(4.2) Suppose you have a linear model which demonstrates heteroskedasticity in the residuals. Suppose that the transformation of the response variable effectively removes this heteroskedasticity. Why might you prefer this transformation to a weighted least squares approach? Why might a weighted least squares approach be preferred?

Transformation → traditional inference still applies.

WLS → model coefficients relevant on original scale

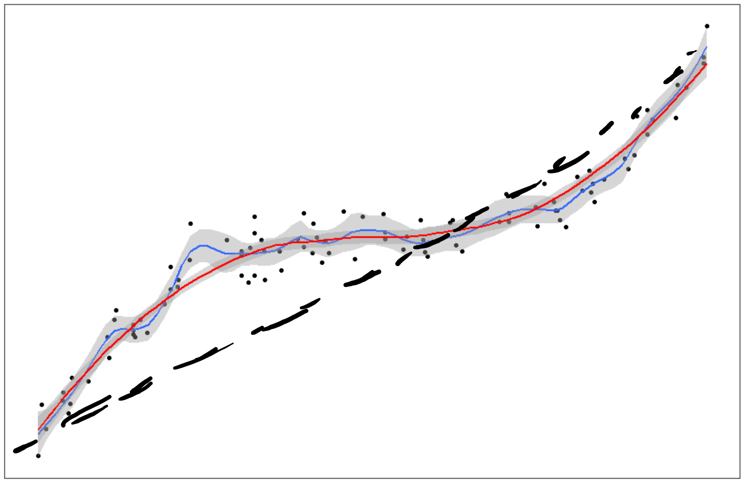
(4.2) Name ~~one~~ two risk associated with determining parameters in non-linear models?

- converge to local minimum, not global minimum
- may not converge at all

(4.3) When variable selection is applied before cross validation, will the resulting cross validated errors be an over-estimate or under-estimate of the true error we would see on new data?

underestimate → we had access to all data during variable selection (unfair advantage)

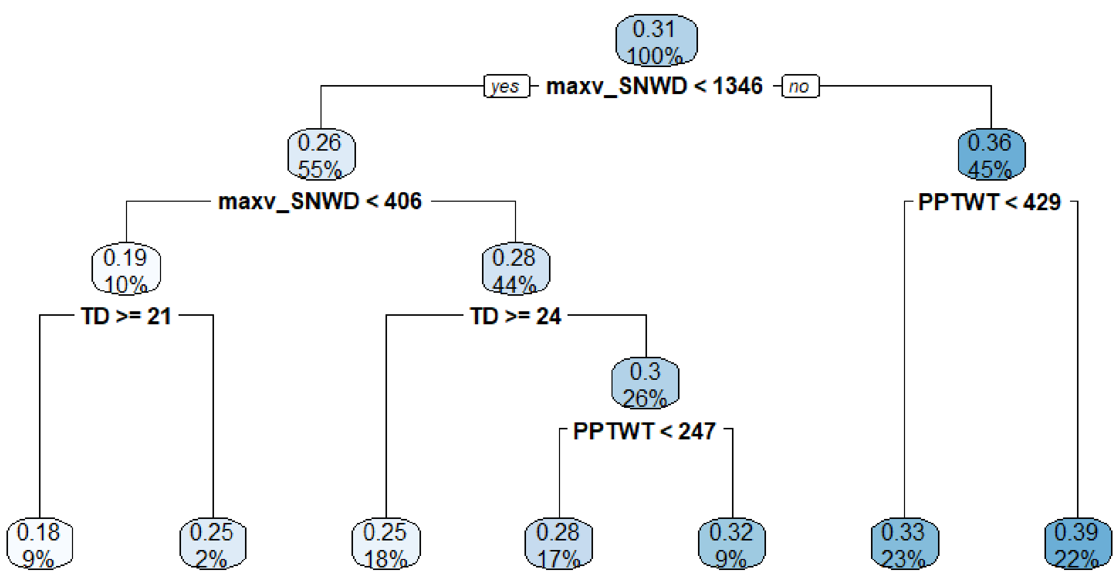
(4.4) Two loess curves were fit to the same data, each using different smoothing parameters (q). Based on the visualization below, which curve (red or blue) has a larger smoothing parameter?



red curve

q → proportion of points in neighborhood.

(4.4) Given the provided tree, which variable is most important in predicting snow density?



maxv_SNWD - multiple splits near the "trunk" of the tree.

(5.1) What is the difference between a log-odds and a probability?

log odds $\log\left(\frac{\pi}{1-\pi}\right)$

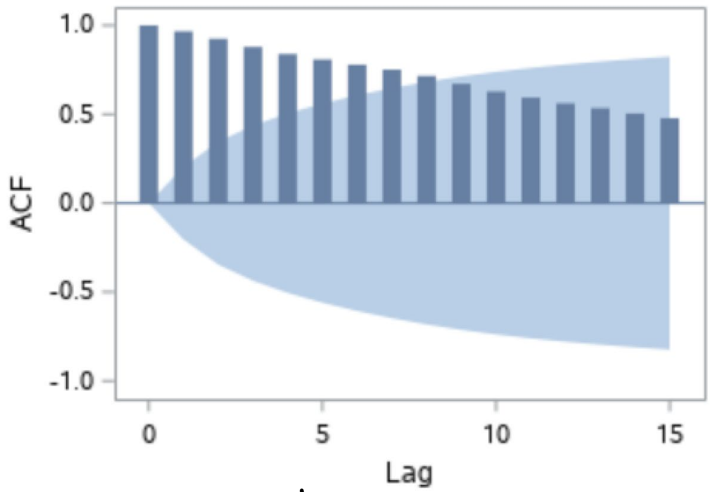
↳ Logistic Regression returns this

(5.1) What is the appropriate definition of "sensitivity" in the context of Logistic regression?

TRue positives $P\left(\hat{y}=1 \mid y=1\right)$

Specificity $P\left(\hat{y}=0 \mid y=0\right)$

(6.1) What does this plot provide evidence for? Why is that a problem?



non-stationary process.
makes it impossible to detect autocorrelation.