A4

A00829752

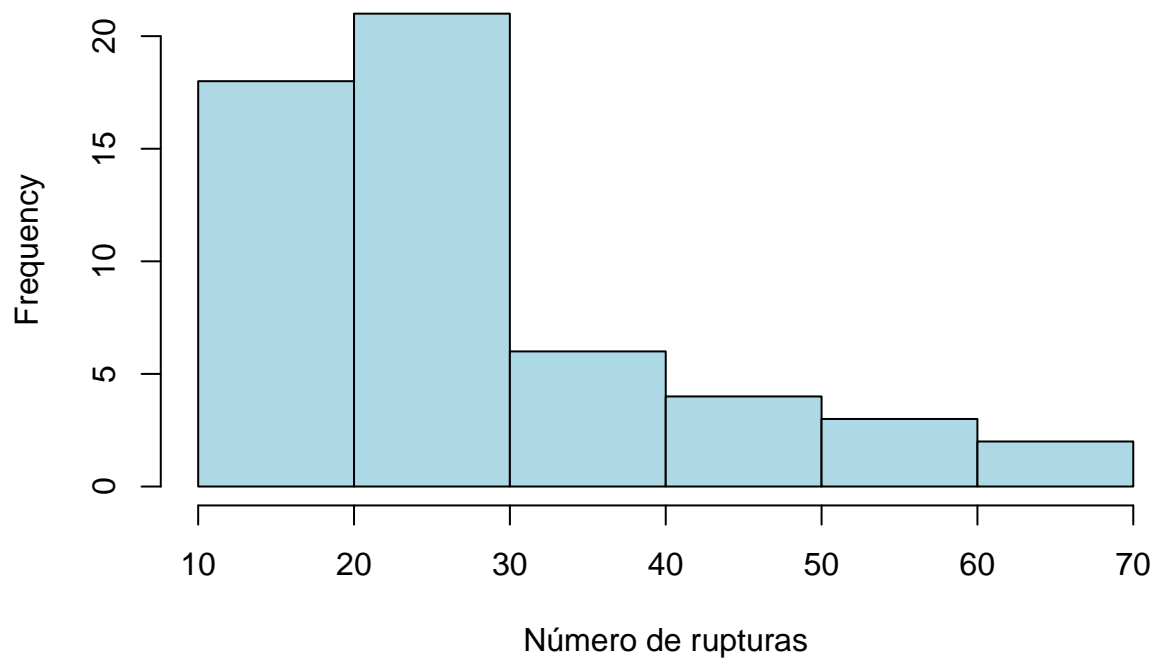2023-10-13

```r
library(datasets)
data <- warpbreaks
head(data,10)
```

```
##    breaks wool tension
## 1      26    A       L
## 2      30    A       L
## 3      54    A       L
## 4      25    A       L
## 5      70    A       L
## 6      52    A       L
## 7      51    A       L
## 8      26    A       L
## 9      67    A       L
## 10     18    A       M
```

```r
hist(data$breaks, main = "Histograma del número de rupturas", xlab = "Número de rupturas", col = "lightl
```

Histograma del número de rupturas

```r
# Media y Varianza
media <- mean(data$breaks)
varianza <- var(data$breaks)

cat("Media:", media, "\n")
```

```
## Media: 28.14815
```

```r
cat("Varianza:", varianza, "\n")
```

```
## Varianza: 174.2041
```

```r
poisson.model<-glm(breaks ~ wool + tension, data, family = poisson(link = "log"))
summary(poisson.model)
```

```
##
## Call:
## glm(formula = breaks ~ wool + tension, family = poisson(link = "log"),
##     data = data)
##
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept)  3.69196    0.04541  81.302  < 2e-16 ***
## woolB       -0.20599    0.05157  -3.994 6.49e-05 ***
## tensionM    -0.32132    0.06027  -5.332 9.73e-08 ***
## tensionH    -0.51849    0.06396  -8.107 5.21e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for poisson family taken to be 1)
##
##     Null deviance: 297.37  on 53  degrees of freedom
## Residual deviance: 210.39  on 50  degrees of freedom
## AIC: 493.06
##
## Number of Fisher Scoring iterations: 4
```

Desviación residual > Grados de libertad Desviación nula > Desviación residual

```r
#Crear variables dummy para la variable 'wool'
wool_dummies <- model.matrix(~ wool - 1, data = data)

# Crear variables dummy para la variable 'tension'
tension_dummies <- model.matrix(~ tension - 1, data = data)

# Combina las variables dummy con el conjunto de datos original
data <- cbind(data, wool_dummies, tension_dummies)

# Visualiza las primeras filas del conjunto de datos con las variables dummy
head(data)
```

```
##   breaks wool tension woolA woolB tensionL tensionM tensionH
## 1     26    A       L     1     0        1        0        0
## 2     30    A       L     1     0        1        0        0
## 3     54    A       L     1     0        1        0        0
## 4     25    A       L     1     0        1        0        0
## 5     70    A       L     1     0        1        0        0
```

```
## 6     52    A      L     1     0      1      0      0
```