULL, tags="*", genome="Human", chromosomes=NULL, ...)
```

Arguments

| | |
|-------------|--|
| cesTuple | A AromaMicroarrayDataSetTuple . |
| tags | A character vector of tags. |
| genome | A character string specifying what genome is process. |
| chromosomes | (optional) A vector specifying which chromosomes to process. |
| ... | Not used. |

Fields and Methods**Methods:**

| | |
|--------------------------------|---|
| fit | - |
| getChipType | Gets a label for all chip types merged. |
| getChipTypes | - |
| getChromosomes | Gets the chromosomes to be processed. |
| getFullName | - |
| getFullNames | - |
| getGenome | - |
| getName | - |
| getNames | Gets the names of the arrays. |
| getPath | - |
| getSets | - |
| getTags | - |
| indexOf | - |
| nbrOfArrays | Gets the number of arrays. |
| nbrOfChipTypes | Gets the number of chip types. |
| setChromosomes | - |
| setGenome | - |

Methods inherited from Object:

\$, \$<-, [], [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Requirements

This class requires genome information annotation files for every chip type.

Author(s)

Henrik Bengtsson

ChromosomeExplorer *The ChromosomeExplorer class*

Description

Package: aroma.core

Class ChromosomeExplorer

[Object](#)

~~|

```

~~+--Explorer
~~~~~|
~~~~~+--ChromosomeExplorer

```

Directly known subclasses:

```

public static class ChromosomeExplorer
extends Explorer

```

Usage

```
ChromosomeExplorer(model=NULL, zooms=2^(0:6), ...)
```

Arguments

| | |
|-------|---|
| model | A CopyNumberChromosomalModel object. |
| zooms | An positive integer vector specifying for which zoom levels the graphics should be generated. |
| ... | Not used. |

Fields and Methods

Methods:

| | |
|--------------------------------|--|
| display | - |
| getChromosomes | Gets the chromosomes available. |
| getFullNames | - |
| getModel | Gets the model. |
| getNames | - |
| getPath | - |
| getZooms | - |
| indexOf | - |
| process | Generates image files, scripts and dynamic pages for the explorer. |
| setArrays | Sets the arrays. |
| setCytoband | - |
| setZooms | - |

Methods inherited from Explorer:

addIncludes, addIndexFile, as.character, display, getAlias, getArrayOfInput, getAsteriskTags, getFullName, getIncludePath, getMainPath, getName, getNameOfInput, getNames, getPath, getReportPathPattern, getRootPath, getSampleLayerPrefix, getSubname, getTags, getTagsOfInput, getTemplatePath, getVersion, nbrOfArrays, process, setAlias, setArrays, setReportPathPattern, setSubname, setup, splitByReportPathPattern, updateSetupExplorerFile

Methods inherited from Object:

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

Generating PNG images

In order to get better looking graphs, but also to be able to generate bitmap images on systems without direct bitmap support, which is the case when running R in batch mode or on Unix without X11 support, images are created using the [png2](#) device (a wrapper for `bitmap()` imitating `png()`). The `png()` is only used if `png2()`, which requires Ghostscript, does not. Note, when images are created using `png2()`, the images does not appear immediately, although the function call is completed, so be patient.

Author(s)

Henrik Bengtsson

See Also

[CopyNumberChromosomalModel](#).

colBinnedSmoothing.matrix

Binned smoothing of a matrix column by column

Description

Binned smoothing of a matrix column by column.

Usage

```
## S3 method for class 'matrix'
colBinnedSmoothing(Y, x=seq_len(nrow(Y)), w=NULL, xOut=NULL, xOutRange=NULL,
  from=min(x, na.rm = TRUE), to=max(x, na.rm = TRUE), by=NULL, length.out=length(x),
  na.rm=TRUE, FUN="median", ..., verbose=FALSE)
```

Arguments

| | |
|-----------|---|
| Y | A numeric JxI matrix (or a vector of length J.) |
| x | A (optional) numeric vector specifying the positions of the J entries. The default is to assume uniformly distributed positions. |
| w | A optional numeric vector of prior weights for each of the J entries. |
| xOut | Optional numeric vector of K bin center locations. |
| xOutRange | Optional Kx2 matrix specifying the boundary locations for K bins, where each row represents a bin $[x_0, x_1)$. If not specified, the boundaries are set to be the midpoints of the bin centers, such that the bins have maximum lengths without overlapping. Vice versa, if xOut is not specified, then xOut is set to be the mid points of the xOutRange boundaries. |

| | |
|--------------------------|---|
| from, to, by, length.out | If neither xOut nor xOutRange is specified, the xOut is generated uniformly from these arguments, which specify the center location of the first and the last bin, and the distance between the center locations, utilizing the seq() function. Argument length.out can be used as an alternative to by, in case it specifies the total number of bins instead. |
| FUN | A function . |
| na.rm | If TRUE , missing values are excluded, otherwise not. |
| ... | Not used. |
| verbose | See Verbose . |

Details

Note that all zero-length bins $[x_0, x_1)$ will get result in an [NA](#) value, because such bins contain no data points. This also means that `colBinnedSmoothing(Y, x=x, xOut=xOut)` where xOut contains duplicated values, will result in some zero-length bins and hence [NA](#) values.

Value

Returns a [numeric](#) $K \times I$ [matrix](#) (or a [vector](#) of length K) where K is the total number of bins. The following attributes are also returned:

- xOutThe center locations of each bin.
- xOutRangeThe bin boundaries.
- countThe number of data points within each bin (based solely on argument x).
- binWidthThe *average* bin width.

Author(s)

Henrik Bengtsson

See Also

[*colKernelSmoothing\(\)](#).

Examples

```
# Number of tracks
I <- 4

# Number of data points per track
J <- 100

# Simulate data with a gain in track 2 and 3
x <- 1:J
Y <- matrix(rnorm(I*J, sd=1/2), ncol=I)
Y[30:50,2:3] <- Y[30:50,2:3] + 3

# Uniformly distributed equal-sized bins
```

```

Ys3 <- colBinnedSmoothing(Y, x=x, from=2, by=3)
Ys5 <- colBinnedSmoothing(Y, x=x, from=3, by=5)

# Custom bins
xOutRange <- t(matrix(c(
  1, 11,
  11, 31,
  31, 41,
  41, 51,
  51, 81,
  81, 91,
  91,101
), nrow=2))
YsC <- colBinnedSmoothing(Y, x=x, xOutRange=xOutRange)

# Custom bins specified by center locations with
# maximized width relative to the neighboring bins.
xOut <- c(6, 21, 36, 46, 66, 86, 96)
YsD <- colBinnedSmoothing(Y, x=x, xOut=xOut)

xlim <- range(x)
ylim <- c(-3,5)
layout(matrix(1:I, ncol=1))
par(mar=c(3,3,1,1)+0.1, pch=19)
for (ii in 1:I) {
  plot(NA, xlim=xlim, ylim=ylim)
  points(x, Y[,ii], col="#999999")

  xOut <- attr(Ys3, "xOut")
  lines(xOut, Ys3[,ii], col=2)
  points(xOut, Ys3[,ii], col=2)

  xOut <- attr(Ys5, "xOut")
  lines(xOut, Ys5[,ii], col=3)
  points(xOut, Ys5[,ii], col=3)

  xOut <- attr(YsC, "xOut")
  lines(xOut, YsC[,ii], col=4)
  points(xOut, YsC[,ii], col=4, pch=15)

  xOut <- attr(YsD, "xOut")
  lines(xOut, YsD[,ii], col=5)
  points(xOut, YsD[,ii], col=5, pch=15)

  if (ii == 1) {
    legend("topright", pch=c(19,19,15,15), col=c(2,3,4,5),
          c("by=3", "by=5", "Custom #1", "Custom #2"), horiz=TRUE, bty="n")
  }
}

# Sanity checks
xOut <- x

```

```

YsT <- colBinnedSmoothing(Y, x=x, xOut=xOut)
stopifnot(all(YsT == Y))
stopifnot(all(attr(YsT, "counts") == 1))

xOut <- attr(YsD, "xOut")
YsE <- colBinnedSmoothing(YsD, x=xOut, xOut=xOut)
stopifnot(all(YsE == YsD))
stopifnot(all(attr(YsE, "xOutRange") == attr(YsD, "xOutRange")))
stopifnot(all(attr(YsE, "counts") == 1))

# Scramble ordering of loci
idxs <- sample(x)
x2 <- x[idxs]
Y2 <- Y[idxs,,drop=FALSE]
Y2s <- colBinnedSmoothing(Y2, x=x2, xOut=x2)
stopifnot(all(attr(Y2s, "xOut") == x2))
stopifnot(all(attr(Y2s, "counts") == 1))
stopifnot(all(Y2s == Y2))

xOut <- x[seq(from=2, to=J, by=3)]
YsT <- colBinnedSmoothing(Y, x=x, xOut=xOut)
stopifnot(all(YsT == Ys3))
stopifnot(all(attr(YsT, "counts") == 3))

xOut <- x[seq(from=3, to=J, by=5)]
YsT <- colBinnedSmoothing(Y, x=x, xOut=xOut)
stopifnot(all(YsT == Ys5))
stopifnot(all(attr(YsT, "counts") == 5))

```

colKernelSmoothing.matrix

Kernel smoothing of a matrix column by column

Description

Kernel smoothing of a matrix column by column.

Usage

```

## S3 method for class 'matrix'
colKernelSmoothing(Y, x=seq_len(nrow(Y)), w=NULL, xOut=x,
  kernel=c("gaussian", "uniform"), h, censorH=3, na.rm=TRUE, robust=FALSE, ...,
  verbose=FALSE)

```

Arguments

Y A **numeric JxI matrix** (or a **vector** of length J.)

x A (optional) **numeric vector** specifying the positions of the J entries. The default is to assume uniformly distributed positions.

| | |
|---------|--|
| w | A optional numeric vector of prior weights for each of the J entries. |
| xOut | A numeric vector specifying K target positions where the kernel is applied. |
| kernel | A character string or a function specifying the kernel used. |
| h | A single positive numeric specifying the bandwidth of the kernel. |
| sensorH | A single positive numeric specifying the where to truncate the kernel. If Inf , no truncation is done. |
| na.rm | If TRUE , missing values are excluded, otherwise not. |
| robust | If TRUE , robust estimators are used, otherwise not. |
| ... | Not used. |
| verbose | See Verbose . |

Value

Returns a [numeric](#) KxI [matrix](#) (or a [vector](#) of length K).

Author(s)

Henrik Bengtsson

See Also

[*colBinnedSmoothing\(\)](#).

Examples

```
J <- 100
I <- 4
Y <- matrix(rnorm(I*J, sd=1/2), ncol=I)
# Introduce a gain in column 2 and 3
Y[30:50,2:3] <- Y[30:50,2:3] + 3
x <- 1:J

xOut <- x
Ys1 <- colKernelSmoothing(Y, x=x, xOut=xOut, kernel="gaussian", h=1)
Ys5 <- colKernelSmoothing(Y, x=x, xOut=xOut, kernel="gaussian", h=5)

xlim <- range(c(x,xOut))
ylim <- c(-3,5)
layout(matrix(1:I, ncol=1))
par(mar=c(3,3,1,1)+0.1, pch=19)
for (ii in 1:I) {
  plot(NA, xlim=xlim, ylim=ylim)
  points(x, Y[,ii], col="#999999")
  lines(xOut, Ys1[,ii], col=2)
  points(xOut, Ys1[,ii], col=2)
  lines(xOut, Ys5[,ii], col=3)
  points(xOut, Ys5[,ii], col=3)
}
```

CopyNumberChromosomalModel

The CopyNumberChromosomalModel class

Description

Package: aroma.core

Class CopyNumberChromosomalModel

Object

~~|

~~+--ChromosomalModel

~~~~~|

~~~~~+--CopyNumberChromosomalModel

Directly known subclasses:

[CbsModel](#), [CopyNumberSegmentationModel](#), [GladModel](#), [HaarSegModel](#), [RawCopyNumberModel](#)

public abstract static class **CopyNumberChromosomalModel**

extends [ChromosomalModel](#)

This *abstract* class represents a copy-number model.

Usage

```
CopyNumberChromosomalModel(cesTuple=NULL, refTuple=NULL, calculateRatios=TRUE, tags="*",
  genome="Human", chromosomes=NULL, maxNAFraction=1/5, ...)
```

Arguments

| | |
|-----------------|--|
| cesTuple | A CopyNumberDataSetTuple . |
| refTuple | An optional CopyNumberDataFile , or CopyNumberDataSet or CopyNumberDataSetTuple for pairwise comparisons. |
| calculateRatios | A logical specifying whether ratios should be calculated relative to the reference. If FALSE , argument refTuple is ignored. |
| tags | A character vector of tags. |
| genome | A character string specifying what genome is process. |
| chromosomes | (optional) A vector specifying which chromosomes to process. |
| maxNAFraction | A double in [0,1] indicating how many non-finite signals are allowed in the sanity checks of the data. |
| ... | Optional arguments that may be used by some of the subclass models. |

Fields and Methods**Methods:**

| | |
|------------------------------------|---------------------------------|
| <code>extractRawCopyNumbers</code> | Extracts relative copy numbers. |
| <code>fit</code> | Fits the model. |
| <code>getChromosomeLength</code> | - |
| <code>getNames</code> | - |
| <code>getReference</code> | - |
| <code>isPaired</code> | - |

Methods inherited from ChromosomalModel:

`as.character`, `fit`, `getAlias`, `getAromaGenomeTextFile`, `getAsteriskTags`, `getChipType`, `getChipTypes`, `getChromosomes`, `getFullName`, `getFullNames`, `getGenome`, `getGenomeData`, `getGenomeFile`, `getListOfAromaUgpFiles`, `getName`, `getNames`, `getParentPath`, `getPath`, `getReportPath`, `getRootPath`, `getSetTuple`, `getSets`, `getTags`, `indexOf`, `nbrOfArrays`, `nbrOfChipTypes`, `setChromosomes`, `setGenome`

Methods inherited from Object:

`$`, `$<-`, `[]`, `[[<-`, `as.character`, `attach`, `attachLocally`, `clearCache`, `clearLookupCache`, `clone`, `detach`, `equals`, `extend`, `finalize`, `getEnvironment`, `getFieldModifier`, `getFieldModifiers`, `getFields`, `getInstantiationTime`, `getStaticInstance`, `hasField`, `hashCode`, `ll`, `load`, `names`, `objectSize`, `print`, `save`, `asThis`

Requirements

This class requires genome information annotation files for every chip type.

Author(s)

Henrik Bengtsson

CopyNumberSegmentationModel

The CopyNumberSegmentationModel class

Description

Package: aroma.core

Class CopyNumberSegmentationModel

Object

~~|

~~+--ChromosomalModel

~~~~~|

~~~~~+--CopyNumberChromosomalModel

~~~~~|

```
~~~~~+---CopyNumberSegmentationModel
```

**Directly known subclasses:**

[CbsModel](#), [GladModel](#), [HaarSegModel](#)

```
public abstract static class CopyNumberSegmentationModel
 extends CopyNumberChromosomalModel
```

This *abstract* class represents a copy-number segmentation model.

**Usage**

```
CopyNumberSegmentationModel(...)
```

**Arguments**

... Arguments passed to constructor [CopyNumberChromosomalModel](#).

**Fields and Methods****Methods:**

|                              |                 |
|------------------------------|-----------------|
| <a href="#">fit</a>          | Fits the model. |
| <a href="#">getFullNames</a> | -               |
| <a href="#">getRegions</a>   | -               |
| <a href="#">getTags</a>      | -               |
| <a href="#">plot</a>         | -               |
| <a href="#">writeRegions</a> | -               |

**Methods inherited from CopyNumberChromosomalModel:**

[as.character](#), [calculateChromosomeStatistics](#), [calculateRatios](#), [estimateSds](#), [extractRawCopyNumbers](#), [fit](#), [getChromosomeLength](#), [getDataFileMatrix](#), [getMaxNAFraction](#), [getNames](#), [getOptionalArguments](#), [getPairedNames](#), [getRefSetTuple](#), [getReference](#), [getReferenceSetTuple](#), [isPaired](#), [newPlot](#), [plotAxesLayers](#), [plotChromosomesLayers](#), [plotCytobandLayers](#), [plotFitLayers](#), [plotGridHorizontalLayers](#), [plotRawCopyNumbers](#), [plotSampleLayers](#), [setReference](#)

**Methods inherited from ChromosomalModel:**

[as.character](#), [fit](#), [getAlias](#), [getAromaGenomeTextFile](#), [getAsteriskTags](#), [getChipType](#), [getChipTypes](#), [getChromosomes](#), [getFullName](#), [getFullNames](#), [getGenome](#), [getGenomeData](#), [getGenomeFile](#), [getListOfAromaUgpFiles](#), [getName](#), [getNames](#), [getParentPath](#), [getPath](#), [getReportPath](#), [getRootPath](#), [getRefSetTuple](#), [getSets](#), [getTags](#), [indexOf](#), [nbrOfArrays](#), [nbrOfChipTypes](#), [setChromosomes](#), [setGenome](#)

**Methods inherited from Object:**

[\\$](#), [\\$<-](#), [\[\[](#), [\[\[<-](#), [as.character](#), [attach](#), [attachLocally](#), [clearCache](#), [clearLookupCache](#), [clone](#), [detach](#), [equals](#), [extend](#), [finalize](#), [getEnvironment](#), [getFieldModifier](#), [getFieldModifiers](#), [getFields](#), [getInstantiationTime](#), [getStaticInstance](#), [hasField](#), [hashCode](#), [ll](#), [load](#), [names](#), [objectSize](#), [print](#), [save](#), [asThis](#)

**Author(s)**

Henrik Bengtsson

doCBS

*Performs Circular Binary Segmentation (CBS) on a data set***Description**

Performs Circular Binary Segmentation (CBS) on a data set for one or more chip types.

**Usage**

```
Default S3 method:
doCBS(dataSet, tags=NULL, chipTypes, arrays=NULL, ..., verbose=FALSE)
S3 method for class 'CopyNumberDataSet'
doCBS(ds, arrays=NULL, ...)
S3 method for class 'CopyNumberDataSetTuple'
doCBS(dsTuple, arrays=NULL, ..., verbose=FALSE)
```

**Arguments**

|                      |                                                                                                                                                    |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| ds, dsTuple, dataSet | A <a href="#">CopyNumberDataSet</a> , a <a href="#">CopyNumberDataSetTuple</a> or a <a href="#">character</a> string with the name of one of them. |
| tags                 | An optional <a href="#">character vector</a> of data set tags (only when <code>dataSet</code> is specified).                                       |
| chipTypes            | A <a href="#">character vector</a> specifying the chip types for the different data sets (only when <code>dataSet</code> is specified).            |
| arrays               | An optional <a href="#">vector</a> specifying the subset of arrays to process.                                                                     |
| ...                  | Additional arguments passed to <a href="#">CbsModel</a> and its <code>fit()</code> method.                                                         |
| verbose              | A <a href="#">logical</a> or <a href="#">Verbose</a> .                                                                                             |

**Value**Returns the output dataset of [CbsModel](#).**Author(s)**

Henrik Bengtsson

**Examples**

```
Not run:

dataSet <- "GSE20939"
tags <- "ACC,-XY,BPN,-XY,RMA,FLN,-XY"
chipTypes <- c("Mapping250K_Nsp", "Mapping250K_Sty")
fit <- doCBS(dataSet, tags=tags, chipTypes=chipTypes, verbose=-10)
print(fit)

End(Not run)
```

---

Explorer

*The Explorer class*

---

**Description**

Package: aroma.core

**Class Explorer****Object**

~~|

~~+--Explorer

**Directly known subclasses:**

[ChromosomeExplorer](#)

public abstract static class **Explorer**

extends [Object](#)

**Usage**

```
Explorer(tags="*", version="0", ...)
```

**Arguments**

|         |                                                                            |
|---------|----------------------------------------------------------------------------|
| tags    | A <a href="#">character vector</a> of tags to be added to the output path. |
| version | An optional <a href="#">character</a> string.                              |
| ...     | Not used.                                                                  |

## Fields and Methods

### Methods:

|                          |                                                                    |
|--------------------------|--------------------------------------------------------------------|
| <code>display</code>     | Displays the explorer in the default browser.                      |
| <code>getFullName</code> | -                                                                  |
| <code>getName</code>     | Gets the name of the explorer.                                     |
| <code>getNames</code>    | Gets the names of the input samples.                               |
| <code>getPath</code>     | Gets the path of the output directory.                             |
| <code>getRootPath</code> | Gets the root path of the output directory.                        |
| <code>getTags</code>     | Gets the tags of the explorer.                                     |
| <code>getVersion</code>  | -                                                                  |
| <code>nbrOfArrays</code> | Gets the total number of arrays.                                   |
| <code>process</code>     | Generates image files, scripts and dynamic pages for the explorer. |
| <code>setArrays</code>   | Sets the arrays.                                                   |

### Methods inherited from Object:

`$`, `$<`, `[]`, `[[<`, `as.character`, `attach`, `attachLocally`, `clearCache`, `clearLookupCache`, `clone`, `detach`, `equals`, `extend`, `finalize`, `getEnvironment`, `getFieldModifier`, `getFieldModifiers`, `getFields`, `getInstantiationTime`, `getStaticInstance`, `hasField`, `hashCode`, `ll`, `load`, `names`, `objectSize`, `print`, `save`, `asThis`

## Output directory structure

The *main directory* of an Explorer report is `reports/<name>/<subname>/`. The `<name>` is typically the same as the name of the input data set, and the `<subname>` is typically the tags of ditto. This main directory is where main HTML document is stored.

For each chip type, real or "virtual" (combined), there is a subdirectory with the same name as the chip type, i.e. `reports/<name>/<subname>/<chiptype>/`.

For each chip type directory, there are set of subdirectories each specifying a so called *image layer*, e.g. an image layer showing the raw data, another containing the estimates of a model fit and so on. Path format: `reports/<name>/<subname>/<chiptype>/<image layer>/`. In this directory all image files are stored, e.g. PNG files.

In some cases one do not want to all input tags to become part of the subname, but instead for instance use those to name the image layer(s). In such cases one has to override the default names.

## Author(s)

Henrik Bengtsson

**Description**

Package: aroma.core

**Class GladModel****Object**

```

~|
~+--ChromosomalModel
~~~~~|
~~~~~+--CopyNumberChromosomalModel
~~~~~|
~~~~~+--CopyNumberSegmentationModel
~~~~~|
~~~~~+--GladModel

```

**Directly known subclasses:**

```

public static class GladModel
extends CopyNumberSegmentationModel

```

This class represents the Gain and Loss Analysis of DNA regions (GLAD) model [1]. This class can model chip-effect estimates obtained from multiple chip types, and not all samples have to be available on all chip types.

**Usage**

```
GladModel(cesTuple=NULL, ...)
```

**Arguments**

```

cesTuple A CopyNumberDataSetTuple.
... Arguments passed to the constructor of CopyNumberSegmentationModel.

```

**Details**

Data from multiple chip types are combined "as is". This is based on the assumption that the relative chip effect estimates are non-biased (or at the equally biased across chip types). Note that in GLAD there is no way to down weight certain data points, which is why we can control for differences in variance across chip types.

**Fields and Methods****Methods:**

```
writeRegions -
```

**Methods inherited from CopyNumberSegmentationModel:**

fit, getAsteriskTags, getFitFunction, getFullNames, getRegions, getTags, plot, plotCopyNumberRegionLayers, writeRegions

**Methods inherited from CopyNumberChromosomalModel:**

as.character, calculateChromosomeStatistics, calculateRatios, estimateSds, extractRawCopyNumbers, fit, getChromosomeLength, getDataFileMatrix, getMaxNAFraction, getNames, getOptionalArguments, getPairedNames, getRefSetTuple, getReference, getReferenceSetTuple, isPaired, newPlot, plotAxesLayers, plotChromosomesLayers, plotCytobandLayers, plotFitLayers, plotGridHorizontalLayers, plotRawCopyNumbers, plotSampleLayers, setReference

**Methods inherited from ChromosomalModel:**

as.character, fit, getAlias, getAromaGenomeTextFile, getAsteriskTags, getChipType, getChipTypes, getChromosomes, getFullName, getFullNames, getGenome, getGenomeData, getGenomeFile, getListOfAromaUgpFiles, getName, getNames, getParentPath, getPath, getReportPath, getRootPath, getSetTuple, getSets, getTags, indexOf, nbrOfArrays, nbrOfChipTypes, setChromosomes, setGenome

**Methods inherited from Object:**

\$, \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

**Benchmarking**

In high-density copy numbers analysis, the most time consuming step is fitting the GLAD model. The complexity of the model grows more than linearly (squared? exponentially?) with the number of data points in the chromosome and sample being fitted. This is why it take much more than twice the time to fit two chip types together than separately.

**Author(s)**

Henrik Bengtsson

**References**

[1] Hupe P et al. *Analysis of array CGH data: from signal ratio to gain and loss of DNA regions*. Bioinformatics, 2004, 20, 3413-3422.

**See Also**

[CopyNumberSegmentationModel](#).



**Description**

Package: aroma.core

**Class HaarSegModel****Object**

```

~~|
~~+---ChromosomalModel
~~~~~|
~~~~~+---CopyNumberChromosomalModel
~~~~~|
~~~~~+---CopyNumberSegmentationModel
~~~~~|
~~~~~+---HaarSegModel

```

**Directly known subclasses:**

public static class **HaarSegModel**  
 extends *CopyNumberSegmentationModel*

This class represents the Haar wavelet-based segmentation (HaarSeg) model [1].

**Usage**

```
HaarSegModel(cesTuple=NULL, ..., breaksFdrQ=1e-04)
```

**Arguments**

|            |                                                                             |
|------------|-----------------------------------------------------------------------------|
| cesTuple   | A <i>CopyNumberDataSetTuple</i> .                                           |
| breaksFdrQ | Default tuning parameters specific to the HaarSeg algorithm.                |
| ...        | Arguments passed to the constructor of <i>CopyNumberSegmentationModel</i> . |

**Fields and Methods****Methods:**

*No methods defined.*

**Methods inherited from CopyNumberSegmentationModel:**

fit, getAsteriskTags, getFitFunction, getFullNames, getRegions, getTags, plot, plotCopyNumberRegionLayers, writeRegions

**Methods inherited from CopyNumberChromosomalModel:**

as.character, calculateChromosomeStatistics, calculateRatios, estimateSds, extractRawCopyNumbers, fit, getChromosomeLength, getDataFileMatrix, getMaxNAFraction, getNames, getOptionalArguments, getPairedNames, getRefSetTuple, getReference, getReferenceSetTuple, isPaired, newPlot, plotAxesLayers, plotChromosomesLayers, plotCytobandLayers, plotFitLayers, plotGridHorizontalLayers, plotRawCopyNumbers, plotSampleLayers, setReference

**Methods inherited from ChromosomalModel:**

as.character, fit, getAlias, getAromaGenomeTextFile, getAsteriskTags, getChipType, getChipTypes, getChromosomes, getFullName, getFullNames, getGenome, getGenomeData, getGenomeFile, getListOfAromaUgpFiles, getName, getNames, getParentPath, getPath, getReportPath, getRootPath, getSetTuple, getSets, getTags, indexOf, nbrOfArrays, nbrOfChipTypes, setChromosomes, setGenome

**Methods inherited from Object:**

\$. \$<-, [], [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

**Author(s)**

Henrik Bengtsson

**References**

[1] Ben-Yaacov E. and Eldar YC. *A fast and flexible method for the segmentation of aCGH data*, Bioinformatics, 2008. <http://www.ee.technion.ac.il/Sites/People/YoninaEldar/Info/software/HaarSeg.htm>

**See Also**

[CopyNumberSegmentationModel](#).

---

NonPairedPSCNData      *The NonPairedPSCNData class*

---

**Description**

Package: aroma.core

**Class NonPairedPSCNData**

```
data.frame
~~|
~~+--RichDataFrame
~~~~~|
~~~~~+--RawGenomicSignals
~~~~~|
~~~~~+--AbstractCNData
~~~~~|
~~~~~+--AbstractPSCNData
~~~~~|
~~~~~+--NonPairedPSCNData
```

**Directly known subclasses:**

```
public class NonPairedPSCNData
 extends AbstractPSCNData
```

A NonPairedPSCNData object holds parent-specific copy number data. Two NonPairedPSCNData objects for a matched tumor-normal pair can be combined into a [PairedPSCNData](#) object.

### Usage

```
NonPairedPSCNData(chromosome=NULL, x=NULL, isSNP=NULL, mu=NULL, C=NULL, beta=NULL, ...)
```

### Arguments

|            |                                                                                                                                                                                                                                                                                          |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C          | A <a href="#">numeric vector</a> of J tumor total copy number (TCN) ratios in $[0, +\text{Inf})$ (due to noise, small negative values are also allowed). The TCN ratios are typically scaled such that copy-neutral diploid loci have a mean of two.                                     |
| beta       | A <a href="#">numeric vector</a> of J tumor allele B fractions (BAFs) in $[0, 1]$ (due to noise, values may be slightly outside as well) or <a href="#">NA</a> for non-polymorphic loci.                                                                                                 |
| mu         | An optional <a href="#">numeric vector</a> of J genotype calls in $\{0, 1/2, 1\}$ for AA, AB, and BB, respectively, and <a href="#">NA</a> for non-polymorphic loci. If not given, they are estimated from the normal BAFs using <a href="#">callNaiveGenotypes</a> as described in [2]. |
| isSNP      | An optional <a href="#">logical vector</a> of length J specifying whether each locus is a SNP or not (non-polymorphic loci).                                                                                                                                                             |
| chromosome | (Optional) An <a href="#">integer</a> scalar (or a <a href="#">vector</a> of length J), which can be used to specify which chromosome each locus belongs to in case multiple chromosomes are segments. This argument is also used for annotation purposes.                               |
| x          | Optional <a href="#">numeric vector</a> of J genomic locations. If <a href="#">NULL</a> , index locations 1:J are used.                                                                                                                                                                  |
| ...        | Optional named locus-specific signal <a href="#">vectors</a> of length J.                                                                                                                                                                                                                |

### Fields and Methods

#### Methods:

```
as -
as.NonPairedPSCNData -
as.PairedPSCNData -
callNaiveGenotypes -
callSegmentationOutliers -
dropSegmentationOutliers -
getSignalColumnNames -
segmentByCBS -
```

#### Methods inherited from AbstractPSCNData:

```
callSNPs, getSNPFields
```

#### Methods inherited from AbstractCNData:

findLargeGaps, getChipType, getLocusData, getPlatform, hasKnownPositions, orderAlongGenome, setChipType, setPlatform

#### Methods inherited from RawGenomicSignals:

\*, +, -, addBy, append, applyBinaryOperator, as.character, as.data.frame, assertOneChromosome, binnedSmoothing, binnedSmoothingByField, clearCache, clone, divideBy, drawDensity, estimateStandardDeviation, extractChromosome, extractChromosomes, extractDataForSegmentation, extractRegion, extractRegions, extractSubset, gaussianSmoothing, getBasicField, getCXY, getChromosome, getChromosomes, getDefaultLocusFields, getLocusFields, getPositions, getSigma, getSignalColumnName, getSignalColumnNames, getSignals, getWeights, getXScale, getX, getYScale, hasWeights, kernelSmoothing, lines, multiplyBy, nbrOfChromosomes, nbrOfLoci, plot, points, print, segmentByCBS, segmentByGLAD, segmentByHaarSeg, segmentByMPCBS, setBasicField, setSigma, setSignals, setWeights, setXScale, setYScale, signalRange, sort, subtractBy, xMax, xMin, xRange, xSeq, yMax, yMin, yRange

#### Methods inherited from RichDataFrame:

\$, \$<-, [, [[, [[<-, as.data.frame, as.list, dim, dropVirtualColumn, getColumnNames, getColumnNamesTranslator, getFullName, getName, getTags, getVirtualColumn, getVirtualColumnFunction, getVirtualColumnNames, hasColumn, hasColumns, hasVirtualColumn, hasVirtualColumns, length, names, newInstance, print, rbind, setAttributes, setColumnNamesMap, setColumnNamesTranslator, setName, setTags, setVirtualColumn, subset, translateColumnNames

#### Methods inherited from data.frame:

\$, \$<-, Math, Ops, Summary, [, [<-, [[, [[<-, aggregate, anyDuplicated, as.NonPairedPSCNData, as.PairedPSCNData, as.data.frame, as.list, as.matrix, attachLocally, by, callSegmentationOutliers, cbind, dim, dimnames, dimnames<-, dropSegmentationOutliers, droplevels, duplicated, edit, findLargeGaps, format, formula, head, is.na, merge, na.exclude, na.omit, plot, plotDensity, print, prompt, rbind, row.names, row.names<-, rowsum, segmentByCBS, segmentByPairedPSCBS, split, split<-, stack, str, subset, summary, t, tail, transform, unique, unstack, unwrap, within, writeDataFrame

#### Author(s)

Henrik Bengtsson

---

PairedPSCNData

*The PairedPSCNData class*

---

#### Description

Package: aroma.core

#### Class PairedPSCNData

```
data.frame
~~|
~~+--RichDataFrame
~~~~~|
~~~~~+--RawGenomicSignals
~~~~~|
```

```

~~~~~+--AbstractCNData
~~~~~|
~~~~~+--AbstractPSCNData
~~~~~|
~~~~~+--PairedPSCNData

```

### Directly known subclasses:

```

public class PairedPSCNData
extends AbstractPSCNData

```

A PairedPSCNData object holds paired tumor-normal parent-specific copy number data.

### Usage

```

PairedPSCNData(chromosome=NULL, x=NULL, isSNP=NULL, muN=NULL, CT=NULL, betaT=NULL,
 CN=NULL, betaN=NULL, ...)

```

### Arguments

|            |                                                                                                                                                                                                                                                                                          |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CT         | A <a href="#">numeric vector</a> of J tumor total copy number (TCN) ratios in $[0, +\text{Inf})$ (due to noise, small negative values are also allowed). The TCN ratios are typically scaled such that copy-neutral diploid loci have a mean of two.                                     |
| CN         | An optional <a href="#">numeric vector</a> of J normal TCN ratios.                                                                                                                                                                                                                       |
| betaT      | A <a href="#">numeric vector</a> of J tumor allele B fractions (BAFs) in $[0, 1]$ (due to noise, values may be slightly outside as well) or <a href="#">NA</a> for non-polymorphic loci.                                                                                                 |
| betaN      | A <a href="#">numeric vector</a> of J matched normal BAFs in $[0, 1]$ (due to noise, values may be slightly outside as well) or <a href="#">NA</a> for non-polymorphic loci.                                                                                                             |
| muN        | An optional <a href="#">numeric vector</a> of J genotype calls in $\{0, 1/2, 1\}$ for AA, AB, and BB, respectively, and <a href="#">NA</a> for non-polymorphic loci. If not given, they are estimated from the normal BAFs using <a href="#">callNaiveGenotypes</a> as described in [2]. |
| isSNP      | An optional <a href="#">logical vector</a> of length J specifying whether each locus is a SNP or not (non-polymorphic loci).                                                                                                                                                             |
| chromosome | (Optional) An <a href="#">integer</a> scalar (or a <a href="#">vector</a> of length J), which can be used to specify which chromosome each locus belongs to in case multiple chromosomes are segments. This argument is also used for annotation purposes.                               |
| x          | Optional <a href="#">numeric vector</a> of J genomic locations. If <a href="#">NULL</a> , index locations 1 : J are used.                                                                                                                                                                |
| ...        | Optional named locus-specific signal <a href="#">vectors</a> of length J.                                                                                                                                                                                                                |

### Fields and Methods

#### Methods:

```

as -
as.PairedPSCNData -
callNaiveGenotypes -
callSegmentationOutliers -
dropSegmentationOutliers -
getSignalColumnNames -
getTCNs -
getTotalCopyNumbers -
normalizeTumorBoost -
plotTracks -
segmentByCBS -
segmentByPairedPSCBS -

```

#### Methods inherited from AbstractPSCNData:

callSNPs, getSNPFields

#### Methods inherited from AbstractCNDData:

findLargeGaps, getChipType, getLocusData, getPlatform, hasKnownPositions, orderAlongGenome, setChipType, setPlatform

#### Methods inherited from RawGenomicSignals:

\*, +, -, addBy, append, applyBinaryOperator, as.character, as.data.frame, assertOneChromosome, binnedSmoothing, binnedSmoothingByField, clearCache, clone, divideBy, drawDensity, estimateStandardDeviation, extractChromosome, extractChromosomes, extractDataForSegmentation, extractRegion, extractRegions, extractSubset, gaussianSmoothing, getBasicField, getCXY, getChromosome, getChromosomes, getDefaultLocusFields, getLocusFields, getPositions, getSigma, getSignalColumnName, getSignalColumnNames, getSignals, getWeights, getXScale, getXY, getYScale, hasWeights, kernelSmoothing, lines, multiplyBy, nbrOfChromosomes, nbrOfLoci, plot, points, print, segmentByCBS, segmentByGLAD, segmentByHaarSeg, segmentByMPCBS, setBasicField, setSigma, setSignals, setWeights, setXScale, setYScale, signalRange, sort, subtractBy, xMax, xMin, xRange, xSeq, yMax, yMin, yRange

#### Methods inherited from RichDataFrame:

\$, \$<-, [, [[, [[<-, as.data.frame, as.list, dim, dropVirtualColumn, getColumnNames, getColumnNamesTranslator, getFullName, getName, getTags, getVirtualColumn, getVirtualColumnFunction, getVirtualColumnNames, hasColumn, hasColumns, hasVirtualColumn, hasVirtualColumns, length, names, newInstance, print, rbind, setAttributes, setColumnNamesMap, setColumnNamesTranslator, setName, setTags, setVirtualColumn, subset, translateColumnNames

#### Methods inherited from data.frame:

\$, \$<-, Math, Ops, Summary, [, [<-, [[, [[<-, aggregate, anyDuplicated, as.NonPairedPSCNData, as.PairedPSCNData, as.data.frame, as.list, as.matrix, attachLocally, by, callSegmentationOutliers, cbind, dim, dimnames, dimnames<-, dropSegmentationOutliers, droplevels, duplicated, edit, findLargeGaps, format, formula, head, is.na, merge, na.exclude, na.omit, plot, plotDensity, print, prompt, rbind, row.names, row.names<-, rowsum, segmentByCBS, segmentByPairedPSCBS, split, split<-, stack, str, subset, summary, t, tail, transform, unique, unstack, unwrap, within, wrap, writeDataFrame

**Author(s)**

Henrik Bengtsson

---

ParametersInterface    *The ParametersInterface class interface*

---

**Description**

Package: aroma.core

**Class ParametersInterface**[Interface](#)

~~|

~~+--ParametersInterface

**Directly known subclasses:**[AromaTransform](#)public class **ParametersInterface**extends [Interface](#)**Usage**

ParametersInterface(...)

**Arguments**

...                    Not used.

**Fields and Methods****Methods:**

|                       |   |
|-----------------------|---|
| getParameters         | - |
| getParametersAsString | - |

**Methods inherited from Interface:**

extend, print, uses

**Author(s)**

Henrik Bengtsson

---

 RawAlleleBFractions    *The RawAlleleBFractions class*


---

## Description

Package: aroma.core

### Class RawAlleleBFractions

```
data.frame
~~|
~~+--RichDataFrame
~~~~~|
~~~~~+--RawGenomicSignals
~~~~~|
~~~~~+--RawAlleleBFractions
```

#### Directly known subclasses:

[RawMirroredAlleleBFractions](#), [SegmentedAlleleBFractions](#)

```
public class RawAlleleBFractions
 extends RawGenomicSignals
```

## Usage

```
RawAlleleBFractions(...)
```

## Arguments

...                    Arguments passed to [RawGenomicSignals](#).

## Fields and Methods

### Methods:

```
extractRawMirroredAlleleBFractions -
plot -
```

### Methods inherited from RawGenomicSignals:

\*, +, -, addBy, append, applyBinaryOperator, as.character, as.data.frame, assertOneChromosome, binnedSmoothing, binnedSmoothingByField, clearCache, clone, divideBy, drawDensity, estimateStandardDeviation, extractChromosome, extractChromosomes, extractDataForSegmentation, extractRegion, extractRegions, extractSubset, gaussianSmoothing, getBasicField, getCXY, getChromosome, getChromosomes, getDefaultLocusFields, getLocusFields, getPositions, getSigma, getSig-



nalColumnName, getSignalColumnNames, getSignals, getWeights, getXScale, getXY, getYScale, hasWeights, kernelSmoothing, lines, multiplyBy, nbrOfChromosomes, nbrOfLoci, plot, points, print, segmentByCBS, segmentByGLAD, segmentByHaarSeg, segmentByMPCBS, setBasicField, setSigma, setSignals, setWeights, setXScale, setYScale, signalRange, sort, subtractBy, xMax, xMin, xRange, xSeq, yMax, yMin, yRange

**Methods inherited from RichDataFrame:**

\$, \$<-, [, [[, [[<-, as.data.frame, as.list, dim, dropVirtualColumn, getColumnNames, getColumnNamesTranslator, getFullName, getName, getTags, getVirtualColumn, getVirtualColumnFunction, getVirtualColumnNames, hasColumn, hasColumns, hasVirtualColumn, hasVirtualColumns, length, names, newInstance, print, rbind, setAttributes, setColumnNamesMap, setColumnNamesTranslator, setName, setTags, setVirtualColumn, subset, translateColumnNames

**Methods inherited from data.frame:**

\$, \$<-, Math, Ops, Summary, [, [<-, [[, [[<-, aggregate, anyDuplicated, as.NonPairedPSCNData, as.PairedPSCNData, as.data.frame, as.list, as.matrix, attachLocally, by, callSegmentationOutliers, cbind, dim, dimnames, dimnames<-, dropSegmentationOutliers, droplevels, duplicated, edit, findLargeGaps, format, formula, head, is.na, merge, na.exclude, na.omit, plot, plotDensity, print, prompt, rbind, row.names, row.names<-, rowsum, segmentByCBS, segmentByPairedPSCBS, split, split<-, stack, str, subset, summary, t, tail, transform, unique, unstack, unwrap, within, wrap, writeDataFrame

**Author(s)**

Henrik Bengtsson

---

RawCopyNumberModel      *The RawCopyNumberModel class*

---

**Description**

Package: aroma.core

**Class RawCopyNumberModel**

**Object**

```

~~|
~~+--ChromosomalModel
~~~~~|
~~~~~+--CopyNumberChromosomalModel
~~~~~|
~~~~~+--RawCopyNumberModel

```

**Directly known subclasses:**

public abstract static class **RawCopyNumberModel**  
 extends *CopyNumberChromosomalModel*

This class represents an identity copy-number model which returns the input as is.

**Usage**

```
RawCopyNumberModel(...)
```

**Arguments**

```
... Passed to the constructor of the superclass.
```

**Fields and Methods****Methods:**

*No methods defined.*

**Methods inherited from CopyNumberChromosomalModel:**

as.character, calculateChromosomeStatistics, calculateRatios, estimateSds, extractRawCopyNumbers, fit, getChromosomeLength, getDataFileMatrix, getMaxNAFraction, getNames, getOptionalArguments, getPairedNames, getRefSetTuple, getReference, getReferenceSetTuple, isPaired, newPlot, plotAxesLayers, plotChromosomesLayers, plotCytobandLayers, plotFitLayers, plotGridHorizontalLayers, plotRawCopyNumbers, plotSampleLayers, setReference

**Methods inherited from ChromosomalModel:**

as.character, fit, getAlias, getAromaGenomeTextFile, getAsteriskTags, getChipType, getChipTypes, getChromosomes, getFullName, getFullNames, getGenome, getGenomeData, getGenomeFile, getListOfAromaUgpFiles, getName, getNames, getParentPath, getPath, getReportPath, getRootPath, getSetTuple, getSets, getTags, indexOf, nbrOfArrays, nbrOfChipTypes, setChromosomes, setGenome

**Methods inherited from Object:**

\$. \$<-, [[, [[<-, as.character, attach, attachLocally, clearCache, clearLookupCache, clone, detach, equals, extend, finalize, getEnvironment, getFieldModifier, getFieldModifiers, getFields, getInstantiationTime, getStaticInstance, hasField, hashCode, ll, load, names, objectSize, print, save, asThis

**Author(s)**

Henrik Bengtsson

---

RawCopyNumbers

*The RawCopyNumbers class*

---

**Description**

Package: aroma.core

**Class RawCopyNumbers**

```
data.frame
~~|
~~+--RichDataFrame
~~~~~|
~~~~~+--RawGenomicSignals
~~~~~|
```

```
~~~~~+--RawCopyNumbers
```

### Directly known subclasses:

[SegmentedCopyNumbers](#)

```
public class RawCopyNumbers
```

```
extends RawGenomicSignals
```

### Usage

```
RawCopyNumbers(cn=NULL, ...)
```

### Arguments

cn                    A [numeric vector](#) of length J specifying the copy number at each loci.  
...                    Arguments passed to [RawGenomicSignals](#).

### Fields and Methods

#### Methods:

```
cnRange -
extractRawCopyNumbers -
getSignals -
plot -
```

#### Methods inherited from [RawGenomicSignals](#):

\*, +, -, addBy, append, applyBinaryOperator, as.character, as.data.frame, assertOneChromosome, binnedSmoothing, binnedSmoothingByField, clearCache, clone, divideBy, drawDensity, estimateStandardDeviation, extractChromosome, extractChromosomes, extractDataForSegmentation, extractRegion, extractRegions, extractSubset, gaussianSmoothing, getBasicField, getCXY, getChromosome, getChromosomes, getDefaultLocusFields, getLocusFields, getPositions, getSigma, getSignalColumnName, getSignalColumnNames, getSignals, getWeights, getXScale, getXY, getYScale, hasWeights, kernelSmoothing, lines, multiplyBy, nbrOfChromosomes, nbrOfLoci, plot, points, print, segmentByCBS, segmentByGLAD, segmentByHaarSeg, segmentByMPCBS, setBasicField, setSigma, setSignals, setWeights, setXScale, setYScale, signalRange, sort, subtractBy, xMax, xMin, xRange, xSeq, yMax, yMin, yRange

#### Methods inherited from [RichDataFrame](#):

\$, \$<-, [, [[, [[<-, as.data.frame, as.list, dim, dropVirtualColumn, getColumnNames, getColumnNamesTranslator, getFullName, getName, getTags, getVirtualColumn, getVirtualColumnFunction, getVirtualColumnNames, hasColumn, hasColumns, hasVirtualColumn, hasVirtualColumns, length, names, newInstance, print, rbind, setAttributes, setColumnNamesMap, setColumnNamesTranslator, setName, setTags, setVirtualColumn, subset, translateColumnNames

#### Methods inherited from [data.frame](#):

\$, \$<-, Math, Ops, Summary, [, [<-, [[, [[<-, aggregate, anyDuplicated, as.NonPairedPSCNData,

as.PairedPSCNData, as.data.frame, as.list, as.matrix, attachLocally, by, callSegmentationOutliers, cbind, dim, dimnames, dimnames<-, dropSegmentationOutliers, droplevels, duplicated, edit, findLargeGaps, format, formula, head, is.na, merge, na.exclude, na.omit, plot, plotDensity, print, prompt, rbind, row.names, row.names<-, rowsum, segmentByCBS, segmentByPairedPSCBS, split, split<-, stack, str, subset, summary, t, tail, transform, unique, unstack, unwrap, within, wrap, writeDataFrame

### Author(s)

Henrik Bengtsson

### Examples

```

Simulating copy-number data

Number of loci
J <- 1000

mu <- double(J)
mu[200:300] <- mu[200:300] + 1
mu[650:800] <- mu[650:800] - 1
eps <- rnorm(J, sd=1/2)
y <- mu + eps
x <- sort(runif(length(y), max=length(y)))

cn <- RawCopyNumbers(y, x)
print(cn)

cn2 <- extractSubset(cn, subset=xSeq(cn, by=5))
print(cn2)

Plot along genome

plot(cn, ylim=c(-3,3))
title(main="Complete and subsetted loci")
points(cn2, col="red", pch=176, cex=2)

legend("topright", pch=c(19,176), col=c("#999999", "red"),
 sprintf(c("raw [n=%d]", "every 5th [n=%d]"),
 c(nbrOfLoci(cn), nbrOfLoci(cn2))), bty="n")

Binned smoothing

plot(cn, col="#999999", ylim=c(-3,3))
title(main="Binned smoothing")

cnSa <- binnedSmoothing(cn, by=3)
```

```

lines(cnSa, col="blue")
points(cnSa, col="blue")

cnSb <- binnedSmoothing(cn, by=9)
lines(cnSb, col="red")
points(cnSb, col="red")

legend("topright", pch=19, col=c("#999999", "blue", "red"),
 sprintf(c("raw [n=%d]", "Bin(w=3) [n=%d]", "Bin(w=9) [n=%d]"),
 c(nbrOfLoci(cn), nbrOfLoci(cnSa), nbrOfLoci(cnSb))), bty="n")

- - - - -
Binned smoothing (by count)
- - - - -
plot(cn, col="#999999", ylim=c(-3,3))
title(main="Binned smoothing (by count)")

cnSa <- binnedSmoothing(cn, by=3, byCount=TRUE)
lines(cnSa, col="blue")
points(cnSa, col="blue")

cnSb <- binnedSmoothing(cn, by=9, byCount=TRUE)
lines(cnSb, col="red")
points(cnSb, col="red")

legend("topright", pch=19, col=c("#999999", "blue", "red"),
 sprintf(c("raw [n=%d]", "Bin0(w=3) [n=%d]", "Bin0(w=9) [n=%d]"),
 c(nbrOfLoci(cn), nbrOfLoci(cnSa), nbrOfLoci(cnSb))), bty="n")

- - - - -
Kernel smoothing (default is Gaussian)
- - - - -
plot(cn, col="#999999", ylim=c(-3,3))
title(main="Kernel smoothing w/ Gaussian kernel")

cnSa <- kernelSmoothing(cn, h=2)
points(cnSa, col="blue")

cnSb <- kernelSmoothing(cn, h=5)
points(cnSb, col="red")

legend("topright", pch=19, col=c("#999999", "blue", "red"),
 sprintf(c("raw [n=%d]", "N(.,sd=2) [n=%d]", "N(.,sd=5) [n=%d]"),
 c(nbrOfLoci(cn), nbrOfLoci(cnSa), nbrOfLoci(cnSb))), bty="n")

- - - - -
Kernel smoothing
- - - - -
plot(cn, col="#999999", ylim=c(-3,3))
title(main="Kernel smoothing w/ uniform kernel")

```

```

xOut <- xSeq(cn, by=10)
cnSa <- kernelSmoothing(cn, xOut=xOut, kernel="uniform", h=2)
lines(cnSa, col="blue")
points(cnSa, col="blue")

cnSb <- kernelSmoothing(cn, xOut=xOut, kernel="uniform", h=5)
lines(cnSb, col="red")
points(cnSb, col="red")

legend("topright", pch=19, col=c("#999999", "blue", "red"),
 sprintf(c("raw [n=%d]", "U(w=2) [n=%d]", "U(w=5) [n=%d]"),
 c(nbrOfLoci(cn), nbrOfLoci(cnSa), nbrOfLoci(cnSb))), bty="n")

```

---

RawGenomicSignals      *The RawGenomicSignals class*

---

## Description

Package: aroma.core

### Class RawGenomicSignals

```

data.frame
~~|
~~+---RichDataFrame
~~~~~|
~~~~~+---RawGenomicSignals

```

#### Directly known subclasses:

[AbstractCNData](#), [AbstractPSCNData](#), [NonPairedPSCNData](#), [PairedPSCNData](#), [RawAlleleBFractions](#), [RawCopyNumbers](#), [RawMirroredAlleleBFractions](#), [RawSequenceReads](#), [SegmentedAlleleBFractions](#), [SegmentedCopyNumbers](#)

```

public class RawGenomicSignals
extends RichDataFrame

```

## Usage

```
RawGenomicSignals(y=NULL, x=NULL, w=NULL, chromosome=0L, name=NULL, ...)
```

## Arguments

**y**                    A [numeric vector](#) of length J specifying the signal at each locus.

**x**                    A (optional) [numeric vector](#) of length J specifying the position of each locus.

**w**                    A (optional) non-negative [numeric vector](#) of length J specifying a weight of each locus.

|            |                                                                                            |
|------------|--------------------------------------------------------------------------------------------|
| chromosome | An (optional) <a href="#">integer</a> specifying the chromosome for these genomic signals. |
| name       | An (optional) <a href="#">character</a> string specifying the sample name.                 |
| ...        | Not used.                                                                                  |

## Fields and Methods

### Methods:

|                           |   |
|---------------------------|---|
| *                         | - |
| +                         | - |
| -                         | - |
| addBy                     | - |
| append                    | - |
| as.data.frame             | - |
| binnedSmoothing           | - |
| divideBy                  | - |
| drawDensity               | - |
| estimateStandardDeviation | - |
| gaussianSmoothing         | - |
| getChromosome             | - |
| getChromosomes            | - |
| getPositions              | - |
| getSigma                  | - |
| getSignals                | - |
| getWeights                | - |
| getXScale                 | - |
| getYScale                 | - |
| hasWeights                | - |
| kernelSmoothing           | - |
| lines                     | - |
| multiplyBy                | - |
| nbrOfChromosomes          | - |
| nbrOfLoci                 | - |
| plot                      | - |
| points                    | - |
| segmentByCBS              | - |
| segmentByGLAD             | - |
| segmentByHaarSeg          | - |
| segmentByMPCBS            | - |
| setSigma                  | - |
| setSignals                | - |
| setWeights                | - |
| setXScale                 | - |
| setYScale                 | - |
| signalRange               | - |
| sort                      | - |
| subtractBy                | - |
| xMax                      | - |

```

xMin -
xRange -
xSeq -
yMax -
yMin -
yRange -

```

**Methods inherited from RichDataFrame:**

\$, \$<-, [, [[, [[<-, as.data.frame, as.list, dim, dropVirtualColumn, getColumnNames, getColumnNamesTranslator, getFullName, getName, getTags, getVirtualColumn, getVirtualColumnFunction, getVirtualColumnNames, hasColumn, hasColumns, hasVirtualColumn, hasVirtualColumns, length, names, newInstance, print, rbind, setAttributes, setColumnNamesMap, setColumnNamesTranslator, setName, setTags, setVirtualColumn, subset, translateColumnNames

**Methods inherited from data.frame:**

\$, \$<-, Math, Ops, Summary, [, [<-, [[, [[<-, aggregate, anyDuplicated, as.NonPairedPSCNData, as.PairedPSCNData, as.data.frame, as.list, as.matrix, attachLocally, by, callSegmentationOutliers, cbind, dim, dimnames, dimnames<-, dropSegmentationOutliers, droplevels, duplicated, edit, findLargeGaps, format, formula, head, is.na, merge, na.exclude, na.omit, plot, plotDensity, print, prompt, rbind, row.names, row.names<-, rowsum, segmentByCBS, segmentByPairedPSCBS, split, split<-, stack, str, subset, summary, t, tail, transform, unique, unstack, unwrap, within, wrap, writeDataFrame

**Author(s)**

Henrik Bengtsson

---

RawMirroredAlleleBFractions

*The RawMirroredAlleleBFractions class*

---

**Description**

Package: aroma.core

**Class RawMirroredAlleleBFractions**

```

data.frame
~~|
~~+--RichDataFrame
~~~~~|
~~~~~+--RawGenomicSignals
~~~~~|
~~~~~+--RawAlleleBFractions
~~~~~|
~~~~~+--RawMirroredAlleleBFractions

```



**Directly known subclasses:**

public class **RawMirroredAlleleBFractions**  
 extends [RawAlleleBFractions](#)

**Usage**

```
RawMirroredAlleleBFractions(...)
```

**Arguments**

... Arguments passed to [RawAlleleBFractions](#).

**Fields and Methods****Methods:**

plot -

**Methods inherited from RawAlleleBFractions:**

extractRawMirroredAlleleBFractions, plot

**Methods inherited from RawGenomicSignals:**

\*, +, -, addBy, append, applyBinaryOperator, as.character, as.data.frame, assertOneChromosome, binnedSmoothing, binnedSmoothingByField, clearCache, clone, divideBy, drawDensity, estimateStandardDeviation, extractChromosome, extractChromosomes, extractDataForSegmentation, extractRegion, extractRegions, extractSubset, gaussianSmoothing, getBasicField, getCXY, getChromosome, getChromosomes, getDefaultLocusFields, getLocusFields, getPositions, getSigma, getSignalColumnName, getSignalColumnNames, getSignals, getWeights, getXScale, getXY, getYScale, hasWeights, kernelSmoothing, lines, multiplyBy, nbrOfChromosomes, nbrOfLoci, plot, points, print, segmentByCBS, segmentByGLAD, segmentByHaarSeg, segmentByMPCBS, setBasicField, setSigma, setSignals, setWeights, setXScale, setYScale, signalRange, sort, subtractBy, xMax, xMin, xRange, xSeq, yMax, yMin, yRange

**Methods inherited from RichDataFrame:**

\$, \$<-, [, [[, [[<-, as.data.frame, as.list, dim, dropVirtualColumn, getColumnNames, getColumnNamesTranslator, getFullName, getName, getTags, getVirtualColumn, getVirtualColumnFunction, getVirtualColumnNames, hasColumn, hasColumns, hasVirtualColumn, hasVirtualColumns, length, names, newInstance, print, rbind, setAttributes, setColumnNamesMap, setColumnNamesTranslator, setName, setTags, setVirtualColumn, subset, translateColumnNames

**Methods inherited from data.frame:**

\$, \$<-, Math, Ops, Summary, [, [<-, [[, [[<-, aggregate, anyDuplicated, as.NonPairedPSCNData, as.PairedPSCNData, as.data.frame, as.list, as.matrix, as.profileCGH, attachLocally, by, callSegmentationOutliers, cbind, dim, dimnames, dimnames<-, dropSegmentationOutliers, droplevels, duplicated, edit, findLargeGaps, format, formula, head, is.na, merge, na.exclude, na.omit, plot, plotDensity, print, prompt, rbind, row.names, row.names<-, rowsum, segmentByCBS, segmentBy-

PairedPSCBS, split, split<-, stack, str, subset, summary, t, tail, transform, unique, unstack, unwrap, within, wrap, writeDataFrame

### Author(s)

Henrik Bengtsson

---

RawSequenceReads      *The RawSequenceReads class*

---

### Description

Package: aroma.core

#### Class RawSequenceReads

data.frame

~~|

~~+---RichDataFrame

~~~~~|

~~~~~+---RawGenomicSignals

~~~~~|

~~~~~+---RawSequenceReads

#### Directly known subclasses:

public class **RawSequenceReads**

extends [RawGenomicSignals](#)

### Usage

```
RawSequenceReads(x=NULL, y=rep(1L, length(x)), ...)
```

### Arguments

|     |                                                                                                                                             |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------|
| x   | An <a href="#">integer vector</a> of length J specifying the read positions.                                                                |
| y   | An (optional) <a href="#">integer vector</a> of length J specifying the number of reads at each position. Default is one read per position. |
| ... | Arguments passed to <a href="#">RawGenomicSignals</a> .                                                                                     |

**Fields and Methods****Methods:**

|                       |   |
|-----------------------|---|
| binnedSums            | - |
| extractRawCopyNumbers | - |
| nbrOfReads            | - |
| plot                  | - |

**Methods inherited from RawGenomicSignals:**

\*, +, -, addBy, append, applyBinaryOperator, as.character, as.data.frame, assertOneChromosome, binnedSmoothing, binnedSmoothingByField, clearCache, clone, divideBy, drawDensity, estimateStandardDeviation, extractChromosome, extractChromosomes, extractDataForSegmentation, extractRegion, extractRegions, extractSubset, gaussianSmoothing, getBasicField, getCXY, getChromosome, getChromosomes, getDefaultLocusFields, getLocusFields, getPositions, getSigma, getSignalColumnName, getSignalColumnNames, getSignals, getWeights, getXScale, getXY, getYScale, hasWeights, kernelSmoothing, lines, multiplyBy, nbrOfChromosomes, nbrOfLoci, plot, points, print, segmentByCBS, segmentByGLAD, segmentByHaarSeg, segmentByMPCBS, setBasicField, setSigma, setSignals, setWeights, setXScale, setYScale, signalRange, sort, subtractBy, xMax, xMin, xRange, xSeq, yMax, yMin, yRange

**Methods inherited from RichDataFrame:**

\$, \$<-, [, [[, [[<-, as.data.frame, as.list, dim, dropVirtualColumn, getColumnNames, getColumnNamesTranslator, getFullName, getName, getTags, getVirtualColumn, getVirtualColumnFunction, getVirtualColumnNames, hasColumn, hasColumns, hasVirtualColumn, hasVirtualColumns, length, names, newInstance, print, rbind, setAttributes, setColumnNamesMap, setColumnNamesTranslator, setName, setTags, setVirtualColumn, subset, translateColumnNames

**Methods inherited from data.frame:**

\$, \$<-, Math, Ops, Summary, [, [<-, [[, [[<-, aggregate, anyDuplicated, as.NonPairedPSCNData, as.PairedPSCNData, as.data.frame, as.list, as.matrix, as.profileCGH, attachLocally, by, callSegmentationOutliers, cbind, dim, dimnames, dimnames<-, dropSegmentationOutliers, droplevels, duplicated, edit, findLargeGaps, format, formula, head, is.na, merge, na.exclude, na.omit, plot, plotDensity, print, prompt, rbind, row.names, row.names<-, rowsum, segmentByCBS, segmentByPairedPSCBS, split, split<-, stack, str, subset, summary, t, tail, transform, unique, unstack, unwrap, within, wrap, writeDataFrame

**Author(s)**

Henrik Bengtsson

**Description**

Package: aroma.core

**Class SegmentedAlleleBFractions**

data.frame

~~|

~~+--RichDataFrame

~~~~~|

~~~~~+--RawGenomicSignals

~~~~~|

~~~~~+--RawAlleleBFractions

~~~~~|

~~~~~+--SegmentedGenomicSignalsInterface

~~~~~|

~~~~~+--SegmentedAlleleBFractions

**Directly known subclasses:**

```
public class SegmentedAlleleBFractions
 extends SegmentedGenomicSignalsInterface
```

**Usage**

```
SegmentedAlleleBFractions(..., states=NULL)
```

**Arguments**

... Arguments passed to [RawAlleleBFractions](#).

states A [function](#) returning the copy-number states given a [vector](#) of locus positions.

**Fields and Methods****Methods:**

*No methods defined.*

**Methods inherited from SegmentedGenomicSignalsInterface:**

as.data.frame, binnedSmoothingByState, extractSubsetByState, findChangePointsByState, getStateColorMap, getStateColors, getStates, getUniqueStates, getVirtualField, getVirtualLocusFields, kernelSmoothingByState, plot, points, setStateColorMap, setStates

**Methods inherited from RawAlleleBFractions:**

extractRawMirroredAlleleBFractions, plot

**Methods inherited from RawGenomicSignals:**

\*, +, -, addBy, append, applyBinaryOperator, as.character, as.data.frame, assertOneChromosome,

binnedSmoothing, binnedSmoothingByField, clearCache, clone, divideBy, drawDensity, estimateStandardDeviation, extractChromosome, extractChromosomes, extractDataForSegmentation, extractRegion, extractRegions, extractSubset, gaussianSmoothing, getBasicField, getCXY, getChromosome, getChromosomes, getDefaultLocusFields, getLocusFields, getPositions, getSigma, getSignalColumnName, getSignalColumnNames, getSignals, getWeights, getXScale, getXY, getYScale, hasWeights, kernelSmoothing, lines, multiplyBy, nbrOfChromosomes, nbrOfLoci, plot, points, print, segmentByCBS, segmentByGLAD, segmentByHaarSeg, segmentByMPCBS, setBasicField, setSigma, setSignals, setWeights, setXScale, setYScale, signalRange, sort, subtractBy, xMax, xMin, xRange, xSeq, yMax, yMin, yRange

**Methods inherited from RichDataFrame:**

\$, \$<-, [, [[, [[<-, as.data.frame, as.list, dim, dropVirtualColumn, getColumnNames, getColumnNamesTranslator, getFullName, getName, getTags, getVirtualColumn, getVirtualColumnFunction, getVirtualColumnNames, hasColumn, hasColumns, hasVirtualColumn, hasVirtualColumns, length, names, newInstance, print, rbind, setAttributes, setColumnNamesMap, setColumnNamesTranslator, setName, setTags, setVirtualColumn, subset, translateColumnNames

**Methods inherited from data.frame:**

\$, \$<-, Math, Ops, Summary, [, [<-, [[, [[<-, aggregate, anyDuplicated, as.NonPairedPSCNData, as.PairedPSCNData, as.data.frame, as.list, as.matrix, as.profileCGH, attachLocally, by, callSegmentationOutliers, cbind, dim, dimnames, dimnames<-, dropSegmentationOutliers, droplevels, duplicated, edit, findLargeGaps, format, formula, head, is.na, merge, na.exclude, na.omit, plot, plotDensity, print, prompt, rbind, row.names, row.names<-, rowsum, segmentByCBS, segmentByPairedPSCBS, split, split<-, stack, str, subset, summary, t, tail, transform, unique, unstack, unwrap, within, wrap, writeDataFrame

**Author(s)**

Henrik Bengtsson

---

SegmentedCopyNumbers    *The SegmentedCopyNumbers class*

---

**Description**

Package: aroma.core

**Class SegmentedCopyNumbers**

```
data.frame
~~|
~~+--RichDataFrame
~~~~~|
~~~~~+--RawGenomicSignals
~~~~~|
~~~~~+--RawCopyNumbers
~~~~~|
~~~~~+--SegmentedGenomicSignalsInterface
~~~~~|
```

```
~~~~~+---SegmentedCopyNumbers
```

### Directly known subclasses:

```
public class SegmentedCopyNumbers
 extends SegmentedGenomicSignalsInterface
```

### Usage

```
SegmentedCopyNumbers(..., states=NULL)
```

### Arguments

```
... Arguments passed to RawCopyNumbers.
states A function returning the copy-number states given a vector of locus positions.
```

### Fields and Methods

#### Methods:

*No methods defined.*

#### Methods inherited from [SegmentedGenomicSignalsInterface](#):

as.data.frame, binnedSmoothingByState, extractSubsetByState, findChangePointsByState, getStateColorMap, getStateColors, getStates, getUniqueStates, getVirtualField, getVirtualLocusFields, kernelSmoothingByState, plot, points, setStateColorMap, setStates

#### Methods inherited from [RawCopyNumbers](#):

cnRange, extractRawCopyNumbers, getCNs, getCn, getSignals, plot

#### Methods inherited from [RawGenomicSignals](#):

\*, +, -, addBy, append, applyBinaryOperator, as.character, as.data.frame, assertOneChromosome, binnedSmoothing, binnedSmoothingByField, clearCache, clone, divideBy, drawDensity, estimateStandardDeviation, extractChromosome, extractChromosomes, extractDataForSegmentation, extractRegion, extractRegions, extractSubset, gaussianSmoothing, getBasicField, getCXY, getChromosome, getChromosomes, getDefaultLocusFields, getLocusFields, getPositions, getSigma, getSignalColumnName, getSignalColumnNames, getSignals, getWeights, getXScale, getXY, getYScale, hasWeights, kernelSmoothing, lines, multiplyBy, nbrOfChromosomes, nbrOfLoci, plot, points, print, segmentByCBS, segmentByGLAD, segmentByHaarSeg, segmentByMPCBS, setBasicField, setSigma, setSignals, setWeights, setXScale, setYScale, signalRange, sort, subtractBy, xMax, xMin, xRange, xSeq, yMax, yMin, yRange

#### Methods inherited from [RichDataFrame](#):

\$, \$<-, [, [[, [[<-, as.data.frame, as.list, dim, dropVirtualColumn, getColumnNames, getColumnNamesTranslator, getFullName, getName, getTags, getVirtualColumn, getVirtualColumnFunction, getVirtualColumnNames, hasColumn, hasColumns, hasVirtualColumn, hasVirtualColumns, length, names, newInstance, print, rbind, setAttributes, setColumnNamesMap, setColumnNamesTranslator, setName, setTags, setVirtualColumn, subset, translateColumnNames

#### Methods inherited from [data.frame](#):

\$, \$<-, Math, Ops, Summary, [, [<-, [[, [[<-, aggregate, anyDuplicated, as.NonPairedPSCNData,

as.PairedPSCNData, as.data.frame, as.list, as.matrix, as.profileCGH, attachLocally, by, callSegmentationOutliers, cbind, dim, dimnames, dimnames<-, dropSegmentationOutliers, droplevels, duplicated, edit, findLargeGaps, format, formula, head, is.na, merge, na.exclude, na.omit, plot, plotDensity, print, prompt, rbind, row.names, row.names<-, rowsum, segmentByCBS, segmentByPairedPSCBS, split, split<-, stack, str, subset, summary, t, tail, transform, unique, unstack, unwrap, within, wrap, writeDataFrame

### Author(s)

Henrik Bengtsson

### Examples

```
- - - - -
Simulating copy-number data
- - - - -
True CN states
stateFcn <- function(x, ...) {
 states <- integer(length(x))
 states[200 <= x & x <= 300] <- -1L
 states[650 <= x & x <= 800] <- +1L
 states
}

Number of loci
J <- 1000

y <- rnorm(J, sd=1/2)
x <- 1:length(y)
for (state in c(-1,+1)) {
 idxs <- (stateFcn(x) == state)
 y[idxs] <- y[idxs] + state
}

cn <- SegmentedCopyNumbers(y, x, states=stateFcn)
print(cn)

- - - - -
Subsetting
- - - - -
plot(cn, ylim=c(-4,4))
title("Copy numbers annotated by state (and subset by state)")

cnS <- extractSubsetByState(cn, states=c(0,+1L))
print(cnS)
points(cnS, pch=21, cex=1.2, lwd=2, col="purple")

legend("topright", pch=c(19, 21), col=c("#999999", "purple"),
 sprintf(c("raw [n=%d]", "CN in {0,1} [n=%d]"),
 c(nbrOfLoci(cn), nbrOfLoci(cnS))), bty="n")
```

```

Kernel smoothing stratified by state

plot(cn, col="#999999", ylim=c(-3,3))
title(main="Kernel smoothing stratified by state w/ Gaussian kernel")

cnSa <- kernelSmoothingByState(cn, h=2)
points(cnSa, col="blue")

cnSb <- kernelSmoothingByState(cn, h=5)
points(cnSb, col="red")

legend("topright", pch=19, col=c("#999999", "blue", "red"),
 sprintf(c("raw [n=%d]", "N(.,sd=2) [n=%d]", "N(.,sd=5) [n=%d]"),
 c(nbrOfLoci(cn), nbrOfLoci(cnSa), nbrOfLoci(cnSb))), bty="n")

Binned smoothing stratified by state

plot(cn, col="#999999", ylim=c(-3,3))
title(main="Binned smoothing stratified by state")

cnSa <- binnedSmoothingByState(cn, by=3, verbose=-1)
lines(cnSa, col="blue")
points(cnSa, col="blue")

cnSb <- binnedSmoothingByState(cn, by=9, verbose=-1)
lines(cnSb, col="red")
points(cnSb, col="red")

legend("topright", pch=19, col=c("#999999", "blue", "red"),
 sprintf(c("raw [n=%d]", "Bin(w=3) [n=%d]", "Bin(w=9) [n=%d]"),
 c(nbrOfLoci(cn), nbrOfLoci(cnSa), nbrOfLoci(cnSb))), bty="n")

```

---

SegmentedGenomicSignalsInterface

*The SegmentedGenomicSignalsInterface class interface*

---

## Description

Package: aroma.core

**Class SegmentedGenomicSignalsInterface**

[Interface](#)

~~|

~~+--SegmentedGenomicSignalsInterface



**Directly known subclasses:**

[SegmentedAlleleBFractions](#), [SegmentedCopyNumbers](#)

```
public class SegmentedGenomicSignalsInterface
 extends Interface
```

**Usage**

```
SegmentedGenomicSignalsInterface(...)
```

**Arguments**

```
... Not used.
```

**Fields and Methods****Methods:**

```
as.data.frame -
binnedSmoothingByState -
extractSubsetByState -
findChangePointsByState -
getStateColorMap -
getStateColors -
getStates -
getUniqueStates -
kernelSmoothingByState -
plot -
points -
setStateColorMap -
setStates -
```

**Methods inherited from Interface:**

```
extend, print, uses
```

**Author(s)**

```
Henrik Bengtsson
```

---

UnitAnnotationDataFile

*The UnitAnnotationDataFile interface class*

---

**Description**

Package: aroma.core

**Class UnitAnnotationDataFile****Interface**

~~|

~~+--UnitAnnotationDataFile

**Directly known subclasses:**

[AromaUflFile](#), [AromaUgcFile](#), [AromaUgpFile](#), [AromaUnitChromosomeTabularBinaryFile](#), [AromaUnitGcContentFile](#), [AromaUnitTabularBinaryFile](#), [AromaUnitTypesFile](#), [TextUnitNamesFile](#), [UnitNamesFile](#), [UnitTypesFile](#)

public static class **UnitAnnotationDataFile**  
 extends [Interface](#)

A UnitAnnotationDataFile provides methods for querying certain types of chip type annotation data by units.

**Usage**

UnitAnnotationDataFile(...)

**Arguments**

... Arguments passed to [Interface](#).

**Methods****Methods:**

|                 |   |
|-----------------|---|
| byChipType      | - |
| getAromaUflFile | - |
| getAromaUgpFile | - |
| getChipType     | - |
| getPlatform     | - |
| nbrOfUnits      | - |

**Methods inherited from Interface:**

extend, print, uses

**Author(s)**

Henrik Bengtsson

---

 UnitNamesFile      *The UnitNamesFile interface class*


---

**Description**

Package: aroma.core

**Class UnitNamesFile**

Interface

~~|

~~+--UnitAnnotationDataFile

~~~~~|

~~~~~+--UnitNamesFile

**Directly known subclasses:**[TextUnitNamesFile](#)public abstract static class **UnitNamesFile**extends [UnitAnnotationDataFile](#)

A UnitNamesFile provides methods for querying the unit names of a given chip type.

**Usage**

UnitNamesFile(...)

**Arguments**...      Arguments passed to [UnitAnnotationDataFile](#).**Methods****Methods:**

getUnitNames    -

indexOf          -

nbrOfUnits      -

**Methods inherited from UnitAnnotationDataFile:**

byChipType, getAromaUflFile, getAromaUgpFile, getChipType, getDefaultExtension, getPlatform, nbrOfUnits

**Methods inherited from Interface:**

extend, print, uses

**Author(s)**

Henrik Bengtsson

UnitTypesFile

*The UnitTypesFile interface class***Description**

Package: aroma.core

**Class UnitTypesFile****Interface**

```

~~|
~~+--UnitAnnotationDataFile
~~~~~|
~~~~~+--UnitTypesFile

```

**Directly known subclasses:**[AromaUnitTypesFile](#)

```

public abstract static class UnitTypesFile
extends UnitAnnotationDataFile

```

A UnitTypesFile provides methods for querying the unit types of a given chip type, e.g. genotyping or copy-number unit, exon unit etc.

**Usage**

```

UnitTypesFile(...)

```

**Arguments**

```

... Arguments passed to UnitAnnotationDataFile.

```

**Methods****Methods:**

```

getUnitTypes -
nbrOfUnits -

```

**Methods inherited from UnitAnnotationDataFile:**

```

byChipType, getAromaUflFile, getAromaUgpFile, getChipType, getDefaultExtension, getPlatform,

```

nbrOfUnits

**Methods inherited from Interface:**

extend, print, uses

**The aroma unit-type map**

unknown=0, expression=1, genotyping=2, resequencing=3, tag=4, copynumber=5, genotypingcontrol=6, expressioncontrol=7

**Author(s)**

Henrik Bengtsson

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