

## Practical Exercises for Day 2

Sonja Hartnack, Terence Odoch & Muriel Buri

October 2017

### Exercise 4

What is conceptionally the difference between these bracket types ([...], (...))?

```
chickwts[, 2]  
summary(aov(weight ~ feed, data = chickwts))
```

### Exercise 5

- How many levels has the factor variable `trt` from `bacteria`?
- Define a new variable `trt.new` in which you combine the levels `drug` and `drug+` into one single level and label it as `treated`. The new variable `trt.new` should in the end have two levels: `placebo` and `treated`.
- Do summary statistics for `placebo` and `treated` group.

### Exercise 6

- Load data set `ToothGrowth`.
- Do summary statistic (numerically and graphically).
- Define additional column `dose.fac` by converting the numeric variable `dose` into a factor variable.
- Are the tooth length measurements normally distributed within the treatment (`supp`: `VC` or `OJ`) and within in the different doses (`dose`: `0.5`, `1`, `2`)?

### Exercise 7

- Import the data set `perulung_ems.csv` (taken from Kirkwood and Sterne, 2nd edition) into R.  
Data from a study of lung function among children living in a deprived suburb of Lima, Peru.  
Variables:

- fev1: in liter, "Forced Expiratory Volume in 1 second" measured by a spirometer. This is the maximum volume of air which the children could breath out in 1 second
  - age: in years
  - height: in cm
  - sex: 0 = girl, 1 = boy
  - respsymp: respiratory symptoms experienced by the child over the previous 12 months
- What *delimiter* do you need to choose?
  - Do all variables have the correct data type (numeric, integer, factor)? If not, do correct and / or define them.