Package 'wilcoxmed'

Title Computes Values for the 1-Sample Wilcoxon Sign Rank Test for
Medians

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Description An implementation of the 1-Sample Wilcoxon Sign rank test for medians.
It includes 2 functions, W_stat(), which computes the
exact probabilities of the Wilcoxon Sign Rank Test Statistic, W.
The second function, Wilcox.m.test() allows the user to conduct the
1-Sample Wilcoxon Sign Rank hypothesis test for medians, this also
allows the user to conduct the hypothesis test for the normal approximation,
based on the techniques of Bickel and Doksum (1973, ISBN:013850363X).

License GPL-2

Encoding UTF-8

LazyData true

RoxygenNote 7.1.1

NeedsCompilation no

Repository CRAN

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R topics documented:

Wilcox.m.test	*1-Sample Wilcoxon Sign Rank Hypothesis Test for Medians*

Description

This function allows the user to conduct the 1-Sample Wilcoxon Sign Rank Hypothesis Test for Medians using the probability values from the exact distribution of W.

Usage

```
Wilcox.m.test(dat, m_h0, alpha = 0.05,
alternative=c('greater', 'lesser', 'noteq'), normal_approx=FALSE)
```

Arguments

dat	data vector relating to the sample the user is performing the hypothesis test for
m_h0	The value of the median as specified by the null hypothesis H_0
alpha	The significance level of the hypothesis test (default = 0.05)
alternative	The sign of the alternative hypothesis. e.g 'greater' - H_1:m>m_h0 , 'lesser' - H_1:m<m_h0, 'noteq' - H_1:m!=m_h0
normal_approx	Should the normal approximation test be applied? (default = FALSE)

Details

This hypothesis test allows breaking of ties, and the number of ties broken is also reflected in the printed results.

Value

Prints out the results of the tests, and returns 3 values- test statistic, p-value, and the significance level of the test, alpha

References

Peter J. Bickel and Kjell A. Doksum (1973). *Mathematical Statistics: Basic Ideas and Selected Topics*. Prentice Hall.

See Also

wilcox.test for the same tests applied to 2 sample problems but is not able to break ties

Examples

```
##Given some data: 3, 4, 7, 10, 4, 12, 1, 9, 2, 15
##If we want to test the hypotheses H_0: m=5 against H_1: m>5
##without using normal approximation:
vec = c(3, 4, 7, 10, 4, 12, 1, 9, 2, 15)
res = Wilcox.m.test(dat = vec, m_h0 = 5,
alternative = 'greater', normal_approx = FALSE)

##If we want to apply the normal approximation(Z-test), with the same hypotheses:
res = Wilcox.m.test(dat = vec, m_h0 = 5,
alternative = 'greater', normal_approx = TRUE)
```

W_stat   *Wilcoxon Sign Rank Test Statistic Exact Distribution*

Description

This function allows the user to find the probability values from the exact distribution of W, Bickel and Doksum(1973). The exact P(W=x), P(W<=x), P(W>=x) values is found via an exhaustive enumeration of the possible permutations of data with size n.

Usage

```
W_stat(n , test_stat, side = c('geq','leq','eq'))
```

Arguments

n	Size of data or Number of observations
test_stat	The x value specified in P(W=x), P(W<=x), P(W>=x)
side	The tails of exact probability the user wants to compute e.g. 'eq' = P(W=x), 'leq' = P(W<=x), 'geq' = 'P(W>=x)

Value

The exact probability values as specified.

Examples

```
W_stat(n=5, test_stat = 3, side = 'leq')
```

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