Topic 1 Exercise Answers

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Reading in csv files

The code to read in a csv file is just:

```
disox.csv <- read.csv("DissolvedO2.csv", header=TRUE)
```

In fact, `read.csv` differs from `read.table` in that it assumes that the first line of the file is the header, so you don't need to include the argument `header=TRUE` , but it will still work if you do.

You can check in reads in OK, using `head` , `summary` , or `View` .

```
head(disox.csv)
```

```
##        cv day   do
## 1 Azucena   1 7.74
## 2 Azucena   1 8.03
## 3 Azucena   1 7.98
## 4 Azucena   1 7.65
## 5 Azucena   1 7.85
## 6 Azucena   1 8.21
```

```
summary(disox.csv)
```

```
##       cv                 day            do
##  Length:144         Min.   :1.0   Min.   :0.350
##  Class :character   1st Qu.:2.0   1st Qu.:1.972
##  Mode  :character   Median :3.5   Median :2.890
##                     Mean   :3.5   Mean   :3.747
##                     3rd Qu.:5.0   3rd Qu.:4.933
##                     Max.   :6.0   Max.   :8.660
```

See also the video on this exercise.

Spider data

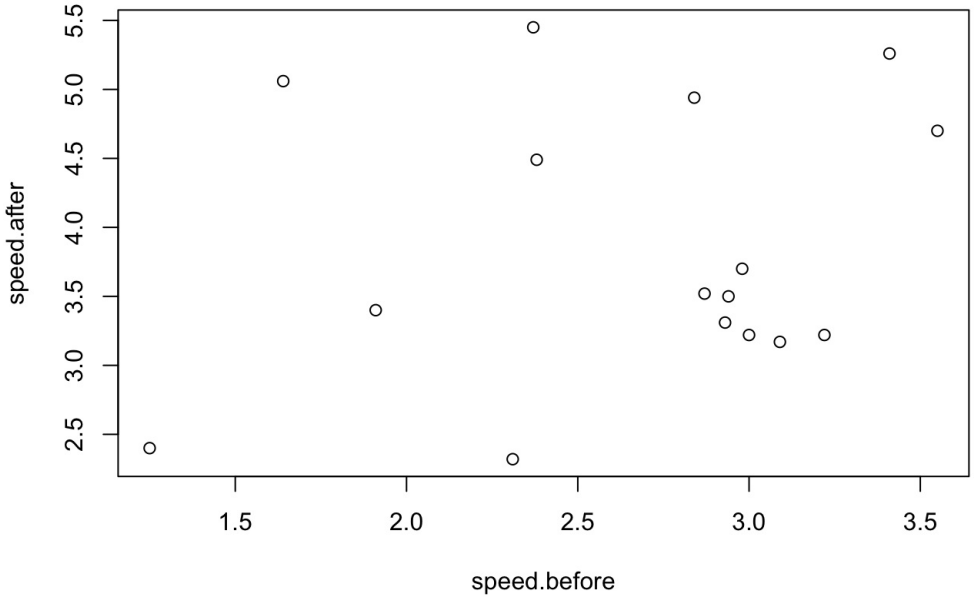
Read the data in and check it's OK. You can use `getwd` and `dir` to check that you're in the right directory

```
spider <- read.table("spider.txt",header=TRUE)
head(spider)
```

```
##   speed.before speed.after
## 1         1.25        2.40
## 2         2.94        3.50
## 3         2.38        4.49
## 4         3.09        3.17
## 5         3.41        5.26
## 6         3.00        3.22
```

Now do a simple plot. The bit that says `data=spider` is telling R where the data are for the plot, `speed.after ~ speed.before` is saying what data to plot, i.e. speed.after vs speed.before.

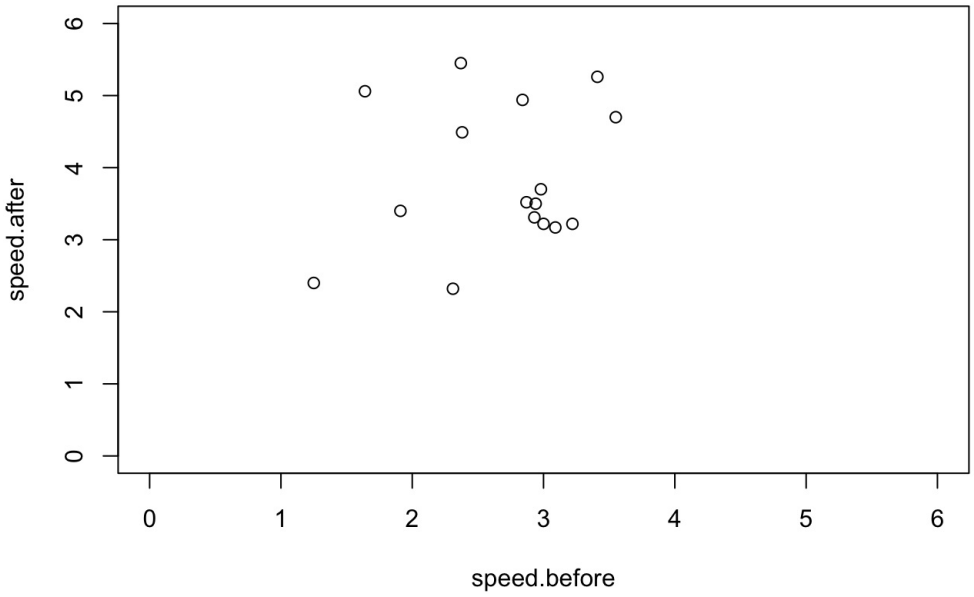
```
plot(speed.after ~ speed.before, data=spider)
```



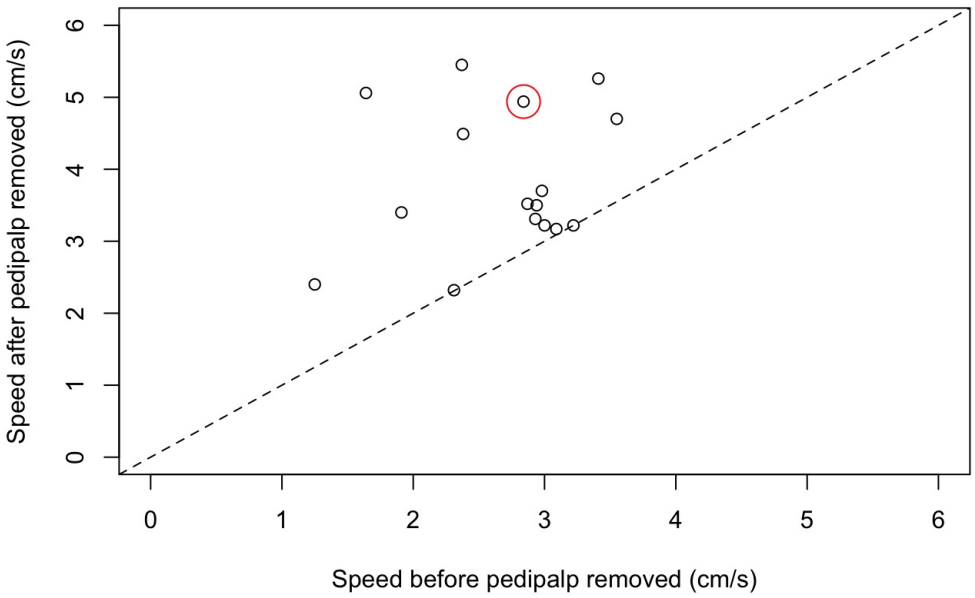
This plots up the data, but it's not immediately obvious what the the relationship, if any, is between the speed after vs speed before. Note that the x axis goes from about 1 to about 3.5 but the y axis goes from about 2.5 to 5.5 (cm/s). Forcing both the x and y axes to be on the scale might help to see an effect of cutting off a spider's pedipalp.

Let's plot through the origin (x=0 and y=0), and up to 6 cm/s on both axes.

```
plot(speed.after ~ speed.before,data=spider,xlim=c(0,6),ylim=c(0,6))
```



These are the same data, just a different plot. There's more white space on the right hand side of the plot; there aren't many spiders with pedipalps that move as quickly as spiders after their pedipalp have been cut off.



The point circled in red, for example, refers to a spider that moved at ~3 cm/s before removal of it's pedipalp and ~5 cm/s afterwards. Hence, pedipalps slow male spiders down and may be a sexual handicap.