Discrete Response Model
Lecture 4

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Odds Ratio

Wald Confidence Intervals

```
> conf.beta<-confint(object = mod.fit, level = 0.95)
> round(conf.beta,2)  # Results are stored in a 3D array
, , Scab

             2.5 % 97.5 %
(Intercept)  22.14  38.95
classsrw     -1.95   0.65
density     -27.70 -15.49
hardness     -0.04   0.00
size         -0.44   2.58
weight       -0.41  -0.17
moisture     -0.19   0.41

, , Sprout

             2.5 % 97.5 %
(Intercept)  11.78  26.55
classsrw     -1.21   0.76
density     -20.53  -9.70
hardness     -0.04  -0.01
size         -0.18   1.94
weight       -0.12   0.03
moisture     -0.26   0.18
```

```
> conf.beta[2:7,1:2,1]  # C.I.s for beta_2r
                2.5 %       97.5 %
classsrw  -1.94776958   0.651514098
density  -27.70474380 -15.489565975
hardness  -0.03604523   0.004230411
size      -0.44453927   2.582767006
weight    -0.41058295  -0.168713512
moisture  -0.19391723   0.413047326
> conf.beta[2:7,1:2,2]  # C.I.s for beta_3r
                2.5 %       97.5 %
classsrw  -1.20652328   0.757046542
density  -20.53461137 -9.698731394
hardness  -0.03690744 -0.005133494
size      -0.18459306   1.935820104
weight    -0.11978643   0.025152642
moisture  -0.26392179   0.177927888
```

Confidence Intervals for the Odds Ratios

```
> ci.OR2<-exp(c.value*conf.beta[2:7,1:2,1])
> ci.OR3<-exp(c.value*conf.beta[2:7,1:2,2])
> round(data.frame(low = ci.OR2[,1], up = ci.OR2[,2]), 2)
           low   up
classsrw 0.14 1.92
density  0.03 0.13
hardness 0.37 1.12
size     0.80 3.55
weight   0.04 0.26
moisture 0.67 2.32
```

```
> round(data.frame(low = 1/ci.OR2[,2], up = 1/ci.OR2[,1]), 2)[c(2,5),]  # Specific rows
to cut down on output in book
         low    up
density 7.64 38.00
weight  3.80 25.79
> round(data.frame(low = ci.OR3[,1], up = ci.OR3[,2]), 2)
           low   up
classsrw 0.30 2.13
density  0.07 0.28
hardness 0.36 0.87
size     0.91 2.59
weight   0.39 1.22
moisture 0.58 1.44
> round(data.frame(low = 1/ci.OR3[,2], up = 1/ci.OR3[,1]), 2)[c(2,3),]  # Specific rows
to cut down on output in book
          low    up
density  3.57 14.82
hardness 1.15  2.74
```

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