

Package ‘dgmb’

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Type Package

Title dgmb Simulating data for PLS structural models

Author Alba Martinez-Ruiz <amartine@ucsc.cl> and Claudia
Martinez-Araneda <cmartinez@ucsc.cl>

Maintainer Alba Martinez-Ruiz <amartine@ucsc.cl>

Depends R (>= 2.13.2), abind, tcltk, MASS

Suggests abind, tcltk, MASS

Description Random data generation for PLS structural models.

License GPL version 2 or newer

LazyLoad yes

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dgmb-package

dgmb *Simulating data for PLS structural models*

Description

A set of functions have been implemented to generate random data to perform Monte Carlo simulations on structural models with formative constructs (PLS-Mode-B models). The setup of the true model is very specific. It considers a simple structure with three formative exogenous constructs related to one formative endogenous construct. The routines take into account the interaction and nonlinear effects of the exogenous constructs on the endogenous constructs.

A graphical user interface allows one to fix the simulation parameters such as the number of replications, the sample size of each data set and the number of indicators for each block of variables. Using binary matrices, it is possible to set the structural relationships between constructs as well as nonlinear and interaction effects. A set of permissible outer weights and path coefficients is available to run the procedure and to obtain the data sets.

Details

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Author(s)

Alba Martinez-Ruiz <amartine@ucsc.cl>, Claudia Martinez-Araneda <cmartinez@ucsc.cl>

References

- Chin, W. W., Marcolin, B. L., and Newsted, P. R. 2003. A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information Systems Research*, **14**(2), 189-217.
- Dalgaard's Peter (2002) *Rnews: The Newsletter of the R Project*, Vol. 3.
- Hanafi, M. 2007. PLS path modeling: Computation of latent variables with the estimation mode B. *Computational Statistics*, **22**, 275-292.
- R Development Core Team (2011). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, <http://www.r-project.org/>
- Tenenhaus, M., Esposito Vinzi, V., Chatelin, Y. M., and Lauro, C. 2005. PLS path modeling. *Computational Statistics & Data Analysis*, **48**, 159-205.

See Also

[dgmbGui](#)

Examples

```
dgmbGui ()
help (dgmbGui)
```

dgmbGui

Graphical user interface (GUI) for random data generation

Description

A function to implement a graphical user interface (GUI) to fix simulation parameters.

Usage

```
dgmbGui ()
```

Details

The following main window is displayed in R:

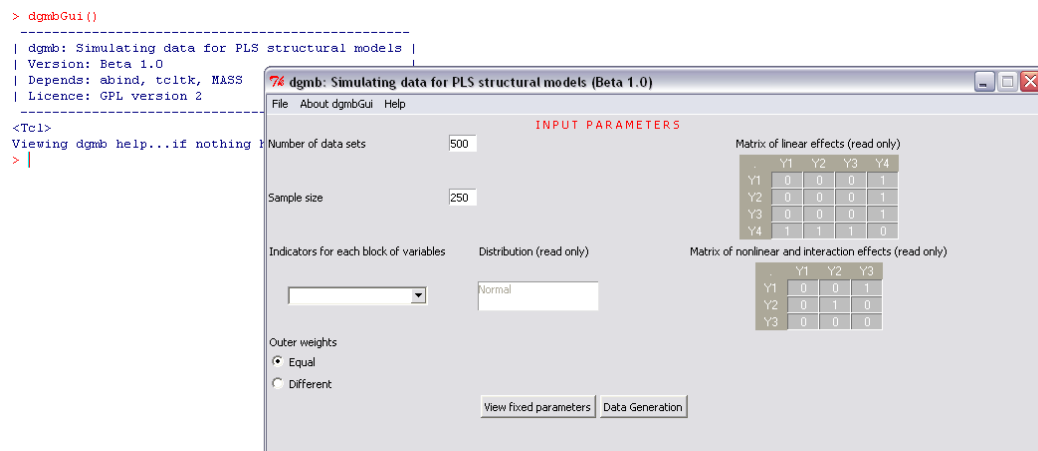


Figure 1 Graphical user interface for random data generation

Functions are implemented to generate data for a specific model (Figure 2). The true model considers three formative exogenous constructs and one formative endogenous construct. Linear effects are specified in a binary matrix as well as nonlinear and interaction effects. The interface allows one to set the number of data sets or Monte Carlo replications and the sample size of each data set; it is advisable to consider a sample size equal to or higher than 100 observations. All the measurement models have to have the same number of manifest variables. Four options can be used: 2, 4, 6, and 8 indicators per construct.

For each true model, two sets of true outer weights are available. The value of the outer effects may be equal in all measurement models or a set of different permissible values may be considered. Manifest variables are generated as random normal data.

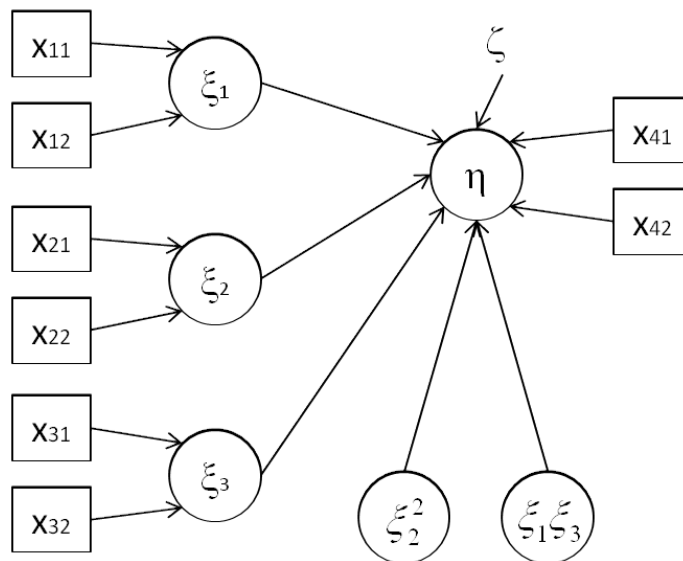


Figure 2 True structural and measurement models

Value

Two files:

text file A .txt file in ASCII format readable from R-project with dget.
 csv file A .csv file.

Author(s)

Alba Martinez-Ruiz <amartine@ucsc.cl>, Claudia Martinez-Araneda <cmartinez@ucsc.cl>

References

- Chin, W. W., Marcolin, B. L., and Newsted, P. R. 2003. A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information Systems Research*, **14**(2), 189-217.
- Dalgaard's Peter (2002) *Rnews: The Newsletter of the R Project*, Vol. 3.
- Hanafi, M. 2007. PLS path modeling: Computation of latent variables with the estimation mode B. *Computational Statistics*, **22**, 275-292.
- R Development Core Team (2011). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, <http://www.r-project.org/>
- Tenenhaus, M., Esposito Vinzi, V., Chatelin, Y. M., and Lauro, C. 2005. PLS path modeling. *Computational Statistics & Data Analysis*, **48**, 159-205.

See Also

[dgmb](#), [IntPar](#), [ViewParameters](#), [ToProcess](#), <tk> package

Examples

```
help(dgmb)
dgmbGui()
```

Description

A function to calculate endogenous constructs.

Usage

```
EnLVs(N, n, ben, bet, elv, y.ex.tot)
```

Arguments

N	The number of data sets.
n	The sample size of each data set.
ben	The number of endogenous constructs per model (default = 1).
bet	A vector with the true values of path coefficients (linear, nonlinear and interaction effects).
elv	An array with N matrices of dimension n times ben with the disturbance terms of the endogenous constructs.
y.ex.tot	An array with N matrices of dimension n times ncol(y.ex) + ncol(a.nle) + ncol(a.ie) with the scores of exogenous constructs (linear, nonlinear, and interaction effects).

Value

y.en	An array with N matrices of dimension n times ben with the scores of endogenous constructs.
------	---

Author(s)

Alba Martinez-Ruiz <amartine@ucsc.cl>

See Also

[EnMVs](#), [XexXen](#)

Examples

```
N <- 500
n <- 250
## Not run:
yen <- EnLVs(N,n,intpar$ben,path.coef,err$elv,yexcor$y.ex.tot)
attributes(yen)
## End(Not run)
```

EnMVs

*Calculating manifest variables of endogenous constructs***Description**

A function to calculate manifest variables of endogenous constructs.

Usage

```
EnMVs(N, n, ind.en, weien, y.en)
```

Arguments

N	The number of data sets.
n	The sample size of each data set.
ind.en	The total number of manifest variables of endogenous constructs.
weien	A matrix with the true values of outer weights. Each row gives the true values for a measurement model.
y.en	An array with N matrices of dimension n times ben with the scores of endogenous constructs.

Value

x.en	An array with N matrices of dimension n times ind.en with the scores of manifest variables.
------	---

Author(s)

Alba Martinez-Ruiz <amartine@ucsc.cl>

See Also

[XexXen](#)

Examples

```
N <- 500
n <- 250
## Not run:
xen <- EnMVs(N, n, intpar$ind.en, wei.en, yen$y.en)
attributes(xen)
## End(Not run)
```

ErrEnLV

*Calculating disturbance terms***Description**

A function to calculate the disturbance terms of the endogenous construct.

Usage

```
ErrEnLV(N, n, ben, bet, y.ex.cor)
```

Arguments

N	The number of data sets.
n	The sample size of each data set.
ben	The number of endogenous constructs per model (default = 1).
bet	A vector with the true values of path coefficients (linear, nonlinear and interaction effects).
y.ex.cor	An array with N matrices of dimension <code>ncol(y.ex)+ncol(a.nle)+ncol(a.ie)</code> times <code>ncol(y.ex)+ncol(a.nle)+ncol(a.ie)</code> with the correlations between exogenous constructs (linear, nonlinear, and interaction effects).

Value

A list with the following components:

std.error	A vector with the standard deviation of disturbance terms of the endogenous constructs. The vector length is equal to the number of replications.
elv	An array with N matrices of dimension n times ben with the disturbance terms of the endogenous constructs.

Author(s)

Alba Martinez-Ruiz <amartine@ucsc.cl>

See Also

[EnLVs](#), [EnMVs](#), [XexXen](#)

Examples

```
N <- 500
n <- 250
## Not run:
err <- ErrEnLV(N,n,intpar$ben,path.coef,yexcor$y.ex.cor)
attributes(err)
## End(Not run)
```

Description

A function to calculate exogenous constructs.

Usage

```
ExoLVs(N, n, bv, bex, x.ex, wei.ex)
```

Arguments

<code>N</code>	The number of data sets.
<code>n</code>	The sample size of each data set.
<code>bv</code>	A vector with the number of manifest variables per construct.
<code>bex</code>	The number of exogenous constructs.
<code>x.ex</code>	An array of <code>N</code> matrices of dimension <code>n</code> times <code>ind.ex</code> with the scores of manifest variables.
<code>wei.ex</code>	A matrix with the true values of outer weights. Each row gives the true values for a measurement model.

Value

<code>y.ex</code>	An array with <code>N</code> matrices of dimension <code>n</code> times <code>bex</code> with the scores of exogenous constructs.
-------------------	---

Author(s)

Alba Martinez-Ruiz <amartine@ucsc.cl>

See Also

[NIEffects](#), [ExoLVsCor](#), [ErrEnLV](#), [EnLVs](#), [EnMVs](#), [XexXen](#)

Examples

```
N <- 500
n <- 250
bv <- c(2, 2, 2, 2)
## Not run:
yex <- ExoLVs(N, n, bv, intpar$bex, xex$x.ex, wei.ex)
attributes(yex)
## End(Not run)
```

ExoLVsCor

*Calculating correlations between exogenous constructs***Description**

A function to calculate correlations between exogenous constructs.

Usage

```
ExoLVsCor(N, n, bex, rie, y.ex, a.nle, a.ie)
```

Arguments

<code>N</code>	The number of data sets.
<code>n</code>	The sample size of each data set.
<code>bex</code>	The number of exogenous constructs.
<code>rie</code>	A binary matrix specifying nonlinear and interaction effects on the endogenous construct.
<code>y.ex</code>	An array with <code>N</code> matrices of dimension <code>n</code> times <code>bex</code> with the scores of exogenous constructs.
<code>a.nle</code>	An array with <code>N</code> matrices of dimension <code>n</code> times <code>ncol(rie)</code> with the scores of nonlinear effects.
<code>a.ie</code>	An array with <code>N</code> matrices of dimension <code>n</code> times <code>ncol(rie)</code> with the scores of interaction effects.

Value

A list with the following components:

<code>y.ex.tot</code>	An array with <code>N</code> matrices of dimension <code>n</code> times <code>ncol(y.ex) + ncol(a.nle) + ncol(a.ie)</code> with the scores of exogenous constructs (linear, nonlinear, and interaction effects).
<code>y.ex.cor</code>	An array with <code>N</code> matrices of dimension <code>ncol(y.ex) + ncol(a.nle) + ncol(a.ie)</code> times <code>ncol(y.ex) + ncol(a.nle) + ncol(a.ie)</code> with the correlations between exogenous constructs (linear, nonlinear, and interaction effects).

Author(s)

Alba Martinez-Ruiz <amartine@ucsc.cl>

See Also

[ErrEnLV](#), [EnLVs](#), [EnMVs](#), [XexXen](#)

Examples

```

N <- 500
n <- 250
## Not run:
yexcor <- ExoLVsCor(N,n,intpar$bex,intpar$rie,yex$y.ex,nlie$a.nle,nlie$a.ie)
attributes(yexcor)
## End(Not run)

```

ExoMVs

*Calculating exogenous manifest variables***Description**

A function to calculate manifest variables of exogenous constructs.

Usage

```
ExoMVs(N, n, ind.ex)
```

Arguments

N	The number of data sets.
n	The sample size of each data set.
ind.ex	The total number of manifest variables of exogenous constructs.

Value

x.ex	An array with N matrices of dimension n times ind.ex with the scores of manifest variables.
------	---

Author(s)

Alba Martinez-Ruiz <amartine@ucsc.cl>

See Also

[IntPar](#), [ExoLVs](#), [NIEffects](#), [ExoLVsCor](#), [ErrEnLV](#), [EnLVs](#), [EnMVs](#), [XexXen](#)

Examples

```

N <- 500
n <- 250
## Not run:
xex <- ExoMVs(N,n,intpar$ind.ex)
attributes(xex)
## End(Not run)

```

IntPar

*Calculating internal parameters***Description**

A function to compute internal parameters.

Usage

```
IntPar(rs, rie, modo, bv)
```

Arguments

rs	A binary matrix specifying the structural relationships between constructs.
rie	A binary matrix specifying nonlinear and interaction effects on the endogenous construct.
modo	A vector with the mode of each block of variables. "F" for formative measurement models or Mode B in PLS structural models.
bv	A vector with the number of manifest variables per construct.

Value

A list with the following components:

nat	A vector with the nature of each construct, exogenous ("ex") or endogenous ("en").
bex	The number of exogenous constructs.
ben	The number of endogenous constructs.
ind.ex	The total number of manifest variables of exogenous constructs.
ind.en	The total number of manifest variables of endogenous constructs.

Author(s)

Alba Martinez-Ruiz <amartine@ucsc.cl>

See Also

[dgmb](#), [dgmbGui](#), [ExoMVs](#), [ExoLVs](#), [NIEffects](#), [ExoLVsCor](#), [ErrEnLV](#), [EnLVs](#), [EnMVs](#), [XexXen](#)

Examples

```
r.s <- matrix(c(0,0,0,1,
               0,0,0,1,
               0,0,0,1,
               1,1,1,0), 4, 4, byrow=TRUE)

r.rie <- matrix(c(0,0,1,
                 0,1,0,
                 1,0,0), 3, 3, byrow=TRUE)
```

```

modo <- c("F", "F", "F", "F")

bv <- c(2, 2, 2, 2)

intpar <- IntPar(r.s, r.ie, modo, bv)

attributes(intpar)

```

NIEffects

Calculating nonlinear and interaction effects

Description

A function to calculate nonlinear and interaction effects.

Usage

```
NIEffects(N, n, y.ex, rie)
```

Arguments

N	The number of data sets.
n	The sample size of each data set.
y.ex	An array with N matrices of dimension n times bex with the scores of exogenous constructs.
rie	A binary matrix specifying nonlinear and interaction effects on the endogenous construct.

Value

A list with the following components:

a.nle	An array with N matrices of dimension n times ncol(rie) with the scores of nonlinear effects.
a.ie	An array with N matrices of dimension n times ncol(rie) with the scores of interaction effects.

Author(s)

Alba Martinez-Ruiz <amartine@ucsc.cl>

See Also

[ExoLVsCor](#), [ErrEnLV](#), [EnLVs](#), [EnMVs](#), [XexXen](#)

Examples

```

N <- 500
n <- 250
## Not run:
nlie <- NIEffects(N, n, yex$y.ex, intpar$rie)
attributes(nlie)
## End(Not run)

```

ToProcess	<i>Processing input parameters</i>
-----------	------------------------------------

Description

A function to process the input parameters. The function calls functions to generate random data for PLS-Mode-B models.

Usage

```
ToProcess(N, n, parMode, pI, eq)
```

Arguments

N	The number of data sets.
n	The sample size of each data set.
parMode	The mode of each block of variables (default = "F")
pI	The number of indicators per construct: {2,4,6,8}.
eq	A boolean variable. TRUE for equal outer weights; FALSE for different combinations of outer weights.

Value

Two files:

text file	A .txt file in ASCII format readable from R-project with dget.
csv file	A .csv file.

Author(s)

Claudia Martinez-Araneda <cmartinez@ucsc.cl>

References

Dalgaard's Peter (2002) *Rnews: The Newsletter of the R Project*, Vol. 3.

See Also

[IntPar](#), [ExoMVs](#), [EnMVs](#), [ExoLVs](#), [EnLVs](#), [ErrEnLV](#), [ExoLVsCor](#), [NIEffects](#), [XexXen](#)

Examples

```
ToProcess <- function(N,n,parMode,pI,eq){

  require (MASS)
  cat(paste("\nInputs " , N," ",n ," ", parMode," ",pI, " ",eq,"\n"))
  if ( is.na(N) || is.na(n))
  cat ("N and n values must be an integer greater than zero (try again)")
  else
    if (is.numeric(N)==FALSE || is.numeric(n)==FALSE)
    cat ("N and n values must be an integer greater than zero (try again)")
  else
```

```

if (length(pI)==0)
cat ("Must select an indicador for each block variables")
else
{
#Input retrieve
#-----#
if (is.na(pI)) pI<- 2
if (eq==1) eq<- TRUE
else eq<-FALSE

#Setting parameters to functions
#-----#
r.s <- matrix(c(0,0,0,1,
0,0,0,1,
0,0,0,1,
1,1,1,0),4,4,byrow=TRUE)

r.ie <- matrix(c(0,0,1,
0,1,0,
0,0,0),3,3,byrow=TRUE)

modo <- c(parMode,parMode,parMode,parMode)
bv <- c(pI,pI,pI,pI)
path.coef <- c(0.5,0.4,0.3,0,0.3,0,0.3,0,0)
#-----#
if (eq==TRUE) #equal
{
if (pI==2){ #Case 1: two indicators per construct, all outer weights equal
wei.ex <- matrix (c(0.63,0.63,
0.63,0.63,
0.63,0.63), 3,2,byrow=TRUE)#cambio 07.11
wei.en <- matrix(c(0.63,0.63),1,2,byrow=TRUE)
}
if (pI==4){#Case 2: four indicators per construct, all outer weights equal
wei.ex <- matrix (c(0.42,0.42,0.42,0.42,
0.42,0.42,0.42,0.42,
0.42,0.42,0.42,0.42), 3,4,byrow=TRUE)
wei.en <- matrix(c(0.42,0.42,0.42,0.42),1,4,byrow=TRUE)
}
if (pI==6){#Case 3: six indicators per construct, all outer weights equal
wei.ex <- matrix (c(0.35,0.35,0.35,0.35,0.35,0.35,
0.35,0.35,0.35,0.35,0.35,0.35,
0.35,0.35,0.35,0.35,0.35,0.35),
3,6,byrow=TRUE)
wei.en <- matrix(c(0.35,0.35,0.35,0.35,0.35,0.35),1,6,byrow=TRUE)
}
if (pI==8){#Case 4: eight indicators per construct, all outer weights equal
wei.ex <- matrix (c(0.3,0.3,0.3,0.3,0.3,0.3,0.3,0.3,
0.3,0.3,0.3,0.3,0.3,0.3, 0.3,0.3,
0.3,0.3,0.3,0.3,0.3,0.3, 0.3,0.3),
3,8,byrow=TRUE)
wei.en <- matrix(c(0.3,0.3,0.3,0.3,0.3,0.3,0.3,0.3),1,8,byrow=TRUE)
}
}
}else{#Different

if (pI==2) {#Case 1: two indicators per construct, all different

```

```

wei.ex <- matrix(c(0.8,0.4,
                  0.4,0.8,
                  0.1,0.9),3,2,byrow=TRUE)
wei.en <- matrix(c(0.4,0.8),1,2,byrow=TRUE)
}
if (pI==4){#Case 2: four indicators per construct, all different
wei.ex <- matrix(c(0.2,0.3,0.5,0.7,
                  0.2,0.4,0.6,0.5,
                  0.3,0.5,0.7,0.2),3,4,byrow=TRUE)
wei.en <- matrix(c(0.2,0.3,0.5,0.5),1,4,byrow=TRUE)

}
if (pI==6){#Case 3: six indicators per construct, all different
wei.ex <- matrix(c(0.5,0.3,0.4,0.3,0.5,0.1,
                  0.2,0.4,0.6,0.4,0.2,0.3,
                  0.3,0.6,0.2,0.3,0.4,0.2),
                  3,6,byrow=TRUE)
wei.en <- matrix(c(0.5,0.3,0.4,0.3,0.5,0.1),1,6,byrow=TRUE)
}
if (pI==8){#Case 4: eight indicators per construct, all different
wei.ex <- matrix(c(0.3,0.3,0.4,0.3,0.4,0.3,0.2,0.3,
                  0.3,0.3,0.4,0.3,0.2,0.3,0.4,0.2,
                  0.4,0.5,0.4,0.3,0.2,0.1,0.3,0.2),
                  3,8,byrow=TRUE)
wei.en <- matrix(c(0.3,0.3,0.4,0.3,0.4,0.3,0.2,0.3),1,8,byrow=TRUE)
}
}

#Call to functions simulators
#-----#
intpar <- IntPar(r.s,r.ie,modo,bv)
xex <- ExoMVs(N,n,intpar$ind.ex)
yex <- ExoLVs(N,n,bv,intpar$bex,xex$x.ex,wei.ex)
nlie <- NIEffects(N,n,yex$y.ex,intpar$rie)
yexcor <- ExoLVsCor(N,n,intpar$bex,intpar$rie,yex$y.ex,nlie$a.nle,nlie$a.ie)
err <- ErrEnLV(N,n,intpar$ben,path.coef,yexcor$y.ex.cor)

if (as.numeric(err$vis) == 0)
{
yex <- EnLVs(N,n,intpar$ben,path.coef,err$elv,yexcor$y.ex.tot)
xen <- EnMVs(N,n,intpar$ind.en,wei.en,yex$y.en)
x <- XexXen(N,n,intpar$ind.ex,intpar$ind.en,xex$x.ex,xen$x.en)
x <- x$x

#Output to text file and csv file
#-----#
outputfile <- tclvalue(tkgetSaveFile(initialdir=~"))
if (outputfile != "")
{
dput(x, paste(outputfile,".txt"), control="all")
write.csv(x, file = paste(outputfile,".csv"))
cat ("Generating data...")
msg<-paste("csv and txt data were successfully saved ")
}else msg<-paste("The data were not successfully saved")
tkmessageBox(title="Data Output",message=msg)
}
}

```

```
}#Fin ToProcess
```

ViewHelp

Viewing help files in pdf format

Description

A function to view the help files.

Usage

```
ViewHelp()
```

Value

A file:

pdf file A help file including the description of the main functions of the dgmb-package.

Author(s)

Claudia Martinez-Araneda <cmartinez@ucsc.cl>

References

Dalgaard's Peter (2002) *Rnews: The Newsletter of the R Project*, Vol. 3.

See Also

<tcltk> package

Examples

```
ViewHelp <- function()
{
  helpfile<-paste(find.package("dgmb",verbose = verbose))
  helpfile<-substring(helpfile,1,nchar(helpfile))
  helpfile<-paste(helpfile,"/docs/dgmb-manual.pdf")
  helpfile<-sub("dgmb ","dgmb", helpfile)
  cat ("Viewing dgmb help...if nothing happens, you should write help(dgmb) in R console\n")
  browseURL(helpfile)
}
```

ViewParameters	<i>A dialog box to display parameters</i>
----------------	---

Description

A function to display a dialog box with simulation parameters.

Usage

```
ViewParameters(tkl, tkr)
```

Arguments

tkl	An instance of tkcombobox
tkr	An instance of tkradiobutton

Author(s)

Claudia Martinez-Araneda <cmartinez@ucsc.cl>

References

Dalgaard's Peter (2002) *Rnews: The Newsletter of the R Project*, Vol. 3.

Examples

```
ViewParameters <-
function(tkl,tkr)
{
  rb<- tclvalue(tkr)
  ll<- as.numeric(tclvalue(tcl(tkl,"getvalue")))
  msg<-paste("")

  if (rb == 1) #all outer weights equal
  {
    if (as.integer(ll)==0)
    {
      msg<-paste(msg,"path.coef <- c(0.5,0.4,0.3,0,0.3,0,0.3,0,0)\n")
      msg<-paste(msg,"wei.ex <- matrix (c(0.63,0.63,\n\t\t0.63,0.63,\n\t\t0.63,0.63),\n\t\t\t0.63,0.63)\n")
      msg<-paste(msg,"wei.en <- matrix(c(0.63,0.63),1,2,byrow=TRUE), 3,2,byrow=TRUE)\n")
    }
    if (as.integer(ll)==1)
    {
      msg<-paste(msg,"path. coef <- c(0.5,0.4,0.3,0,0.3,0,0.3,0,0)\n")
      msg<-paste(msg,"wei.ex <- matrix (c(0.42,0.42,0.42,0.42,\n\t\t\t0.42,0.42,0.42,0.42),\n\t\t\t0.42,0.42,0.42,0.42)\n")
      msg<-paste(msg,"wei.en <- matrix(c(0.42,0.42,0.42,0.42),1,4,byrow=TRUE)\n")
    }
    if (as.integer(ll)==2)
    {
      msg<-paste(msg,"path. coef <- c(0.5,0.4,0.3,0,0.3,0,0.3,0,0)\n")
      msg<-paste(msg,"wei.ex <- matrix (c(0.35,0.35,0.35,0.35,0.35,0.35,\n\t\t\t0.35,0.35,0.35,0.35),\n\t\t\t0.35,0.35,0.35,0.35)\n")
      msg<-paste(msg,"wei.en <- matrix(c(0.35,0.35,0.35,0.35,0.35,0.35),1,6,byrow=TRUE)\n")
    }
  }
}
```

```

if (as.integer(ll)==3)
{
  msg<-paste(msg,"path. coef <- c(0.5,0.4,0.3,0,0.3,0,0.3,0,0)\n")
  msg<-paste(msg,"wei.ex <- matrix (c(0.3,0.3,0.3,0.3,0.3,0.3,0.3,0.3,\n\t\t0.3,0.3,0.3,0.3,0.3,0.3,0.3,0.3)\n\t\t0.3,0.3,0.3,0.3,0.3,0.3,0.3,0.3),1,8,byrow=TRUE)\n")
  msg<-paste(msg,"wei.en <- matrix(c(0.3,0.3,0.3,0.3,0.3,0.3,0.3,0.3),1,8,byrow=TRUE)\n")
}
}else{#all outer weights different
  if (as.integer(ll)==0)
  {
    msg<-paste(msg,"path.coef <- c(0.5,0.4,0.3,0,0.3,0,0.3,0,0)\n")
    msg<-paste(msg,"wei.ex <- matrix(c(0.8,0.4,\n\t\t0.4,0.8,\n\t\t0.1,0.9),3,2,byrow=TRUE)\n")
    msg<-paste(msg,"wei.en <- matrix(c(0.4,0.8),1,2,byrow=TRUE)")
  }
  if (as.integer(ll)==1)
  {
    msg<-paste(msg,"path. coef <- c(0.5,0.4,0.3,0,0.3,0,0.3,0,0)\n")
    msg<-paste(msg,"wei.ex <- matrix(c(0.2,0.3,0.5,0.7\n\t\t0.2,0.4,0.6,0.5\n\t\t0.2,0.3,0.5,0.7),1,4,byrow=TRUE)\n")
    msg<-paste(msg,"wei.en <- matrix(c(0.2,0.3,0.5,0.5),1,4,byrow=TRUE)\n")
  }
  if (as.integer(ll)==2)
  {
    msg<-paste(msg,"path. coef <- c(0.5,0.4,0.3,0,0.3,0,0.3,0,0)\n")
    msg<-paste(msg,"wei.ex <- matrix(c(0.5,0.3,0.4,0.3,0.5,0.1,\n\t\t0.2,0.4,0.6,0.5),1,6,byrow=TRUE)\n")
    msg<-paste(msg,"wei.en <- matrix(c(0.5,0.3,0.4,0.3,0.5,0.1),1,6,byrow=TRUE)")
  }
  if (as.integer(ll)==3) {
    msg<-paste(msg,"path. coef <- c(0.5,0.4,0.3,0,0.3,0,0.3,0,0)\n")
    msg<-paste(msg,"wei.ex <- matrix(c(0.3,0.3,0.4,0.3,0.4,0.3,0.2,0.3,\n\t\t0.3,0.3,0.4,0.3,0.4,0.3,0.2,0.3)\n\t\t0.3,0.3,0.4,0.3,0.4,0.3,0.2,0.3),1,8,byrow=TRUE)\n")
    msg<-paste(msg,"wei.en <- matrix(c(0.3,0.3,0.4,0.3,0.4,0.3,0.2,0.3),1,8,byrow=TRUE)\n")
  }
}
tkmessageBox(title="Fixed Parameters", message=paste(msg, "\n Distribution = Normal"),
  type="ok")
}#End ViewParameters

```

XexXen

Simulated data

Description

A function to create an array with simulated data.

Usage

```
XexXen(N, n, ind.ex, ind.en, x.ex, x.en)
```

Arguments

N	The number of data sets.
n	The sample size of each data set.

<code>ind.ex</code>	The total number of manifest variables of exogenous constructs.
<code>ind.en</code>	The total number of manifest variables of endogenous constructs.
<code>x.ex</code>	An array with N matrices of dimension n times <code>ind.ex</code> with the scores of manifest variables.
<code>x.en</code>	An array with N matrices of dimension n times <code>ind.en</code> with the scores of manifest variables.

Value

<code>x</code>	An array with N matrices of dimension n times <code>ind.ex + ind.en</code> with the scores of manifest variables.
----------------	---

Author(s)

Alba Martinez-Ruiz <amartine@ucsc.cl>

Examples

```
N <- 500
n <- 250
## Not run:
x <- XexXen(N,n,intpar$ind.ex,intpar$ind.en,xex$x.ex,xen$x.en)
attributes(x)
x <- x$x
## End (Not run)
```

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