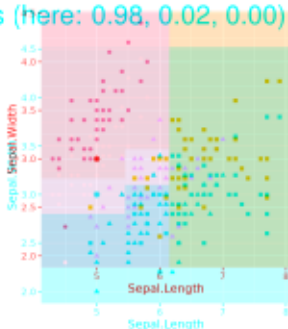


CLASSIFICATION TREE MODEL AND PREDICTION

- When predicting new data (here*: Sepal.Length = 5, Sepal.Width = 3) we use the learned split points and pass an observation through the tree
- Each observation is assigned to exactly one leaf
- Classification trees can make hard-label predictions (here: setosa) or predict probabilities (here: 0.98, 0.02, 0.00)



CART AS A RULE BASED MODEL

Leaf nodes can be expressed by a set of rules (left to right):

Hard label prediction	Label distribution	Sepal.Width	Sepal.Length
setosa	0.98, 0.02, 0.00	≥ 2.8	< 5.5
versicolor	0.14, 0.71, 0.14	< 2.8	< 5.5
setosa	0.71, 0.29, 0.00	≥ 3.1	≥ 5.5 & < 6.2
versicolor	0.00, 0.72, 0.28	< 3.1	≥ 5.5 & < 6.2
virginica	0.00, 0.29, 0.71	-	≥ 6.2

