The package "cwhmisc", an overview

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This package contains material which has been developed and collected as useful and handy. Own ideas and those from others have been used to ease my work. In some cases I incorporated material as is, and references to its author(s) may have to be updated from the web, or may even be lost.

Functions are supplied for

- mathematical use
- plotting
- printing
- data manipulation, statistics
- string manipulation
- other uses.

```
>   library(cwhmisc)
>   nr <- 100; nc <- 8;
>   data <- as.data.frame(matrix(rnorm(nr*nc),nrow=nr,ncol=nc))
>   data[,nc]   <- data[,nc-2] + 0.3*data[,nc-1] #generate higher correlations
>   data[,nc-1] <- data[,nc-1] + 0.9*data[,nc]
>   colnames(data)<-paste("vw",letters[1:nc],sep="")
>   SplomT(data,mainL="",hist="d",cex.diag=0.6,hist.col="green")
```

Table 1: Functions for mathematical use

LB2MK	Convert geographical coordinates to and from Swiss topo coordinates
adaptlob	Numerically evaluate integral using adaptive rule
allDigits	Test, convert numbers
astroC	Astronomical constants
astroGeo	Convert geographical to and fro Swiss topo coordinates
cJDJ2000	Astronomical constants
cLOCKWISE	Constants
Const	Mathematical constants
div.prot	Protected division
ellipse	Generate ellipses
eql	Check on equality, including NA==NA and NaN==NaN.
EulerPhi	Number of divisors
EuclidExtended	Computes a, b which solve the equation a*m + b*n = gcd(m,n)
frac	Fractional part of number
gcd	Greatest common divisor
inrange	Functions for testing and other
intToASCII	Show character or octal representation at a place in the ASCII sequence
intToBase	Convert integer number to string representation in a base 2...16
intToOct	Convert an integer number to string representation in octal
intToHex	Convert an integer number to string representation in hexadecimal
is.constant	is.constant
isNumeric	Test, convert numbers
numberof	Count the number elements that satisfy a condition.
numericString	Test whether the elements of a character vector represent legal numbers only
lengths.angle	Lengths of two vectors and angle between them
modexp	Exponentiation modulo an integer
modulo	m%%n
num.ident	Check numerical values for identity
pointfit	Least squares fit of point clouds aka ”Procrustes problem”
rotL	Rotation matrix
scm	Smallest common multiple
seqm	sequences, empty if ”by” not conforming
signp	Sign Function
whole.number	Check an array on whole numbers (x in I).

Table 2: Functions for string manipulation

cap	Change case of strings
capply	Apply function to elements in character vector.
ap(italize)	Change to upper/lower case
lower(ize)	Change to upper/lower case
CapLeading	Capitalize first character
cpos	Find the position of a substring
datetime	Show date and time in ISO format
dc	Convert number for table columns, for equations
delstr	Delete a substring from a string
dt2str	Convert time difference to string
formatFix	Format to a fixed format representation
term.names2formula	Combine two vectors of strings into a formula.
formula2string	Return the left and the right hand sides of a formula
formula2term.names	Return one chosen side of a formula.
formula2Rterm.names	Return the right hand side of a formula.
num2Latex	Convert numeric containing e+-power
padding	Padding a string with justification
pasteInfix	Paste(infix)
pasteRound	Paste rounded values
replacechar	Replace a character in a string by another
str2formula	Convert back to a formula
strmatch	A "shortest unique identifier" match

Table 3: Functions for statistics and data manipulation

+FinneyCorr	Finney's correction to log normally distributed data, r-squared and standard deviation of a linear model.
Halton	Halton's quasi-random numbers
clean.na	Clean a matrix or data frame of rows or columns of containing NA
dinvgauss	Inverse Gaussian Distribution
dpoisgam	Poisson Gamma Distribution
f.log	Determine an optimized offset s and return log10(data+s)
jitterNA	Jitter vector containing NA
my.table.NA	Tabulate data, with extra rows and columns.
napply	Apply a function to the corresponding elements of two lists (?)
neg.bin.gof	Approximate a Negative binomial distribution
qnorm.ap16	Approximation to the inverse normal distribution function.
qres.binom	Randomized quantile residuals
remove.dup.rows	Remove duplicate rows
scode	Generate the significance codes as in summary.lm
select.range	Select values from a vector depending on a range in a second vector
shapiro.wilk.test	Shapiro-Wilk Normality Test
smoothed.df	Fit cumulative distribution from kernel estimate
summaryFs	Print extended summary of lm
w.median	Weighted median

Table 4: Functions for printing

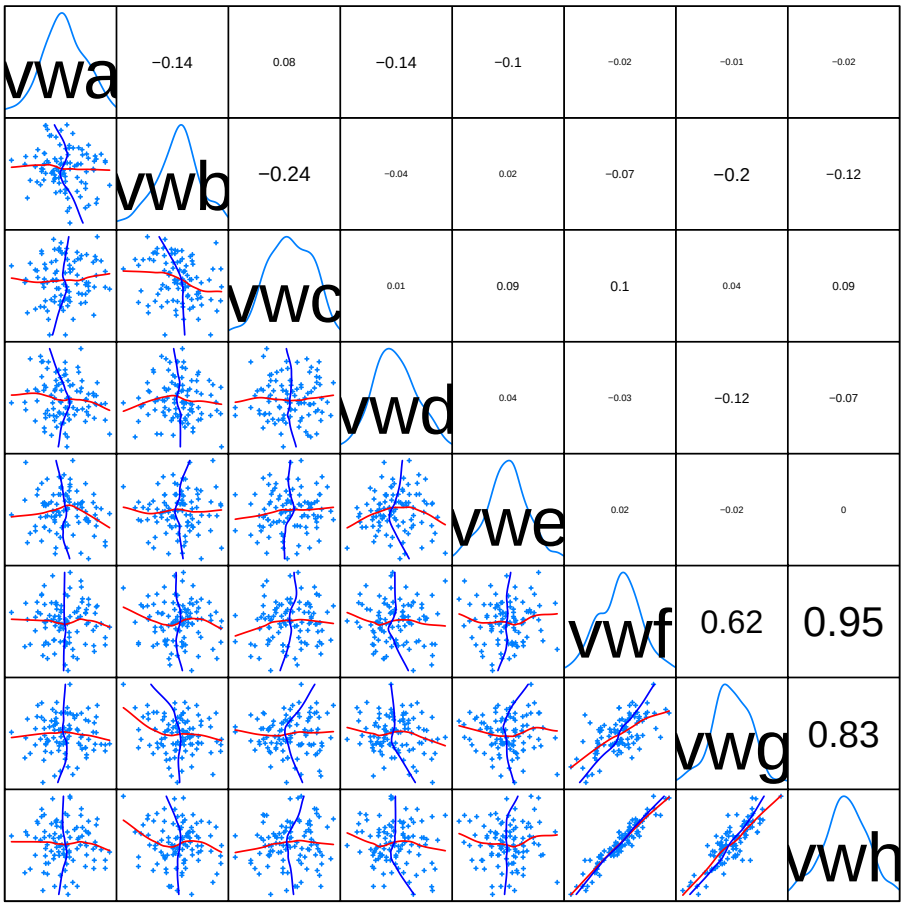
heading	Write a line of text with underlining and blank lines
lpr	Print an object or plot
n22dig	Show vector or matrix (of 0 <= x <=1) in a compact way
n2c	Show absolute values as characters, prepare for plotting
prinE(xsv, ...)	Print a string expression and its evaluation in the form "xsv = evaluation"
prinL(xs, ...)	Print a string expression and its evaluation in the form "xs" newline evaluation"
printP	Print without square brackets, expression values together with their call strings
prinV	Print a vector without [], in fix format.
prinM	Print a matrix without [], in fix format.
prinT	Print an array, TAB delimited.
progress.meter	Monitor the progress of a repetitive calculation
tex.table	Convert a data matrix into LaTeX code

Table 5: Functions for plotting

T3plot	T3plot
lowess.bygroup	Plot data in groups, each group with separate lowess smoothing
lpr	Print an object or plot
mult.fig.p	Plot Setup for multiple plot, incl. main title
p.screeplot.princomp	Plot screeplot
panel.cor	Alternative panel functions for lattice plots
pdfc	Print current plot
panel.hist	Alternative panel functions for lattice plots
plotSymbols	Plot symbols, colours, and allow to choose
pltCharMat	Plot depending on switch, Create multiple plots with title and time stamp
setPPT	Set PowerPoint style
setupInterp	Polynomial and rational interpolation
triplot	Ternary or Triangular Plots.

Table 6: Miscellaneous functions

ASCII	Internal cwhmisc functions
libs	List all installed packages, or all functions in a package
ls.functions	List available functions
progress.meter	Monitor the progress of a repetitive calculation
waitReturn	Wait for <Return>



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