Package ‘PropCIs’

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PropCIs-package

Confidence intervals for single, paired and independent proportions

Description

Computes confidence intervals for single proportions as well as for differences in dependent and independent proportions, the odds-ratio and the relative risk in a 2x2 table. Intervals are available for independent samples and matched pairs. The functions are partly written by assistants of Alan Agresti, see website http://www.stat.ufl.edu/~aa/cda/cda.html.

Details

Package: PropCIs
Type: Package
Version: 0.2-5
Date: 2014-04-10
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LazyLoad: yes

Author(s)

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References

Clopper, C. and Pearson, E.S. (1934) The use of confidence or fiducial limits illustrated in the case of the binomial. *Biometrika* 26, 404–413.

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**acceptbin**

*internal function*

**Description**

computes the Blaker acceptability of p when x is observed and X is bin(n, p)

**add4ci**

*Agresti-Coull add-4 CI for a binomial proportion*

**Description**

Agresti-Coull add-4 CI for a binomial proportion, based on adding 2 successes and 2 failures before computing the Wald CI. The CI is truncated, when it overshoots the boundary

**Usage**

```
add4ci(x, n, conf.level)
```
Arguments

x  number of successes
n  number of trials
conf.level  confidence coefficient

Value

A list with class "htest" containing the following components:

conf.int  The confidence interval for the proportion
estimate  The estimator for the proportion

References


Examples

```r
add4ci(x = 15, n = 112, conf.level = 0.95)
```

Description

Agresti-Coull CI for a binomial proportion based on adding $z^2/2$ successes and $z^2/2$ failures before computing the Wald CI. The CI is truncated, when it overshoots the boundary.

Usage

```r
addz2ci(x, n, conf.level)
```

Arguments

x  number of successes
n  number of trials
conf.level  confidence coefficient
Value

A list with class "htest" containing the following components:

conf.int The confidence interval for the proportion
estimate The estimator for the proportion

References


Examples

```r
addz2ci(x = 15, n = 112, conf.level = 0.95)
```

---

**blakerci**  
*Blaker’s exact CI for a binomial proportion*

Description

Blaker’s exact CI for a binomial proportion

Usage

```r
blakerci(x, n, conf.level, tolerance=1e-05)
```

Arguments

- `x` Number of successes
- `n` Total sample size
- `conf.level` Confidence level
- `tolerance` default tolerance

Value

A list with class "htest" containing the following components:

conf.int The confidence interval for the proportion

References

Adjusted Wald interval for a difference of proportions with matched pairs.

Description

Adjusted Wald interval for a difference of proportions with matched pairs. This is the interval called Wald+2 in Agresti and Min (2005). Adds 0.5 to each cell before constructing the Wald CI.

Usage

diffpropci.mp(b, c, n, conf.level)

Arguments

b: off-diag count
c: off-diag count
n: sample size
conf.level: confidence coefficient \(1 - \alpha\)

Details

The interval is truncated, when it overshoots the boundary.

Value

A list with class "htest" containing the following components:

- conf.int: a confidence interval for the difference in proportions.
- estimate: estimated difference in proportions

References


Examples

diffpropci.mp(b = 40, c = 20, n = 160, conf.level = 0.95)
diffpropci.Wald.mp

Wald interval for a difference of proportions with matched pairs

Description

Wald interval for a difference of proportions with matched pairs.

Usage

diffpropci.Wald.mp(b, c, n, conf.level)

Arguments

b      off-diag count

c      off-diag count

n      sample size

conf.level     confidence coefficient

Details

The interval is truncated, when it overshoots the boundary

Value

A list with class "htest" containing the following components:

conf.int      a confidence interval for the difference in proportions.

estimate      estimated difference in proportions c-b/n

References


Examples

diffpropci.Wald.mp(b = 3, c = 9, n = 32, conf.level = 0.95)
diffscoreci  

Score interval for difference of proportions

Description

Score interval for difference of proportions and independent samples (p1 - p2)

Usage

diffscoreci(x1, n1, x2, n2, conf.level)

Arguments

- x1: success counts in sample 1
- n1: sample size in sample 1
- x2: success counts in sample 2
- n2: sample size in sample 2
- conf.level: confidence coefficient

Value

A list with class "htest" containing the following components:

- conf.int: a confidence interval for the difference in proportions.

References


exactci

Clopper-Pearson exact CI

Description

Clopper-Pearson exact CI

Usage

exactci(x, n, conf.level)

Arguments

x Number of successes
n Total sample size
conf.level Confidence level

Value

A list with class "htest" containing the following components:

conf.int a confidence interval for the proportion

References


limit internal function

Description

internal function of orscoreci
midPci

mid-P confidence interval adaptation of the Clopper-Pearson interval

Description
mid-P confidence interval adaptation of the Clopper-Pearson interval

Usage
midPci(x, n, conf.level)

Arguments
x number of successes
n number of trials
conf.level confidence coefficient

Value
A list with class "htest" containing the following components:
conf.int a confidence interval for the difference in proportions.

References

Examples
midPci(x = 15, n = 112, conf.level = 0.95)

oddsratioci.mp

Adapted binomial score confidence interval for the subject-specific odds ratio with matched pairs

Description
Adapted binomial score confidence interval for the subject-specific odds ratio with matched pairs. This uses the Wilson score CI for a binomial parameter with the off-diagonal counts.

Usage
oddsratioci.mp(b, c, conf.level)
orscoreci

Arguments

- `b` off-diagonal count
- `c` off-diagonal count
- `conf.level` confidence coefficient

Value

A list with class "htest" containing the following components:

- `conf.int` a confidence interval for the difference in proportions.

References


Examples

```r
dostratioc.i(b = 40, c = 20, conf.level = 0.95)
```

---

orscoreci

score confidence interval for an odds ratio in a 2x2 table \[\frac{p1(1-p1)}{p2(1-p2)}\]

Description

score confidence interval for an odds ratio in a 2x2 table \[\frac{p1(1-p1)}{p2(1-p2)}\]

Usage

```r
orscoreci(x1, n1, x2, n2, conf.level)
```

Arguments

- `x1` number of successes in sample 1
- `n1` sample size in sample 1
- `x2` number of successes in sample 2
- `n2` sample size in sample 2
- `conf.level` confidence coefficient \(1 - \alpha\)

Value

A list with class "htest" containing the following components:

- `conf.int` a confidence interval for the difference in proportions.
References


---

riskscoreci  

score confidence interval for the relative risk in a 2x2 table

Description

score confidence interval for the relative risk in a 2x2 table

Usage

riskscoreci(x1, n1, x2, n2, conf.level)

Arguments

x1  
  number of successes in sample 1

n1  
  sample size in sample 1

x2  
  number of successes in sample 2

n2  
  sample size in sample 2

conf.level  
  confidence coefficient $1 - \alpha$

Value

A list with class ""htest"" containing the following components:

conf.int  
  a confidence interval for the difference in proportions.

References


**scoreci**

*Wilson’s confidence interval for a single proportion*

**Description**

Wilson’s confidence interval for a single proportion. Score CI based on inverting the asymptotic normal test using the null standard error.

**Usage**

```r
scoreci(x, n, conf.level)
```

**Arguments**

- `x` Number of successes
- `n` Total sample size
- `conf.level` Confidence level

**Value**

A list with class ’”htest”’ containing the following components:

- `conf.int` a confidence interval for the difference in proportions.

**References**


**scoreci.mp**

*Tango’s score confidence interval for a difference of proportions with matched pairs*

**Description**

Tango’s score confidence interval for a difference of proportions with matched pairs.

**Usage**

```r
scoreci.mp(b, c, n, conf.level)
```

**Arguments**

- `b` off-diagonal count
- `c` off-diagonal count
- `n` sample size
- `conf.level` confidence coefficient
Value

A list with class "htest" containing the following components:

- `conf.int` a confidence interval for the difference in proportions.

References


Tango T. (1998) Equivalence test and confidence interval for the difference in proportions for the paired-sample design *Statistics in Medicine* 17, 891–908

Examples

```r
scoreci.mp(b = 40, c = 20, n = 160, conf.level = 0.95)
```

```
wald2ci W ald interval with the possibility to adjust according to Agresti, Caffo (2000) for difference in proportions and independent samples.
```

Description

Wald interval with the possibility to adjust according to Agresti, Caffo (2000) for difference in proportions and independent samples. The Agresti-Caffo interval adds 1 to \( x_1 \) and \( x_2 \) and adds 2 to \( n_1 \) and \( n_2 \).

Usage

`wald2ci(x1, n1, x2, n2, conf.level, adjust)`

Arguments

- `x1` success counts in sample 1
- `n1` sample size in sample 1
- `x2` success counts in sample 2
- `n2` sample size in sample 2
- `conf.level` confidence coefficient
- `adjust` option to adjust the Wald interval to the Agresti-Caffo interval for better performance

Details

If `adjust=AC` is chosen, the standard Wald interval is modified to the Agresti-Caffo adjusted CI (American Statistician, 2000)
Value

A list with class ""htest"" containing the following components:

- `conf.int` a confidence interval for the difference in proportions.
- `estimate` estimated difference in proportions

References


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**z2stat**

`internal function`

**Description**

`internal function of diffscoreci`
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