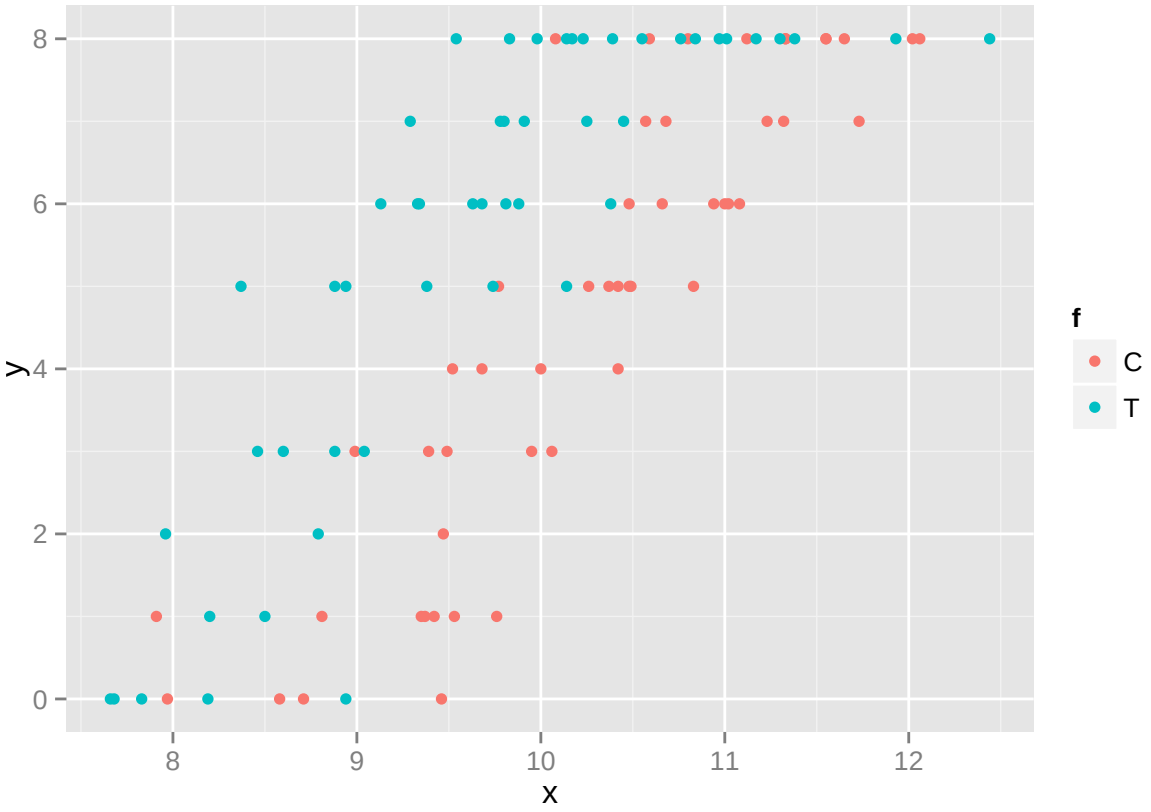
Statistical Modeling Chapter 6

```
setwd("/Users//shotashimizu/git//StatisticalModeling")
d <- read.csv("data4a.csv")
summary(d)
```

```
##        N           y              x          f
##  Min.   :8   Min.   :0.00   Min.   : 7.660   C:50
##  1st Qu.:8   1st Qu.:3.00   1st Qu.: 9.338   T:50
##  Median :8   Median :6.00   Median : 9.965
##  Mean   :8   Mean   :5.08   Mean   : 9.967
##  3rd Qu.:8   3rd Qu.:8.00   3rd Qu.:10.770
##  Max.   :8   Max.   :8.00   Max.   :12.440
```

```
library(ggplot2)
qplot(x, y, col = f, data = d)
```

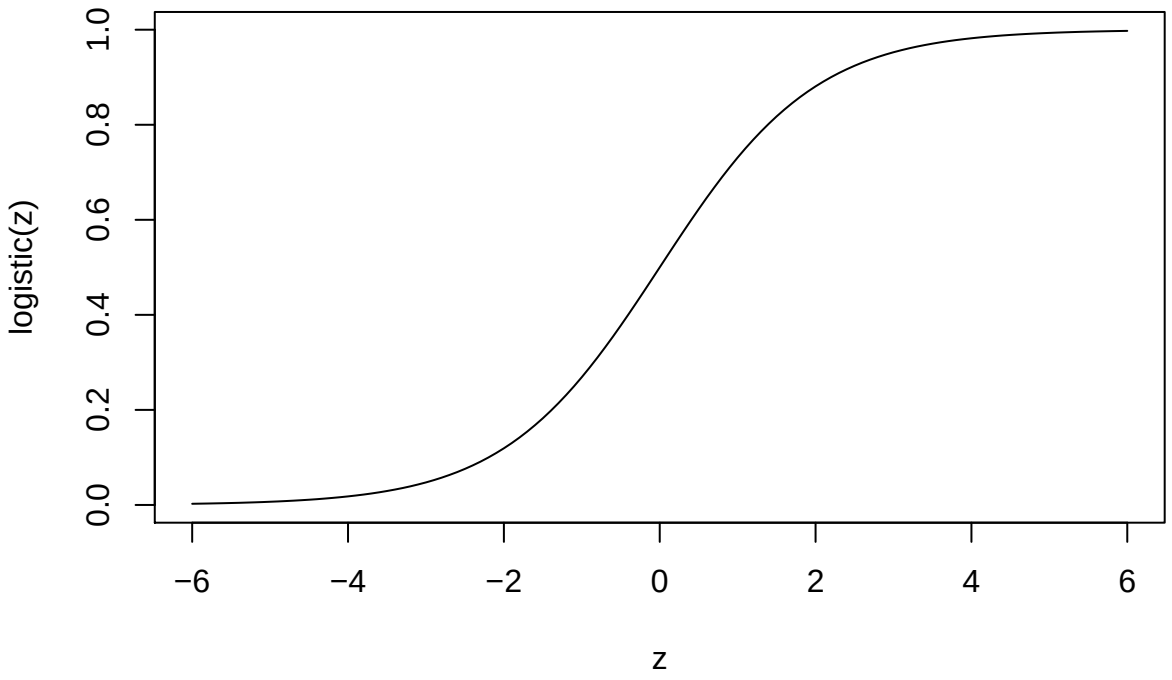


Logistic link functions

a logistic function looks like

$$q_i = logistic(z_i) = \frac{1}{1 + exp(-z_i)}$$

```r
logistic <- function(z) 1/(1 + exp(-z))
z <- seq(-6,6,0.1)
plot(z, logistic(z), type = "l")
```



- a logit function is the inverse of the logistic function

$$logit(q_i) = log\frac{q_i}{1-q_i}$$