

Package ‘SSDforR’

April 24, 2013

Type Package

Title SSD for R to analyze single system data

Version 1.1

Date 2013-03-28

Author Charles Auerbach,PHD Wendy Zeitlin Schudrich,PHD Wurzweiler School of Social Work

Maintainer Charles Auerbach <auerbach@yu.edu>

Depends R (>= 2.10.0), stats, graphics, utils, tcltk

Suggests MASS, TSA,TTR

Description Package to visually and statistically analyze single system data

License GPL (>= 2)

NeedsCompilation no

Repository CRAN

Date/Publication 2013-04-24 15:48:18

R topics documented:

ABanova	3
ABarrow	4
ABautoacf	4
ABautopacf	5
ABbinomial	6
ABdescrip	7
ABiqr	7
ABlineD	8
ABlines	9
ABma	10
ABplot	10

ABplotm	11
ABregres	12
ABrf2	13
ABrobust	14
ABstat	15
ABtext	16
ABtsplot	16
ABttest	17
ABwilcox	18
Append	19
Aregres	19
Arimadiff	20
Arimama	21
Arobust	21
Cchart	22
CDC	23
diffchart	24
Effectsize	25
GABrf2	26
GABttest	27
Getcsv	28
Gindex	28
Gmedian	29
insert	30
IQRbandgraph	31
IQRlegend	32
IQRline	32
IRD	33
listnames	34
meanabove	34
meanbelow	35
medabove	36
medbelow	37
PANDabove	37
PANDbelow	38
PANDlegend	39
Pchart	40
PEMabove	41
PEMbelow	42
PEMlegend	43
plotnum	43
PNDabove	44
PNDbelow	45
PNDlegend	46
Rchart	46
Rchartsd	47
regabove	49
regbelow	49

robregabove 50
 robregbelow 51
 robustCDC 52
 Savecsv 53
 SD1 53
 sd1bandgraph 54
 SD1legend 55
 SD2 55
 sd2bandgraph 56
 SD2legend 57
 SDAband 58
 SN 58
 SPClegend 59
 SPcline 60
 SSDforR 61
 trimabove 61
 trimbelow 62
 Trimline 63
 Xmrchart 63
 XRchart 64

Index **66**

ABanova *Analysis of variance*

Description

Computes one-way ANOVA and performs Tukey multiple comparison post-hoc test. Use ANOVA instead of a t-test when comparing more than two phases.

Usage

ABanova(behavior, phaseX)

Arguments

behavior behavior variable
 phaseX phase variable

Author(s)

Charles Auerbach,PhD & Wendy Zeitlin Schudrich,PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1", "B1")
ABanova(cry,pcry)
```

 ABarrow

Draw arrow on graph

Description

This function enables users to draw an arrow on a graph. For example, an arrow can be drawn from a text label of a critical event to a point on the graph.

Usage

```
ABarrow()
```

Author(s)

Charles Auerbach,PHD & Wendy Zeitlin Schudrich,PHD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1", "B1")
ABplot(cry,pcry,"week","amount","Crying")
# now run ABarrow()
```

 ABautoacf

Autocorrelation at any lag for a phase

Description

This function tests for autocorrelation for any lag. Should be used with samples greater than or equal to six. Also produces significance graph for lags. The Box-Ljung test of significance is performed for all lags up to and including the specified one.

Usage

```
ABautoacf(behavior, phaseX, v, l)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v	letter for phase tested (e.g., "A")
l	number of lags (e.g. 1, 2, 3)

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABautoacf(cry, pcry, "B", 2)
```

 ABautopacf

Partial autocorrelation

Description

This function tests for partial autocorrelation for any lag. Should be used with samples greater than or equal to six. Also produces significance graph for lags. The Box-Ljung test of significance is performed for all lags up to and including the specified one.

Usage

```
ABautopacf(behavior, phaseX, v, lags)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v	letter for phase being tested (e.g., "A")
lags	number of lags (e.g., 1, 2, 3)

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABautopacf (cry, pcry,"A", 3)
```

 ABbinomial

Binomial test

Description

Binomial test comparing the number of observations of a phase in a desired zone to another phase. User needs to select method for defining a desired zone (e.g., below one SD).

Usage

```
ABbinomial(phaseX, v1, v2, successA, successB)
```

Arguments

phaseX	phase variable
v1	letter of first phase (e.g., "A")
v2	letter of second phase (e.g., "B")
successA	occurrences in desired zone for first phase
successB	occurrences in desired zone for second phase

Author(s)

Charles Auerbach,PhD & Wendy Zeitlin Schudrich,PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
SD1(cry,pcry,"A","week","amount","Crying")
ABbinomial(pcry,"A","B1", 1, 8)
```

 ABdescrip

Descriptive Statistics

Description

This function produces descriptive statistics for all phases. Statistics produced are: mean, 10 percent trimmed mean, median, standard deviation (sd), coefficient of variation (CV), range, interquartile range, and quantiles. Graphical output for this function is a boxplot of data in each phase.

Usage

```
ABdescrip(behavior, PhaseX)
```

Arguments

behavior	behavior variable
PhaseX	phase variable

Author(s)

Charles Auerbach,PhD & Wendy Zeitlin Schudrich,PhD; Yeshiva University, Wurzweiler School of Social Work

References

Auerbach, C. & Schudrich, W. Z. (2013). SSD for R A Comprehensive Statistical Package to Analyze Single-System Data. *Research on Social Work Practice*, 23(3), 346-353. doi:10.1177/104973153477213
Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABdescrip(cry,pcry)
```

 ABiqr

Interquartile band graph through all phases

Description

Builds an iqr band graph through all phases based upon the user's selection of a phase

Usage

```
ABiqr(behavior, phaseX, v1, ABxlab, ABylab, ABmain)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter of phase statistics are based upon in quotation marks
ABxlab	label for x-axis in quotation marks
ABylab	label for y-axis in quotation marks
ABmain	main title in quotation marks

Author(s)

Charles Auerbach,PhD & Wendy Zeitlin Schudrich,PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABplot(cry,pcry,"week","amount","Crying")
```

ABlineD

Add dashed line to a graph

Description

Enables the user to draw dashed vertical lines between phases on a graph.

Usage

```
ABlineD(behavior)
```

Arguments

behavior	behavior variable
----------	-------------------

Author(s)

Charles Auerbach,PhD & Wendy Zeitlin,PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABplot(cry,pcry,"week","amount","Crying")
# now run ABlineD(cry)
```

ABlines

Draw line

Description

This function enables the user to draw solid vertical lines between phases on a graph.

Usage

```
ABlines(behavior)
```

Arguments

behavior behavior variable

Author(s)

Charles Auerbach,PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University; Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABplot(cry,pcry,"week","amount","Crying")
# now run ABlines(cry)
```

 ABma

Moving average

Description

Creates moving average transformation using every two observations. A graph is produced and the user is given the option to save the transformed data.

Usage

```
ABma(behavior, phaseX, v1)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter of phase to be transformed (e.g., "A")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABma(cry, pcry, "A")
```

 ABplot

Simple line graph

Description

This function builds a simple line graph for a given behavior across all phases. A space separates each phase.

Usage

```
ABplot(behavior, phaseX, ABxlab, ABylab, ABmain)
```

Arguments

behavior	behavior variable
phaseX	phase variable
ABxlab	label for x-axis between quotation marks
ABylab	label for y-axis between quotation marks
ABmain	main title for graph between quotation marks

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Auerbach, C. & Schudrich, W. Z. (2013). SSD for R A Comprehensive Statistical Package to Analyze Single-System Data. *Research on Social Work Practice*, 23(3), 346-353. doi:10.1177/104973153477213
Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABplot(cry,pcry,"week","amount","Crying")
```

 ABplotm

Multiple line plot

Description

This function should be used to create multiple line charts. This function must be used after the environment is set up using the plotnum() function.

Usage

```
ABplotm(behavior, phaseX, ABxlab, ABylab, ABmain)
```

Arguments

behavior	behavior variable
phaseX	phase variable
ABxlab	label for x-axis between quotation marks
ABylab	label for y-axis between quotation marks
ABmain	main title for graph between quotation marks

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin, PhD; Yeshiva University; Wurzweiler School of Social Work

References

Go to www.analysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
yell<-c(3, 4, 2, 5, 5, 4, NA, 1, 2, 2, 2, 0, 0)
pyell<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B")
plotnum(2, 1)
ABplotm(cry,pcry,"week","amount","Crying")
ABplotm(yell,pyell,"week","amount","Yelling")
```

ABregres

OLS regression to compare phases

Description

Conducts OLS regression comparing any two phases. Coefficients and residuals are produced for each phase. Also a graph with a regression line is displayed for each phase in the graph window.

Usage

```
ABregres(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	first phase letter (e.g., "A")
v2	second phase letter (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Auerbach, C. & Schudrich, W. Z. (2013). SSD for R A Comprehensive Statistical Package to Analyze Single-System Data. *Research on Social Work Practice*, 23(3), 346-353. doi:10.1177/104973153477213
Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABregres(cry,pcry,"A","B")
```

ABrf2

Lag-1 autocorrelation (rf2 for small sample size)

Description

This function tests for lag-1 autocorrelation. This should be used any time the sample size is less than six. Any phase can be tested. Also produces regression line graph.

Usage

```
ABrf2(behavior, phaseX, v1)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter of phase being tested (e.g., "A")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Huitema, B.F. & McKean, J.W. (1994). Two reduced-biased autocorrelation estimators: rF1 and rF2. *Perceptual and Motor Skills*, 78(1), 323-330.

Auerbach, C. & Schudrich, W. Z. (2013). SSD for R A Comprehensive Statistical Package to Analyze Single-System Data. *Research on Social Work Practice*, 23(3), 346-353. doi:10.1177/104973153477213

Go to www.ssdanalysis.com for more information

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABrf2(cry, pcry, "B1")
```

ABrobust

Robust regression

Description

Uses MASS package developed by Brian Ripley <ripley@stats.ox.ac.uk> to conduct robust regression comparing any two phases. Coefficients and residuals are produced for each phase. Also a graph with a regression line is displayed for each phase in the graph window.

Usage

```
ABrobust(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter of first phase in quotation marks (e.g., "A")
v2	letter of second phase in quotation marks (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABrobust(cry,pcry,"A","B")
```

ABstat	<i>Add statistic line(s)</i>
--------	------------------------------

Description

Add a mean and/or median line to an ABplot.

Usage

```
ABstat(behavior, phaseX, v, statX)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v	phase letter in quotation marks (e.g., "A")
statX	statistic in quotation marks (i.e. "mean", "median")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Auerbach, C. & Schudrich, W. Z. (2013). SSD for R A Comprehensive Statistical Package to Analyze Single-System Data. *Research on Social Work Practice*, 23(3), 346-353. doi:10.1177/104973153477213

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABplot(cry,pcry,"week","amount","Crying")
# run this statement ABstat(cry, pcry, "A", "median")
```

 ABtext

Add text to graph

Description

Add text to graphs. Text must appear between quotation marks.

Usage

```
ABtext(textx)
```

Arguments

textx text string must be entered between quotation marks (e.g., "baseline")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABplot(cry,pcry,"week","amount","Crying")
# now run ABtext("A")
```

 ABtsplo

Time series plot for SSD Data

Description

This function builds a time series chart for a given behavior across all phases. A space separates each phase. There are no connecting dots.

Usage

```
ABtsplo(behavior, phaseX, ABxlab, ABylab, ABmain)
```


Arguments

behavior	behavior variable
phaseX	phase variable
ABxlab	label for x-axis between quotation marks (e.g., "week")
ABylab	label for y-axis between quotation marks (e.g., "amount")
ABmain	main title graph between quotation mark (e.g., "Crying")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABtplot(cry,pcry,"week","amount","Crying")
```

ABttest

T-test comparing phases

Description

Computes t-test comparing any two phases selected by user. Bar graph displaying means for each phase is displayed in the graph window.

Usage

```
ABttest(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter of first phase (e.g., "A")
v2	letter of second phase (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Auerbach, C. & Schudrich, W. Z. (2013). SSD for R A Comprehensive Statistical Package to Analyze Single-System Data. *Research on Social Work Practice*, 23(3), 346-353. doi:10.1177/104973153477213

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABttest(cry,pcry,"A","B")
```

ABWilcox

Wilcoxon rank-sum test between two phases

Description

Performs a two-sample Wilcoxon rank-sum nonparametric test between any two phases.

Usage

```
ABWilcox(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	first phase letter (e.g., "A")
v2	second phase letter (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABWilcox(cry,pcry,"A","B")
```

 Append

Append data sets with additional data

Description

This function combines data files. This is useful after data are created during transformations when using the diffchart or ABma functions. Once files with different phases are combined, you can use the saved file for significance testing.

Usage

```
Append()
```

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
# type Append()
```

 Aregres

Regression for single phase

Description

Conducts OLS regression for any phase. Coefficients and residuals are produced. Also a simple line graph for the specified phase with a regression line is displayed in the graph window.

Usage

```
Aregres(behavior, phaseX, v1)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	phase letter (e.g., "A")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
Aregres(cry,pcry,"A")
```

Arimadiff

Difference for ARIMA

Description

Differencing in any phase. Graphs display both original data and differenced data.

Usage

```
Arimadiff(behavior, phaseX, v, d)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v	phase letter in quotation marks (e.g., "A")
d	integer for order of difference

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
Arimadiff(cry,pcry,"B1",2)
```

Arimama	<i>Moving average for ARIMA</i>
---------	---------------------------------

Description

Moving average over any period for ARIMA. Uses TTR Package.

Usage

```
Arimama(behavior, phaseX, v, m)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v	phase letter in quotation markse (e.g., "A")
m	number of periods to average over (e.g., 2)

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
Arimama(cry,pcry,"B1",2)
```

Arobust	<i>Robust regression for a single phase</i>
---------	---

Description

Uses MASS package developed by Brian Ripley <ripley@stats.ox.ac.uk> to conduct robust regression for a single phase. Coefficients and residuals are produced. Also a graph with a regression line is displayed for the phase in the graph window.

Usage

```
Arobust(behavior, phaseX, v1)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	phase letter (e.g., "A")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
Arobust(cry,pcry,"A")
```

Cchart

SPC C-chart

Description

This function builds a C-chart and is used with individual (i.e., ungrouped) data. A space separates each phase. For use when the outcome variable is a count (i.e., ratio-level) variable.

Usage

```
Cchart(behavior, phaseX, v1, bandX, ABxlab, ABylab, ABmain)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	phase letter analysis is based upon in quotation marks (e.g., "A")
bandX	number of standard deviations desired (e.g., 2)
ABxlab	label for x-axis between quotation marks (e.g., "weeks")
ABylab	label for y-axis between quotation marks (e.g., "amount")
ABmain	main title between quotation marks (e.g., Crying)

Author(s)

Charles Auerbach, PhD and Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Bloom, M., Fischer, J. & Orme, J.G. (2009). Evaluating practice: Guidelines for the accountable professional (6th ed.). New York: Pearson.

Orme, J. & Cox, M.E. (2001). Analyzing single-subject design data using statistical process control charts. *Social Work Research*, 25(2), 115-127.

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
Cchart(cry,pcry,"A",2,"week","amount","Crying")
```

CDC

Conservative Dual Criteria (CDC)

Description

The conservative dual-criteria (CDC) is a relatively new approach to comparing phases that works well when data have a moderate lag-1 autocorrelation (lower than 0.6). This function uses two lines to define the desired zone: the mean and the regression line of the comparison phase.

Usage

```
CDC(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	phase letter of first (i.e., comparison) phase between quotation marks (e.g., "A")
v2	phase letter of second phase between quotation marks (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Fisher, W.W., Kelley, M.E. & Lomas, J.E. (2003). Visual aids and structured criteria for improving visual inspection and interpretation of single-case designs. *Journal of Applied Behavior Analysis*, 36(3), 387-406.

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1", "B1")
CDC(cry,pcry,"A","B")
```

diffchart

Difference transformation

Description

Produces first difference transformation on any phase.

Usage

```
diffchart(behavior, phaseX, v1)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter for phase to be transformed between quotation marks (e.g., "A")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1", "B1")
diffchart(cry,pcry,"A")
```

 Effectsize
Effect size

Description

The effect size function automatically displays the percent change and calculated values for both the ES and d-index for any two phases. Information for interpreting calculated values appears in the Console.

Usage

```
Effectsize(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	first phase letter between quotation marks (e.g., "A")
v2	second phase letter between quotation marks (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Cohen, J.(1988).Statistical Power analysis for the behavioral sciences (2nd ed). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Glass, G. V., McGaw, B., & Smith, M. L. (1981) Meta-analysis in social research. Thousand Oaks, CA: SAGE Publications, Inc.

Bloom, M., Fischer, J. & Orme, J.G. (2009). Evaluating practice: Guidelines for the accountable professional (6th ed.). New York: Pearson.

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
Effectsize(cry,pcry,"A","B")
```

 Getcsv

Import .csv file

Description

Imports .csv file created in any software package. Uses dialogue box to acquire file. IMPORTANT NOTE: After the file is open type 'attach(ssd)' in the Console and press <RETURN> to manipulate file. Also, can type 'listnames()' to review variable names. Before you open another file type 'detach(ssd)' in the console and press <RETURN>.

Usage

```
Getcsv()
```

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
# type Getcsv()
```

 Gindex

G-index

Description

The g-index is a measure of effect size calculated using the proportion of scores in the desired zone. Used when there is a trend in the data.

Usage

```
Gindex(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	first phase letter between quotation marks (e.g., "A")
v2	second phase letter between quotation marks (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
Gindex(cry,pcry,"A","B")
```

Gmedian

Median line for group data

Description

Places median line for baseline in group boxplot.

Usage

```
Gmedian(behavior, phaseX, v)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v	phase letter for baseline (e.g., "A")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

IQRbandgraph	<i>Interquartile band graph</i>
--------------	---------------------------------

Description

Draws an interquartile band graph for any phase.

Usage

```
IQRbandgraph(behavior, phaseX, v1, ABxlab, ABylab, ABmain)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter for phase for which bands will be drawn (e.g., "A")
ABxlab	label for x-axis in quotation marks (e.g., "weeks")
ABylab	lable for y-axis in quotation marks (e.g., "amount")
ABmain	main title for graph in quotation marks (e.g., "Crying")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
IQRbandgraph(cry,pcry,"A","week","amount","Crying")
```

 IQRlegend

IQR legend

Description

This function creates a legend on an IQR band graph. NOTE: Once this legend is in place, the graph can no longer be altered.

Usage

```
IQRlegend()
```

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva Univeresity, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
IQRbandgraph(cry,pcry,"A","week","amount","Crying")
IQRlegend()
```

 IQRline

IQR line for ABplot

Description

This function enables a user to add lines representing the interquartile range to any phase of an ABplot.

Usage

```
IQRline(behavior, phaseX, v)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v	phase letter upon which IQR stats are based - in quotation marks (e.g., "A")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABplot(cry,pcry,"week","amount","Crying")
# type IQRline(cry, pcry, "A")
```

 IRD

Improvement Rate Difference (IRD) calculation and line

Description

This effect size function will compute the IRD and display a graph in the graph window. The user will be prompted to enter a value for a reference line, identify the number of intervention points remaining and the number of baseline data points that would be needed to be removed in order to eliminate all overlap or ties between phases.

Usage

```
IRD(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	first phase letter (e.g., "A")
v2	second phase letter (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Bloom, M., Fischer, J. & Orme, J.G. (2009). Evaluating practice: Guidelines for the accountable professional (6th ed.). New York: Pearson.

Parker, R.I. & Hagan-Burke, S. (2007). Median-based overlap analysis for single case data: A second study. Behavior Modification, 31(6), 919-936.

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
IQRbandgraph(cry,pcry,"A","week","amount","Crying")
IRD(cry,pcry,"A","B")
```

listnames

List variable names

Description

Lists variable names in active data.

Usage

```
listnames()
```

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
# type: listnames()
```

meanabove

Chi-square - desired values above the mean

Description

Chi-square test comparing the frequency of observations above the reference phase mean in any two phases.

Usage

```
meanabove(behavior, phaseX, v1, v2)
```

Arguments

	behavior variable
phaseX	phase variable
v1	first phase letter (e.g., "A")
v2	second phase letter (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
esteem<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pesteem<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1", "B1")
meanabove(esteem, pesteem, "A", "B1")
```

meanbelow

Chi-square - desired values below the mean

Description

Chi-square test comparing the frequency of observations below the reference phase mean in any two phases.

Usage

```
meanbelow(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	first phase letter (e.g., "A")
v2	second phase letter (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
meanbelow(cry,pcry,"A","B1")
```

medabove

Chi-square - desired values above the median

Description

Chi-square test comparing the frequency of observations above the reference phase median in any two phases.

Usage

```
medabove(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	first phase letter (e.g., "A")
v2	second phase letter (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
esteem<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pesteem<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1", "B1")
medabove(esteem, pesteem,"A","B1")
```

medbelow *Chi-square - desired values below the median*

Description

Chi-square test comparing the frequency of observations below the reference phase median in any two phases.

Usage

```
medbelow(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	first phase letter (e.g., "A")
v2	second phase letter (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
medbelow(cry,pcry,"A","B1")
```

PANDabove *PAND - desired values above the reference line*

Description

This effect size function evaluates the percentage of all non-overlapping Data (PAND) above the reference line in the comparison phase. Users will be prompted to enter a value for the reference line.

Usage

```
PANDabove(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	first phase letter (e.g., "A")
v2	second phase letter (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Lenz, A.S. (2012). Calculating effect size in single-case research: A comparison of nonoverlap methods. *Measurement and Evaluation in Counseling and Development*, 46(1), 64-73.

Parker, R.I. & Hagan-Burker, S. & Vannest, K. (2007). Percentage of all non-overlapping data: An alternative to PND. *The Journal of Special Education*, 40(4), 194-204.

Go to www.ssdanalysis.com for more information.

Examples

```
esteem<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pesteem<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1", "B1")
PANDabove(esteem,pesteem,"A","B1")
```

PANDbelow

PAND - desired values below the reference line

Description

This effect size function evaluates the percentage of all non-overlapping Data (PAND) above the reference line in the comparison phase. Users will be prompted to enter a value for the reference line.

Usage

```
PANDbelow(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	first phase variable (e.g., "A")
v2	second phase variable (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Lenz, A.S. (2012). Calculating effect size in single-case research: A comparison of nonoverlap methods. *Measurement and Evaluation in Counseling and Development*, 46(1), 64-73.

Parker, R.I. & Hagan-Burker, S. & Vannest, K. (2007). Percentage of all non-overlapping data: An alternative to PND. *The Journal of Special Education*, 40(4), 194-204.

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
PANDbelow(cry,pcry,"A","B1")
```

PANDlegend

PAND legend

Description

Adds a legend to PAND graph. The graph can not be modified in any way after the legend is added.

Usage

```
PANDlegend()
```

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
PANDbelow(cry,pcry,"A","B1")
PNDlegend()
```

 PEMabove

PEM - desired values above the reference line

Description

Percentage of Data Exceeding the Median (PEM). The PEM procedure offers a method to assess effect size and adjust for the influence of outliers in the baseline phase when desired values are above the reference line.

Usage

```
PEMabove(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	first phase variable (e.g., "A")
v2	second phase variable (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Lenz, A.S. (2012). Calculating effect size in single-case research: A comparison of nonoverlap methods. *Measurement and Evaluation in Counseling and Development*, 46(1), 64-73.

Ma, H-H. (2009). The effectiveness of intervention on the behavior of individuals with autism: A meta-analysis using percentage of data points exceeding the median of baseline phase. *Behavior Modification*, 33(3), 339-359.

Go to www.ssdanalysis.com for more information.

Examples

```
esteem<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pesteem<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1", "B1")
PEMabove(esteem,pesteem,"A","B1")
```

 PEMbelow

PEM - desired values below the reference line

Description

Percentage of Data Exceeding the Median (PEM). The PEM procedure offers a method to assess effect size and adjust for the influence of outliers in the baseline phase when desired values are below the reference line.

Usage

```
PEMbelow(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	irst phase variable (e.g., "A")
v2	second phase variable (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Lenz, A.S. (2012). Calculating effect size in single-case research: A comparison of nonoverlap methods. *Measurement and Evaluation in Counseling and Development*, 46(1), 64-73.

Ma, H-H. (2009). The effectiveness of intervention on the behavior of individuals with autism: A meta-analysis using percentage of data points exceeding the median of baseline phase. *Behavior Modification*, 33(3), 339-359.

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
PEMbelow(cry,pcry,"A","B")
```

 PEMlegend

PEM legend

Description

Adds a legend to a PEM graph. The graph can not be modified in any way after the legend is added.

Usage

```
PEMlegend()
```

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
#run first
PEMbelow(cry,pcry,"A","B1")
#run after complete steps above
PEMlegend()
```

 plotnum

Set graphic environment

Description

Used prior to ABplotm to set up graphic environment.

Usage

```
plotnum(nr, nc)
```

Arguments

nr	number of rows of graphs desired (e.g., 2)
nc	number of columns of graphs desired (e.g., 3)

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
yell<-c(3, 4, 2, 5, 5, 4, NA, 1, 2, 2, 2, 0, 0)
pyell<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B")
plotnum(2, 1)
ABplotm(cry,pcry,"week","amount","Crying")
ABplotm(yell,pyell,"week","amount","Yelling")
```

PNDabove

PND - desired values above the reference line

Description

This effect size function evaluates the percentage of non-overlapping data (PND) above highest data point in the comparison phase.

Usage

```
PNDabove(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	comparison phase variable (e.g., "A")
v2	letter of second phase (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Lenz, A.S. (2012). Calculating effect size in single-case research: A comparison of nonoverlap methods. *Measurement and Evaluation in Counseling and Development*, 46(1), 64-73.

Scruggs, T.E. & Mastropieri, M.A. (2012). PND at 25: Past, present, and future trends in summarizing single-subject research. *Remedial and Special Education*, 34(1), 9-19.

Go to www.ssdanalysis.com for more information.

Examples

```
esteem<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pesteem<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1", "B1")
PNDabove(esteem, pesteem,"A","B1")
```

PNDbelow

PND - desired values below the reference line

Description

This effect size function evaluates the percentage of non-overlapping data (PND) below the lowest data point in the comparison phase.

Usage

```
PNDbelow(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	comparison phase variable (e.g., "A")
v2	second phase variable (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Lenz, A.S. (2012). Calculating effect size in single-case research: A comparison of nonoverlap methods. *Measurement and Evaluation in Counseling and Development*, 46(1), 64-73.

Scruggs, T.E. & Mastropieri, M.A. (2012). PND at 25: Past, present, and future trends in summarizing single-subject research. *Remedial and Special Education*, 34(1), 9-19.

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
PNDbelow(cry,pcry,"A","B1")
```

PNDlegend

PND legend

Description

Adds a legend to a PND graph. The graph can not be modified in any way after the legend is added.

Usage

```
PNDlegend()
```

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
#run first
PNDbelow(cry,pcry,"A","B1") #run after complete steps above
PNDlegend()
```

Rchart

SPC R-chart using mean range

Description

The R-Chart is designed to detect changes in variation over time. This is one of two forms of the R-chart and should be used with small samples. This function uses the mean range of samples to track variation.

Usage

```
Rchart(behavior, groupX, bandX, ABxlab, ABylab, ABmain)
```


Usage

```
Rchartsd(behavior, groupX, bandX, ABxlab, ABylab, ABmain)
```

Arguments

behavior	behavior variable
groupX	grouping variable (e.g., day)
bandX	number of standard deviations desired (e.g., 2)
ABxlab	label for x-axis in quotation marks, (e.g., "day")
ABylab	label for y-axis in quotation marks (e.g., "amount")
ABmain	main title for graph in quotation marks (e.g., "Variation in Admits")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Orme, J. & Cox, M.E. (2001). Analyzing single-subject design data using statistical process control charts. *Social Work Research*, 25(2), 115-127.

Go to www.ssdanalysis.com for more information.

Examples

```
admit<-c(85,90,80,84,82,79,75,76,80,84,75,80,79,83,88,78,80,85,83,82,89,84,89,91,87,84,77,86,80,
89,81,86,88,83,86,90,86,85,85,87,80,89,NA,86,87,88,89,79,73,75,74,70,75,81,85,75,73,75,
79,70,72,71,69,70,64,60,59,54,53,55,50,54,51,49,48,50,46,55,51,55,49,50,48,51,33)
```

```
day<-c(1,1,1,1,1,1,1,2,2,2,2,2,2,3,3,3,3,3,3,4,4,4,4,4,4,4,5,
5,5,5,5,5,6,6,6,6,6,6,NA,7,7,7,7,7,7,7,8,8,8,8,8,8,9,
9,9,9,9,9,10,10,10,10,10,10,10,11,11,11,11,11,11,11,12,12,12,12,12,12)
```

```
padmit<-c("A","A","A","A","A","A","A","A","A","A","A","A","A","A","A","A",
"A","A","A","A","A","A","A","A","A","A","A","A","A","A","A","A",
"A","A","A","A","A","A","A","A","A","A","A","A","A","A","A","A",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B","B",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B","B",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B","B",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B","B")
Rchartsd(admit, day, 2, "week", "amount", "Admits to Hospital")
```

regabove	<i>Chi-square - desired values above regression line</i>
----------	--

Description

Chi-square test comparing the frequency of observations above the regression line in a comparison phase to another phase.

Usage

```
regabove(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter of comparison phase in quotation marks (e.g., "A")
v2	letter of second phase in quotation marks (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssddanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
regabove(cry,pcry,"A","B1")
```

regbelow	<i>Chi-square - desired values below regression line</i>
----------	--

Description

Chi-square test comparing the frequency of observations below the regression line in a comparison phase to another phase.

Usage

```
regbelow(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter of comparison phase in quotation marks (e.g., "A")
v2	letter of second phase in quotation marks (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1", "B1")
regbelow(cry,pcry,"A","B1")
```

robregabove

Chi-square - desired values above robust regression line

Description

Chi-square test comparing the frequency of observations above the robust regression line in a comparison phase to another phase.

Usage

```
robregabove(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter of comparison phase in quotation marks (e.g., "A")
v2	letter of second phase in quotation marks (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
robregabove(cry,pcry,"A","B1")
```

robregbelow

Chi-square - desired values below robust regression line

Description

Chi-square test comparing the frequency of observations below the robust regression line in a comparison phase to another phase.

Usage

```
robregbelow(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter of comparison phase in quotation marks (e.g., "A")
v2	letter of second phase in quotation marks (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
robregbelow(cry,pcry,"A","B1")
```

robustCDC

Conservative Dual Criteria using robust regression

Description

The conservative dual-criteria (CDC) is a relatively new approach to comparing phases that works well when data have a moderate lag-1 autocorrelation (lower than 0.6). This function uses two lines to define the desired zone: the mean and the robust regression line of the comparison phase.

Usage

```
robustCDC(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	phase letter of first (i.e., comparison) phase between quotation marks (e.g., "A")
v2	phase letter of second phase between quotation marks (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Fisher, W.W., Kelley, M.E. & Lomas, J.E. (2003). Visual aids and structured criteria for improving visual inspection and interpretation of single-case designs. *Journal of Applied Behavior Analysis*, 36(3), 387-406.

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
robustCDC(cry,pcry,"A","B")
```

Savecsv	<i>Save data file</i>
---------	-----------------------

Description

Save .csv file edited in SSDforR. Uses dialogue box to save file.

Usage

```
Savecsv()
```

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
# type Savecsv()
```

SD1	<i>1-standard deviation band graph</i>
-----	--

Description

Produces graph for all phases with mean and one standard deviation bands displayed for a comparison phase across all phases. Output in the Console displays the sd, the mean, and values for the sd bands.

Usage

```
SD1(behavior, phaseX, v1, ABxlab, ABylab, ABmain)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter for phase variable stats are base upon in quotation marks (e.g., "A")
ABxlab	x-axis label in quotation marks (e.g., "week")
ABylab	y-axis label in quotation marks (e.g., "amount")
ABmain	main title label in quotation marks (e.g., "Crying")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
SD1(cry,pcry,"A","week","amount","Crying")
```

sd1bandgraph

1-standard deviation band graph for one phase

Description

Produces graph for one phase with mean and one standard deviation bands displayed. Output in the Console displays the sd, the mean, and values for the sd bands.

Usage

```
sd1bandgraph(behavior, phaseX, v1, ABxlab, ABylab, ABmain)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	phase letter (e.g., "A")
ABxlab	x-axis label in quotation marks (e.g., "week")
ABylab	y-axis label in quotation marks (e.g., "amount")
ABmain	main title in quotation marks (e.g., "Crying")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin, PhD; Yeshiva Univeresity, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
sd1bandgraph(cry,pcry,"A","week","amount","Crying")
```

SD1legend

SD1 legend

Description

Adds legend to SD1 band graph. The graph can not be modified in any way after the legend is added.

Usage

```
SD1legend()
```

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
SD1(cry,pcry,"A","week","amount","Crying")
SD1legend()
```

SD2

2-standard deviation band graph

Description

Produces graph for all phases with mean and two standard deviation bands displayed for a comparison phase across all phases. Output in the Console displays the sd, the mean, and values for the sd bands.

Usage

```
SD2(behavior, phaseX, v1, ABxlab, ABylab, ABmain)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	letter for phase variable stats are base upon in quotation marks (e.g., "A")
ABxlab	x-axis label in quotation marks (e.g., "week")
ABylab	y-axis label in quotation marks (e.g., "amount")
ABmain	main title in quotation marks (e.g., "Crying")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
SD2(cry,pcry,"A","week","amount","Crying")
```

sd2bandgraph

2-standard deviation band graph for one phase

Description

Produces graph for one phase with mean and two standard deviation bands displayed. Output in the Console displays the sd, the mean, and values for the sd bands.

Usage

```
sd2bandgraph(behavior, phaseX, v1, ABxlab, ABylab, ABmain)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	phase letter (e.g., "A")
ABxlab	x-axis label in quotation marks (e.g., "week")
ABylab	y-axis label in quotation marks (e.g., "amount")
ABmain	main title in quotation marks (e.g., "Crying")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
sd2bandgraph(cry,pcry,"A","week","amount","Crying")
```

SD2legend

SD2 legend

Description

Adds legend to SD2 band graph. The graph can not be modified in any way after the legend is added.

Usage

```
SD2legend()
```

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
SD2(cry,pcry,"A","week","amount","Crying")
SD2legend()
```

SDAband	<i>Adds standard deviation bands to an ABplot</i>
---------	---

Description

Adds standard deviation bands to an ABplot. Click in the phase twice to add upper and lower bands.

Usage

```
SDAband(behavior, phaseX, v, bandX)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v	phase band is based upon (e.g., "A")
bandX	number of standard deviations desired (e.g., 2)

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABplot(cry,pcry,"week","amount","Crying")
# now run SDAband(cry,pcry,"A",2)
```

SN	<i>Scientific notation</i>
----	----------------------------

Description

Converts scientific notation to decimals.

Usage

```
SN(value)
```



```
"A","A","A","A","A","A","A","A","A","A","A",NA,"B","B","B","B","B","B","B","B",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B","B","B",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B","B","B","B")
Rchartsd(admit, day, 2, "week", "amount", "Admits to Hospital")
SPCline()
```

SPCline

Draw line on Rchartsd Rchart

Description

This function enables the user to draw solid vertical lines between phases on the SPC R-chart using standard deviation and R-Chart using mean range. The user clicks the mouse on a upper and lower y ordinate.

Usage

```
SPCline()
```

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University; Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
admit<-c(85,90,80,84,82,79,75,76,80,84,75,80,79,83,88,78,80,85,83,82,89,84,89,91,87,84,77,86,80,
89,81,86,88,83,86,90,86,85,85,87,80,89,NA,86,87,88,89,79,73,75,74,70,75,81,85,75,73,75,
79,70,72,71,69,70,64,60,59,54,53,55,50,54,51,49,48,50,46,55,51,55,49,50,48,51,33)
```

```
day<-c(1,1,1,1,1,1,1,2,2,2,2,2,2,3,3,3,3,3,3,3,4,4,4,4,4,4,4,5,
5,5,5,5,5,6,6,6,6,6,6,NA,7,7,7,7,7,7,7,8,8,8,8,8,8,9,
9,9,9,9,9,10,10,10,10,10,10,10,11,11,11,11,11,11,11,11,12,12,12,12,12,12)
```

```
padmit<-c("A","A","A","A","A","A","A","A","A","A","A","A","A","A","A","A",
"A","A","A","A","A","A","A","A","A","A","A","A","A","A","A",
"A","A","A","A","A","A","A","A","A","A","A","A","A","A","A",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B","B",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B")
Rchart(admit, day, 2, "week", "amount", "Admits to Hospital")
# now run SPCline()
```

`SSDforR`*List of all functions in SSD for R*

Description

Lists all the functions available in the SSD for R package.

Usage

```
SSDforR()
```

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler school of social work

References

Go to www.ssdanalysis.com for more information.

Examples

```
SSDforR()
```

`trimabove`*Chi-square - desired values above the trimmed mean*

Description

Chi-square test comparing the frequency of observations above the reference phase trimmed mean in any two phases.

Usage

```
trimabove(behavior, phaseX, v1, v2)
```

Arguments

<code>behavior</code>	behavior variable
<code>phaseX</code>	phase variable
<code>v1</code>	first phase letter in quotation marks (e.g., "A")
<code>v2</code>	second phase letter in quotation marks (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
esteem<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pesteem<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1", "B1")
trimabove(esteem, pesteem,"A","B1")
```

trimbelow

Chi-square - desired values below the trimmed mean

Description

Chi-square test comparing the frequency of observations below the reference phase trimmed mean in any two phases.

Usage

```
trimbelow(behavior, phaseX, v1, v2)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	first phase letter in quotation marks (e.g., "A")
v2	second phase letter in quotation marks (e.g., "B")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshvia University, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1", "B1")
trimbelow(cry,pcry,"A","B")
```

Trimline	<i>Trimmed mean line added to ABplot</i>
----------	--

Description

Adds trimmed mean line to ABplot. Click in the phase of the ABplot to add line.

Usage

```
Trimline(behavior, phaseX, v)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v	letter of phase for which trimmed mean is desired in quotation marks (e.g., "A")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva Univesity, Wurzweiler School of Social Work

References

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
ABplot(cry,pcry,"week","amount","Crying")
# now run Trimline(cry,pcry,"A")
```

Xmrchart	<i>SPC XMR-chart</i>
----------	----------------------

Description

The X-mR-chart can be use to detect changes within and between phases. Can be used with individual data, but it is not appropriate for group data.

Usage

```
Xmrchart(behavior, phaseX, v1, bandX, ABxlab, ABylab, ABmain)
```

Arguments

behavior	behavior variable
phaseX	phase variable
v1	phase bands are based upon in quotation marks (e.g., "A")
bandX	number of standard deviations desired (e.g., 2)
ABxlab	x-axis label in quotation marks (e.g., "week")
ABylab	y-axis label in quotation marks (e.g., "amount")
ABmain	main title for chart in quotation marks (e.g., "X-mR-Chart")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Bloom, M., Fischer, J. & Orme, J.G. (2009). Evaluating practice: Guidelines for the accountable professional (6th ed.). New York: Pearson.

Orme, J. & Cox, M.E. (2001). Analyzing single-subject design data using statistical process control charts. *Social Work Research*, 25(2), 115-127.

Go to www.ssdanalysis.com for more information.

Examples

```
cry<-c(3, 4, 2, 5, 3, 4, NA, 2, 2, 3, 2, 1, 2, NA, 2, 2, 1, 2, 1, 0, 0, 0)
pcry<-c("A", "A", "A", "A", "A", "A", NA, "B", "B", "B", "B", "B", "B", NA, "B1", "B1", "B1", "B1", "B1", "B1")
Xmrchart(cry, pcry, "A", 2, "week", "amount", "X-mR-Chart")
```

XRchart

SPC XR-Chart

Description

This chart can be used when there are multiple observations per sample and uses the mean of each sample to create the chart.

Usage

```
XRchart(behavior, groupX, bandX, ABxlab, ABylab, ABmain)
```


Arguments

behavior	behavior variable
groupX	phase variable
bandX	number of standard deviations desired (e.g., 2)
ABxlab	x-axis label in quotation marks (e.g., "week")
ABylab	y-axis label in quotation marks (e.g., "mean amount")
ABmain	main title for chart in quotation marks (e.g., "Admits to Hospital")

Author(s)

Charles Auerbach, PhD & Wendy Zeitlin Schudrich, PhD; Yeshiva University, Wurzweiler School of Social Work

References

Orme, J. & Cox, M.E. (2001). Analyzing single-subject design data using statistical process control charts. *Social Work Research*, 25(2), 115-127.

Go to www.ssdanalysis.com for more information.

Examples

```
admit<-c(85,90,80,84,82,79,75,76,80,84,75,80,79,83,88,78,80,85,83,82,89,84,89,91,87,84,77,86,80,
89,81,86,88,83,86,90,86,85,85,87,80,89,NA,86,87,88,89,79,73,75,74,70,75,81,85,75,73,75,
79,70,72,71,69,70,64,60,59,54,53,55,50,54,51,49,48,50,46,55,51,55,49,50,48,51,33)
```

```
day<-c(1,1,1,1,1,1,1,2,2,2,2,2,2,3,3,3,3,3,3,4,4,4,4,4,4,4,5,
5,5,5,5,5,6,6,6,6,6,6,NA,7,7,7,7,7,7,8,8,8,8,8,8,9,
9,9,9,9,9,10,10,10,10,10,10,10,11,11,11,11,11,11,11,12,12,12,12,12,12)
```

```
padmit<-c("A","A","A","A","A","A","A","A","A","A","A","A","A","A","A","A","A",
"A","A","A","A","A","A","A","A","A","A","A","A","A","A","A",
"A","A","A","A","A","A","A","A","A","A","A","A","A","A","A",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B","B",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B","B",
"B","B","B","B","B","B","B","B","B","B","B","B","B","B","B")
XRchart(admit, day, 2, "week", "amount", "Admits to Hospital")
```

Index

*Topic \textasciitildekw1

ABanova, 3
ABarrow, 4
ABautoacf, 4
ABautopacf, 5
ABbinomial, 6
ABdescrip, 7
ABiqr, 7
ABlineD, 8
ABlines, 9
ABma, 10
ABplot, 10
ABplotm, 11
ABregres, 12
ABrf2, 13
ABrobust, 14
ABstat, 15
ABtext, 16
ABtsplo, 16
ABttest, 17
ABwilcox, 18
Append, 19
Aregres, 19
Arimadiff, 20
Arimama, 21
Arobust, 21
Cchart, 22
CDC, 23
diffchart, 24
Effectsize, 25
GABrf2, 26
GABttest, 27
Getcsv, 28
Gindex, 28
Gmedian, 29
insert, 30
IQRbandgraph, 31
IQRlegend, 32
IQRline, 32
IRD, 33
listnames, 34
meanabove, 34
meanbelow, 35
medabove, 36
medbelow, 37
PANDabove, 37
PANDbelow, 38
PANDlegend, 39
Pchart, 40
PEMabove, 41
PEMbelow, 42
PEMlegend, 43
plotnum, 43
PNDabove, 44
PNDbelow, 45
PNDlegend, 46
Rchart, 46
Rchartsd, 47
regabove, 49
regbelow, 49
robregabove, 50
robregbelow, 51
robustCDC, 52
Savecsv, 53
SD1, 53
sd1bandgraph, 54
SD1legend, 55
SD2, 55
sd2bandgraph, 56
SD2legend, 57
SDAband, 58
SN, 58
SPClegend, 59
SPCline, 60
SSDforR, 61
trimabove, 61
trimbelow, 62
Trimline, 63

- Xmrchart, 63
- XRchart, 64
- *Topic \textasciitildekw2
 - ABanova, 3
 - ABarrow, 4
 - ABautoacf, 4
 - ABautopacf, 5
 - ABbinomial, 6
 - ABdescrip, 7
 - ABiqr, 7
 - ABlined, 8
 - ABlines, 9
 - ABma, 10
 - ABplot, 10
 - ABplotm, 11
 - ABregres, 12
 - ABrf2, 13
 - ABrobust, 14
 - ABstat, 15
 - ABtext, 16
 - ABtspplot, 16
 - ABttest, 17
 - ABwilcox, 18
 - Append, 19
 - Aregres, 19
 - Arimadiff, 20
 - Arimama, 21
 - Arobust, 21
 - Cchart, 22
 - CDC, 23
 - diffchart, 24
 - Effectsize, 25
 - GABrf2, 26
 - GABttest, 27
 - Getcsv, 28
 - Gindex, 28
 - Gmedian, 29
 - insert, 30
 - IQRbandgraph, 31
 - IQRlegend, 32
 - IQRline, 32
 - IRD, 33
 - listnames, 34
 - meanabove, 34
 - meanbelow, 35
 - medabove, 36
 - medbelow, 37
 - PANDabove, 37
 - PANDbelow, 38
 - PANDlegend, 39
 - Pchart, 40
 - PEMabove, 41
 - PEMbelow, 42
 - PEMlegend, 43
 - plotnum, 43
 - PNDabove, 44
 - PNDbelow, 45
 - PNDlegend, 46
 - Rchart, 46
 - Rchartsd, 47
 - regabove, 49
 - regbelow, 49
 - robregabove, 50
 - robregbelow, 51
 - robustCDC, 52
 - Savecsv, 53
 - SD1, 53
 - sd1bandgraph, 54
 - SD1legend, 55
 - SD2, 55
 - sd2bandgraph, 56
 - SD2legend, 57
 - SDAband, 58
 - SN, 58
 - SPClegend, 59
 - SPCline, 60
 - SSDforR, 61
 - trimabove, 61
 - trimbelow, 62
 - Trimline, 63
 - Xmrchart, 63
 - XRchart, 64
- ABanova, 3
- ABarrow, 4
- ABautoacf, 4
- ABautopacf, 5
- ABbinomial, 6
- ABdescrip, 7
- ABiqr, 7
- ABlined, 8
- ABlines, 9
- ABma, 10
- ABplot, 10
- ABplotm, 11
- ABregres, 12
- ABrf2, 13

ABrobust, 14
ABstat, 15
ABtext, 16
ABtsplot, 16
ABttest, 17
ABWilcox, 18
Append, 19
Aregres, 19
Arimadiff, 20
Arimama, 21
Arobust, 21

Cchart, 22
CDC, 23

diffchart, 24

Effectsize, 25

GABrf2, 26
GABttest, 27
Getcsv, 28
Gindex, 28
Gmedian, 29

insert, 30
IQRbandgraph, 31
IQRlegend, 32
IQRline, 32
IRD, 33

listnames, 34

meanabove, 34
meanbelow, 35
medabove, 36
medbelow, 37

PANDabove, 37
PANDbelow, 38
PANDlegend, 39
Pchart, 40
PEMabove, 41
PEMbelow, 42
PEMlegend, 43
plotnum, 43
PNDabove, 44
PNDbelow, 45
PNDlegend, 46

Rchart, 46

Rchartsd, 47
regabove, 49
regbelow, 49
robregabove, 50
robregbelow, 51
robustCDC, 52

Savecsv, 53
SD1, 53
sd1bandgraph, 54
SD1legend, 55
SD2, 55
sd2bandgraph, 56
SD2legend, 57
SDAband, 58
SN, 58
SPClegend, 59
SPCline, 60
SSDforR, 61

trimabove, 61
trimbelow, 62
Trimline, 63

Xmrchart, 63
XRchart, 64