R plotting exercises

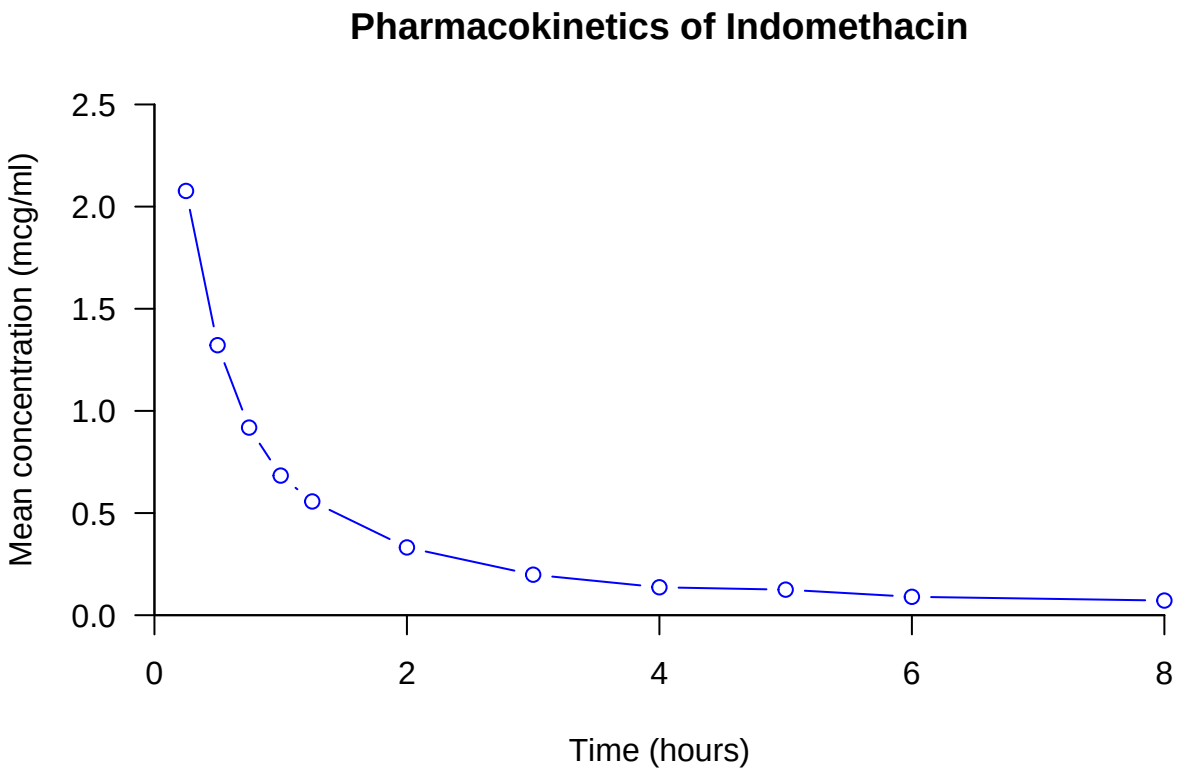
Exercise 1

- How can you find plotting parameters that you can change?
- What is the default value for the setting for the plotting parameter `bty`?
- How can you query the current setting for a plotting parameter?
- Can you find the argument to supply to `plot()` if you want to suppress only plotting of the x or y axis?

Bonus tasks: What is the argument you would use to change the line type of the whiskers when using `boxplot()` and where can you find it in the help pages? (It's pretty hard to find!)

Exercise 2

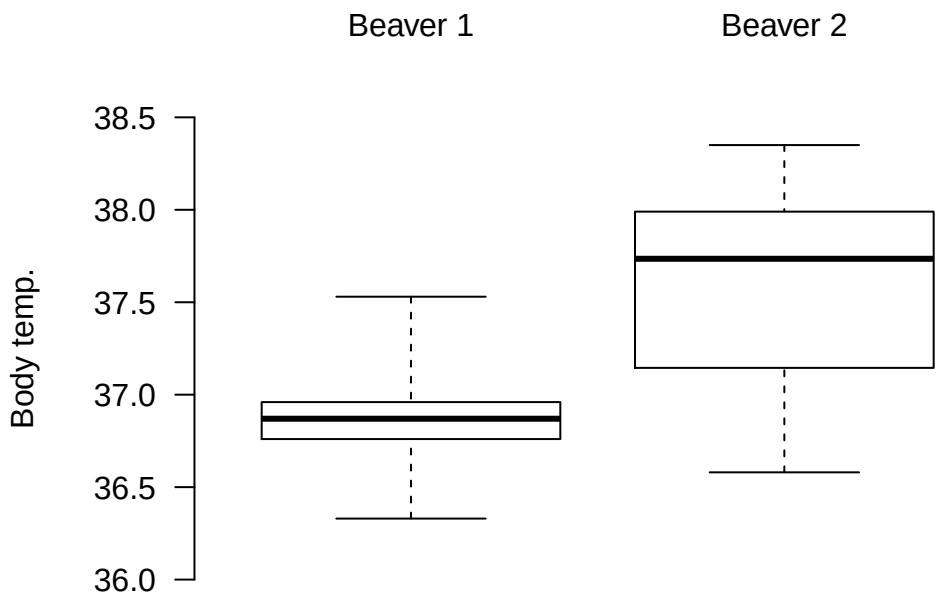
Use the R dataset `Indometh` to reproduce the following plot showing the mean pharmacokinetics of Indomethacin in 6 subjects.



Bonus tasks: How would you plot the y-axis data on the log scale? Can you think of more than one approach? How would you make the y-axis label show "Concentration (μg/L)" using scientific notation?

Exercise 3

Using data from the datasets `beaver1` and `beaver2`, reproduce the following plot using boxplots to compare the body temperature of the two beavers during the experiment.



Exercise 4

(a) What is the problem with the following code attempting to plot data on the same x axis but using different y axes?

```
plot(x = x_data,
     y = y_data1,
     xlim = c(0,100),
     ylim = c(10,80),
     xaxs = "i",
     yaxs = "i")

plot.window(xlim = c(0,100),
            ylim = c(200, 800))

points(x = x_data,
       y = y_data2)
```

(b) Imagine you have been given the dataset `airquality` and you would like to visualise how Solar radiation varied with temperature in the month of July. Plot two lines showing the data on the same plot, but using different y axis scales. Add a legend to help distinguish between the line showing temparature and that showing solar radiation.

Bonus tasks: Can you think of another way to visualise the relationship between temperature and solar radiation? How could you use such data to go further and answer the question of whether temparature and solar radiation are linked?

Bonus exercise 1: Making your own plotting functions

Create your own plotting function that by default plots horizontal axis labels, axes that extend exactly to the ranges specified and an L-shaped box by default. Appropriately use the … argument to pass on other arguments from your function to plot().

Bonus exercise 2: Bringing it all together

Use data provided by the World Health Organisation to plot the incidence of different subtypes of influenza circulating over time.

You can download the data yourself and select your own country of interest and date-range by going to http://www.who.int/influenza/resources/charts/en/ and clicking on “Download data for any time period with country selection” in the right panel. Alternatively you can use the data for Germany between 2012 and 2017 included in the file “FluNetInteractiveReport.csv”.

Try and produce a plot similar to the one below: