

I would encourage you to run these commands interactively in R after loading the mosaic package.

1. Display the first few rows of the `CPS85` data frame.

```
head(CPS85)
```

2. Display the names of the variables from the data frame.

```
names(CPS85)
```

3. Calculate (not count by hand!) the number of cases in the data frame.

```
nrow(CPS85)
```

4. Calculate the mean wage of all the people.

```
mean(~ wage, data=CPS85)
```

5. Calculate the standard deviation of wage for all cases.

```
sd(~ wage, data=CPS85)
```

6. Calculate the mean wage separately for married and unmarried people.

```
mean(wage ~ married, data=CPS85)
```

7. Create a new variable, `fraction`, in the data frame that holds the ratio of the person's "experience" to their age.

```
CPS85 <- mutate(CPS85, fraction=exper/age)
```

8. Create a new variable in a data frame called `Temperature` that converts the values of temperature (stored in a vector called `celsius`) to Fahrenheit (recall that there degrees Fahrenheit are equal to 9/5 times the celsius value plus 32 degrees) stored in a new variable `Fahrenheit`. Store the result in a data frame called `NewTemp`.

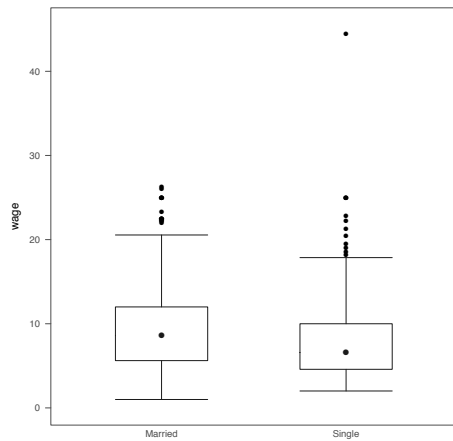
```
NewTemp <- mutate(Temperature, Fahrenheit = (9/5)*celsius + 32)
```

9. Make a box-and-whisker plot of all the people's wages.

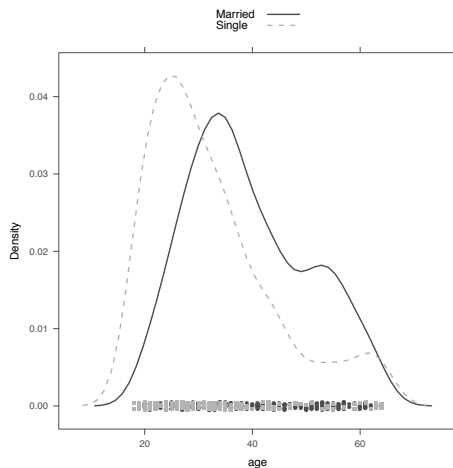
```
bwplot(~wage, data=CPS85)
```

10. Make a box-and-whisker plot of the people's wage, but broken down by marital status.

```
bwplot(wage ~ married, data=CPS85)
```



11. Make this plot:



```
densityplot(~ age, groups=married, auto.key=TRUE, data=CPS85)
```

What is different when the command `densityplot(~ age | married, data=CPS85)` is run?

12. Calculate (not count by hand!) the number of people by marital status.

```
tally(~ married, data=CPS85)
```

13. Calculate (not count by hand!) the number of people by marital status and sex simultaneously.

```
tally(~ married + sex, data=CPS85) # or tally(married ~ sex, data=CPS85)
```