Reproducible Research

KRUG 9차 Meet up

(2013-01-17)

유충현

R 객체를 LaTeX의 Table로 출력하기

개요

Table 출력하기

- **LaTeX에서의 테이블 출력 대상**
  - R Objects
    - matrix
    - data frames
  - Table Objects
    - table objects, contingency table
    - xtabs
  - Model Objects
    - ANOVA (aov, anova)
    - regression (lm, glm)
  - Time Series Objects
- **테이블 출력 packages**
  - xtable package
  - tables package
  - stargazer package
  - apsrtable package

xtable function

- **xtable function**
  - Usage

xtable(x, caption=NULL, label=NULL, align=NULL, digits=NULL, display=NULL, ...)

    - x : An R object
    - caption : 도표의 caption or title
    - align : 칼럼의 정렬.
      - l(left), r(right), c(center)
    - digits : 숫자의 소수점 자리 지정
    - display : 출력하고자 하는 칼럼의 format 지정
      - “d”, “f”, “e”, “E”, “s”, ...
  - 출력
    - TeX의 table tag code
- **가능한 객체**

```
> methods(xtable)
 [1] xtable.anova*              xtable.aov*              xtable.aovlist*          xtable.coxph*      xtable.data.frame*
 [6] xtable.glm*                xtable.lm*               xtable.matrix*           xtable.prcomp*     xtable.summary.aov*
[11] xtable.summary.aovlist*    xtable.summary.glm*      xtable.summary.lm*       xtable.summary.prcomp*
[15] xtable.table*              xtable.ts*               xtable.zoo*
```

data frame xtable package

- data frame example

```
library(xtable)
iris.table <- xtable(iris[1:5,])
print(iris.table)
```

- 결과

```
₩begin{table}[ht]
₩begin{center}
₩begin{tabular}{rrrrrl}
  ₩hline
 & Sepal.Length & Sepal.Width & Petal.Length & Petal.Width & Species ₩₩
  ₩hline
1 & 5.10 & 3.50 & 1.40 & 0.20 & setosa ₩₩
  2 & 4.90 & 3.00 & 1.40 & 0.20 & setosa ₩₩
  3 & 4.70 & 3.20 & 1.30 & 0.20 & setosa ₩₩
  4 & 4.60 & 3.10 & 1.50 & 0.20 & setosa ₩₩
  5 & 5.00 & 3.60 & 1.40 & 0.20 & setosa ₩₩
   ₩hline
₩end{tabular}
₩end{center}
₩end{table}
```

- TeX 결과

	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
1	5.10	3.50	1.40	0.20	setosa
2	4.90	3.00	1.40	0.20	setosa
3	4.70	3.20	1.30	0.20	setosa
4	4.60	3.10	1.50	0.20	setosa
5	5.00	3.60	1.40	0.20	setosa

matrix xtable package

- matrix example

```
(mdat <- matrix(c(1,2,3, 11,12,13), nrow = 2, ncol=3, byrow=TRUE,
                dimnames = list(c("row1", "row2"),   c("C.1", "C.2", "C.3"))))
print(xtable(mdat))
```

- 결과

```
₩begin{table}[ht]
₩begin{center}
₩begin{tabular}{rrrr}
  ₩hline
 & C.1 & C.2 & C.3 ₩₩
  ₩hline
row1 & 1.00 & 2.00 & 3.00 ₩₩
  row2 & 11.00 & 12.00 & 13.00 ₩₩
   ₩hline
₩end{tabular}
₩end{center}
₩end{table}
```

- TeX 결과

	C.1	C.2	C.3
row1	1.00	2.00	3.00
row2	11.00	12.00	13.00

aov

xtable package

- aov example

```
data(tli)
fm1 <- aov(tlimth ~ sex + ethnicty + grade + disadvg, data=tli)
fm1.table <- xtable(fm1)
print(fm1.table,floating=FALSE)
```

- 결과

```
₩begin{tabular}{lrrrrr}
  ₩hline
 & Df & Sum Sq & Mean Sq & F value & Pr($>$F) ₩₩
  ₩hline
sex & 1 & 75.37 & 75.37 & 0.38 & 0.5417 ₩₩
  ethnicty & 3 & 2572.15 & 857.38 & 4.27 & 0.0072 ₩₩
  grade & 1 & 36.31 & 36.31 & 0.18 & 0.6717 ₩₩
  disadvg & 1 & 59.30 & 59.30 & 0.30 & 0.5882 ₩₩
  Residuals & 93 & 18682.87 & 200.89 &  &  ₩₩
   ₩hline
₩end{tabular}
```

- TeX 결과

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
sex	1	75.37	75.37	0.38	0.5417
ethnicty	3	2572.15	857.38	4.27	0.0072
grade	1	36.31	36.31	0.18	0.6717
disadvg	1	59.30	59.30	0.30	0.5882
Residuals	93	18682.87	200.89		

lm xtable package

- lm example

```
fm2 <- lm(tlimth ~ sex*ethnicty, data=tli)
fm2.table <- xtable(fm2)
print(fm2.table,floating=FALSE)
```

- 결과

```
₩begin{tabular}{rrrrr}
  ₩hline
 & Estimate & Std. Error & t value & Pr($>$$|$t$|$) ₩₩
  ₩hline
(Intercept) & 73.6364 & 4.2502 & 17.33 & 0.0000 ₩₩
  sexM & -1.6364 & 5.8842 & -0.28 & 0.7816 ₩₩
  ethnictyHISPANIC & -9.7614 & 6.5501 & -1.49 & 0.1395 ₩₩
  ethnictyOTHER & 15.8636 & 10.8360 & 1.46 & 0.1466 ₩₩
  ethnictyWHITE & 4.7970 & 4.9687 & 0.97 & 0.3368 ₩₩
  sexM:ethnictyHISPANIC & 10.6780 & 8.7190 & 1.22 & 0.2238 ₩₩
  sexM:ethnictyWHITE & 5.1230 & 7.0140 & 0.73 & 0.4670 ₩₩
   ₩hline
₩end{tabular}
```

- TeX 결과

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	73.6364	4.2502	17.33	0.0000
sexM	-1.6364	5.8842	-0.28	0.7816
ethnictyHISPANIC	-9.7614	6.5501	-1.49	0.1395
ethnictyOTHER	15.8636	10.8360	1.46	0.1466
ethnictyWHITE	4.7970	4.9687	0.97	0.3368
sexM:ethnictyHISPANIC	10.6780	8.7190	1.22	0.2238
sexM:ethnictyWHITE	5.1230	7.0140	0.73	0.4670

prcomp xtable package

- **prcomp example**

```
pr1 <- prcomp(USArrests)
print(xtable(pr1),floating=FALSE)
```

- **결과**

```
₩begin{tabular}{rrrrr}
  ₩hline
 & PC1 & PC2 & PC3 & PC4 ₩₩
  ₩hline
Murder & 0.0417 & -0.0448 & 0.0799 & -0.9949 ₩₩
  Assault & 0.9952 & -0.0588 & -0.0676 & 0.0389 ₩₩
  UrbanPop & 0.0463 & 0.9769 & -0.2005 & -0.0582 ₩₩
  Rape & 0.0752 & 0.2007 & 0.9741 & 0.0723 ₩₩
   ₩hline
₩end{tabular}
```

- **TeX 결과**

	PC1	PC2	PC3	PC4
Murder	0.0417	-0.0448	0.0799	-0.9949
Assault	0.9952	-0.0588	-0.0676	0.0389
UrbanPop	0.0463	0.9769	-0.2005	-0.0582
Rape	0.0752	0.2007	0.9741	0.0723

ts xtable package

- ts example

```
ts1 <- ts(1:10, frequency = 4, start = c(2010, 2))
print(xtable(ts1),floating=FALSE)
```

- 결과

```
₩begin{tabular}{rrrrr}
  ₩hline
 & Q1 & Q2 & Q3 & Q4 ₩₩
  ₩hline
2010 &  &  1 &  2 &  3 ₩₩
  2011 &  4 &  5 &  6 &  7 ₩₩
  2012 &  8 &  9 &  10 &  ₩₩
   ₩hline
₩end{tabular}
```

- TeX 결과

	Q1	Q2	Q3	Q4
2010		1	2	3
2011	4	5	6	7
2012	8	9	10	

xtable arguments

- caption argument

```
ts1 <- ts(1:10, frequency = 4, start = c(2010, 2))
print(xtable(ts1, caption="Time Series Table"))
```

- 결과

```
₩begin{table}[ht]
₩begin{center}
₩begin{tabular}{rrrrr}
  ₩hline
 & Q1 & Q2 & Q3 & Q4 ₩₩
  ₩hline
2010 &  &  1 &  2 &  3 ₩₩
  2011 &  4 &  5 &  6 &  7 ₩₩
  2012 &  8 &  9 &  10 &  ₩₩
   ₩hline
₩end{tabular}
₩caption{Time Series Table}
₩end{center}
₩end{table}
```

- TeX 결과

	Q1	Q2	Q3	Q4
2010		1	2	3
2011	4	5	6	7
2012	8	9	10	

Table 1: Time Series Table

xtable arguments

- **align argument**

```
iris.table <- xtable(iris[1:5,], align="llrccr")
print(iris.table)
```

- **결과**

```
₩begin{table}[ht]
₩begin{center}
₩begin{tabular}{llrccr}
  ₩hline
 & Sepal.Length & Sepal.Width & Petal.Length & Petal.Width & Species ₩₩
  ₩hline
1 & 5.10 & 3.50 & 1.40 & 0.20 & setosa ₩₩
  2 & 4.90 & 3.00 & 1.40 & 0.20 & setosa ₩₩
  3 & 4.70 & 3.20 & 1.30 & 0.20 & setosa ₩₩
  4 & 4.60 & 3.10 & 1.50 & 0.20 & setosa ₩₩
  5 & 5.00 & 3.60 & 1.40 & 0.20 & setosa ₩₩
   ₩hline
₩end{tabular}
₩end{center}
₩end{table}
```

- **TeX 결과**

	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
1	5.10	3.50	1.40	0.20	setosa
2	4.90	3.00	1.40	0.20	setosa
3	4.70	3.20	1.30	0.20	setosa
4	4.60	3.10	1.50	0.20	setosa
5	5.00	3.60	1.40	0.20	setosa

xtable arguments

xtable package

- column lines using align argument

```
iris.table <- xtable(iris[1:5,], align="l|l|r|c|c|r")
print(iris.table)
```

- 결과

```
₩begin{table}[ht]
₩begin{center}
₩begin{tabular}{l|l|r|c|c|r}
  ₩hline
 & Sepal.Length & Sepal.Width & Petal.Length & Petal.Width & Species ₩₩
  ₩hline
1 & 5.10 & 3.50 & 1.40 & 0.20 & setosa ₩₩
  2 & 4.90 & 3.00 & 1.40 & 0.20 & setosa ₩₩
  3 & 4.70 & 3.20 & 1.30 & 0.20 & setosa ₩₩
  4 & 4.60 & 3.10 & 1.50 & 0.20 & setosa ₩₩
  5 & 5.00 & 3.60 & 1.40 & 0.20 & setosa ₩₩
   ₩hline
₩end{tabular}
₩end{center}
₩end{table}
```

- TeX 결과

	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
1	5.10	3.50	1.40	0.20	setosa
2	4.90	3.00	1.40	0.20	setosa
3	4.70	3.20	1.30	0.20	setosa
4	4.60	3.10	1.50	0.20	setosa
5	5.00	3.60	1.40	0.20	setosa

xtable arguments

- digits argument – 소수점 자리 수

```
iris.table <- xtable(iris[1:5,], align="|l|l|r|c|c|r|", digits=1)
print(iris.table)
```

- 결과

```
₩begin{table}[ht]
₩begin{center}
₩begin{tabular}{|l|l|r|c|c|r|}
  ₩hline
 & Sepal.Length & Sepal.Width & Petal.Length & Petal.Width & Species ₩₩
  ₩hline
1 & 5.1 & 3.5 & 1.4 & 0.2 & setosa ₩₩
  2 & 4.9 & 3.0 & 1.4 & 0.2 & setosa ₩₩
  3 & 4.7 & 3.2 & 1.3 & 0.2 & setosa ₩₩
  4 & 4.6 & 3.1 & 1.5 & 0.2 & setosa ₩₩
  5 & 5.0 & 3.6 & 1.4 & 0.2 & setosa ₩₩
   ₩hline
₩end{tabular}
₩end{center}
₩end{table}
```

- TeX 결과

	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
1	5.1	3.5	1.4	0.2	setosa
2	4.9	3.0	1.4	0.2	setosa
3	4.7	3.2	1.3	0.2	setosa
4	4.6	3.1	1.5	0.2	setosa
5	5.0	3.6	1.4	0.2	setosa

sideways table

xtable package

- A sideways table

```
x <- xtable(iris[1:5,], caption='A sideways table')
print(x,floating.environment='sidewaystable')
```

- 결과

```
₩begin{sidewaystable}[ht]
₩begin{center}
₩begin{tabular}{rrrrrl}
  ₩hline
 & Sepal.Length & Sepal.Width & Petal.Length & Petal.Width & Species ₩₩
  ₩hline
1 & 5.10 & 3.50 & 1.40 & 0.20 & setosa ₩₩
  2 & 4.90 & 3.00 & 1.40 & 0.20 & setosa ₩₩
  3 & 4.70 & 3.20 & 1.30 & 0.20 & setosa ₩₩
  4 & 4.60 & 3.10 & 1.50 & 0.20 & setosa ₩₩
  5 & 5.00 & 3.60 & 1.40 & 0.20 & setosa ₩₩
   ₩hline
₩end{tabular}
₩caption{A sideways table}
₩end{center}
₩end{sidewaystable}
```

- TeX 결과

Table 1: A sideways table

	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
1	5.10	3.50	1.40	0.20	setosa
2	4.90	3.00	1.40	0.20	setosa
3	4.70	3.20	1.30	0.20	setosa
4	4.60	3.10	1.50	0.20	setosa
5	5.00	3.60	1.40	0.20	setosa

html table xtable package

- **html export**

```
iris.table <- xtable(iris[1:5,], align="|l|l|r|c|c|r|", digits=1)
print(iris.table, type="html")
```

- **결과**

```
<TABLE border=1>
<TR> <TH>  </TH> <TH> Sepal.Length </TH> <TH> Sepal.Width </TH> <TH> Petal.Length </TH> <TH>
Petal.Width </TH> <TH> Species </TH>  </TR>
  <TR> <TD> 1 </TD> <TD> 5.1 </TD> <TD align="right"> 3.5 </TD> <TD align="center"> 1.4 </TD> <TD
align="center"> 0.2 </TD> <TD align="right"> setosa </TD> </TR>
  <TR> <TD> 2 </TD> <TD> 4.9 </TD> <TD align="right"> 3.0 </TD> <TD align="center"> 1.4 </TD> <TD
align="center"> 0.2 </TD> <TD align="right"> setosa </TD> </TR>
  <TR> <TD> 3 </TD> <TD> 4.7 </TD> <TD align="right"> 3.2 </TD> <TD align="center"> 1.3 </TD> <TD
align="center"> 0.2 </TD> <TD align="right"> setosa </TD> </TR>
  <TR> <TD> 4 </TD> <TD> 4.6 </TD> <TD align="right"> 3.1 </TD> <TD align="center"> 1.5 </TD> <TD
align="center"> 0.2 </TD> <TD align="right"> setosa </TD> </TR>
  <TR> <TD> 5 </TD> <TD> 5.0 </TD> <TD align="right"> 3.6 </TD> <TD align="center"> 1.4 </TD> <TD
align="center"> 0.2 </TD> <TD align="right"> setosa </TD> </TR>
   </TABLE>
```

- **TeX 결과**

	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
1	5.1	3.5	1.4	0.2	setosa
2	4.9	3.0	1.4	0.2	setosa
3	4.7	3.2	1.3	0.2	setosa
4	4.6	3.1	1.5	0.2	setosa
5	5.0	3.6	1.4	0.2	setosa

개요

tables package

- **tabular function** - Compute complex table
  - Usage

```
tabular(table, data = NULL, n, suppressLabels = 0, ...)
```

    - table : A table expression
    - data : An optional dataframe, list or environment in which to look for variables in the table.
    - n : An optional value giving the length of the data.
    - suppressLabels : How many initial labels to suppress?
- **latex function** - Display a tabular object using LaTeX
  - tables:::latex.tabular
  - Usage

```
latex(object, file="", options=NULL, ...)
```

    - object : LaTeX code로 출력할 tabular 객체
    - file : A filename to which to write the LaTeX code
    - options : A list of options to set for the duration of the call

tabular function tables package

tabular function example

```
tab <- tabular((Species + 1) ~ (n=1) + Format(digits=2)*
                (Sepal.Length + Sepal.Width)*(mean + sd), data=iris)
```

결과

```
> tab <- tabular((Species + 1) ~ (n=1) + Format(digits=2)*
+                 (Sepal.Length + Sepal.Width)*(mean + sd), data=iris)
> tab

                Sepal.Length       Sepal.Width
 Species     n  mean         sd    mean         sd
 setosa       50 5.01         0.35 3.43         0.38
 versicolor   50 5.94         0.52 2.77         0.31
 virginica    50 6.59         0.64 2.97         0.32
 All         150 5.84         0.83 3.06         0.44
> is(tab)
[1] "tabular"
```

latex function tables package

- latex function example

```
latex(tab)
```

- 결과 ₩usepackage{booktabs}을 LaTeX 문서에 기술해야 함

```
₩begin{tabular}{lccccc}
₩toprule
 &  & ₩multicolumn{2}{c}{Sepal.Length} & ₩multicolumn{2}{c}{Sepal.Width} ₩₩ ₩cmidrule(lr){3-4}₩cmidrule(lr){5-6}
Species  & n & mean & sd & mean & ₩multicolumn{1}{c}{sd} ₩₩
₩midrule
setosa  & $₩phantom{0}50$ & $5.01$ & $0.35$ & $3.43$ & $0.38$ ₩₩
versicolor  & $₩phantom{0}50$ & $5.94$ & $0.52$ & $2.77$ & $0.31$ ₩₩
virginica  & $₩phantom{0}50$ & $6.59$ & $0.64$ & $2.97$ & $0.32$ ₩₩
All  & $150$ & $5.84$ & $0.83$ & $3.06$ & $0.44$ ₩₩
₩bottomrule
₩end{tabular}
```

- TeX 결과

		Sepal.Length		Sepal.Width	
Species	n	mean	sd	mean	sd
setosa	50	5.01	0.35	3.43	0.38
versicolor	50	5.94	0.52	2.77	0.31
virginica	50	6.59	0.64	2.97	0.32
All	150	5.84	0.83	3.06	0.44

tabular example

tables package

- tabular example 2

```
> set.seed(1)
> Sex <- factor(sample(c("Male", "Female"), 100, rep=TRUE))
> set.seed(2)
> Status <- factor(sample(c("low", "medium", "high"), 100, rep=TRUE))
> set.seed(3)
> z <- rnorm(100)+5
> fmt <- function(x) {
+   s <- format(x, digits=2)
+   even <- ((1:length(s)) %% 2) == 0
+   s[even] <- sprintf("(%s)", s[even])
+   s
+ }
> tabular( Justify(c)*Heading()*z*Sex*Heading(Statistic)*Format(fmt())*(mean+sd) ~ Status )

                Status
Sex    Statistic high   low    medium
Female mean       5.07   5.18   4.94
       sd        (0.98) (0.83) (0.72)
Male   mean       4.88   4.92   5.11
       sd        (0.73) (0.92) (0.98)
```

- TeX 결과

		Status		
Sex	Statistic	high	low	medium
Female	mean	5.07	5.18	4.94
	sd	(0.98)	(0.83)	(0.72)
Male	mean	4.88	4.92	5.11
	sd	(0.73)	(0.92)	(0.98)

Operators

tables package

- $e_1 + e_2$
  - 행에 출력할 대상을 지정함 e_1 은 상단, e_2 은 하단에 출력
  - 변수의 이름이나 1을 지정
    - 변수의 이름 : 해당 변수의 모든 levels
    - 1 : All (total)
- **Example**

```
> latex(tabular(F + 1 ~ 1))
₩begin{tabular}{lc}
₩hline
F  & ₩multicolumn{1}{c}{All} ₩₩
₩hline
a  & $₩phantom{0}3$ ₩₩
b  & $₩phantom{0}7$ ₩₩
All  & $10$ ₩₩
₩hline
₩end{tabular}
```

- **TeX 결과**

F	All
a	3
b	7
All	10

Operators

tables package

- e_1 * e_2
  - 출력할 변수의 조합을 지정함 e_1 은 왼쪽, e_2 은 우측에 출력
  - 변수의 이름이나 1을 지정
    - 변수의 이름 : 해당 변수의 모든 levels
    - 1 : All (total)
- **Example**

```
> latex(tabular( X*F*(mean + sd) ~ 1 ))
\begin{tabular}{lllc}
\hline
 & F &  & \multicolumn{1}{c}{All} \\
\hline
X & a & mean  & $\phantom{-}0.02525$ \\
 &  & sd  & $\phantom{-}0.34842$ \\
 & b & mean  & $-0.03647$ \\
 &  & sd  & $\phantom{-}0.65611$ \\
\hline
\end{tabular}
```

- **TeX 결과**

	F		All
X	a	mean	0.02525
		sd	0.34842
	b	mean	−0.03647
		sd	0.65611

Operators

tables package

- $e_1 \sim e_2$
  - 집계 기준을 지정함 e_1 은 변수 칼럼, e_2 은 집계 칼럼
  - 변수의 이름이나 1을 지정
    - 변수의 이름 : 해당 변수의 levels
    - 1 : All (total)
- **Example**

```
> latex(tabular(X*F ~ mean + sd))
₩begin{tabular}{llcc}
₩hline
 & F & mean & ₩multicolumn{1}{c}{sd} ₩₩
₩hline
X & a  & $₩phantom{-}0.02525$ & $0.3484$ ₩₩
 & b  & $-0.03647$ & $0.6561$ ₩₩
₩hline
₩end{tabular}
```

- **TeX 결과**

	F	mean	sd
X	a	0.02525	0.3484
	b	−0.03647	0.6561

Logical vectors tables package

- **Logical Vector**
  - If the expression evaluates to a logical vector, it is used to subset the data.
- **Example**

```
> latex(tabular((X > 0) + (X < 0) + 1 ~ ((n=1) + X*(mean+sd))))
₩begin{tabular}{lccc}
₩hline
 &  & ₩multicolumn{2}{c}{X} ₩₩
  & n & mean & ₩multicolumn{1}{c}{sd} ₩₩
₩hline
X > 0  & $₩phantom{0}5$ & $₩phantom{-}0.43369$ & $0.3496$ ₩₩
X < 0  & $₩phantom{0}5$ & $-0.46960$ & $0.2761$ ₩₩
All  & $10$ & $-0.01796$ & $0.5611$ ₩₩
₩hline
₩end{tabular}
```

- **TeX 결과**

		X	
	n	mean	sd
X ¿ 0	5	0.43369	0.3496
X ¡ 0	5	−0.46960	0.2761
All	10	−0.01796	0.5611

Format

tables package

- **Format**
  - format(x, **digits**=4, justification="n", latex=FALSE, ...)
- **Example**

```
> latex(tabular((F+1) ~ (n=1)+Format(digits=2)*X*(mean + sd)))
₩begin{tabular}{lccc}
₩hline
 &  & ₩multicolumn{2}{c}{X} ₩₩
F  & n & mean & ₩multicolumn{1}{c}{sd} ₩₩
₩hline
a  & $₩phantom{0}3$ & $₩phantom{-}0.025$ & $₩phantom{-}0.348$ ₩₩
b  & $₩phantom{0}7$ & $-0.036$ & $₩phantom{-}0.656$ ₩₩
All  & $10$ & $-0.018$ & $₩phantom{-}0.561$ ₩₩
₩hline
₩end{tabular}
```

- **TeX 결과**

		X	
F	n	mean	sd
a	3	0.025	0.348
b	7	−0.036	0.656
All	10	−0.018	0.561

Heading

- **Heading**
  - replaces the heading
- **Example**

```
> latex(tabular((Heading("$WWPhi$")*F+1) ~ (n=1)
+                 + Format(digits=2)*Heading()*X*(mean + sd)))
₩begin{tabular}{lccc}
₩hline
$₩Phi$  & n & mean & ₩multicolumn{1}{c}{sd} ₩₩
₩hline
a  & $₩phantom{0}3$ & $₩phantom{-}0.025$ & $₩phantom{-}0.348$ ₩₩
b  & $₩phantom{0}7$ & $-0.036$ & $₩phantom{-}0.656$ ₩₩
All  & $10$ & $-0.018$ & $₩phantom{-}0.561$ ₩₩
₩hline
₩end{tabular}
```

- **TeX 결과**

Φ	n	mean	sd
a	3	0.025	0.348
b	7	−0.036	0.656
All	10	−0.018	0.561

Add a horizontal tables package

- **Format**
  - Hline(columns)
- **Example**

```
> latex(tabular(Species + Hline(2:5) + 1
+ ~ Heading()*mean*All(iris), data=iris))
₩begin{tabular}{lcccc}
₩hline
Species  & Sepal.Length & Sepal.Width & Petal.Length & ₩multicolumn{1}{c}{Petal.Width} ₩₩
₩hline
setosa  & $5.006$ & $3.428$ & $1.462$ & $0.246$ ₩₩
versicolor  & $5.936$ & $2.770$ & $4.260$ & $1.326$ ₩₩
virginica  & $6.588$ & $2.974$ & $5.552$ & $2.026$ ₩₩
₩cline{2-2} ₩cline{3-3} ₩cline{4-4} ₩cline{5-5} %  &  &  &  ₩₩
All  & $5.843$ & $3.057$ & $3.758$ & $1.199$ ₩₩
₩hline
₩end{tabular}
```

- **TeX 결과**

Species	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width
setosa	5.006	3.428	1.462	0.246
versicolor	5.936	2.770	4.260	1.326
virginica	6.588	2.974	5.552	2.026
All	5.843	3.057	3.758	1.199

stargazer function stargazer package

- **Example**

Table 1: Regression Results

	Dependent variable:		
	rating		high.rating
	OLS		*probit*
	(1)	(2)	(3)
complaints	0.692***	0.682***	
	(0.149)	(0.129)	
privileges	−0.104	−0.103	
	(0.135)	(0.129)	
learning	0.249	0.238*	0.164***
	(0.160)	(0.139)	(0.053)
raises	−0.033		
	(0.202)		
critical	0.015		−0.001
	(0.147)		(0.044)
advance			−0.062
			(0.042)
Constant	11.011	11.258	−7.476**
	(11.704)	(7.318)	(3.570)
Observations	30	30	30
R^2	0.715	0.715	
Adjusted R^2	0.656	0.682	
Log likelihood			−9.087
Akaike Inf. Crit.			26.175
Residual Std. Error	7.139($df = 24$)	6.863($df = 26$)	
F statistic	12.063***($df = 5; 24$)	21.743***($df = 3; 26$)	
Note:			*$p < 0.1$;** $p < 0.05$;*** $p < 0.01$

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apsrtable function apsrtable package

- **Example**

	Model 0	Model 1	Model 2
(Intercept)		5.0***	5.0***
		(0.2)	(0.2)
groupTrt	4.7***	−0.4	−0.4
	(0.2)	(0.3)	(0.3)
groupCtl	5.0***		
	(0.2)		
N	20	20	20
R^2	1.0	0.1	
adj. R^2	1.0	0.0	
Resid. sd	0.7	0.7	
AIC			46.2
BIC			54.1
log L			−15.1

Standard errors in parentheses

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Reference

- The xtable gallery - Jonathan Swinton - February 8, 2012
- The tables Package - Duncan Murdoch - April 2, 2

Q & A