

# Package ‘moonBook’

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**Title** Functions and Datasets for the Book by Keon-Woong Moon

**Version** 0.1.3

**Description** Several analysis-related functions for the book entitled “R statistics and graph for medical articles” (written in Korean), version 1, by Keon-Woong Moon with Korean demographic data with several plot functions.

**Depends** R (>= 3.1.2)

**License** GPL-2

**LazyData** true

**Imports** nortest, survival

**Suggests** testthat, knitr, ggplot2

**VignetteBuilder** knitr

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acs *Demographic data of 857 patients with ACS*

---

### Description

A dataset containing demographic data and laboratory data of 857 patients with acute coronary syndrome(ACS).

### Format

A data frame with 857 rows and 17 variables:

**age** patient age in years

**sex** "Male" or "Female"

**cardiogenicShock** "No" or "Yes"

**entry** vascular access route, either "Femoral" or "Radial"

**Dx** Final diagnosis, One of the followings : STEMI, NSTEMI or Unstable Angina

**EF** ejection fraction, percentage by echocardiography

**height** height in centimeter  
**weight** weight in kilogram  
**BMI** body mass index in kg/m2  
**obesity** obesity, "No" or "Yes"  
**TC** total cholesterol level in mg/dL  
**LDLC** low density lipoprotein cholesterol level in mg/dL  
**HDLC** high density lipoprotein cholesterol level in mg/dL  
**TG** triglyceride level in mg/dL  
**DM** history of diabetes mellitus, "No" or "Yes"  
**HBP** history of hypertension, "No" or "Yes"  
**smoking** history of smoking, One of the followings : "Never", "Ex-smoker", "Smoker"

---

cbind.mytable	<i>cbind function for class "mytable"</i>
---------------	---

---

### Description

cbind function for class "mytable"

### Usage

```
cbind.mytable(..., caption, y = NULL)
```

### Arguments

...	Objects of class "mytable", a result of a call to <a href="#">mytable</a>
caption	Unique values of grouping variable used for column name of table
y	Names of grouping variables used for caption of table

---

centerprint	<i>Internal mytable functions</i>
-------------	-----------------------------------

---

### Description

Internal mytable functions These are not to be called by the user

### Usage

```
centerprint(x, ..., width = 10)
```

### Arguments

x	a character vector
...	further arguments passed to or from other methods.
width	an integer

---

densityplot	<i>Make Kernel density plot</i>
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---

**Description**

Make Kernel density plot

**Usage**

```
densityplot(formula, data, main = "", xlab = "", ylab = "", ...)
```

**Arguments**

formula	an R model formula, of the form ~ variable to estimate the unconditional density of variable, or variable ~ factor to estimate the density of variable within each level of factor.
data	an optional data frame containing the data.
main	main title of plot
xlab	label for the horizontal-axis; defaults to the name of the variable x.
ylab	label for the vertical axis; defaults to "Density".
...	arguments to be passed to plot

**Value**

This function return NULL invisibly and draw graphs.

**Examples**

```
require(moonBook)
data(acs)
densityplot(age~Dx,data=acs)
```

---

extractHR	<i>Extract hazard ratio from a data.frame</i>
-----------	---

---

**Description**

Extract hazard ratio from a data.frame

**Usage**

```
extractHR(x, digits = 2)
```

**Arguments**

`x` an object of class `coxph`  
`digits` An integer indicating the number of decimal places (round) or significant digits (signif) to be used. Default value is 2.

**Value**

a data.frame consist of hazard ratio and 95 the p values.

---

extractOR	<i>Extract the odds ratios from a S3 object of glm</i>
-----------	--

---

**Description**

Extract the odds ratios from a S3 object of glm

**Usage**

```
extractOR(x, digits = 2)
```

**Arguments**

`x` A S3 object of glm  
`digits` An integer indicating the number of decimal places (round) or significant digits (signif) to be used. Default value is 2.

**Value**

A data.frame consist of odds ratios and 95 p values

---

HRplot	<i>Draw a hazard ratio plot</i>
--------	---------------------------------

---

**Description**

Draw a hazard ratio plot

**Usage**

```
HRplot(out, type = 1, xlab = "", ylab = "", show.OR = TRUE,  
        show.CI = FALSE, sig.level = 1, cex = 1.2, lwd = 2, pch = 18,  
        col = NULL, ...)
```

**Arguments**

out	an object of class coxph or a resultant data.frame of mycph function
type	an integer indicating the type of plot. Default value is 1
xlab	a title for the x axis
ylab	a title for the y axis
show.OR	a logical vector indicating whether or not show the text indicating the p value
show.CI	a logical vector indicating whether or not show the text indicating the confidence interval
sig.level	a numeric value of upper limit of p value of showing variables
cex	A numerical value giving the amount by which plotting OR/HR symbols should be magnified relative to the default, defaulting 1.2.
lwd	The line width, a positive number, defaulting to 2.
pch	Either an integer specifying a symbol or a single character to be used as the default in plotting OR/HR points.
col	A specification for the default plotting color.
...	arguments to be passed to plot

**Value**

This function return NULL invisibly and draw graphs

**Examples**

```
require(survival)
attach(colon)
colon$TS=Surv(time, status==1)
out=mycph(TS~., data=colon)
out
HRplot(out, type=1, pch=2, col=c("blue", "red"))
HRplot(out, type=2, show.CI=TRUE, pch=2, cex=2, main="Hazard ratios of all individual variables")
```

---

my.chisq.test

*Internal mytable functions*


---

**Description**

Internal mytable functions These are not to be called by the user

**Usage**

```
my.chisq.test(x, y, mydata)
```

**Arguments**

x	a vector
y	a vector
mydata	a data.frame

---

my.t.test	<i>Internal mytable functions</i>
-----------	-----------------------------------

---

**Description**

Internal mytable functions These are not to be called by the user

**Usage**

```
my.t.test(y, x)
```

**Arguments**

y	a vector
x	a numeric vector

---

mycph	<i>Perform coxph of individual expecting variables</i>
-------	--

---

**Description**

Perform coxph of individual expecting variables

**Usage**

```
mycph(formula, data, digits = 2)
```

**Arguments**

formula	An object of class "formula". Left side of ~ must be a variable of class Surv and the right side of ~ must have variables in an additive way.
data	A data.frame contains data for analysis.
digits	An integer indicating the number of decimal places (round) or significant digits (signif) to be used. Default value is 2.

**Value**

a data.frame consist of hazard ratio and 95% confidence intervals and the p values.

**Examples**

```
require(survival)
data(colon)
attach(colon)
colon$TS=Surv(time,status==1)
out=mycph(TS~.,data=colon)
out
HRplot(out,type=2,show.CI=TRUE,main="Hazard ratios of all individual variables")
```

---

mycsv	<i>Export to csv file for class "mytable" or "cbind.mytable"</i>
-------	--

---

**Description**

Export to csv file for class "mytable" or "cbind.mytable"

**Usage**

```
mycsv(x, row.names = FALSE, ...)
```

**Arguments**

x	An object of class "mytable" or "cbind.mytable"
row.names	either a logical value indicating whether the row names of x are to be written along with x, or a character vector of row names to be written.
...	further arguments passed to or from other methods.

**Examples**

```
require(moonBook)
res=mytable(sex~age+DM,data=acs)
mycsv(res,file="test.csv")
mycsv(summary(res),file="testsummary.csv")
```

---

mycsv.cbind.mytable	<i>Export to csv file for class "cbind.mytable"</i>
---------------------	---

---

**Description**

Export to csv file for class "cbind.mytable"

**Usage**

```
## S3 method for class 'cbind.mytable'
mycsv(x, row.names = FALSE, ...)
```



**Arguments**

x	An object of class "cbind.mytable" a result of a call to <a href="#">mytable</a>
row.names	either a logical value indicating whether the row names of x are to be written along with x, or a character vector of row names to be written.
...	further arguments passed to or from other methods.

**Examples**

```
require(moonBook)
res1=mytable(sex+Dx~age+DM,data=acs)
mycsv(res1,file="test1.csv")
mycsv(summary(res1),file="testsummary1.csv")
```

---

mycsv.mytable	<i>Export to csv file for class "mytable"</i>
---------------	---

---

**Description**

Export to csv file for class "mytable"

**Usage**

```
## S3 method for class 'mytable'
mycsv(x, row.names = FALSE, ...)
```

**Arguments**

x	An object of class "mytable" a result of a call to <a href="#">mytable</a>
row.names	either a logical value indicating whether the row names of x are to be written along with x, or a character vector of row names to be written.
...	further arguments passed to or from other methods.

**Examples**

```
require(moonBook)
res=mytable(sex~age+DM,data=acs)
mycsv(res,file="test.csv")
mycsv(summary(res),file="testsummary.csv")
mycsv=function(x,row.names=FALSE) UseMethod("mycsv")
```

---

myhtml	<i>Export to html file for class "mytable" or "cbind.mytable" of "data.frame"</i>
--------	---

---

### Description

Export to html file for class "mytable" or "cbind.mytable" of "data.frame"

### Usage

```
myhtml(x, caption = NULL, rownames = TRUE)

## Default S3 method:
myhtml(x, caption = NULL, rownames = TRUE)

## S3 method for class 'mytable'
myhtml(x, caption = NULL, rownames = TRUE)

## S3 method for class 'cbind.mytable'
myhtml(x, caption = NULL, rownames = TRUE)
```

### Arguments

x	An object of class "mytable" or "cbind.mytable"
caption	A character
rownames	A logical value wheher or not include rownames in table

### Methods (by class)

- default:
- mytable:
- cbind.mytable:

### Examples

```
require(moonBook)
res=mytable(sex~age+Dx,data=acs)
myhtml(res)
res1=mytable(sex+Dx~.,data=acs)
myhtml(res1)
x=head(iris)
myhtml(x)
myhtml(x,caption="Table 1. myhtml Test")
myhtml(x,caption="Table 1. myhtml Test",rownames=FALSE)
```

---

myhtmlHead	<i>Print my html style</i>
------------	----------------------------

---

**Description**

Print my html style

**Usage**

```
myhtmlHead()
```

---

mylatex	<i>Exporting "cbind.mytable","mytable" to LaTeX format</i>
---------	--

---

**Description**

Exporting "cbind.mytable","mytable" to LaTeX format

**Usage**

```
mylatex(myobj, size = 5, caption = NULL, caption.placement = "top",
        caption.position = "c")
```

```
## Default S3 method:
```

```
mylatex(myobj, size = 5, caption = NULL,
        caption.placement = "top", caption.position = "c")
```

```
## S3 method for class 'mytable'
```

```
mylatex(myobj, size = 5, caption = NULL,
        caption.placement = "top", caption.position = "c")
```

```
## S3 method for class 'cbind.mytable'
```

```
mylatex(myobj, size = 5, caption = NULL,
        caption.placement = "top", caption.position = "c")
```

**Arguments**

myobj           An object of class 'mytable'

size            An integer indicating font size, defaulting is 5.

caption        A character

caption.placement

The caption will be have placed at the top of the table if caption.placement is "top" and at the bottom of the table if it equals "bottom". Default value is "top".

caption.position

The caption will be have placed at the center of the table if caption.position is "center" or "c", and at the left side of the table if it equals "left" or "l", and at the right side of the table if it equals "right" or "r". Default value is "center".

**Methods (by class)**

- default:
- mytable:
- cbind.mytable:

**Examples**

```
require(moonBook)
out=mytable(sex~.,data=acs)
mylatex(out)
out1=mytable(sex+Dx~.,data=acs)
mylatex(out1,size=6)
```

---

mytable

---

*Produce table for descriptive statistics*


---

**Description**

Produce table for descriptive statistics by groups for several variables easily. Depending on the nature of these variables, different descriptive statistical methods were used(t-test, ANOVA,Kruskal-Wallis, chisq, Fisher,...)

**Usage**

```
mytable(formula, data, max.ylev = 5, digits = 1, method = 1,
        show.all = FALSE)
```

**Arguments**

formula	An object of class "formula". Left side of ~ must contain the name of one grouping variable or two grouping variables in an additive way(e.g. sex+group~), and the right side of ~ must have variables in an additive way.
data	A data.frame contains data for analysis
max.ylev	An integer indicating the maximum number of levels of grouping variable ('y'). If a column have unique values less than max.ylev it is treated as a categorical variable. Default value is 5.
digits	An integer indicating the number of decimal places (round) or significant digits (signif) to be used. Default value is 1.
method	An integer indicating methods for continuous variables. Possible values in methods are <b>1</b> forces analysis as normal-distributed <b>2</b> forces analysis as continuous non-normal <b>3</b> performs a Shapiro-Wilks test to decide between normal or non-normal Default value is 1.
show.all	A logical value indicating whether or not all statistical values have to be shown in table. Default value is FALSE.

**Value**

An object of class "mytable". 'print' returns a table for descriptive statistics. 'summary' returns a table with all statistical values.

**Examples**

```
data(acs)
mytable(Dx~.,data=acs)
mytable(Dx~age+sex+height+weight+TC+TG+HDLc,data=acs,method=3,digits=2)
mytable(am+cyl~.,data=mtcars)
out=mytable(sex~.,data=acs)
out
summary(out)
mylatex(out)
```

---

mytable.sub

*Internal mytable functions*


---

**Description**

Internal mytable functions These are not to be called by the user

**Usage**

```
mytable.sub(y, x, data, max.ylev, method)
```

**Arguments**

y	a vector
x	a vector
data	a data.frame
max.ylev	an integer
method	an integer

---

mytable2

*Produce combind table for descriptive statistics*


---

**Description**

Produce table for descriptive statistics by two grouping variables for several variables easily. Depending on the nature of these variables, different descriptive statistical methods were used(t-test, ANOVA,Kruskal-Wallis, chisq, Fisher,...)

**Usage**

```
mytable2(formula, data, max.ylev = 5, digits = 2, method = 1,
         show.all = FALSE)
```

**Arguments**

formula	An object of class "formula". Left side of ~ must contain two grouping variables in an additive way(e.g. sex+group~), and the right side of ~ must have variables in an additive way.
data	A data.frame contains data for analysis
max.ylev	An integer indicating the maximum number of levels of grouping variable ('y'). If a column have unique values less than max.ylev it is treated as a categorical variable. Default value is 5.
digits	An integer indicating the number of decimal places (round) or significant digits (signif) to be used. Default value is 1.
method	An integer indicating methods for continuous variables. Possible values in methods are <b>1</b> forces analysis as normal-distributed <b>2</b> forces analysis as continuous non-normal <b>3</b> performs a Shapiro-Wilks test to decide between normal or non-normal Default value is 1.
show.all	A logical value indicating whether or not all statistical values have to be shown in table. Default value is FALSE.

**Value**

An object of class "cbind.mytable"

---

mytable2df

*Convert mytable object to data.frame*

---

**Description**

Add N number into data.frame

**Usage**

```
mytable2df(x)
```

**Arguments**

x	An object of class "mytable" a result of a call to <a href="#">mytable</a>
---	--

**Value**

a data.frame with N number

---

mytable2html	<i>Prepare mytable object to data.frame ready to html</i>
--------------	---

---

**Description**

Add N number into data.frame

**Usage**

```
mytable2html(x)
```

**Arguments**

x                    An object of class "mytable" a result of a call to [mytable](#)

**Value**

a data.frame with N number

---

num_summary	<i>Internal mytable functions</i>
-------------	-----------------------------------

---

**Description**

Internal mytable functions These are not to be called by the user

**Usage**

```
num_summary(x)
```

**Arguments**

x                    a numeric vector

---

obj2linecount	<i>Internal mytable functions</i>
---------------	-----------------------------------

---

**Description**

Internal mytable functions These are not to be called by the user

**Usage**

```
obj2linecount(myobj)
```

**Arguments**

myobj	an R object
-------	-------------

---

ORplot	<i>Plot for odds ratios for a S3 object of glm</i>
--------	--

---

**Description**

Plot for odds ratios for a S3 object of glm

**Usage**

```
ORplot(x, type = 1, xlab = "", ylab = "", show.OR = TRUE,
       show.CI = FALSE, sig.level = 1, cex = 1.2, lwd = 2, pch = 18,
       col = NULL, ...)
```

**Arguments**

x	A S3 object of glm
type	an integer defining the shape of plots; default value is 1
xlab	label for the horizontal-axis; defaults to "Odds Ratios"
ylab	label for the vertical axis; defaults to "".
show.OR	A logical value; Whether or not show p values on plot
show.CI	A logical value; Whether or not show 95% CI values on plot
sig.level	A numeric value of upper limit of p value of showing variables
cex	A numerical value giving the amount by which plotting OR/HR symbols should be magnified relative to the default, defaulting 1.2.
lwd	The line width, a positive number, defaulting to 2.
pch	Either an integer specifying a symbol or a single character to be used as the default in plotting OR/HR points.
col	A specification for the default plotting color.
...	arguments to be passed to plot



**Value**

This function return NULL invisibly and draw graphs

**Examples**

```
require(survival)
data(colon)
out1=glm(status~sex+age+rx+obstruct+node4,data=colon)
out2=glm(status~rx+node4,data=colon)
ORplot(out1,type=2,show.CI=TRUE,xlab="This is xlab",main="Main Title")
ORplot(out2,type=1,main="Main Title")
ORplot(out1,type=2,show.CI=TRUE,main="Main Title")
ORplot(out1,type=3,show.CI=TRUE,main="Main Title",sig.level=0.05)
ORplot(out1,type=3,show.CI=TRUE,main="Main Title",sig.level=0.05,
       pch=1,cex=2,lwd=4,col=c("red","blue"))
```

---

ORplot.sub

*A sub function for ORplot anf HRplot*


---

**Description**

Plot for odds ratios for a S3 object of glm

**Usage**

```
ORplot.sub(result, type = 1, xlab = "", ylab = "", show.OR = TRUE,
           show.CI = FALSE, sig.level = 1, cex = 1.2, lwd = 2, pch = 18,
           col = NULL, ...)
```

**Arguments**

result	A resultant data.frame of function extractOR
type	an integer defining the shape of plots; default value is 1
xlab	label for the horizontal-axis; defaults to "Odds Ratios"
ylab	label for the vertical axis; defaults to "".
show.OR	A logical value; Whether or not show p values on plot
show.CI	A logical value; Whether or not show 95% CI values on plot
sig.level	A numeric value of upper limit of p value of showing variables
cex	A numerical value giving the amount by which plotting OR/HR symbols should be magnified relative to the default, defaulting 1.2.
lwd	The line width, a positive number, defaulting to 2.
pch	Either an integer specifying a symbol or a single character to be used as the default in plotting OR/HR points.
col	A specification for the default plotting color.
...	Further arguments to be passed to plot

**Value**

This function return NULL invisibly and draw graphs

---

p2sig

*Internal mytable functions*

---

**Description**

Internal mytable functions These are not to be called by the user

**Usage**

```
p2sig(value)
```

**Arguments**

value            a numeric vector

---

print.cbind.mytable    *Print function for class "cbind.mytable"*

---

**Description**

Print function for class "cbind.mytable"

**Usage**

```
## S3 method for class 'cbind.mytable'
print(x, ...)
```

**Arguments**

x                    an object of class "cbind.mytable", a result of a call to [cbind.mytable](#)  
 ...                  further arguments passed to or from other methods.

---

print.mytable	<i>Print function for class "mytable"</i>
---------------	---

---

**Description**

Print function for class "mytable"

**Usage**

```
## S3 method for class 'mytable'
print(x, ...)
```

**Arguments**

x	An object of class "mytable", a result of a call to <a href="#">mytable</a>
...	further arguments passed to or from other methods.

---

printmytable2	<i>Internal mytable functions</i>
---------------	-----------------------------------

---

**Description**

Internal mytable functions These are not to be called by the user

**Usage**

```
printmytable2(obj, digits = 1)
```

**Arguments**

obj	an object
digits	an integer

---

r	<i>Subfunction used in mylatex</i>
---	------------------------------------

---

**Description**

Subfunction used in mylatex

**Usage**

```
r(string)
```

**Arguments**

string	a character vector
--------	--------------------

---

radial	<i>Demographic data of 115 patients performing IVUS(intravascular ultrasound) examination of a radial artery.</i>
--------	---

---

### Description

A dataset containing demographic data and laboratory data of 115 patients performing IVUS(intravascular ultrasound) examination of a radial artery after transradial coronary angiography.

### Format

A data frame with 115 rows and 15 variables:

**male** if Male, 1; if Female 0

**age** patient age in years

**height** height in centimeter

**weight** weight in kilogram

**HBP** history of hypertension, 1 for yes or 0 for no

**DM** history of diabetes mellitus, 1 for yes or 0 for no

**smoking** history of smoking, One of the followings : "non-smoker", "ex-smoker", "smoker"

**TC** total cholesterol level in mg/dL

**TG** triglyceride level in mg/dL

**HDL** high density lipoprotein cholesterol level in mg/dL

**LDL** low density lipoprotein cholesterol level in mg/dL

**hsCRP** high-sensitive C reactive protein

**NTAV** normalized total atheroma volume measured by IVUS in cubic mm

**PAV** percent atheroma volume in percentage

**sex** Factor with two levels; "Male" or "Female"

---

rank2group	<i>rank a numeric vector and returns a new ordinal vector</i>
------------	---

---

### Description

rank a numeric vector and returns a new ordinal vector

### Usage

rank2group(y, k = 4)

**Arguments**

y                    a numeric vector  
k                    a integer specifies how many groups you want to classify. default value is 4

**Value**

a ordinal vector(numeric) with the same length of y

**Examples**

```
require(ggplot2)
data(diamonds)
diamonds$PriceGroup=rank2group(diamonds$price,4)
table(diamonds$PriceGroup)
aggregate(price~PriceGroup,data=diamonds,range)

diamonds$PriceGroup3=rank2group(diamonds$price,3)
table(diamonds$PriceGroup3)
aggregate(price~PriceGroup3,data=diamonds,range)
diamonds$PriceGroup5=rank2group(diamonds$price,5)
table(diamonds$PriceGroup5)
aggregate(price~PriceGroup5,data=diamonds,range)
```

---

reprint

*Internal mytable functions*

---

**Description**

Internal mytable functions These are not to be called by the user

**Usage**

```
reprint(x, times)
```

**Arguments**

x                    a character vector  
times                an integer

---

space	<i>Internal mytable functions</i>
-------	-----------------------------------

---

**Description**

Internal mytable functions These are not to be called by the user

**Usage**

```
space(num)
```

**Arguments**

num	an integer
-----	------------

---

summary.cbind.mytable	<i>Summarizing function for class "cbind.mytable"</i>
-----------------------	---

---

**Description**

Summarizing function for class "cbind.mytable"

**Usage**

```
## S3 method for class 'cbind.mytable'
summary(object, ...)
```

**Arguments**

object	An object of class "cbind.mytable", a result of a call <a href="#">mytable</a>
...	further arguments passed to or from other methods.

**Examples**

```
out=mytable(am+cyl~.,data=mtcars)
summary(out)
```

---

summary.mytable	<i>Summarizing function for class "mytable"</i>
-----------------	---

---

**Description**

Summarizing function for class "mytable"

**Usage**

```
## S3 method for class 'mytable'
summary(object, ...)
```

**Arguments**

object	An object of class "mytable", a result of a call <code>mytable</code>
...	further arguments passed to or from other methods.

**Examples**

```
out=mytable(am~.,data=mtcars)
summary(out)
```

---

validColname	<i>Find valid string among character vector from approximate string</i>
--------------	---

---

**Description**

Find valid string among character vector from approximate string

**Usage**

```
validColname(pattern, x)
```

**Arguments**

pattern	character string to be matched in the given character
x	a character vector where matches are sought

**Value**

returns NA in case of no matched string found or a character string in string vector x

**Examples**

```
a="dx"
b=c("Age", "Sex", "Dx")
validColname(a,b)
```

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