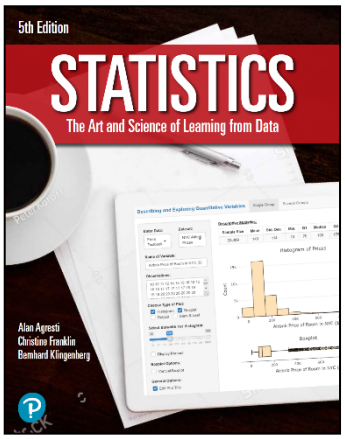


R Code for Examples in the book
"Statistics: The Art and Science of Learning from Data"
by Agresti, Franklin and Klingenberg, 5th edition

Chapter 2

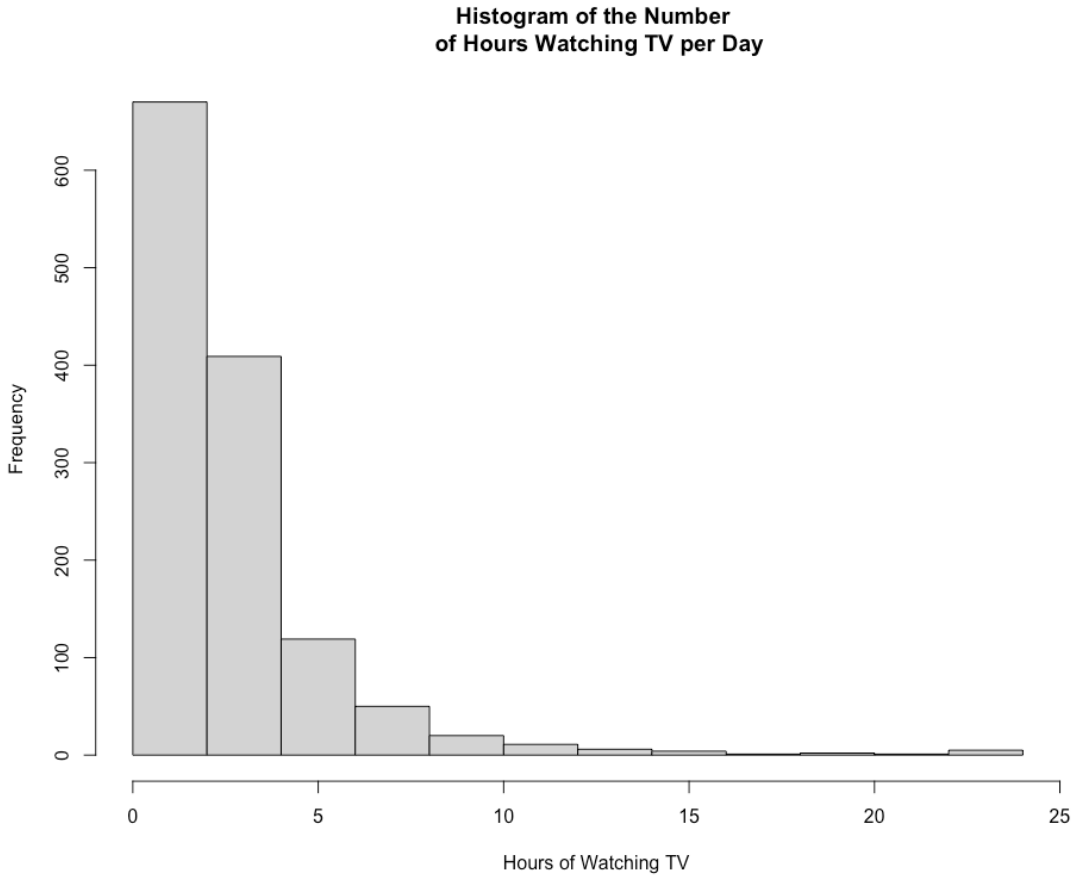
Example 6: TV Watching – Histogram for a Discrete Variable

Read in GSS data

```
gss <-
read.csv(file='https://raw.githubusercontent.com/artofstat/data/master/Chapter2/TVhours.csv')
```

Create Basic Histogram

```
hist(gss$tvhours, xlim = c(0, 25),
     main = 'Histogram of the Number \n of Hours Watching TV per Day',
     xlab = 'Hours of Watching TV')
```

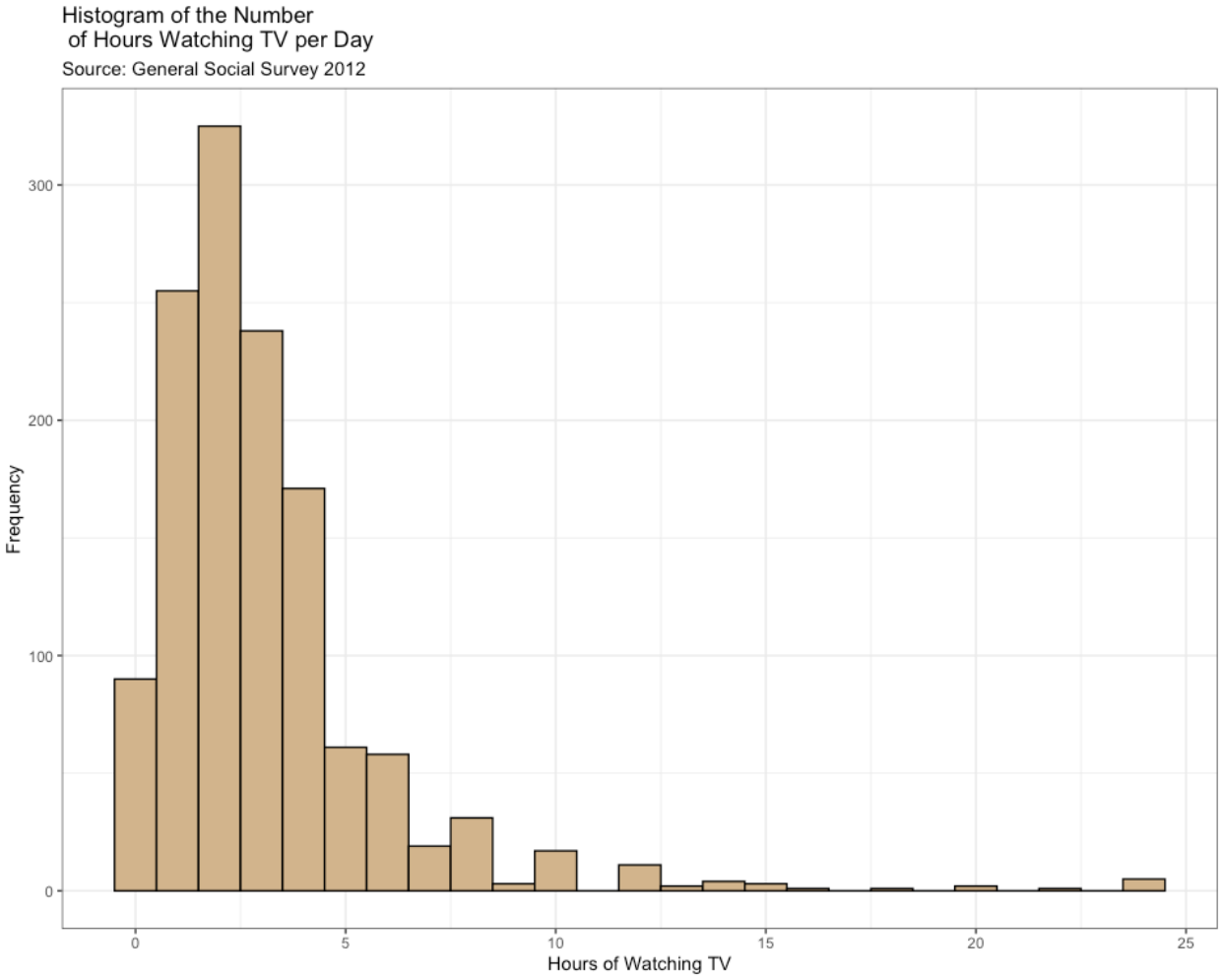


For more fine tuning, it is better to use the ggplot2 library. If you haven't installed it already, first type: `install.packages(ggplot2)`.

```
library(ggplot2)
```

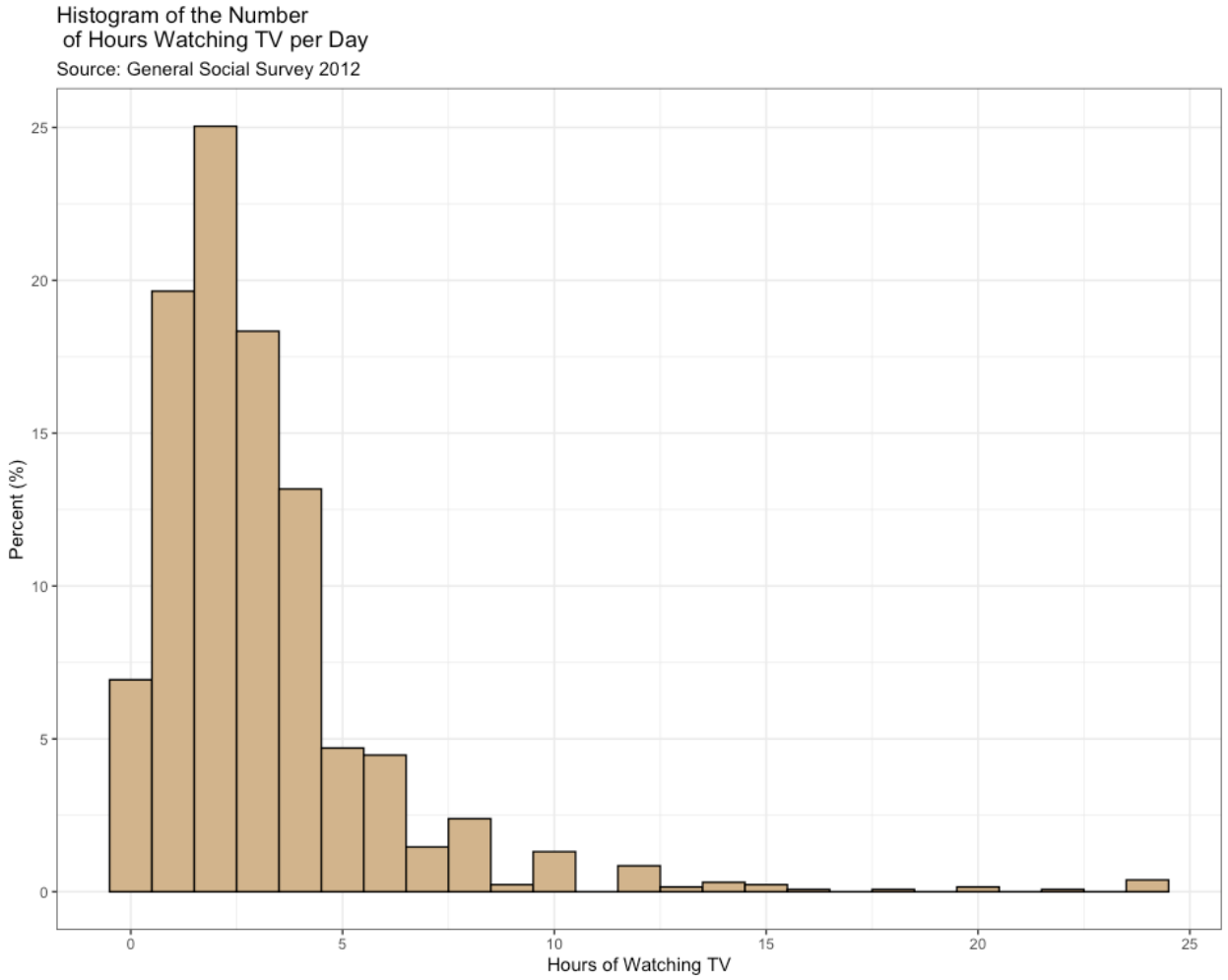
Basic Frequency (Count) Plot

```
ggplot(gss, aes(x=tvhours)) +
  geom_histogram(binwidth=1, color = 'black', fill = 'tan') +
  labs(x = 'Hours of Watching TV', y='Frequency',
       title = 'Histogram of the Number \n of Hours Watching TV per Day',
       subtitle = 'Source: General Social Survey 2012') +
  theme_bw()
```



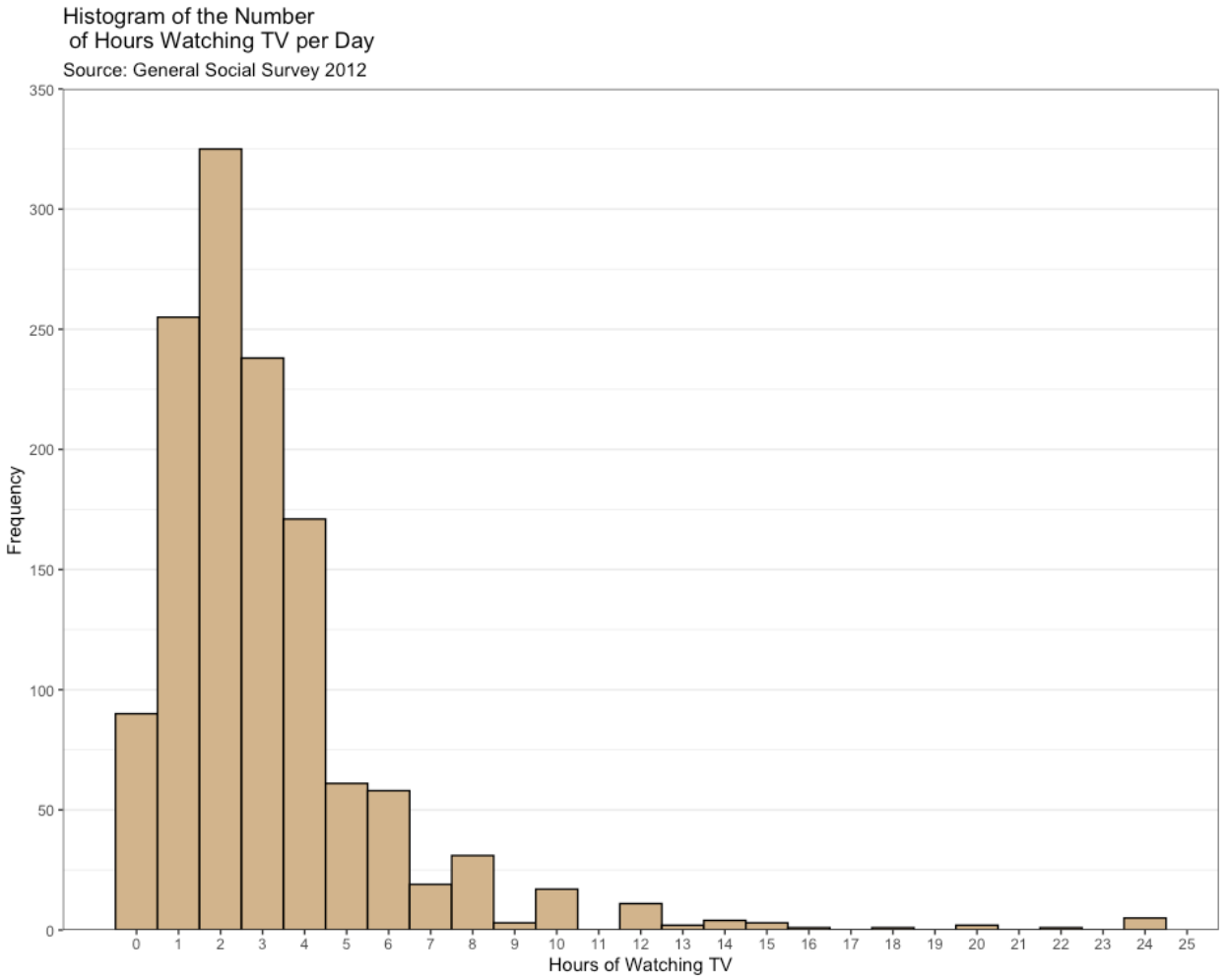
Basic Relative Frequency (Percent) Plot

```
ggplot(gss, aes(x = tvhours, y = 100 * (..count.. / sum(..count..)))) +
  geom_histogram(binwidth = 1, color = 'black', fill = 'tan') +
  labs(x = 'Hours of Watching TV', y = 'Percent (%)',
       title = 'Histogram of the Number \n of Hours Watching TV per Day',
       subtitle = 'Source: General Social Survey 2012') +
  theme_bw()
```



More fine-tuning such as labels on x-axis

```
ggplot(gss, aes(x = tvhours)) +
  geom_histogram(center = 0, binwidth = 1, color = 'black', fill = 'tan') +
  labs(x = 'Hours of Watching TV', y = 'Frequency',
       title = 'Histogram of the Number \n of Hours Watching TV per Day',
       subtitle = 'Source: General Social Survey 2012') +
  theme_bw() +
  scale_y_continuous(limits = c(0,350),
                     breaks = seq(0,350,50),
                     expand = c(0,0)) +
  scale_x_continuous(breaks = seq(0,25,1)) +
  theme(panel.grid.major.x = element_blank(),
        panel.grid.minor.x = element_blank())
```



with percentages rather than counts

```
ggplot(gss, aes(x = tvhours, y = 100 * (..count.. / sum(..count..)))) +
  geom_histogram(center = 0, binwidth = 1, color = 'black', fill = 'tan') +
  labs(x = 'Hours of Watching TV', y = 'Percent (%)',
       title = 'Histogram of the Number \n of Hours Watching TV per Day',
       subtitle = 'Source: General Social Survey 2012') +
  theme_bw() +
  scale_y_continuous(limits = c(0,26),
                     breaks = seq(0,25,5),
                     expand = c(0,0)) +
  scale_x_continuous(breaks = seq(0,25,1)) +
  theme(panel.grid.major.x = element_blank(),
        panel.grid.minor.x = element_blank())
```