

Package ‘mrt’

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Type Package

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Description Datasets and functions from Wright and London’s Modern Regression Techniques

License Unlimited

LazyLoad yes

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mrt-package

Modern Regression Techniques: Datasets and miscellaneous

Description

Datasets and assorted functions for Wright and London's (2009) *Modern Regression Techniques Using R* and other materials. Other functions are described in Kelley & Wright (2010), Wright (2007a,b), and Wright & Herrinton (2011). The functions for Wright, Horry and Skagerberg (2009) are in sdtalt.

Details

Package: modreg
Type: Package
Version: 0.4
Date: 2010-11-24
License: Unlimited
LazyLoad: yes

Author(s)

Daniel B. Wright <dwright@fiu.edu>

References

- Kelley, M. R. & Wright, D.B. (2010) Obtaining representative nominal groups. *Behavior Research Methods*, **42**, 36-41.
- Wright, D.B. (2007a). Calculating nominal group statistics in collaboration studies. *Behavior Research Methods*, **39**, 460-470.
- Wright, D. B. (2007b). Graphing within subject confidence intervals (WSCI) using SPSS and S-Plus. *Behavior Research Methods*, **39**, 82-85.
- Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt
- Wright, D.B. & London, K. (2009). *Modern regression techniques using R*. Sage Publications.

anscombe

Data created by Anscombe

Description

A beautifully constructed data set for showing the need to look at data

Usage

```
data(anscombe)
```

Format

A data frame with 44 observations on the following 3 variables.

Food a numeric vector

Drink a numeric vector

Type a factor with levels bird insect mammal reptile

References

Anscombe, F.J. (1973). Graphs in statistical analysis. *American Statistician*, 27, 17-21.

anscombe.boot	<i>Anscombe-Glynn (1983) test with bootstrap of z</i>
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Description

Conducts the Anscombe-Glynn (1983) test for kurtosis which uses the Wilson-Hilferty transformation. Uses the `anscombe.test` function from `moments` (Komsta & Novomestky, 2007), but the equations can be taken straight from Anscombe and Glynn (1983). That function produces a z value. Here, this statistic is bootstrapped. The upper and lower bounds of z are produced. Requires the package `boot` (Canty & Ripley, 2010).

Usage

```
anscombe.boot(x, reps = 2000, printtest = FALSE, clevel = 0.95, method = "bca", ...)
```

Arguments

<code>x</code>	The variable of interest
<code>reps</code>	The number of bootstrap replications
<code>printtest</code>	Whether to print the results of <code>anscombe.test</code>
<code>clevel</code>	The confidence level of <code>boot.ci</code>
<code>method</code>	Any argument other than "bca" will produce percentile intervals.
<code>...</code>	Other arguments

Value

Kurtosis	<code>g2</code>
<code>z</code>	<code>z</code> from <code>anscombe.test</code>
<code>lb</code>	lower bound of <code>z</code>
<code>ub</code>	upper bound of <code>z</code>

Author(s)

Daniel B. Wright

References

Anscombe, F.J. & Glynn, W.J. (1983) Distribution of kurtosis statistic for normal statistics. *Biometrika*, 70, 227-234.

Canty, A. & Ripley, B. (2010). `boot`: Bootstrap R (S-Plus) functions. R package version 1.2-42.

Komsta, L. & Novomestky, F. (2007). `Moments`: Moments, cumulants, skewness, kurtosis and related tests. R package version 0.11. <http://www.r-project.org>, <http://www.komsta.net/>

See Also

anscombe.test

Examples

```
varx <- runif(100)
anscombe.boot(varx)
anscombe.boot(varx, printtest=TRUE, method="other", reps=600)
```

ayers

Birth trauma data

Description

Data from Susan Ayers' (1999) research on trauma after childbirth. These are described in Wright and London's (in press) review of multilevel modeling. They are used to illustrate different covariance structures.

Usage

```
data(ayers)
```

Format

A data frame with 287 observations on the following 9 variables.

partno a numeric vector

dep1 a numeric vector

dep2 a numeric vector

dep3 a numeric vector

dep4 a numeric vector

anx1 a numeric vector

anx2 a numeric vector

anx3 a numeric vector

anx4 a numeric vector

References

Wright, D.B. & London, K. (in press). Multilevel modelling: Beyond the basic applications. *British Journal of Mathematical and Statistical Psychology*.

b1 *b1 statistic for Skewness*

Description

A common statistic for skewness. Called by the function sktable

Usage

b1(x)

Arguments

x The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by sktable.

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

sktable

Examples

```
varx <- runif(20)^2
b1(varx)
```

b1se

b1se statistic for Standard error of skewness

Description

A common statistic for se of skewness. Called by the function sktable

Usage

```
b1se(x)
```

Arguments

x The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by sktable.

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

sktable

Examples

```
varx <- runif(20)^2  
b1se(varx)
```

`b1se2`*b1se2 statistic for standard error of skewness*

Description

A common statistic for standard error of skewness. Called by the function `sktable`. Uses Kendall, Stuart and Ord (1987, p. 344).

Usage`b1se2(x)`**Arguments**

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by `sktable`.

Author(s)

Daniel B. Wright

References

Kendall, M., Stuart, A., & Ord, J.K. (1987). *Kendall's advanced theory of statistics: Vol. 1. Distribution theory*. New York: Oxford University Press.

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

`sktable`

Examples

```
varx <- runif(20)^2
b1se2(varx)
```

b2

b2 statistic for Kurtosis

Description

A common statistic for kurtosis. Called by the function sktable

Usage

b2(x)

Arguments

x The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by sktable.

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

sktable

Examples

```
varx <- runif(20)^2  
b2(varx)
```

b2se

b2se statistic for Standard error of kurtosis

Description

A common statistic for standard error of kurtosis. Called by the function sktable

Usage

b2se(x)

Arguments

x The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by sktable.

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

sktable

Examples

```
varx <- runif(20)^2
b2se(varx)
```

b2se2*b1se2 statistic for standard error of kurtosis*

Description

A common statistic for standard error of kurtosis. Called by the function `sktable`. Uses Kendall, Stuart and Ord (1987, p. 344).

Usage

```
b2se2(x)
```

Arguments

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by `sktable`.

Author(s)

Daniel B. Wright

References

Kendall, M., Stuart, A., & Ord, J.K. (1987). *Kendall's advanced theory of statistics: Vol. 1. Distribution theory*. New York: Oxford University Press.

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

`sktable`

Examples

```
varx <- runif(20)^2  
b2se2(varx)
```

chile *Chile length and Heat*

Description

The smaller the chile the hotter the taste. These data were gather from "Pepper Joe's" web page several years ago (<http://www.pepperjoe.com/>). This is a *cool* example for teaching (imho).

Usage

```
data(chile)
```

Format

A data frame with 85 observations on the following 3 variables.

NAME a factor with levels Afric Aji Aji_A Aji_C Aji_F Aji_L Aji_M Aji_N Aji_O Aji_P Aji_R
Aji_V Akola Amari Anahe Ancho Assam Azr Banan Bedgi Bell_ Berbe Big_J Bird Bisho
Black Boliv Bomba Bulga Cabai Calif Calor Canti Carib Casab Casca Cayen Charl
Cherr Chile Chipo Cisco Confe de_Ar Dundi Dutch Fajit Fatal Garde Georg Goat_
Guaji Haban Hunga Inca_ Infer Jalap Kahar Kashm Kenya Large Long_ Louis Malib
NuMex Pasil Patztc Penis Rocot Sandi Sappo Scotc Serra Tabas

LENGTH a numeric vector

HEAT a numeric vector

company *Company efficiency*

Description

Data from Wright (1997, Table 6.5). Made up data.

Usage

```
data(company)
```

Format

A data frame with 6 observations on the following 5 variables.

COMPANY a numeric vector

AUTUMN a numeric vector

WINTER a numeric vector

SPRING a numeric vector

SUMMER a numeric vector

Source

Wright, D. B. (1997). *Understanding Statistics: An Introduction for the Social Sciences*. London : Sage.

References

Wright, D. B. (1997). *Understanding Statistics: An Introduction for the Social Sciences*. London : Sage.

Examples

```
data(company)
wsci(company,diff=1)
```

cp85

Wages for males and females

Description

Data of wages with education, gender, and experience

Usage

```
data(cp85)
```

Format

A data frame with 533 observations on the following 6 variables.

EDUC a numeric vector

FEMALE a numeric vector

EXPER a numeric vector

WAGE a numeric vector

AGE a numeric vector

LNWAGE a numeric vector

References

http://lib.stat.cmu.edu/datasets/CPS_85_Wages

 crime

Crime in Sussex (UK)

Description

These were taken from the Argos newspaper in Brighton. They show crime levels in different areas and in Wright and London (2009) are used to illustrate transformations, robust correlation, and robust regression.

Usage

```
data(crime)
```

Format

A data frame with 261 observations on the following 10 variables.

Neigh a factor with levels AldwickEast AldwickWest Alfriston Angmering Ardingly Arundel Ashdown AshurstWood Baird Barcombe Barnham BattleTown Beach(Littlehampton) Bersted Bewbush Billinghamst Bolney Bosham Boxgrove Bramber Braybrooke BredeValley BroadbrigeHeath BroadfieldNorth BroadfieldSouth BroadwaterDistrict Brookfield BrunswickandAdelaide Buckingham BurgessHillDunstall BurgessHillFranklands BurgessHillLeylands BurgessHillMeeds BurgessHillStAndrews BurgessHillVictoria Bury Buxted Castle CastleDistrict Central CentralDistrict CentralHove CentralStLeonards Chailey Chanctonbury Chantry ChichesterEast ChichesterNorth ChichesterSouth ChichesterWest Chiddingly Churchill Cokeham Collington Conquest Copthorne Cowfod CrawledyDown CrossinHand CrowboroughEast CrowboroughJarvisBrook CrowboroughNorth CrowboroughStJohns CrowboroughWest Crowhurst Cuckfield Darweel Devonshire Ditchling Donnington DurringtonDistrict Earnley Easebourne EastBrighton Eastbrook EasternRother EastGrinsteadAshplats EastGrinsteadBaldwins EastGrinsteadHerontye EastGrinsteadImberhorn EastGrinsteadTown EastPreston EastSaltdean EastWittering EwhurstandSedlescombe FelphamEast FelphamWest Fernhurst Ferring Findon Fishbourne ForestRow Framfield Frant Funtington FurnaceGreen GaisfordDistrict Gensing Goldsmid GoringDistrict GosspopsGreen HailshamCentral HailshamEast HailshamSouth Ham HampdenPark Hampr HangletonandKnoll HanoverandElmGrove Hartfield Harting Hassocks HaywardsHeathAshengrou HaywardsHeathBentswood HaywardsHeathFrankland HaywardsHeathHeath HaywardsHeathLucastes HeathfieldEast HeathfieldNorth HeeneDistrict Hellingly Henfield Herstmonceux HighWeald Hillside HollingburyandStanmer Hollington Horam HorshamDenne HorshamForest HorshamHolbrookEast HorshamHolbrookWest HorshamRiverside HorshamRoffeyNorth HorshamRoffeySouth HorshamTrafalger Hotham(Bognor) Hurstpierpoint Ifield Itchingfield Kewhurst Kingston LangleyGreen Langney Lavant LewesBridge LewesCastle LewesPriory Lindfield Maidenbower MarineDistrict Marsham MashBarn Mayfield MazeHill Meads MiddletononSea Midhurst MousecoombandBevendean NewhavenDenton NewhavenValley Newick NinfieldandHooe Northbrook Northgate NorthMundham NorthPortslade Nuthurst Offington OldHastings OldTown Orchard Ore OuseValley PaghamandRoseGreen Patcham PeacehavenEast PeacehavenNorth PeacehavenWest Petworth Pevensy PevensyandWestham Peverel Plaistow Plumpton PolegateNorth PolegateSouth PoundHillNorth PoundHillSouth PrestonPark Pulborough QueensPark Ratton Regency River(Littlehampton) Rogate Rotherfield RotherLevels

RottingdeanCoastal Rudgwisk RusperandColgate RustingtonEast RustingtonWest Rye
 Sackville Salehurst SalvingtonDistrict SeafordCentral SeafordEast SeafordNorth
 SeafordSouth SeafordWest Selden SelseyNorth SelseySouth Sidlesham Sidley Silverhill
 Southbourne Southgate Southlands SouthPortsLade Southwate SouthwickGreen Sovereign
 Stanford StAnthonys Stedham Steyning StHelens StMarks StMarys StMichaels StNicholas
 StPetersandNorthLai StStephens Tangmere Tarrying ThreeBridges Ticehurst Tilgate
 Tressell UckfieldCentral UckfieldNewtown UckfieldNorth UckfieldRidgewood Upperton
 Wadhurst Westbourne WestGreen WestStLeonards WestWittering WickwithToddington
 Widewater Willingdon Wish WishboroughGreen WishingTree Withdean Woodingdean Yapton

Council a numeric vector
 Weapons a numeric vector
 Robbery a numeric vector
 Burglary a numeric vector
 Drugs a numeric vector
 Cars a numeric vector
 Sexoff a numeric vector
 theft a numeric vector
 damage a numeric vector

References

The Argos, March 10, 2007

exer

Getting Children to Exercise

Description

These data are from Hill et al. (2007) and are used to illustrate multilevel modeling.

Usage

data(exer)

Format

A data frame with 503 observations on the following 12 variables.

wcond a numeric vector
 class a numeric vector
 w1sn02 a numeric vector
 w2sn02 a numeric vector
 w1int a numeric vector

w2int a numeric vector
w1att a numeric vector
w2att a numeric vector
z1pbc a numeric vector
z2pbc a numeric vector
sqw1 a numeric vector
sqw2 a numeric vector

References

Hill, C., Abraham, C., & Wright, D. B. (2007). Can theory-based messages in combination with cognitive prompts promote exercise in classroom settings? *Social Science & Medicine*, **65**, 1049-1058.

g1 *g1 statistic for Skewness*

Description

A common statistic for skewness. Called by the function sktable

Usage

g1(x)

Arguments

x The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by sktable.

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

sktable

Examples

```
varx <- runif(20)^2
g1(varx)
```

`g1se`*g1se statistic for standard error of skewness*

Description

A common statistic for standard error of skewness. Called by the function sktable

Usage`g1se(x)`**Arguments**

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by sktable.

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

sktable

Examples

```
varx <- runif(20)^2
g1se(varx)
```

`g1se2`*b1se2 statistic for standard error of skewness*

Description

A common statistic for standard error of skewness. Called by the function `sktable`. Uses Kendall, Stuart and Ord (1987, p. 344).

Usage`g1se2(x)`**Arguments**

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by `sktable`.

Author(s)

Daniel B. Wright

References

Kendall, M., Stuart, A., & Ord, J.K. (1987). *Kendall's advanced theory of statistics: Vol. 1. Distribution theory*. New York: Oxford University Press.

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

`sktable`

Examples

```
varx <- runif(20)^2
g1se2(varx)
```

g2

g2 statistic for kurtosis

Description

A common statistic for kurtosis. Called by the function sktable

Usage

`g2(x)`

Arguments

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by sktable.

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

sktable

Examples

```
varx <- runif(20)^2
g2(varx)
```

g2se

g2se statistic for standard error of kurtosis

Description

A common statistic for standard error of kurtosis. Called by the function sktable

Usage

`g2se(x)`

Arguments

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by sktable.

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

sktable

Examples

```
varx <- runif(20)^2
g2se(varx)
```

g2se2

g2se2 statistic for standard error of kurtosis

Description

A common statistic for standard error of kurtosis. Called by the function `sktable`. Uses Kendall, Stuart and Ord (1987, p. 344).

Usage

```
g2se2(x)
```

Arguments

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by `sktable`.

Author(s)

Daniel B. Wright

References

Kendall, M., Stuart, A., & Ord, J.K. (1987). *Kendall's advanced theory of statistics: Vol. 1. Distribution theory*. New York: Oxford University Press.

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

`sktable`

Examples

```
varx <- runif(20)^2  
g2se2(varx)
```

`gg1`*G1 statistic for Skewness*

Description

A common statistic for skewness. Called by the function `sktable`

Usage`gg1(x)`**Arguments**

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by `sktable`.

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

`sktable`

Examples

```
varx <- runif(20)^2
gg1(varx)
```

`gg1se`*G1se statistic for standard error of skewness*

Description

A common statistic for standard error of skewness. Called by the function `sktable`

Usage

```
gg1se(x)
```

Arguments

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by `sktable`.

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

`sktable`

Examples

```
varx <- runif(20)^2
gg1se(varx)
```

`gg1se2`*G1se2 statistic for standard error of skewness*

Description

A common statistic for standard error of skewness. Called by the function `sktable`. Uses Kendall, Stuart and Ord (1987, p. 344). Changed from `G1se2` so more easily differentiated from `g1se2`.

Usage

```
gg1se2(x)
```

Arguments

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by `sktable`.

Author(s)

Daniel B. Wright

References

Kendall, M., Stuart, A., & Ord, J.K. (1987). *Kendall's advanced theory of statistics: Vol. 1. Distribution theory*. New York: Oxford University Press.

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

`sktable`

Examples

```
varx <- runif(20)^2
gg1se2(varx)
```

`gg2`*G2 statistic for kurtosis*

Description

A common statistic for kurtosis. Called by the function `sktable`

Usage`gg2(x)`**Arguments**

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by `sktable`.

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

`sktable`

Examples

```
varx <- runif(20)^2
gg2(varx)
```

`gg2se`*G2se statistic for standard error of kurtosis*

Description

A common statistic for standard error of kurtosis. Called by the function `sktable`

Usage

```
gg2se(x)
```

Arguments

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by `sktable`.

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

`sktable`

Examples

```
varx <- runif(20)^2
gg2se(varx)
```

`gg2se2`*G2se2 statistic for standard error of kurtosis*

Description

A common statistic for standard error of kurtosis. Called by the function `sktable`. Uses Kendall, Stuart and Ord (1987, p. 344). Changed from `G2se2` to `gg2se2` so more easily differentiated from `g2se2`.

Usage

```
gg2se2(x)
```

Arguments

`x` The variable of interest

Details

see Wright and Herrington (2011)

Note

While this can be called on its own, it was written to be used by `sktable`.

Author(s)

Daniel B. Wright

References

Kendall, M., Stuart, A., & Ord, J.K. (1987). *Kendall's advanced theory of statistics: Vol. 1. Distribution theory*. New York: Oxford University Press.

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

`sktable`

Examples

```
varx <- runif(20)^2
gg2se2(varx)
```

`glmexample`*Made-up data to illustrate GLMs*

Description

These data were first created for Wright (2006).

Usage

```
data(glmexample)
```

Format

A data frame with 20 observations on the following 6 variables.

`test` a numeric vector

`social` a numeric vector

`books` a numeric vector

`math` a numeric vector

`pass` a numeric vector

`detent` a numeric vector

References

Wright, D. B. (2006a). The art of statistics: A survey of modern statistics. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology (2nd ed.)* (pp. 879-901). Mahwah, NJ: Erlbaum.

`juryrd`*Calculating Reasonable Doubt*

Description

These data (Wright & Hall, 2006) are used to show logistic regression and calculating reasonable doubt (like LD-50 in biostats ... Lethal Dose-50). The MASS package (or VR bundle) has a function for the confidence interval.

Usage

```
data(juryrd)
```

Format

A data frame with 172 observations on the following 4 variables.

SUBNO a numeric vector

GUILTY a numeric vector

FORM a numeric vector

BELIEF a numeric vector

References

Wright, D. B., & Hall, M. (2007). How a "Reasonable Doubt" instruction affects decisions of guilt. *Basic and Applied Social Psychology*, **29**, 85-92.

k_approx

Old approx to estimate standard error kurtosis

Description

This is the equation, $\sqrt{24/\text{length}(x)}$, in some textbooks. It is called in the function sk. This is really just for comparison.

Usage

```
k_approx(x)
```

Arguments

x The variable of interest

Author(s)

Daniel B. Wright)

See Also

sk

Examples

```
varx <- runif(20)^2  
k_approx(varx)
```

lordex

Illustrating Lord's Paradox

Description

These are data based on London, Bruck and Melnyk (2008) on children's suggestibility and are used to illustrate Lord's paradox (Wright, 2006).

Usage

```
data(lordex)
```

Format

A data frame with 51 observations on the following 3 variables.

AGEMOS a numeric vector

Final a numeric vector

Initial a numeric vector

References

London, K., Bruck, M., & Melnyk, L. (2008). Persistence of facilitation and misinformation effects in event memory following a 10 month delay. *Law and Human Behavior*. Wright, D. B. (2006b). Comparing groups in a before-after design: When t-test and ANCOVA produce different results. *British Journal of Educational Psychology*, **76**, 663-675.

maleptsd

Male PTSD symptoms after childbirth

Description

These data come from ongoing research by Susan Ayers and colleagues on psychological well-being after childbirth (<http://www.birthtraumaassociation.org.uk/index.htm>). These data were used to illustrate model selection and regularization.

Usage

```
data(maleptsd)
```

Format

A data frame with 64 observations on the following 11 variables.

OVER2 a numeric vector

OVER3 a numeric vector

OVER5 a numeric vector

BOND a numeric vector

POSIT a numeric vector

NEG a numeric vector

CONTR a numeric vector

SUP a numeric vector

CONS a numeric vector

AFF a numeric vector

PTSD a numeric vector

References

Ayers, S., Wright, D. B., & Wells N. (2007). Post-traumatic stress in couples after birth: Association with the couple's relationship and parent-baby bond. *Journal of Reproductive & Infant Psychology*, **25**, 40-50.

mediator

Simple mediator analysis and graph

Description

A function that conducts a simple mediation analysis and makes the figure shown in Wright and London (2009).

Usage

```
mediator(x, y, m, ...)
```

Arguments

x	The predictor variable
y	The response variable
m	The mediator
...	Other arguments

Value

The graph is the main output.

Note

There are other mediation packages. This was shown in Wright and London to illustrate how to make a function. It does not do anything particularly novel or clever.

Author(s)

Daniel B. Wright

Examples

```
set.seed(143)
leaflet <- rep(c(0,1),each=50)
fairskin <- rbinom(100,1,.5)
likely <- rbinom(100,10,.20 + .2*leaflet + .2*fairskin)
plan <- rbinom(100,7,likely/15+leaflet*.2)
mediator(leaflet,plan,likely)
```

memrec

Memory Recognition Data

Description

Data from the cross race recognition research of Wright, Boyd and Tredoux (2003).

Usage

```
data(memrec)
```

Format

A data frame with 3000 observations on the following 6 variables.

face a numeric vector

facewhite a numeric vector

time a numeric vector

partno a numeric vector

faceold a numeric vector

saysold a numeric vector

References

Wright, D. B., Boyd, C. E., & Tredoux, C. G. (2003). Inter-racial contact and the own race bias for face recognition in South Africa and England. *Applied Cognitive Psychology*, **17**, 365-373.

mr	<i>mr Internal function for moments</i>
----	---

Description

This is an internal function for sktable. Other functions for moments exist

Usage

```
mr(x, n, r)
```

Arguments

x	The variable
n	The sample size (calculated in different function for speed purposes)
r	Which moment

Author(s)

Daniel B. Wright

Examples

```
xvar <- runif(20)^2  
mr(xvar,20,4)
```

ngfinder	<i>Nominal group finder (Kelley & Wright, 2010, BRM)</i>
----------	--

Description

Finds the set of nominal groups which is representative of all possible sets for either mean, variance (and other moments) or the distribution. Details are in Kelley and Wright (2010), where a C++ function also described.

Usage

```
ngfinder(nomg, number = 2, right = 1, replic = 1000, moments = NULL, distmeth = "ks", ...)
```

Arguments

nomg	The data file. One line per participant
number	The size of the groups
right	The value for a correct answer
replic	How many samples to draw
moments	If matching on moments, how many to use. 2 is recommended
dismeth	If matching on distributions, whether to use Kolmogorov-Smirnov or Pearson method
...	Other arguments

Details

The function takes a data matrix for a control condition in a collaboration study, and finds a set which is really close to the average of all possible sets. Details are in Kelley and Wright (2010), which is an advance on Wright (2007).

Value

forgroups	The numbers for the optimal groups, so the participant numbers
values	The number of correct responses for each of the groups

Author(s)

Daniel B. Wright, dwright@fiu.edu

References

- Kelley, M. R. & Wright, D.B. (2010) Obtaining representative nominal groups. *Behavior Research Methods*, **42**, 36-41.
- Wright, D.B. (2007). Calculating nominal group statistics in collaboration studies. *Behavior Research Methods*, **39**, 460-470.
<http://www2.fiu.edu/~dwright/nomg/index.htm>

Examples

```
set.seed(32)
dmat <- rbinom(120,1,.4)
dim(dmat) <- c(12,10)
ngfinder(dmat,number=3,replic=4)
ngfinder(dmat,number=3,replic=4,moments=3)
```

semoment	<i>SE moments</i>
----------	-------------------

Description

The standard errors for moments as defined in eqn 10.9 from Stuart and Ord, 1987.

Usage

```
semoment(x, r = 4)
```

Arguments

x	Variable of interest
r	Which moment

Author(s)

Daniel B. Wright

References

Kendall, M., Stuart, A., & Ord, J.K. (1987). *Kendall's advanced theory of statistics: Vol. 1. Distribution theory*. New York: Oxford University Press.

See Also

sktable

Examples

```
varx <- runif(20)^2
semoment(varx)
```

sk	<i>Skewness and Kurtosis statistics, and test of normality</i>
----	--

Description

This function runs sktable to provide tradition estimates of skewness and kurtosis with asymptotic and bootstrap standard errors (Wright & Herrington, 2011). It also runs Shapiro-Wilk and Kolmogor-Smirnov tests. The package nortest (Gross, no date) has further tests of normality.

Usage

```
sk(varx, table = TRUE, SW = TRUE, KS = FALSE, rough = FALSE, ...)
```

Arguments

varx	Variable of interest
table	if FALSE sktable will not be used and no table produced
SW	Run Shapiro-Wilk
KS	Run Kolmogorov-Smirnov
rough	Include rough/approx standard errors from old textbooks
...	Further arguments

Author(s)

Daniel B. Wright

References

Gross, J. (no date). nortest: Tests for normality. R package version 1.0.
 Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

See Also

sktable

Examples

```
varx <- runif(20)^2
sk(varx)
```

sktable

Skewness and Kurtosis Table

Description

A table of traditional statistics for skewness and kurtosis values, with their asymptotic and bootstrap standard errors (Wright & Herrington, 2011).

Usage

```
sktable(varx, reps = 2000, bootm = TRUE, ...)
```

Arguments

varx	Variable to analyzed
reps	Bootstrap replications
bootm	To bootstrap or not
...	Further arguments

Author(s)

Daniel B. Wright

References

Wright, D.B. & Harrington, J.A. (2011, actual in press at the moment). Problematic standard errors and confidence intervals for skewness and kurtosis. *Behavior Research Methods*. www2.fiu.edu/~dwright/skewkurt

Examples

```
varx <- runif(20)^2
sktable(varx)
```

sk_approx

Old approx to estimate standard error skewness

Description

This is the equation, $\sqrt{6/\text{length}(x)}$, in some textbooks. It is called in the function sk. This is really just for comparison.

Usage

```
sk_approx(x)
```

Arguments

x The variable of interest

Author(s)

Daniel B. Wright)

See Also

sk

Examples

```
varx <- runif(20)^2
sk_approx(varx)
```

vconf *Non-bootstrap Cramer's V intervals using non-central chi-square*

Description

Follows Smithson producing the confidence intervals for Cramers V using noncentral chi-square. A boot function for Cramers V will arrive at some point

Usage

```
vconf(ctab, clevel=.95)
```

Arguments

ctab	the rxc contingency table
clevel	Confidence level

References

Smithson

wsci *Within subject confidence intervals*

Description

Creates within subject confidence intervals using the methods described in Loftus & Masson (1994) and Wright (2007).

Usage

```
wsci(mat, meth = 0, interval = 95, boots = 1000, diff = 0, ...)
```

Arguments

mat	Input should be a matrix of repeat measures
meth	meth = 0 removes the individual differences and calculates the wsci meth = 1 does the same but the intervals are bootstrapped meth = 2 uses the MSsxc and produces the same estimates as L&M (1994)
interval	Confidence interval in percentages, so 95 is default
boots	Replications
diff	diff=0 is just WSCI, diff=1 is BSCI and WSCI
...	Further arguments

Details

Function is described in Wright (2007) and on <http://www2.fiu.edu/~dwright/WSCI/wscihome.htm>

Value

Returns matrix for printing

Author(s)

Daniel B. Wright

References

- Loftus, G. R. & Masson, M. E. J. (1994). Using confidence-intervals in within-subject designs. *Psychonomic Bulletin & Review*, **1**, 476-490.
- Wright, D. B. (2007). Graphing within subject confidence intervals (WSCI) using SPSS and S-Plus. *Behavior Research Methods*, **39**, 82-85.

Examples

```
data(company)
wsci(company[,2:5],diff=1)
```

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