Applied Statistical Methods - Exercise 7

Peter von Rohr

2022-04-06

Problem 1: Model Selection

Given is a dataset with body weight as a response and different other variables and factors. The columns `Breed` and `BCS` (Body Condition Score) are taken as factors. All other columns are taken as predictor variables. The column `Animal` is not used in any model. Use model selection to find the relevant predictor variables and factors for the best linear fixed effect model. Use the estimated mean square error C_p as a quality measure for a single linear model. The dataset to be analysed can be obtained from

```
## https://charlotte-ngs.github.io/asmss2022/data/asm_bw_mod_sel.csv
```

Your Tasks

- Run a forward selection for the given dataset to find the best model
- Do a backward elemination for the given dataset to find the best model
- Compare the two models whether they are identical with respect to the set of predictor variables and factors that they include.

Problem 2: Verification of Model Selection Results

Use the R-package `olsrr` to verify the results of Problem 1. Have a look at the documentation of `olsrr` at https://github.com/rsquaredacademy/olsrr. In a first step, we are going to read the data from

```
## https://charlotte-ngs.github.io/asmss2022/data/asm_bw_mod_sel.csv
```