R Handout - Age-Length Key

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Dec 2013

```
> library(FSA)
```

Virginian Spot

```
> setwd("C:/aaaWork/Web/fishR/courses/MNAFS2013/CourseMaterial/")
> d <- read.csv("SpotVA2.csv",header=TRUE)
> str(d)
'data.frame': 403 obs. of  2 variables:
 $ tl : num  10.6 7.1 12.3 9.7 11.2 8.9 12.6 7.6 10 7 ...
 $ age: int  1 1 3 2 3 1 3 1 1 1 ...
> view(d)
      tl age
20  11.5   3
23   8.2   0
212  7.0  NA
242 11.4  NA
300  8.9  NA
355  8.3  NA
```

Constructing and Applying the Age-Length Key

```
> sp.len <- Subset(d,is.na(age))
> str(sp.len)
'data.frame': 331 obs. of  2 variables:
 $ tl : num  9.6 9.4 9.1 9.4 9.6 9 8.2 9.8 10.7 9.1 ...
 $ age: int  NA NA NA NA NA NA NA NA NA NA ...
> sp.age <- Subset(d,!is.na(age))
> str(sp.age)
'data.frame': 72 obs. of  2 variables:
 $ tl : num  10.6 7.1 12.3 9.7 11.2 8.9 12.6 7.6 10 7 ...
 $ age: int  1 1 3 2 3 1 3 1 1 1 ...
```

```
> Summarize(~tl,data=sp.age,digits=1)
       n     mean       sd      min       Q1   median       Q3      max percZero
    72.0     10.3      2.1      6.3      8.7     10.3     12.0     13.9      0.0
> sp.age.mod <- lencat(~tl,data=sp.age,startcat=6,w=1)
> view(sp.age.mod)
      tl age LCat
5   11.2   3   11
30  12.1   2   12
34   9.9   2    9
55  10.0   1   10
78  12.5   3   12
104 13.5   4   13
```

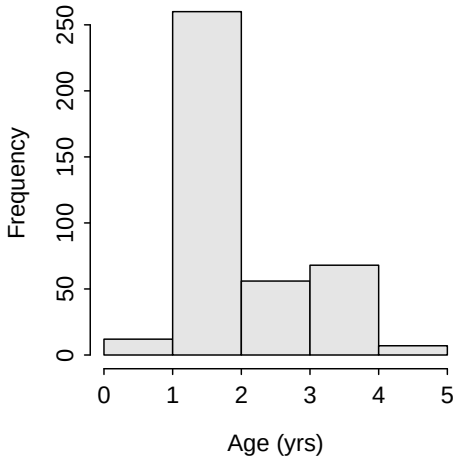
```
> ( AL.raw <- table(sp.age.mod$LCat,sp.age.mod$age) )

    0  1  2  3  4
6   2  0  0  0  0
7   0 10  0  0  0
8   1  9  0  0  0
9   0  8  2  0  0
10  0  9  1  0  0
11  0  1  3  6  0
12  0  1  4  4  1
13  0  0  0  8  2
> ( AL.key <- prop.table(AL.raw,margin=1) )

     0   1   2   3   4
6  1.0 0.0 0.0 0.0 0.0
7  0.0 1.0 0.0 0.0 0.0
8  0.1 0.9 0.0 0.0 0.0
9  0.0 0.8 0.2 0.0 0.0
10 0.0 0.9 0.1 0.0 0.0
11 0.0 0.1 0.3 0.6 0.0
12 0.0 0.1 0.4 0.4 0.1
13 0.0 0.0 0.0 0.8 0.2
```

```
> sp.len.mod <- ageKey(AL.key,age~tl,data=sp.len)
> view(sp.len.mod)

     tl age
81  10.8   2
95  11.9   3
110  8.3   1
198 10.8   1
221  8.2   0
374  8.7   1
> sp.comb <- rbind(sp.age,sp.len.mod)
> str(sp.comb)

'data.frame': 403 obs. of  2 variables:
 $ tl : num  10.6 7.1 12.3 9.7 11.2 8.9 12.6 7.6 10 7 ...
 $ age: num  1 1 3 2 3 1 3 1 1 1 ...
```

Summarizing Final Results

```
> agefreq <- table(sp.comb$age)
> prop.table(agefreq)

      0       1       2       3       4
0.02978 0.64516 0.13896 0.16873 0.01737
```

```
> ( sp.sum <- Summarize(tl~age,data=sp.comb,digits=2) )
Warning:  To continue, variable(s) on RHS of formula were converted to a factor.
  age   n  mean   sd  min    Q1 median    Q3  max percZero
1   0  12  8.12 0.85  6.3  8.17   8.35  8.62  8.9        0
2   1 260  9.07 1.16  7.0  8.20   8.95  9.90 12.5        0
3   2  56 10.97 1.21  9.0  9.70  11.10 11.90 12.9        0
4   3  68 12.08 0.86 11.0 11.40  11.80 12.80 13.9        0
5   4   7 12.86 0.69 12.0 12.40  12.90 13.20 13.9        0
> hist(~age,data=sp.comb,breaks=0:5,xlab="Age (yrs)",col="gray90")
```




```
> plot(tl~age,data=sp.comb,ylab="Total Length (mm)",xlab="Age",pch=16,col=rgb(0,0,0,0.1))
> lines(mean~fact2num(age),data=sp.sum,col="blue",lwd=2)
```