

Package: ManyTests (via r-universe)

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Type Package

Title Multiple Testing Procedures of Cox (2011) and Wong and Cox (2007)

Version 1.2

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Description Performs the multiple testing procedures of Cox (2011) <doi:10.5170/CERN-2011-006> and Wong and Cox (2007) <doi:10.1080/02664760701240014>.

License GPL-2

NeedsCompilation no

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Repository <https://christianak.r-universe.dev>

RemoteUrl <https://github.com/cran/ManyTests>

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ManyTests-package *Multiple Testing Procedures of Cox (2011) and Wong and Cox (2007)*

Description

Performs the multiple testing procedures of Cox (2011) and Wong and Cox (2007).

Details

Package: ManyTests
Type: Package
Version: 1.1
Date: 2016-10-30
License: GPL-2

Author(s)

Christiana Kartsonaki

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References

Cox, D. R. (2011). Discovery: a statistical perspective. *Phystat Conference CERN*. <doi:10.5170/CERN-2011-006>

Cox, D. R. and Wong, M. Y. (2004). A simple procedure for the selection of significant effects. *Journal of the Royal Statistical Society B* **66** (2), 395–400. <doi:10.1111/j.1369-7412.2004.05695.x>

Wong, M. Y. and Cox, D. R. (2007). On the screening of large numbers of significance tests. *Journal of Applied Statistics* **34** (7), 779–783. <doi:10.1080/02664760701240014>

FDR *False Discovery Rate corresponding to t_0*

Description

Calculates the FDR which corresponds to a given cut-off t_0 according to the procedure of Wong and Cox (2007).

Usage

FDR(test_statistics, t_0)

Value

local_slope	The estimated local slope of the plot at large values.
test_statistic	The value of the test statistic.
Fvalue	The upper 5% value of the F distribution with 2 and 2k degrees of freedom, which is the distribution of the test statistic under the null hypothesis.
pvalue	The p -value of the test.

Author(s)

Christiana Kartsonaki

References

Cox, D. R. (2011). Discovery: a statistical perspective. *Phystat Conference CERN*. <doi:10.5170/CERN-2011-006>

See Also

[plot_pvalues](#)

Examples

```
# generate a vector of p values
p <- runif(100, 0, 1)

local_slope(p, 10)
```

ordered_values	<i>Calculate the expected values of the Renyi decomposition</i>
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Description

Calculates the expected values of the Renyi decomposition.

Usage

```
ordered_values(n)
```

Arguments

n Number of values.

Value

A vector of length n.

Author(s)

Christiana Kartsonaki

References

Cox, D. R. (2011). Discovery: a statistical perspective. *Phystat Conference CERN*. <doi:10.5170/CERN-2011-006>

Examples

```
ordered_values(10)
```

plot_pvalues	<i>Plot transformed p-values against the expected values of the Renyi decomposition</i>
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Description

Plots $-\log(p)$ against the expected values of the Renyi decomposition (Cox, 2011).

Usage

```
plot_pvalues(p)
```

Arguments

p A vector of p -values.

Author(s)

Christiana Kartsonaki

References

Cox, D. R. (2011). Discovery: a statistical perspective. *Phystat Conference CERN*. <doi:10.5170/CERN-2011-006>

See Also

[local_slope](#)

Examples

```
# generate a vector of p-values  
p <- runif(100, 0, 1)  
  
plot_pvalues(p)
```

`t_0`*Cut-off level corresponding to unit Bayes factor*

Description

Calculates the cut-off level corresponding to unit Bayes factor according to the procedure of Wong and Cox (2007).

Usage

```
t_0(test_statistics)
```

Arguments

```
test_statistics
```

A vector of values of test statistics.

Value

Cut-off level corresponding to unit Bayes factor.

Author(s)

Christiana Kartsonaki

References

Cox, D. R. and Wong, M. Y. (2004). A simple procedure for the selection of significant effects. *Journal of the Royal Statistical Society B* **66** (2), 395–400. <doi:10.1111/j.1369-7412.2004.05695.x>

Wong, M. Y. and Cox, D. R. (2007). On the screening of large numbers of significance tests. *Journal of Applied Statistics* **34** (7), 779–783. <doi:10.1080/02664760701240014>

See Also

[FDR](#)

Examples

```
x <- c(rnorm(100, 2, 2), rnorm(50, 0, 2))
t_0(x)
```

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