Package 'BonEV'

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Type Package

Title An Improved Multiple Testing Procedure for Controlling False Discovery Rates

Version 1.0

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Depends R (>= 3.2.0), qvalue

Description An improved multiple testing procedure for controlling false discovery rates which is developed based on the Bonferroni procedure with integrated estimates from the Benjamini-Hochberg procedure and the Storey's q-value procedure. It controls false discovery rates through controlling the expected number of false discoveries.

License GPL (>= 2)

NeedsCompilation no

Repository CRAN

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Contents

`BonEV-package` *BonEV: An Improved Multiple Testing Procedure for Controlling False Discovery Rates*

Description

BonEV is an improved multiple testing procedure for controlling false discovery rates which is developed based on the Bonferroni procedure with integrated estimates from the Benjamini-Hochberg procedure and the Storey's q-value procedure. It controls false discovery rates through controlling the expected number of false discoveries.

Details

Package:	BonEV
Type:	Package
Version:	1.0.0
Date:	2015-02-10
Depends:	R (>= 3.2.0), qvalue
License:	GPL (>= 2)

Author(s)

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See Also

The Bon_EV function defined in this package. The qvalue package.

Examples

```
library(qvalue)
data(hedenfalk)
summary(hedenfalk)
pvalues <- hedenfalk$p
adjp <- Bon_EV(pvalues, 0.05)
summary(adjp)
results <- cbind(adjp$raw_P_value, adjp$BH_adjp, adjp$Storey_adjp, adjp$Bon_EV_adjp)
results

##Compare with Benjamini-Hochberg and Storey's q-value procedures
sum(adjp$raw_P_value <= 0.05)
sum(adjp$BH_adjp <= 0.05)
sum(adjp$Storey_adjp <= 0.05)
sum(adjp$Bon_EV_adjp <= 0.05)
```

Bon_EV *Bon_EV: A R Function of Improved Multiple Testing Procedure for Controlling False Discovery Rates*

Description

Bon_EV is an improved multiple testing procedure for controlling false discovery rates which is developed based on the Bonferroni procedure with integrated estimates from the Benjamini-Hochberg procedure and the Storey's q-value procedure. It controls false discovery rates through controlling the expected number of false discoveries.

Usage

```
Bon_EV(pvalue, alpha)
```

Arguments

pvalue	The input data is a vector of P-values ranged from 0 to 1
alpha	The alpha is the level of false discovery rates (FDR) to control for

Details

Bon_EV is a function for getting adjusted P-values with FDR controlled at level alpha.

Value

Bon_EV produces a named list with the following components:

raw_P_value	Vector of raw P-values
BH_adjp	Adjusted P-values from the Benjamini-Hochberg procedure
Storey_adjp	Adjusted P-values from the Storey's q-value procedure
Bon_EV_adjp	Adjusted P-values from the Bon-EV multiple testing procedure

Author(s)

Dongmei Li

See Also

The qvalue package.

Examples

```
library(qvalue)
data(hedenfalk)
summary(hedenfalk)
pvalues <- hedenfalk$p
adjp <- Bon_EV(pvalues, 0.05)
summary(adjp)
sum(adjp$Bon_EV_adjp <= 0.05)
```

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