

chytrid.R

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```
# chytrid.R
# Tests of independence - species vs. infection

# Load necessary libraries
library(ggplot2)
library(gmodels)

# Read in data set
chydata <- read.table(header=T,colClasses=c("factor","factor","numeric"),text="
species infected obsfreq
A yes 7
A no 18
B yes 12
B no 38
C yes 15
C no 20
D yes 27
D no 13
")

# Print data
chydata
```

```
## species infected obsfreq
## 1 A yes 7
## 2 A no 18
## 3 B yes 12
## 4 B no 38
## 5 C yes 15
## 6 C no 20
## 7 D yes 27
## 8 D no 13
```

```
# Convert tabulated data to raw form for R
species <- rep(chydata[, "species"], chydata$obsfreq)
infected <- rep(chydata[, "infected"], chydata$obsfreq)

# Tests of independence
CrossTable(species, infected, expected=TRUE)
```

```
##
##
## Cell Contents
## |-----|
## | N |
## | Expected N |
## | Chi-square contribution |
## | N / Row Total |
```

```

## |          N / Col Total |
## |          N / Table Total |
## |-----|
##
##
## Total Observations in Table:  150
##
##
##          | infected
##    species |          no |          yes | Row Total |
## -----|-----|-----|-----|
##          A |          18 |           7 |          25 |
##          |    14.833 |    10.167 |          |
##          |     0.676 |     0.986 |          |
##          |     0.720 |     0.280 |    0.167 |
##          |     0.202 |     0.115 |          |
##          |     0.120 |     0.047 |          |
## -----|-----|-----|-----|
##          B |          38 |          12 |          50 |
##          |    29.667 |    20.333 |          |
##          |     2.341 |     3.415 |          |
##          |     0.760 |     0.240 |    0.333 |
##          |     0.427 |     0.197 |          |
##          |     0.253 |     0.080 |          |
## -----|-----|-----|-----|
##          C |          20 |          15 |          35 |
##          |    20.767 |    14.233 |          |
##          |     0.028 |     0.041 |          |
##          |     0.571 |     0.429 |    0.233 |
##          |     0.225 |     0.246 |          |
##          |     0.133 |     0.100 |          |
## -----|-----|-----|-----|
##          D |          13 |          27 |          40 |
##          |    23.733 |    16.267 |          |
##          |     4.854 |     7.082 |          |
##          |     0.325 |     0.675 |    0.267 |
##          |     0.146 |     0.443 |          |
##          |     0.087 |     0.180 |          |
## -----|-----|-----|-----|
## Column Total |          89 |          61 |          150 |
##          |     0.593 |     0.407 |          |
## -----|-----|-----|-----|
##
##
## Statistics for All Table Factors
##
##
## Pearson's Chi-squared test
## -----
## Chi^2 =  19.42445      d.f. =  3      p =  0.0002233523
##
##
##

```

```
# Generate bar chart showing proportions
ggplot(chydata,aes(species,fill=infected))+
geom_bar(position="fill",aes(weight=obsfreq))+
scale_fill_grey(start=0,end=1)
```

