STAT 530/J530
September 8th, 2005

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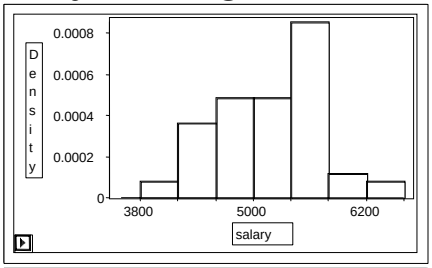
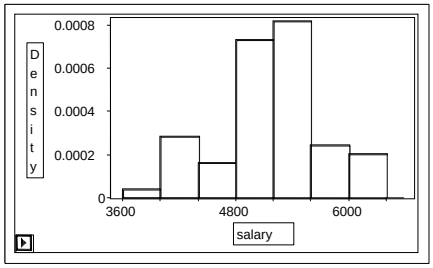
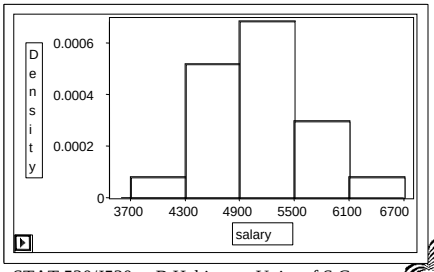
Univariate Graphical Displays

Why Histograms can be bad…



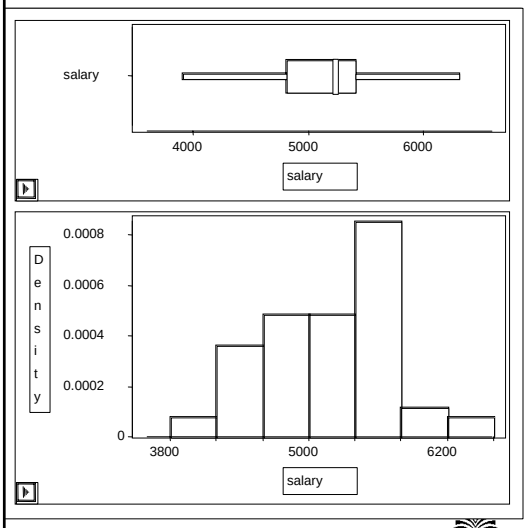




These are all the same data set!

Univariate Graphical Displays

Box-Plots are Harder to Fool With…



Box is has "hinges" at Q1 and Q3

Line at Median (Q2)

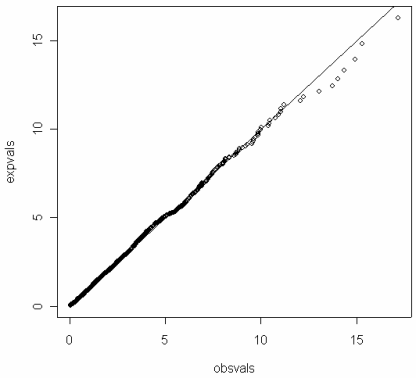
Whiskers up to 1.5 IQRs long

Dots for possible outliers

Univariate Graphical Displays

Quantile-Quantile plots are good for comparing data sets to a distribution.

```
obsvals<-sort(ds)
expvals<-
   qchisq((1:1000)/1001,3)
plot(obsvals,expvals)
lines(c(0,20),c(0,20))
```



Loading in Data and Text Functions

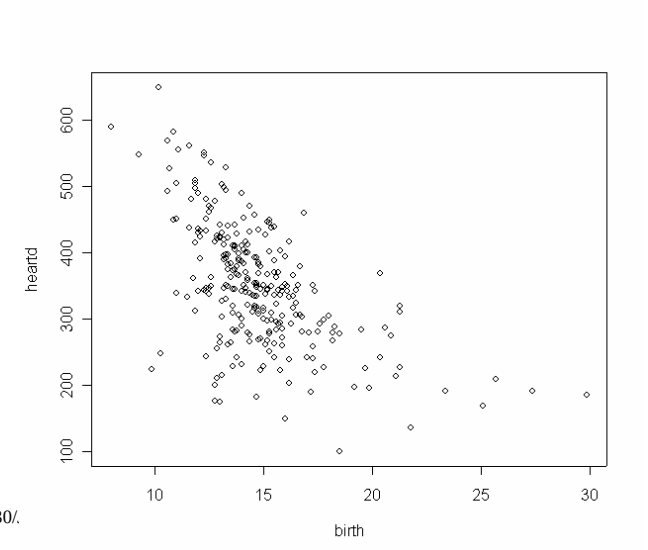
```
census<-
   read.table("http://www.stat.sc.edu/
   ~habing/courses/data/census.txt“,
   header=TRUE)

birth<-census[,"Birth"]
heartd<-census[,"HeartD"]

source("http://biostatistics.iop.kcl.ac.
  uk/publications/everitt/RSPCMA/
  functions.txt")
```

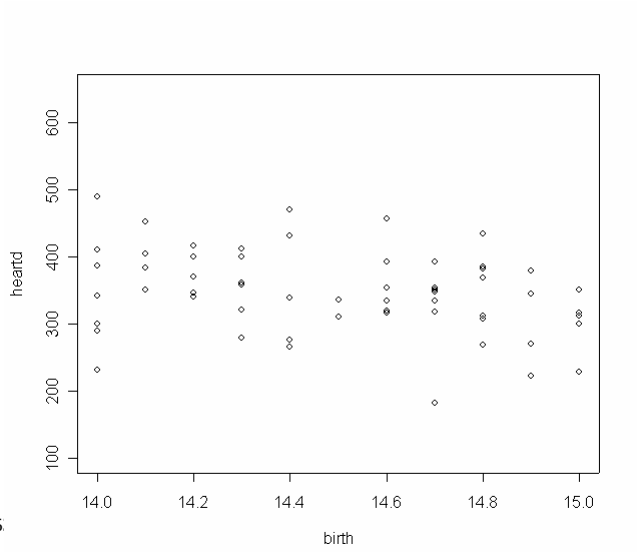

Scatterplots

```
plot(birth,heartd)
```



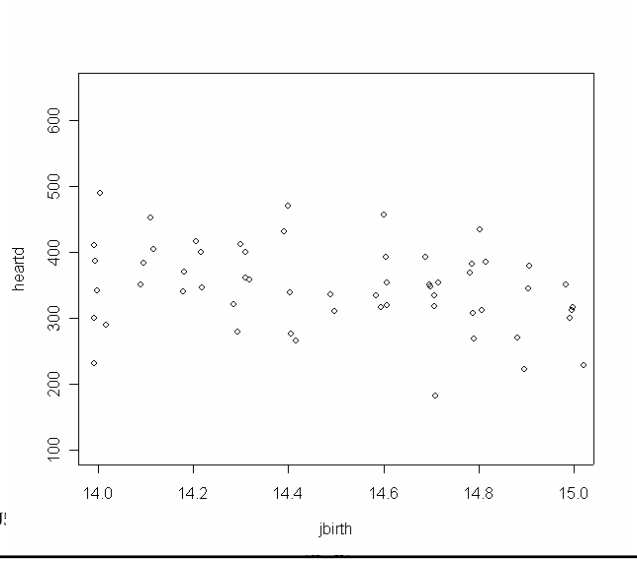
Scatterplots

```
plot(birth,heartd,xlim=c(14,15))
```



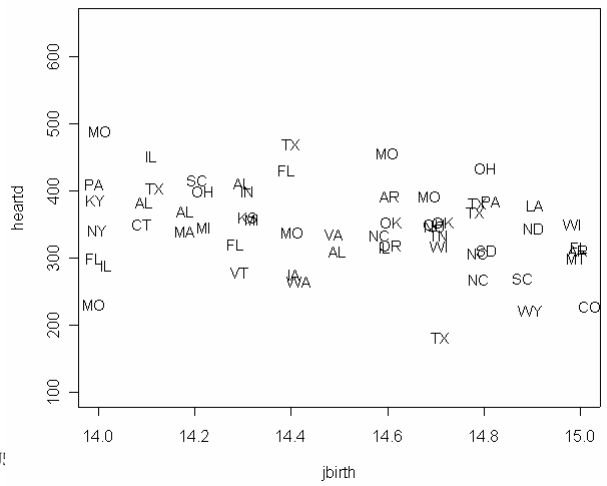
Scatterplots

```
jbirth<-jitter(birth)
plot(jbirth,heartd,xlim=c(14,15))
```



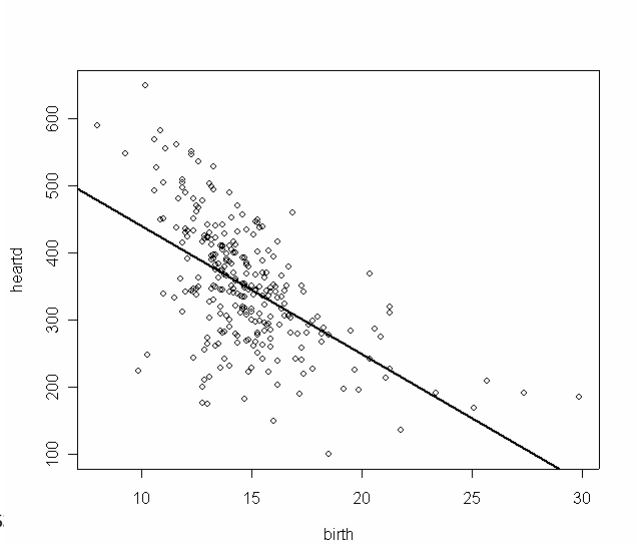
Scatterplots

```
plot(jbirth,heartd,xlim=c(14,15),type="n")
text(jbirth,heartd,census[,2],cex=0.9)
```



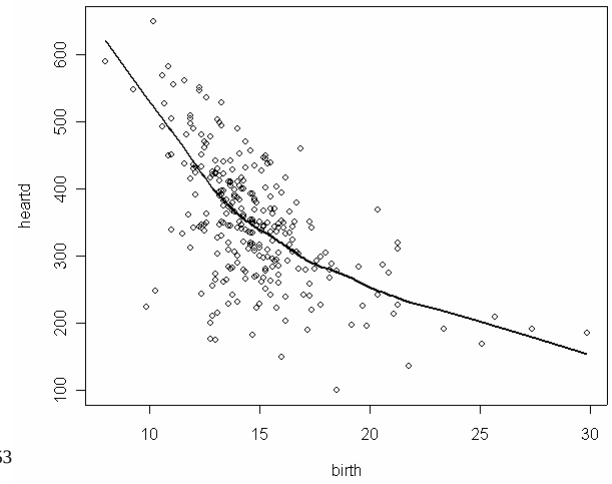
Scatterplots

```
plot(birth,heartd)
abline(lm(heartd~birth),lwd=2)
```



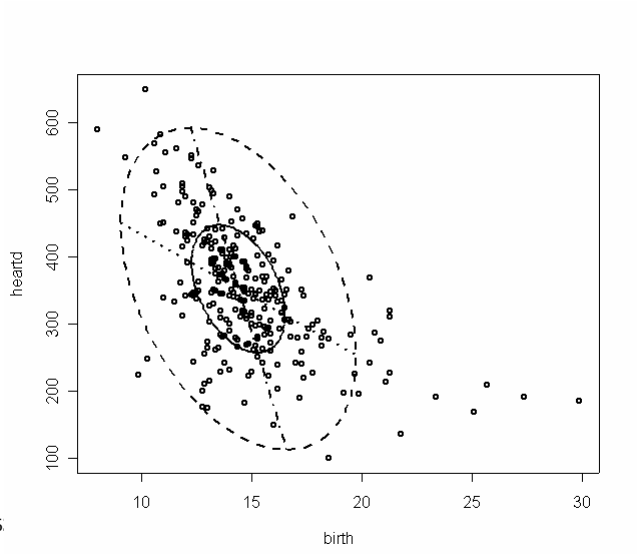
Scatterplots

```
plot(birth,heartd)
lines(lowess(birth,heartd),lwd=2)
```



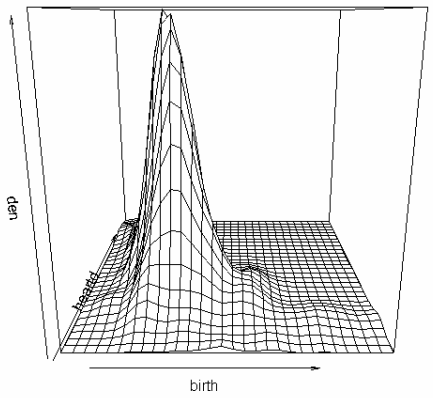
Bivariate Boxplot

```
bvbox(birth,heartd)
```



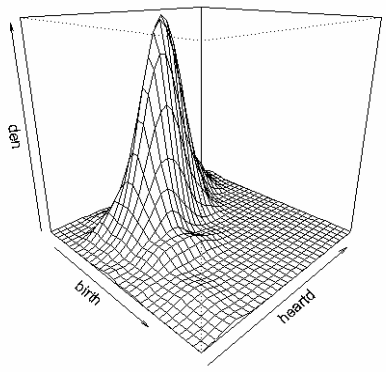
Density Plots

```
den<-bivden(birth,heartd)
persp(den$seqx,den$seqy,den$den,xlab="birth",
     ylab="heartd",zlab="den")
```



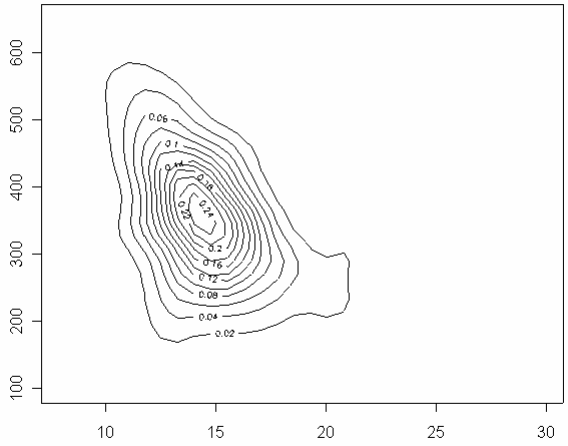
Density Plots

```
den<-bivden(birth,heartd)
persp(den$seqx,den$seqy,den$den,xlab="birth",
   ylab="heartd",zlab="den",theta=45,phi=20)
```



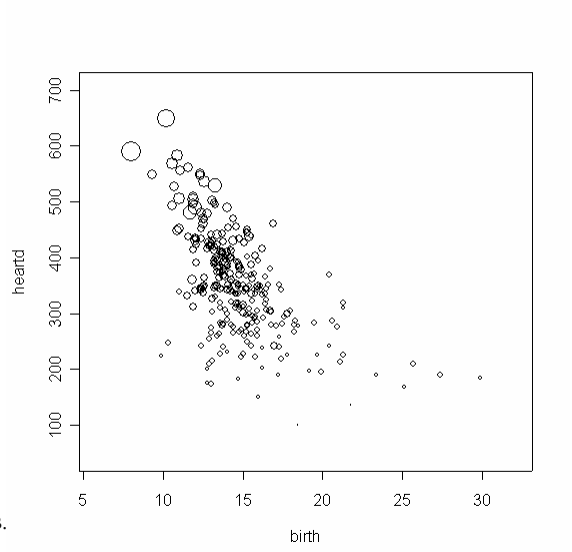
Density Plots

```
den<-bivden(birth,heartd)
contour(den$seqx,den$seqy,den$den,nlevels=10)
```



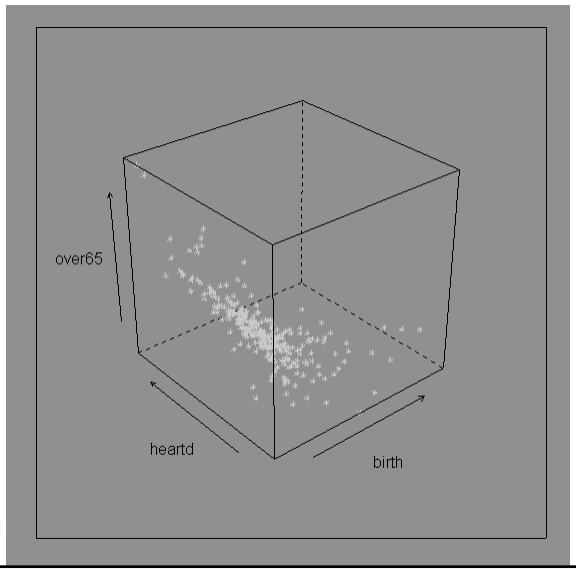
Adding a Third Variable

```
symbols(birth,heartd,circles=over65,inches=0.1)
```



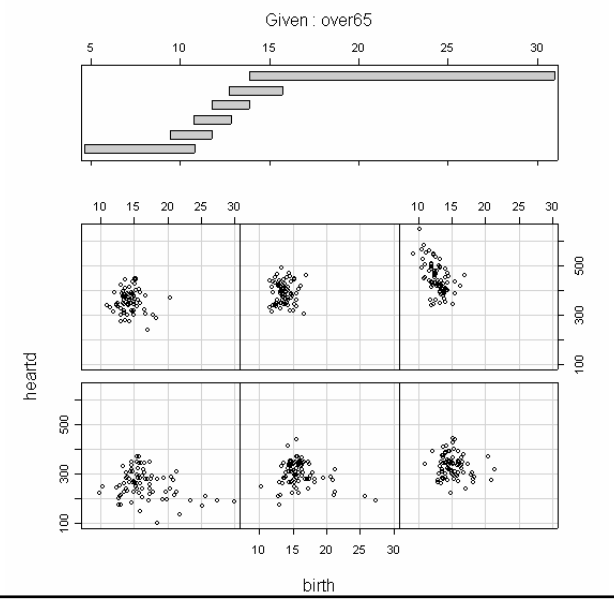
Adding a Third Variable

```
library(lattice)
cloud(over65~birth*heartd)
```



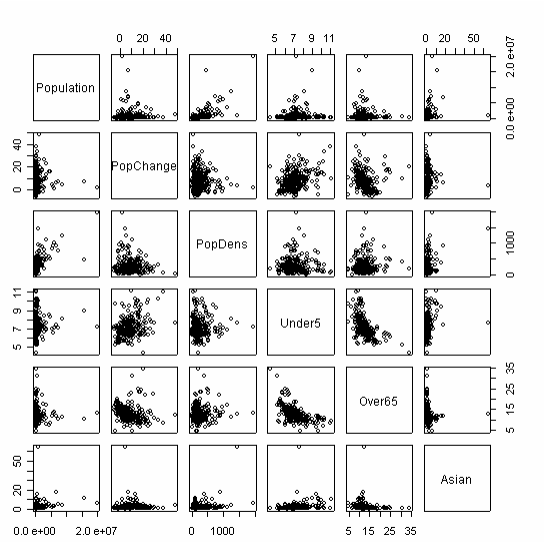
Adding a Third Variable

```
coplot(heartd~birth|over65)
```



Lots of Variables!

```
pairs(census[,3:8])
```



Lots of Variables!

```
source("http://www.stat.sc.edu/~habing/
   courses/530faceF03.txt")
faces(census[1:16,3:8],
    substring(census[1:36,1],1,10))
```