

Interactive lecture module 8 and 9 - solutions

TMA4268 Statistical learning

Mette Langaas

14 March, 2019

Contents

8. Tree-based methods	1
Problems for interactive lecture	1
Problem 1: from regions to tree	1
Compulsory exercise 3 in 2018: Problem 1 on Classification with trees	2
9. Support vector machines	3
Compulsory exercise 3 in 2018: Problem 3:	3

8. Tree-based methods

Problems for interactive lecture

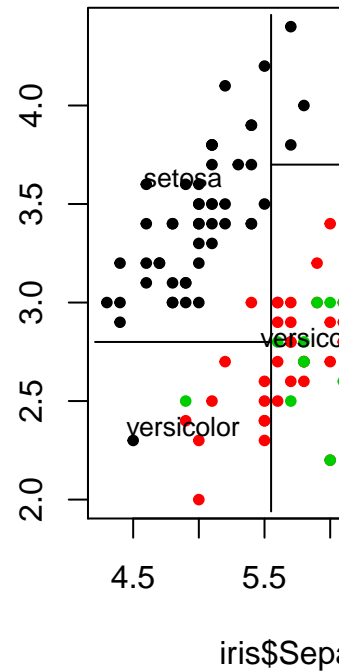
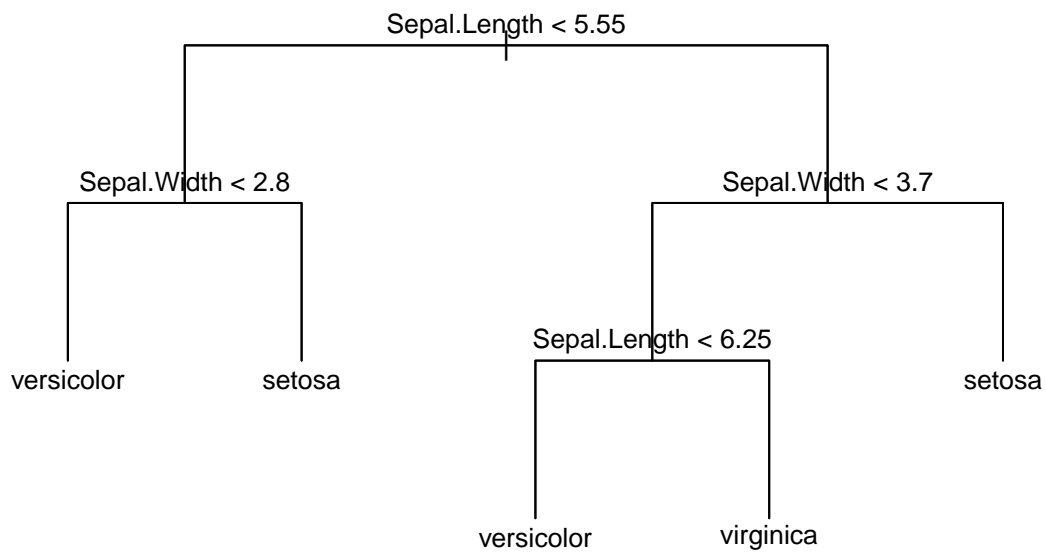
Problem 1: from regions to tree

We have a classification problem with covariates (predictors) `Sepal.Width` and `Sepal.Length` and response `Species` (three species)

The graph below gives a partition of the predictor space of variables `Sepal.Width` and `Sepal.Length`, where the observations are shown in different colors for the different species

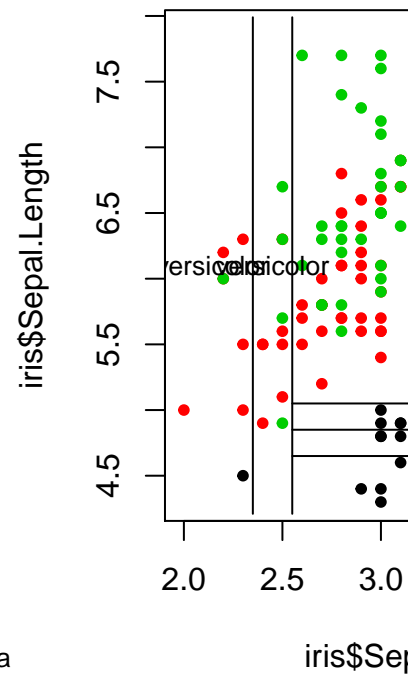
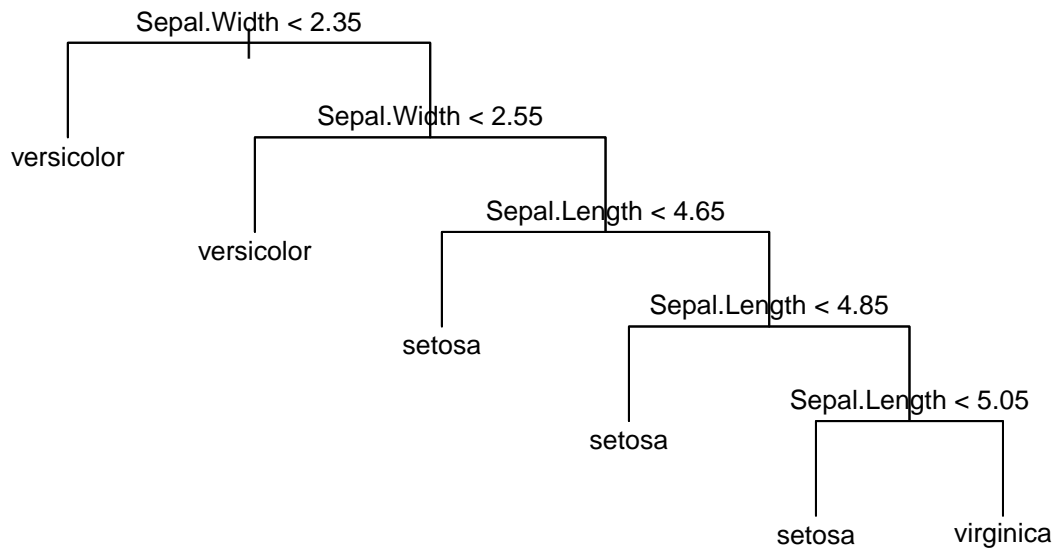
a) From regions to tree

Sketch the classification tree corresponding to the partition. Specify variables that are split on and an approximate value of the split point



b) From tree to regions

For the tree plot, draw the corresponding region plot.



Compulsory exercise 3 in 2018: Problem 1 on Classification with trees

<https://www.math.ntnu.no/emner/TMA4268/2018v/CompEx/Compulsory3solutions.html>

9. Support vector machines

Compulsory exercise 3 in 2018: Problem 3:

<https://www.math.ntnu.no/emner/TMA4268/2018v/CompEx/Compulsory3solutions.html>