Package 'corrsieve'

May 8, 2026

Version 1.6-9

Date 2022-04-28

Title Software for Summarising and Evaluating STRUCTURE Output

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Description Statistical summary of STRUCTURE output. STRUCTURE is a K-means clustering method for inferring population structure and assigning individuals to populations using genetic data. Pritchard JK, Stephens M, Donnelly PJ (2000) <DOI:10.1093/genetics/155.2.945>. <https://web.stanford.edu/group/pritchardlab/structure.html>.

License GPL (>= 3)

Depends methods, stats

URL https://github.com/campanam/rCorrSieve

BugReports https://github.com/campanam/rCorrSieve

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NeedsCompilation no

Repository CRAN

Date/Publication 2022-05-02 22:52:30 UTC

Contents

`calc.delta` *Calc.delta*

Description

Calculates delta Fst or delta K from the output of `summarise.Fst` or `summarise.lnPD`.

Usage

```
calc.delta(input, Fst = FALSE)
```

Arguments

`input`	a table containing Fst or lnPD data generated by `summarise.Fst` or `summarise.lnPD`.
`Fst`	when FALSE, data is lnPD data and calculates delta K. When true, data is Fst data and calculates delta Fst

Value

Returns a table listing K values and delta F or delta K statistics

Author(s)

Michael G. Campana <mcampana63@gmail.com>

See Also

`summarise.Fst` `summarise.lnPD`

`corr.Qmatrix` *Corr.Qmatrix*

Description

Calculates Q matrix correlations from structure files in the folder specified in the filepath option

Usage

```
corr.Qmatrix(filepath = "./", instruct = FALSE, rowncol = TRUE,
    avmax = TRUE, pvalue = FALSE, raw = TRUE, r = 0.99, p = 0.05)
```

Arguments

filepath	a character string listing the folder's path from the current directory
instruct	when TRUE, data is in INSTRUCT format, else data is in STRUCTURE format
rowncol	when TRUE, calculates and returns filtered Q matrix correlations using the rows-and-columns criterion
avmax	when TRUE, calculates and returns filtered Q matrix correlations using the average maximum correlation criterion
pvalue	when TRUE, calculates and returns Q matrix correlations using permutation tests
raw	when TRUE, returns the raw unfiltered Q matrix correlations
r	the minimum r value to classify a correlation as significant
p	the maximum p value to classify a correlation as significant. Ignored unless pvalue = TRUE

Value

Returns a S4 object of class QmatrixFilt listing Q matrix correlation results for all STRUCTURE results files in the designated folder

Author(s)

Michael G. Campana <mcampana63@gmail.com>

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matrixCorr *MatrixCorr*

Description

The S4 class matrixCorr lists raw, unfiltered Q matrices between Structure runs

Objects from the Class

Objects can be created by calls of the form `new("matrixCorr", ...)`.

Slots

K A numeric listing the K value of the runs correlated

Run1 A numeric identifying the first of the runs correlated

Run2 A numeric identifying the second of the runs correlated

CorrMatrix A matrix listing raw Q matrix correlations

Pvalues A matrix listing raw Q matrix correlation significances

Author(s)

Michael G. Campana <mcampana63@gmail.com>

See Also

matrixCorr

`matrixCorr-method` *MatrixCorr constructor*

Description

Constructor for matrixCorr objects

Usage

```
matrixCorr(K, Run1, Run2, CorrMatrix, Pvalues = matrix(NA))
```

Arguments

K	A numeric corresponding to the @K slot listing the K value of the runs correlated
Run1	A numeric corresponding to the @Run1 slot identifying the first of the runs correlated
Run2	A numeric corresponding to the @Run2 slot identifying the second of the runs correlated
CorrMatrix	A matrix corresponding to the @CorrMatrix slot listing raw Q matrix correlations
Pvalues	A matrix corresponding to the @Pvalues slot listing raw Q matrix correlation significances

Value

Returns a S4 object of class matrixCorr listing raw Q matrix correlation results

Author(s)

Michael G. Campana <mcampana63@gmail.com>

See Also

matrixCorr

Examples

```
test <- matrixCorr(K = 1, Run1 = 2, Run2 = 3, CorrMatrix = matrix(NA))
```

`QmatrixFilt` *QmatrixFilt*

Description

The S4 class QmatrixFilt lists for Q matrix correlation output

Objects from the Class

Objects can be created by calls of the form `new("QmatrixFilt", ...)`.

Slots

rowncol A list listing filtered Q matrix correlations by the rows-and-columns method

avmaxcorr A table listing filtered Q matrix correlations by the rows-and-columns method

rawcorr A list listing raw Q matrix correlations

Author(s)

Michael G. Campana <mcampana63@gmail.com>

See Also

`QmatrixFilt`

`QmatrixFilt-method` *QmatrixFilt constructor*

Description

Constructor for `QmatrixFilt` objects

Usage

```
QmatrixFilt(rowncol = list(""), avmaxcorr = as.table(matrix(NA)), rawcorr = list(""))
```

Arguments

`rowncol`	A list corresponding to the @rowncol slot listing filtered Q matrix correlations by the rows-and-columns method
`avmaxcorr`	A table corresponding to the @avmaxcorr slot listing filtered Q matrix correlations by the rows-and-columns method
`rawcorr`	A list corresponding to the @rawcorr slot listing raw Q matrix correlations

Value

Returns a S4 object of class QmatrixFilt listing Q matrix correlation results

Author(s)

Michael G. Campana <mcampana63@gmail.com>

See Also

QmatrixFilt

Examples

```
test <- QmatrixFilt(rowncol = list(c("a", "b", "c")))
test@rowncol
```

`read.struct` *Read.struct*

Description

Reads the K values, Fsts, lnPDs from structure files in the folder specified in the filepath option

Usage

```
read.struct(filepath = "./", instruct = FALSE)
```

Arguments

`filepath`	a character string listing the folder's path from the current directory
`instruct`	when TRUE, data is in INSTRUCT format, else data is in STRUCTURE format

Value

Returns a table listing K values, lnPDs and Fsts for all STRUCTURE results files in the designated folder

Author(s)

Michael G. Campana <mcampana63@gmail.com>

rowncolMatrix *RowncolMatrix*

Description

The S4 class RowncolMatrix lists filtered Q matrix output by the row-and-column method

Objects from the Class

Objects can be created by calls of the form `new("rowncolMatrix", ...)`.

Slots

K A numeric listing the K value of the runs correlated

filterMatrix A table listing filtered Q matrix correlations by the row-and-column method

Author(s)

Michael G. Campana <mcampana63@gmail.com>

See Also

`rowncolMatrix`

rowncolMatrix-method *RowncolMatrix constructor*

Description

Constructor for `rowncolMatrix` objects

Usage

```
rowncolMatrix(K, filtermatrix)
```

Arguments

`K`	A numeric corresponding to the @K slot listing the K value of the runs correlated
`filtermatrix`	A table corresponding to the @filtermatrix slot listing filtered Q matrix correlations

Value

Returns a S4 object of class rowncolMatrix listing raw Q matrix correlation results

Author(s)

Michael G. Campana <mcampana63@gmail.com>

See Also

rowncolMatrix

Examples

```
## Make a table of correlation determinations
filtmat <- table(matrix(c("Y","Y","Y",NA,"Y","Y",NA,NA,"Y"),ncol = 3, byrow = TRUE))
## Make a rowncolMatrix
test <- rowncolMatrix(K = 3, filtermatrix = filtmat)
```

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summarise.Fst *Summarise.Fst*

Description

Summarises Fst from structure output read by `read.struct`.

Usage

```
summarise.Fst(input, stdevopt = 1)
```

Arguments

`input`	a table containing lnPD Fst generated by `read.struct`
`stdevopt`	Chooses the optimisation procedure for the Fst summaries. 1: no optimisation, 2: order the clusters by value, 3: order the clusters by correlation coefficients

Value

Returns a table listing K values and summarised Fst statistics

Author(s)

Michael G. Campana <mcampana63@gmail.com>

See Also

`read.struct` `calc.delta`

summarise.lnPD *Summarise.lnPD*

Description

Summarises lnP(D) from structure output read by `read.struct`.

Usage

```
summarise.lnPD(input)
```

Arguments

`input`	a table containing lnPD data generated by `read.struct`

Value

Returns a table listing K values and summarised lnPD statistics

Author(s)

Michael G. Campana <mcampana63@gmail.com>

See Also

`read.struct` `calc.delta`

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