

Data File Used in this Analysis:

```
# M3070 - 1      Caffeine Data  Treibergs
# May 15, 2011
#
# Data from Dalgaard, "Introductory Statistics with R, 2nd. ed."
# Springer, 2008
#
# This data was obtained by Altman ("Practical Statistics for Medical
# research," Chapman & Hall, 1991)
# It records caffeine consumption by marital status among women giving birth.
Marital  Consumption  Freq
Married      0      652
Prev.Married  0      36
Single       0      218
Married      1-150  1537
Prev.Married  1-150   46
Single       1-150  327
Married      151-300 598
Prev.Married  151-300  38
Single       151-300 106
Married      301-... 242
Prev.Married  301-...  21
Single       301-...  67
```

R Session:

R version 2.10.1 (2009-12-14)
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Natural language support but running in an English locale

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'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

[R.app GUI 1.31 (5538) powerpc-apple-darwin8.11.1]

[Workspace restored from /Users/andrejstreibergs/.RData]

```

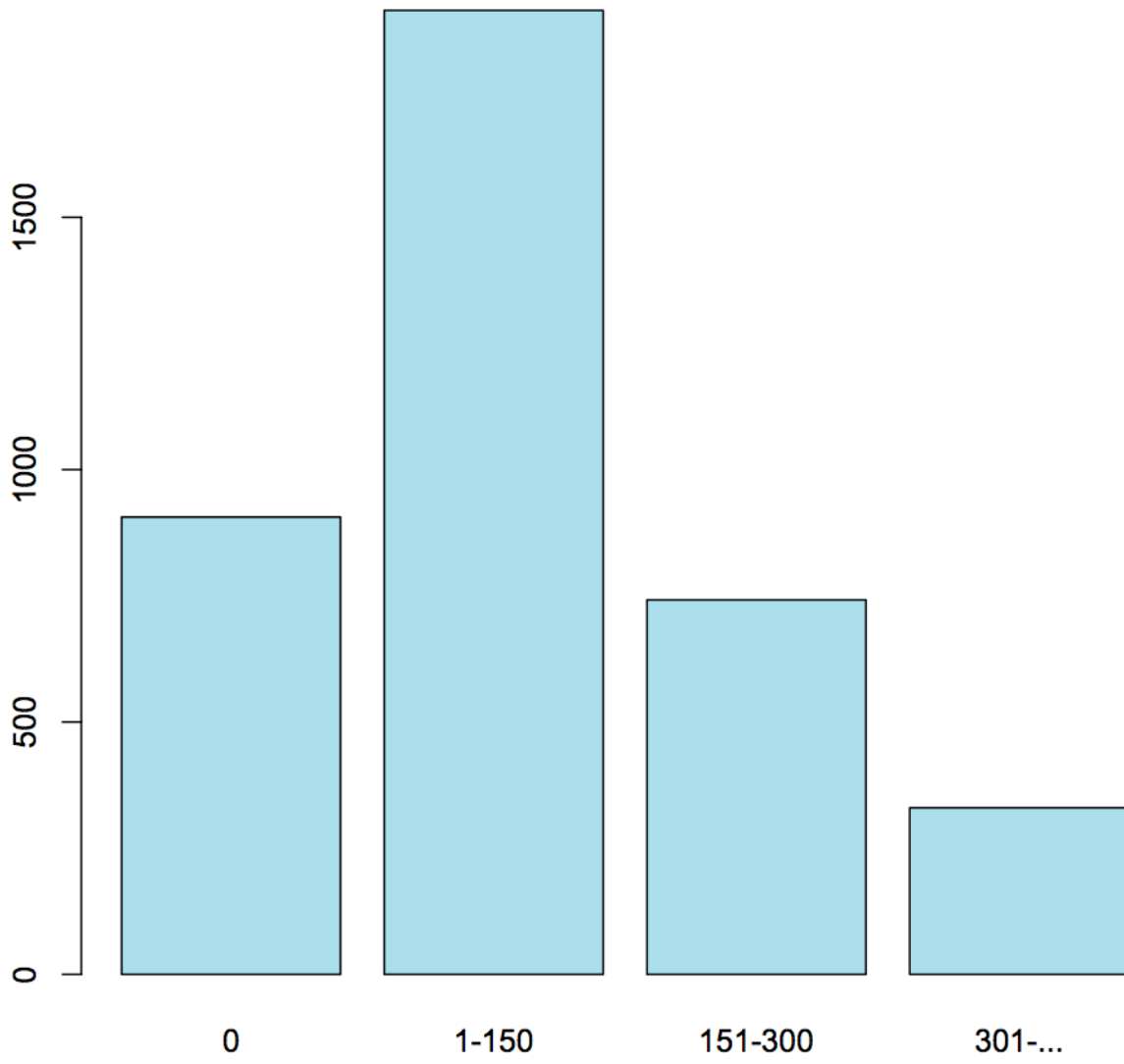
> tt <- read.table("M3074CaffeineData.txt", header=TRUE)
> tt
      Marital Consumption Freq
1    Married           0  652
2 Prev.Married         0   36
3     Single           0  218
4    Married        1-150 1537
5 Prev.Married        1-150   46
6     Single        1-150  327
7    Married       151-300  598
8 Prev.Married       151-300   38
9     Single       151-300  106
10   Married       301-...  242
11 Prev.Married       301-...   21
12    Single       301-...   67
>
> attach(tt)
> mar <- factor(Marital); cons <- factor(Consumption)
>
> # Extract a table of values.
> mtab <- xtabs( Freq ~ mar + cons); mtab
      cons
mar      0 1-150 151-300 301-...
Married  652 1537   598   242
Prev.Married  36   46    38    21
Single    218  327   106    67

> # To get sums over rows or cols.
> margin.table(mtab,1)
mar
      Married Prev.Married      Single
      3029         141         718
> margin.table(mtab,2)
cons
      0  1-150 151-300 301-...
906  1910   742   330
> barplot(mtab)
> totcons <- margin.table(mtab,2); totcons
cons
      0  1-150 151-300 301-...
906  1910   742   330

> # Barplot to show frequency by consumption.
> barplot(totcons, col="lightblue",main="Caffeine Consumption")
> # M3074Caffeine1.pdf
>

```

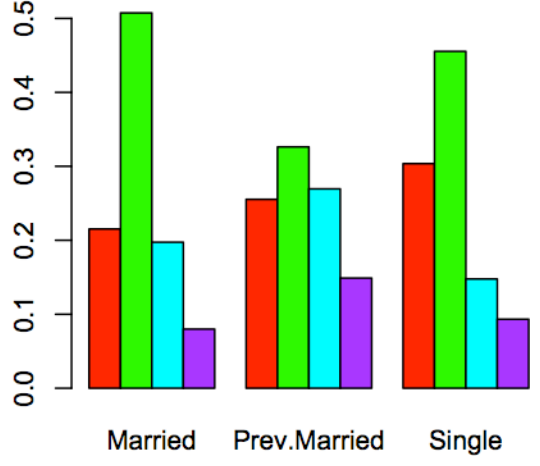
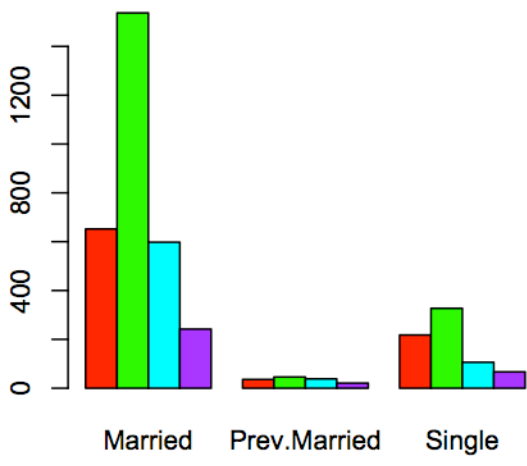
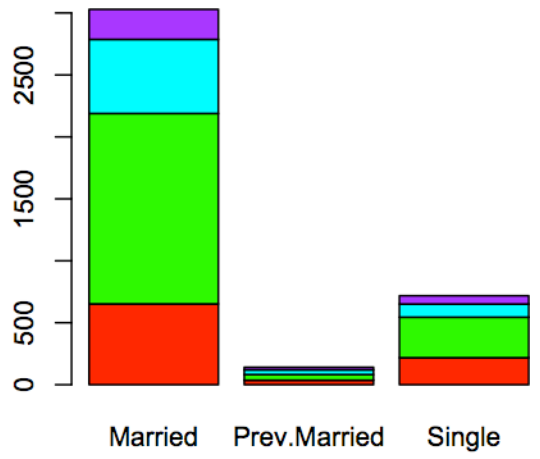
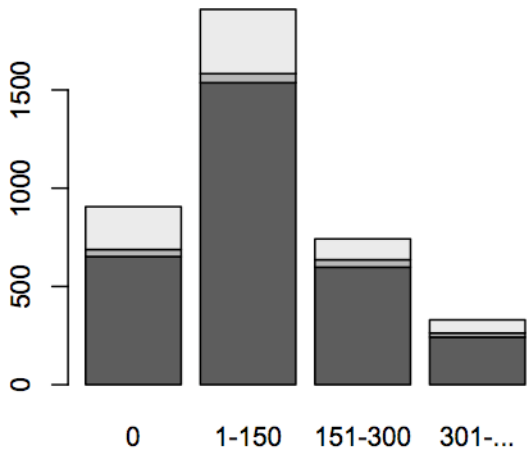
Caffeine Consumption



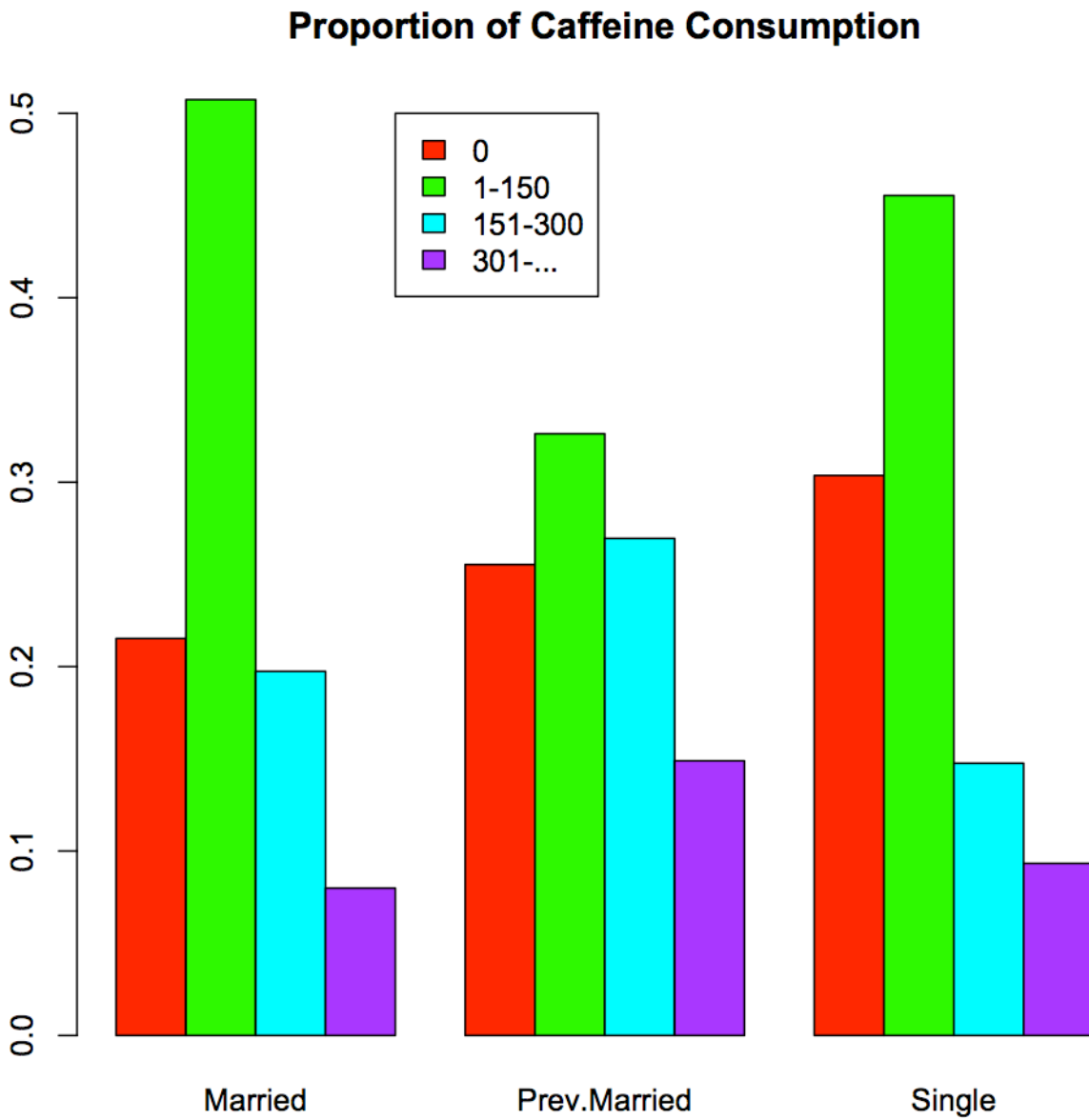
```

> # Following Daalgaard, "Introductory Statistics with R, 2nd. ed.," Springer, 2008, p89
> # we illustrate various barplots. The prop.table extracts proportions by row or col.
> par(mfrow=c(2,2))
> # To swap row and column, we transpose the matrix using t()
> t(mtab)
      mar
cons   Married Prev.Married Single
0      652      36      218
1-150  1537     46      327
151-300 598     38      106
301-... 242     21      67
>
>
> prop.table(mtab,2)
      cons
mar      0      1-150      151-300      301-...
Married  0.71964680 0.80471204 0.80592992 0.73333333
Prev.Married 0.03973510 0.02408377 0.05121294 0.06363636
Single      0.24061810 0.17120419 0.14285714 0.20303030
> prop.table(t(mtab),2)
      mar
cons   Married Prev.Married      Single
0      0.21525256  0.25531915 0.30362117
1-150  0.50742819  0.32624113 0.45543175
151-300 0.19742489  0.26950355 0.14763231
301-... 0.07989435  0.14893617 0.09331476
>
> barplot(mtab)
> barplot(t(mtab), col=rainbow(4))
> barplot(t(mtab), col=rainbow(4),beside=TRUE)
> barplot(prop.table(t(mtab),2), col=rainbow(4),beside=TRUE)
> # M3074Caffeine3.pdf

```



```
> par(mfrow=c(1,1))
>
> # Three barplots for marital status for proportions of caffeine consumers
> barplot(prop.table(t(mtab),2), col=rainbow(4),beside=TRUE,main="Proportion of Caffeine Consumption")
> legend(5,.5,colnames(mtab),fill=rainbow(4))
> # M3074Caffeine4.pdf
>
```

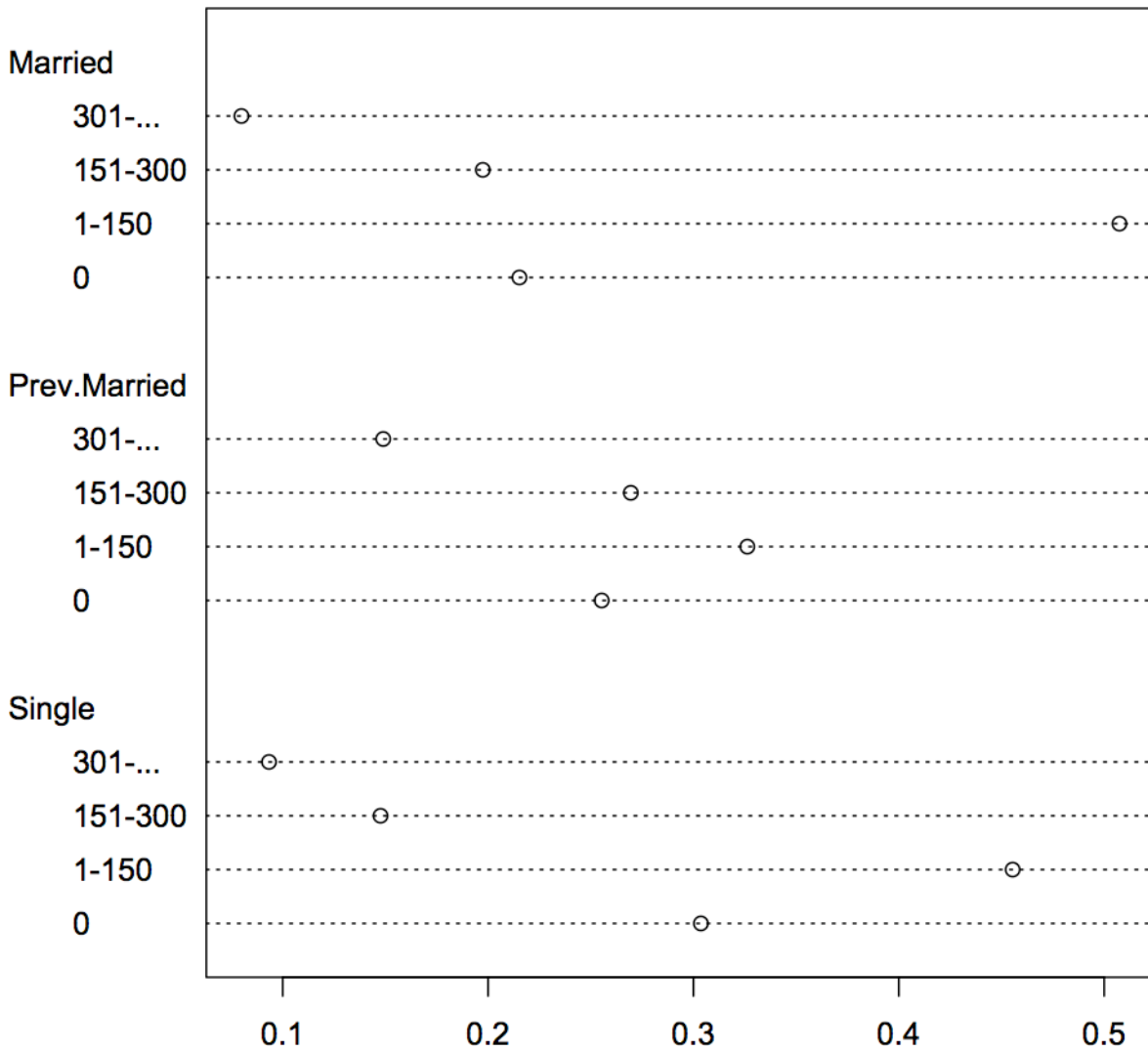


```

>
> Cleveland's Dotcharts do a better job than piecharts to display data.
> Here is the same information displayed as a dotchart.
> dotchart(prop.table(t(mtab),2),main="Proportion of Caffeine Consumption",lcolor="black")
> # cleveland Dotchart M3074caffeine5.pdf
>

```

Proportion of Caffeine Consumption

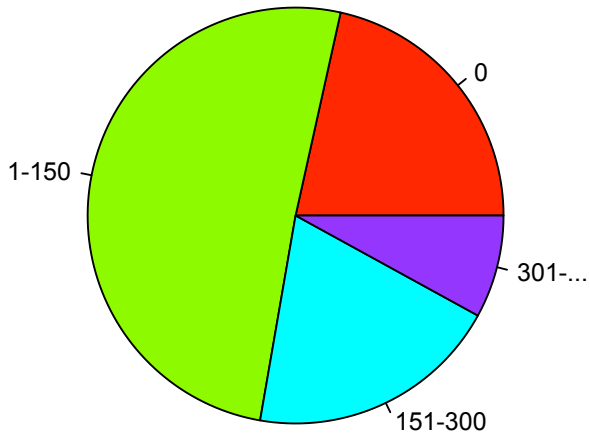


```

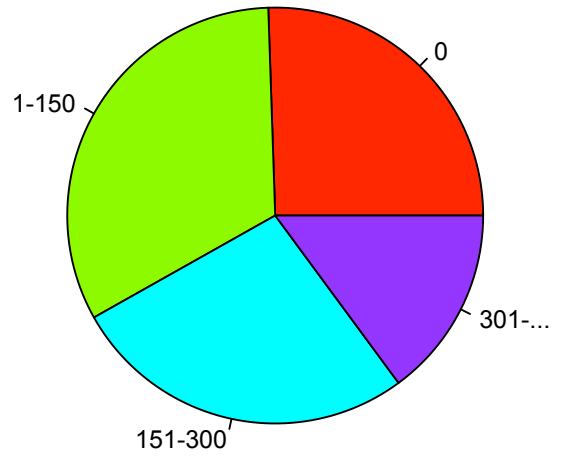
> # We can extract a single row by naming the row and leaving the column index variable
> mtab["Married",]
      0  1-150 151-300 301-...
652   1537   598    242
>
> # Here is the same information displayed as a piechart. Note that it is harder for
> # the eye to tell the relative areas.
>
> opar <- par(mfrow=c(2,2),mex=0.8,mar=c(1,1,2,1))
> pie(mtab["Married",],main="Married",col=rainbow(4))
> pie(mtab["Prev.Married",],main="Previously Married",col=rainbow(4))
> pie(mtab["Single",],main="Single",col=rainbow(4))
> par(opar)
> # M3074Caffeine6.pdf
> >

```


Married



Previously Married



Single

