Ch4

In this notebook, you will find my solutions to some exercises from Chapter 4 of *Statistical Rethinking* and the assigned exercises from this course.

Chapter 4

Course Exercises

Exercise 1

Question:

- From the Howell1 dataset, consider only the people younger than 13 years old. Estimate the causal association between age and weight.
- Assume that age influences weight through two paths. First, age influences height, and height influences weight. Second, age directly influences weight through age related changes in muscle growth and body proportions. Draw the DAG that represents these causal relationships. And then write a generative simulation that takes age as an input and simulates height and weight, obeying the relationships in the DAG.

Answer:

```
library(rethinking)
```

```
Lade nötiges Paket: cmdstanr
```

```
This is cmdstanr version 0.8.0
```

- CmdStanR documentation and vignettes: mc-stan.org/cmdstanr

- CmdStan path: /Users/eleonora/Documents/PhD/Statistics/cmdstan

- CmdStan version: 2.36.0

Lade nötiges Paket: posterior

This is posterior version 1.6.1

Attache Paket: 'posterior'

Die folgenden Objekte sind maskiert von 'package:stats':

    mad, sd, var

Die folgenden Objekte sind maskiert von 'package:base':

    %in%, match

Lade nötiges Paket: parallel

rethinking (Version 2.42)

Attache Paket: 'rethinking'

Das folgende Objekt ist maskiert 'package:stats':

    rstudent

```r
data(Howell1)
d <- Howell1
d <- d[d$age<13,]

# start by plotting w vs a
plot(d$age, d$weight)
```