

Linear Regression

D.A. Forsyth

Batch A

Amount of Hormone	Time in Service
25.8	99
20.5	152
14.3	293
23.2	155
20.6	196
31.1	53
20.9	184
20.9	171
30.4	52

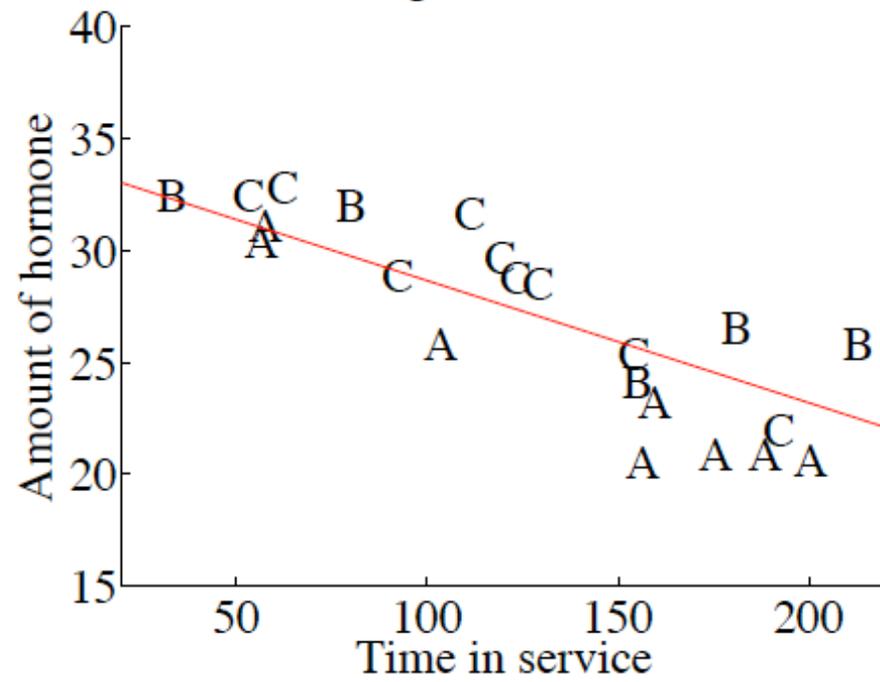
Batch B

Amount of Hormone	Time in Service
16.3	376
11.6	385
11.8	402
32.5	29
32.0	76
18.0	296
24.1	151
26.5	177
25.8	209

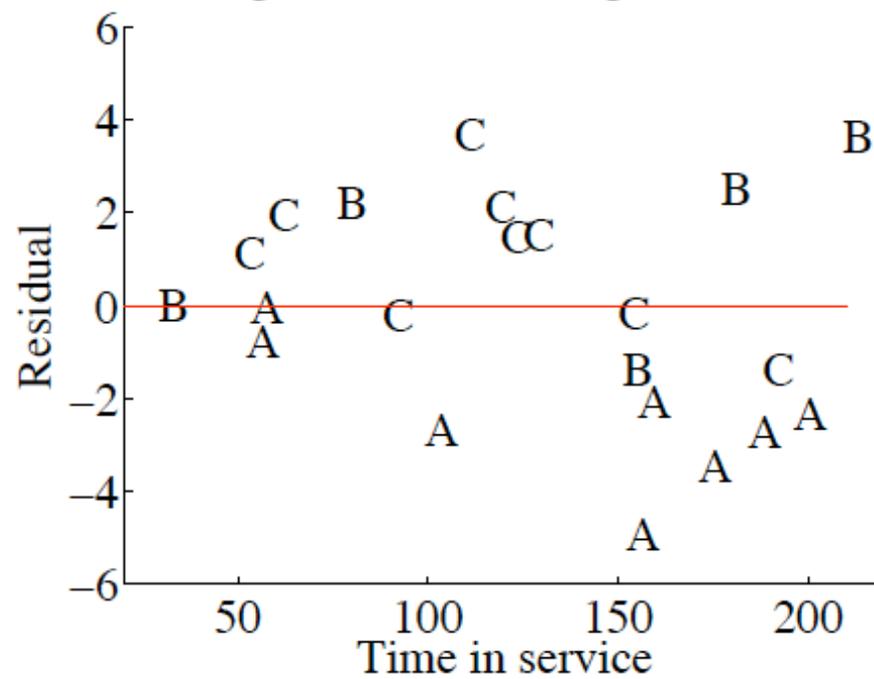
Batch C

Amount of Hormone	Time in Service
28.8	119
22.0	188
29.7	115
28.9	88
32.8	58
32.5	49
25.4	150
31.7	107
28.5	125

Hormone against time in service



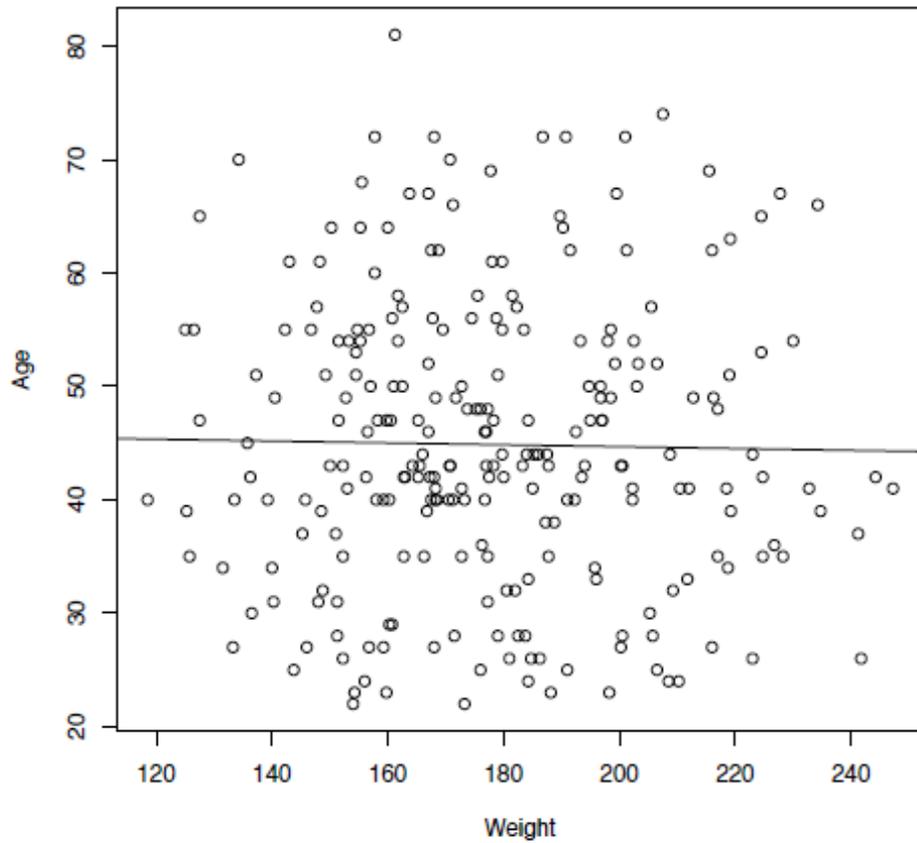
Regression residual against time



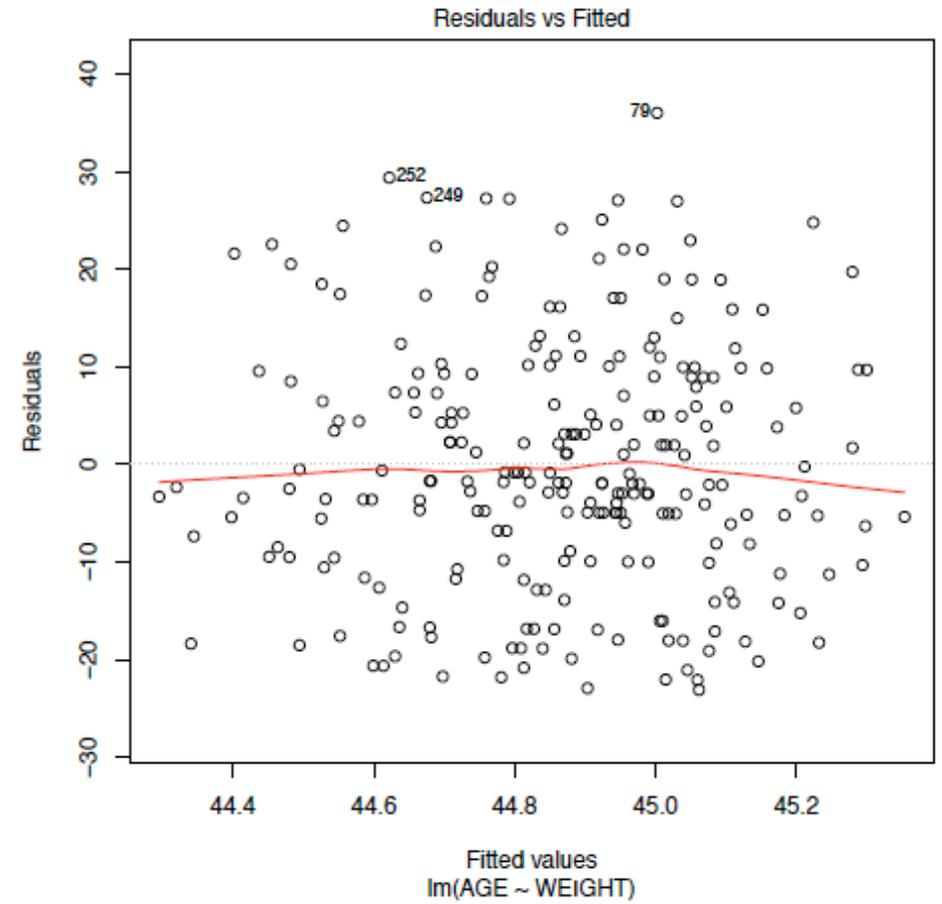
Constructing a regression

Evaluating a regression

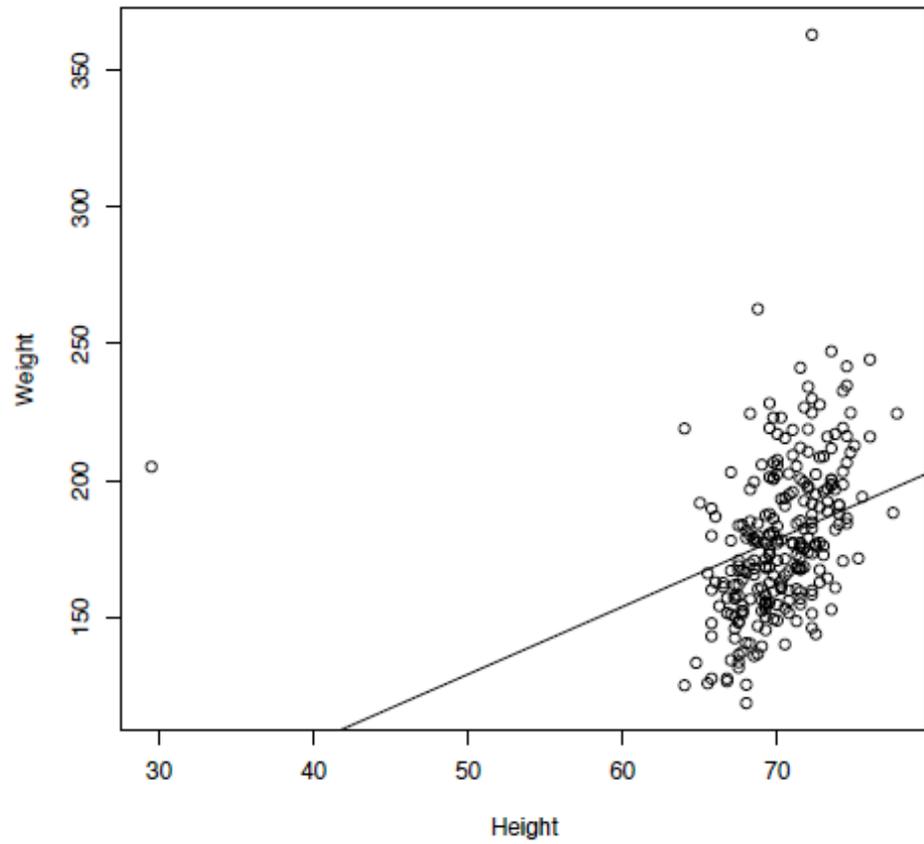
Linear regression of Age against Weight, outliers removed



Age against Weight, outliers removed

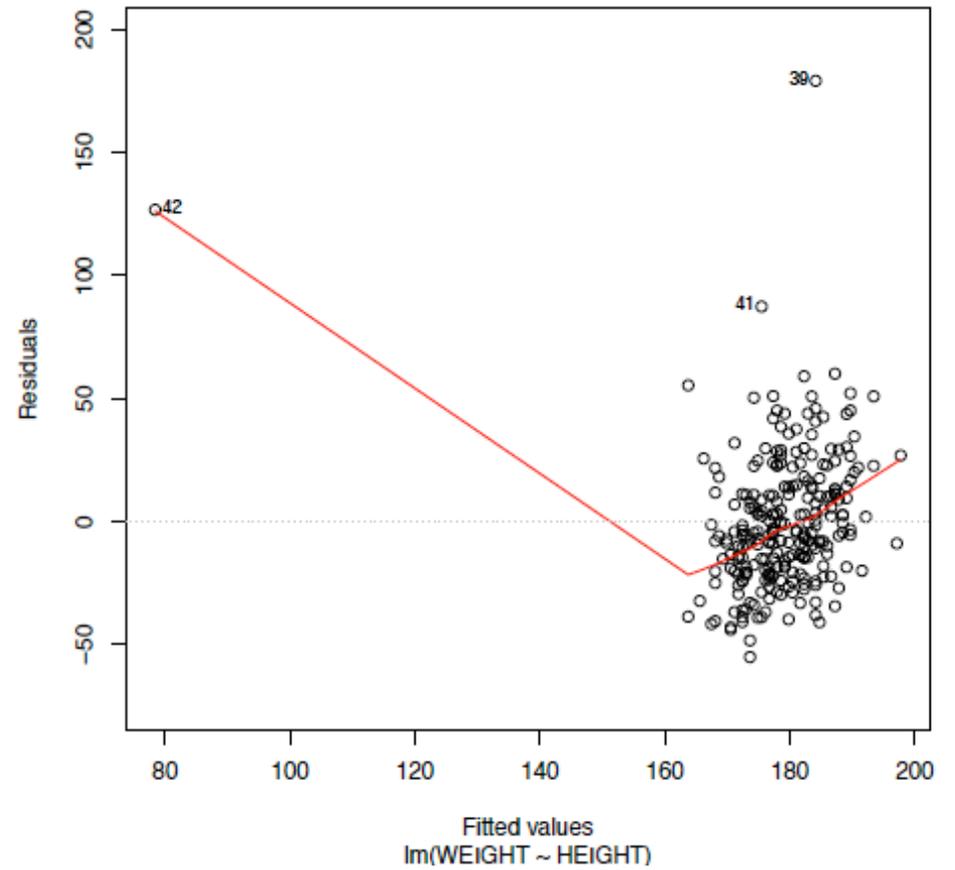


Linear regression of Weight against Height

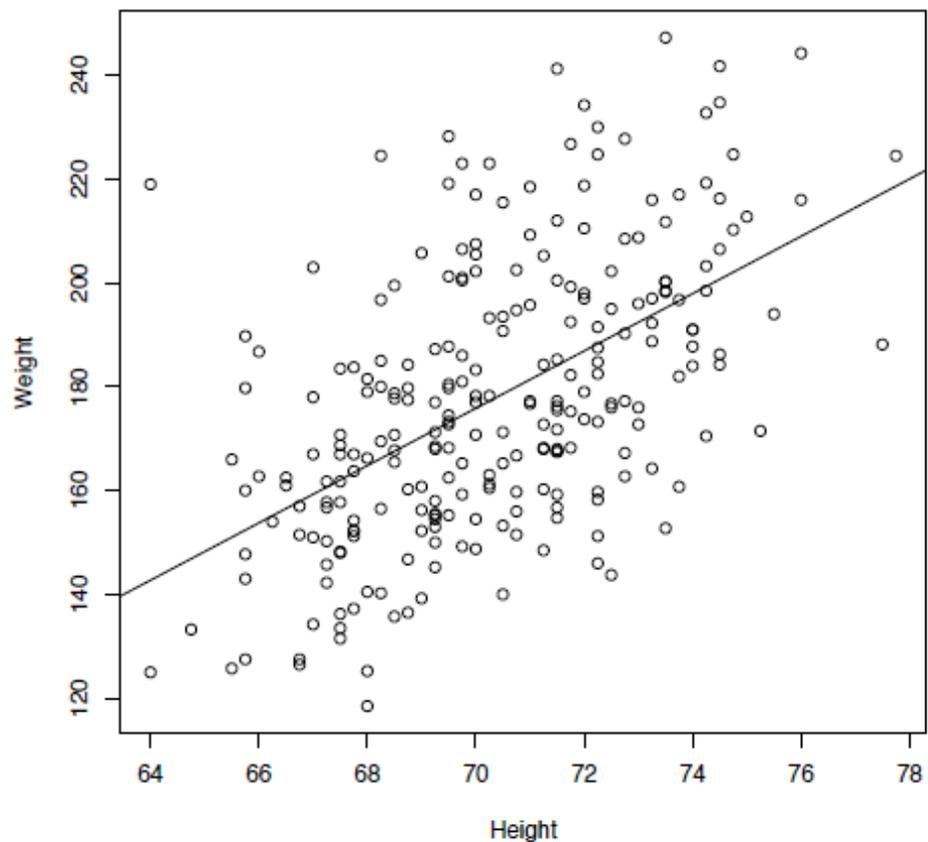


Weight against Height

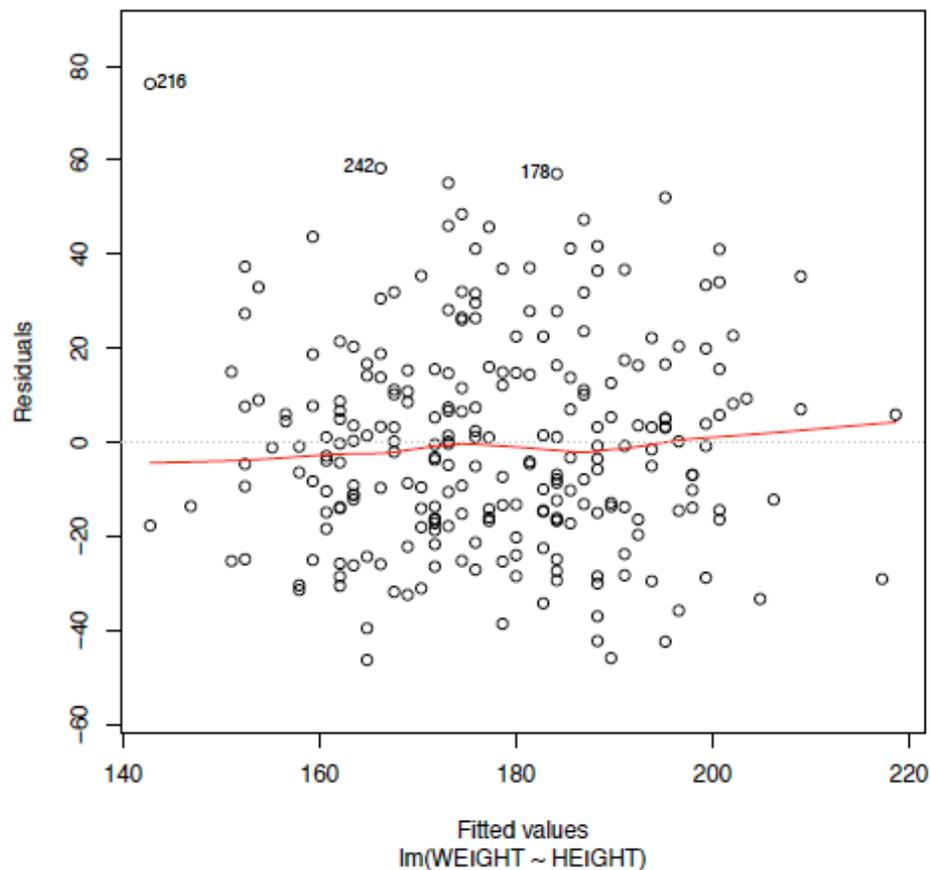
Residuals vs Fitted



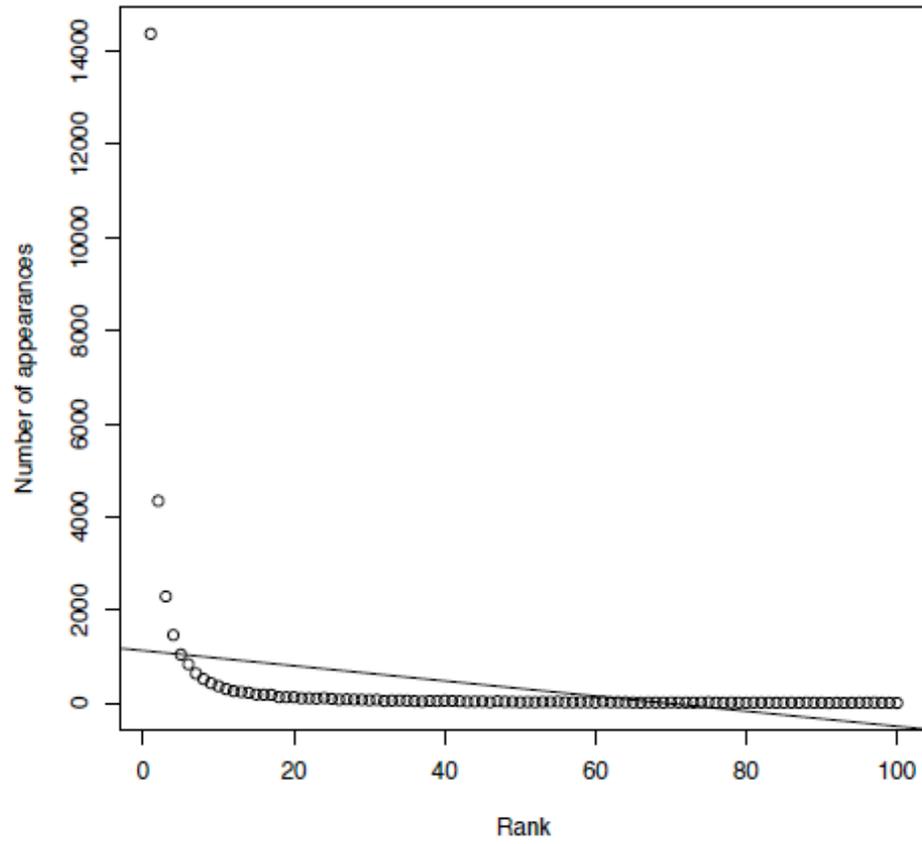
Linear regression of Weight against Height, outliers removed



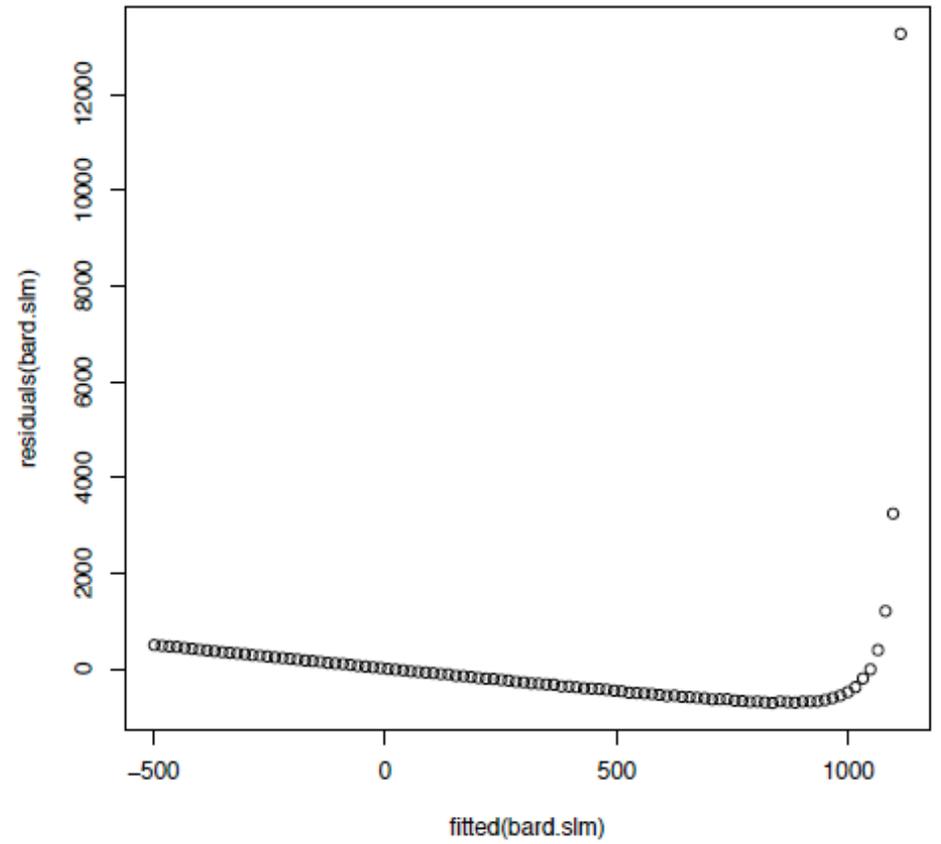
Weight against Height, outliers removed
Residuals vs Fitted



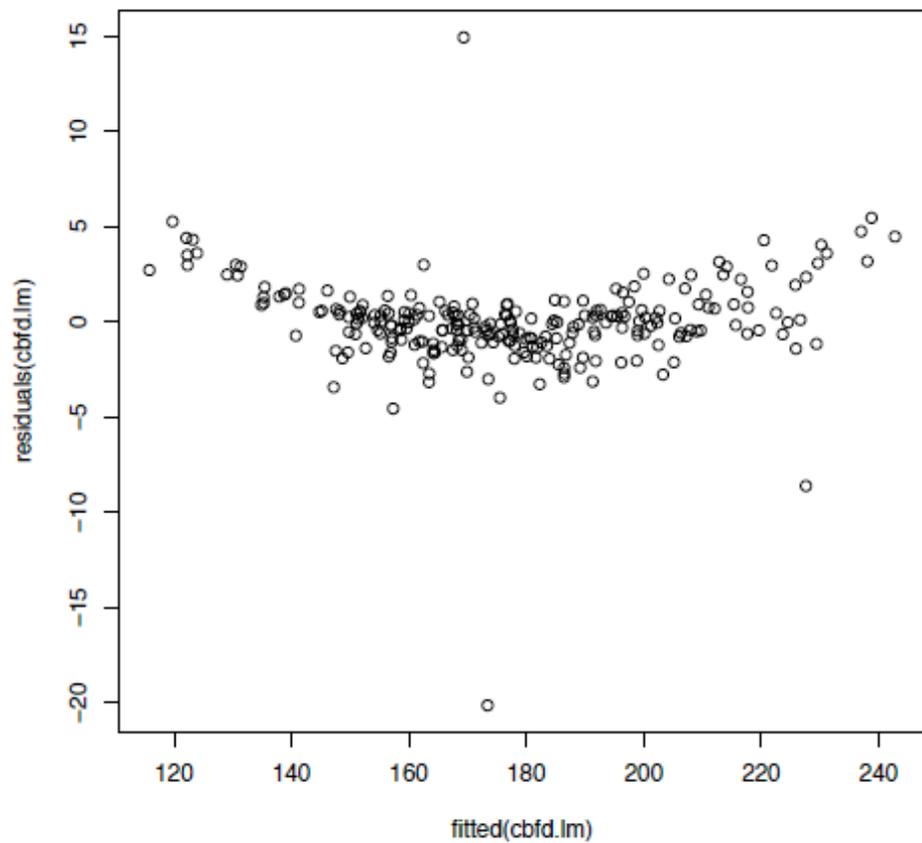
Frequency of word usage In Shakespeare



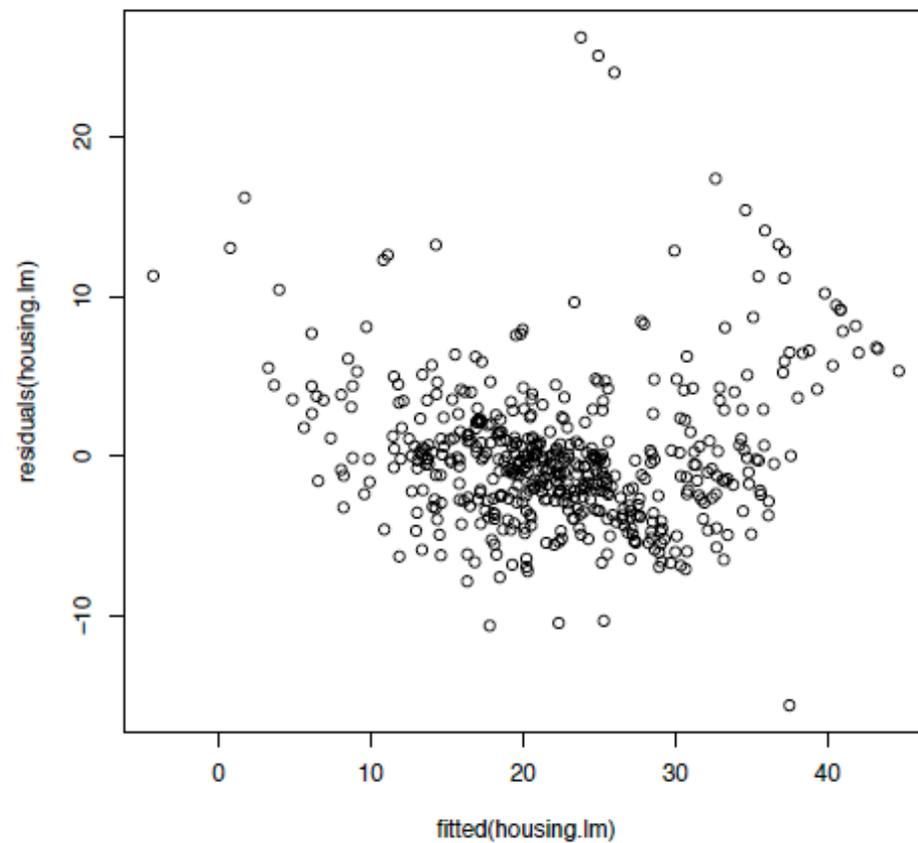
Residuals against fitted value, Shakespeare



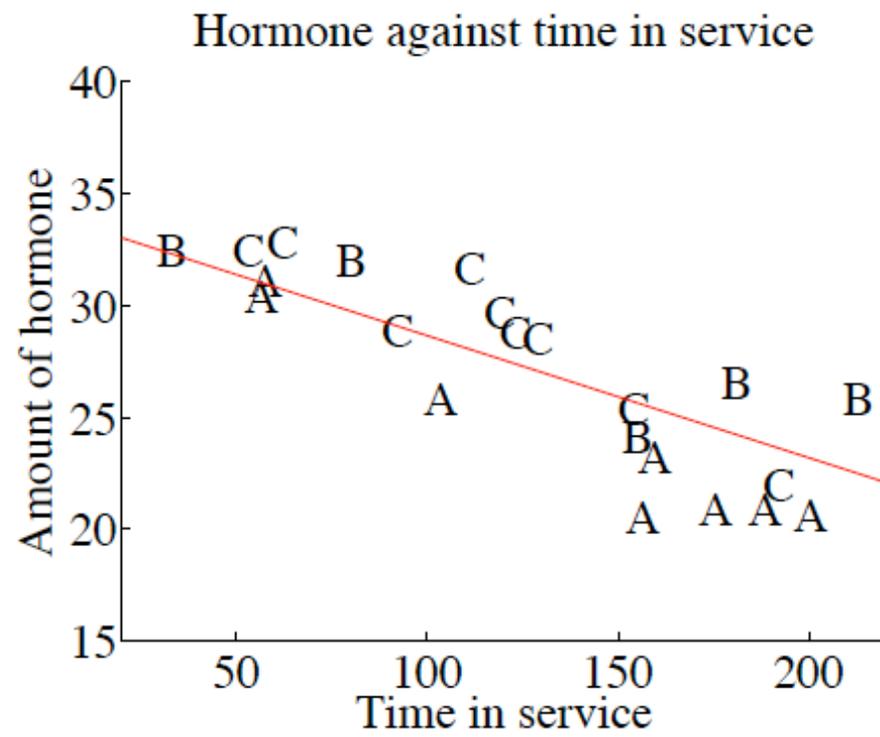
Residuals against fitted value, Bodyfat, no outliers



Residuals against fitted value, Boston Housing

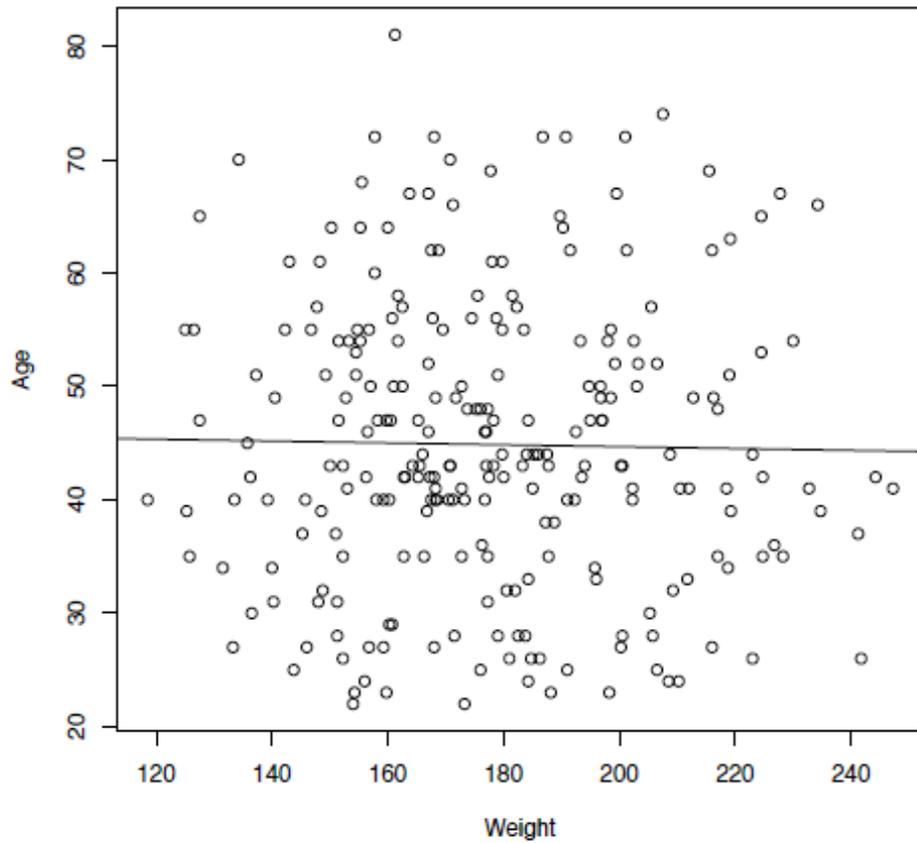


R^2 -Values and Error



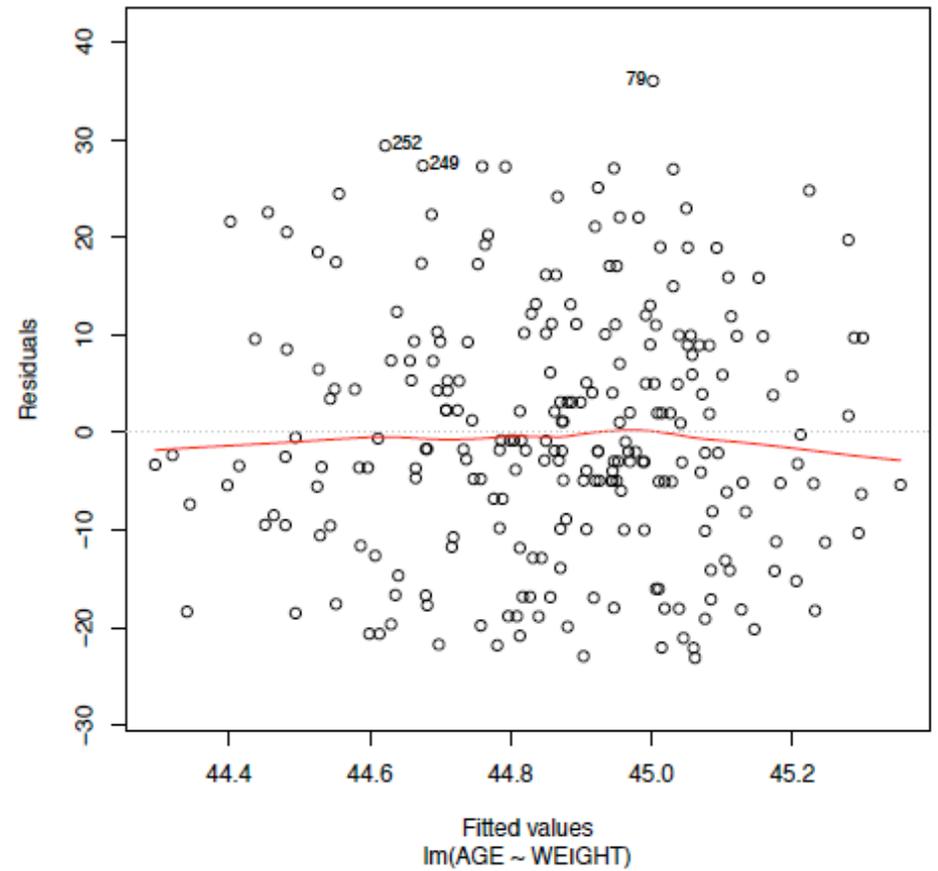
$R^2=0.87$

Linear regression of Age against Weight, outliers removed

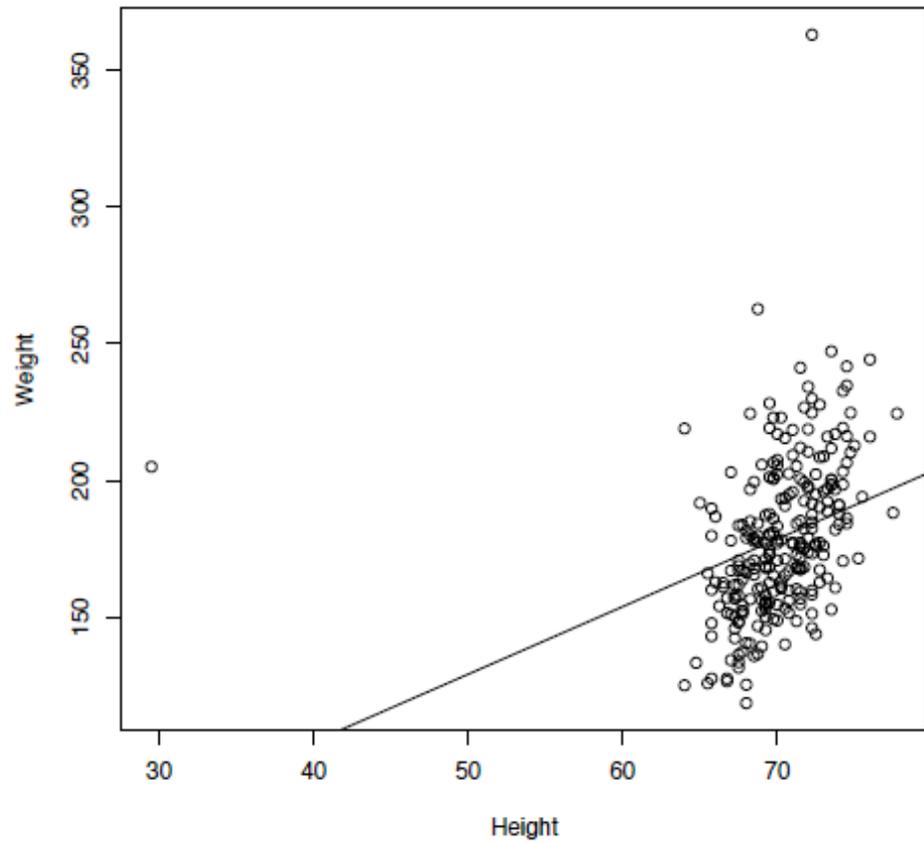


$R^2=0.00030$

Age against Weight, outliers removed
Residuals vs Fitted



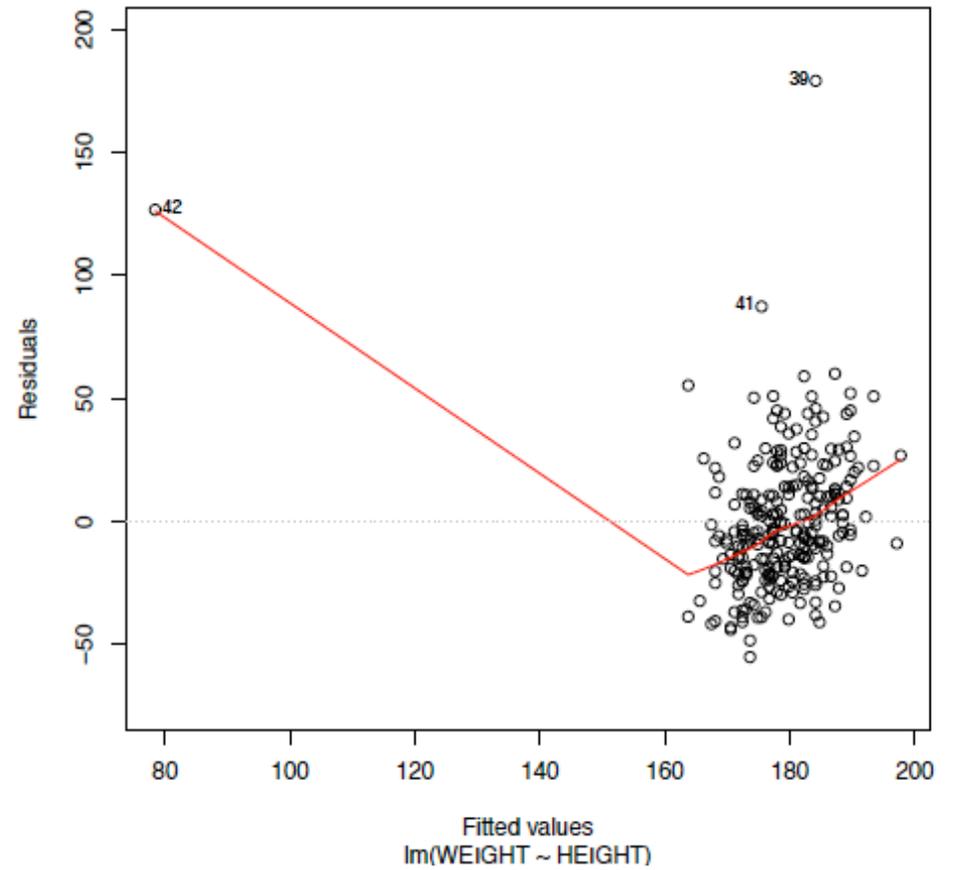
Linear regression of Weight against Height



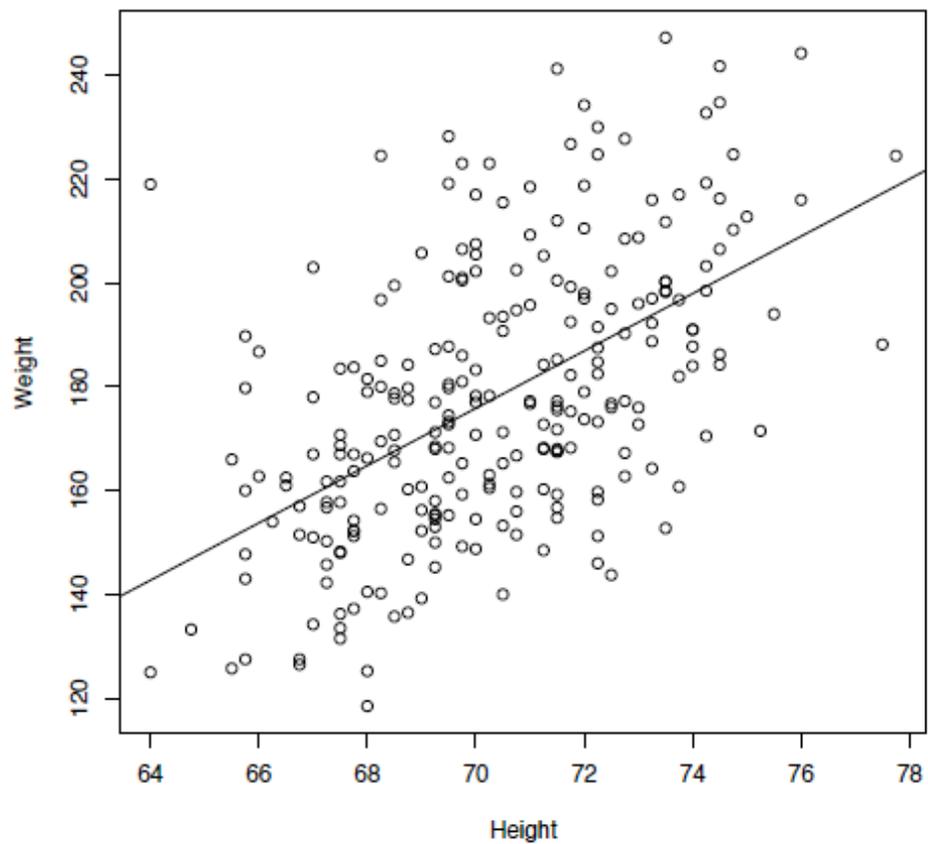
$R^2=0.095$

Weight against Height

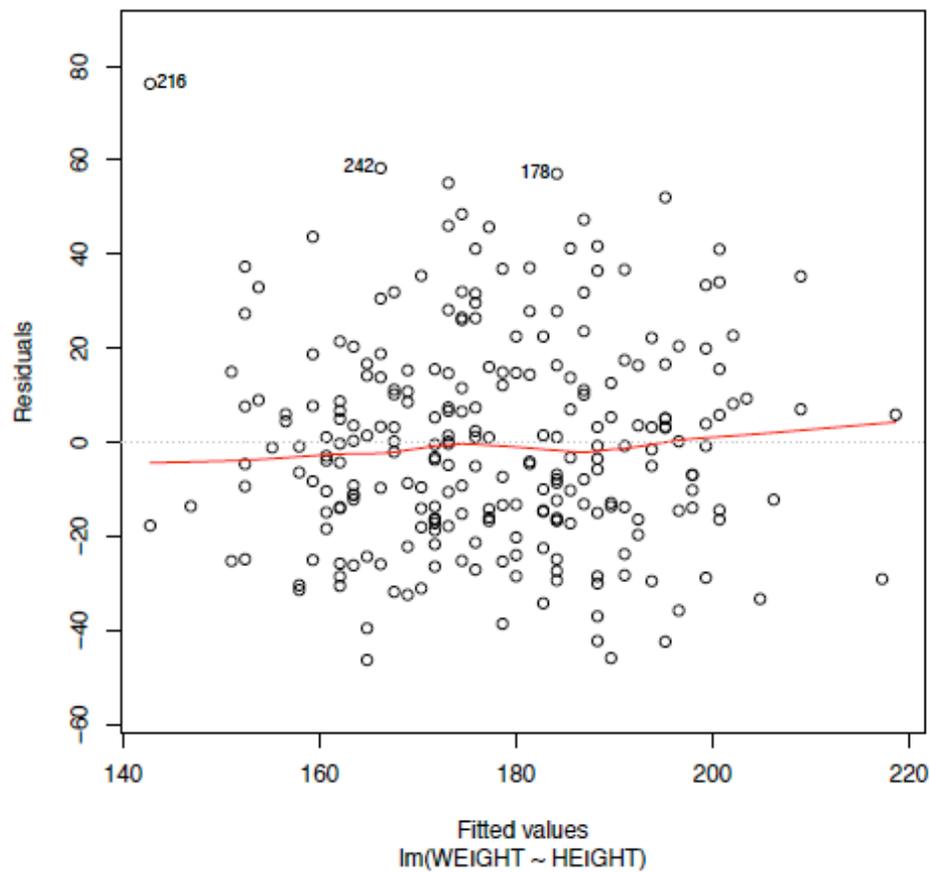
Residuals vs Fitted



Linear regression of Weight against Height, outliers removed



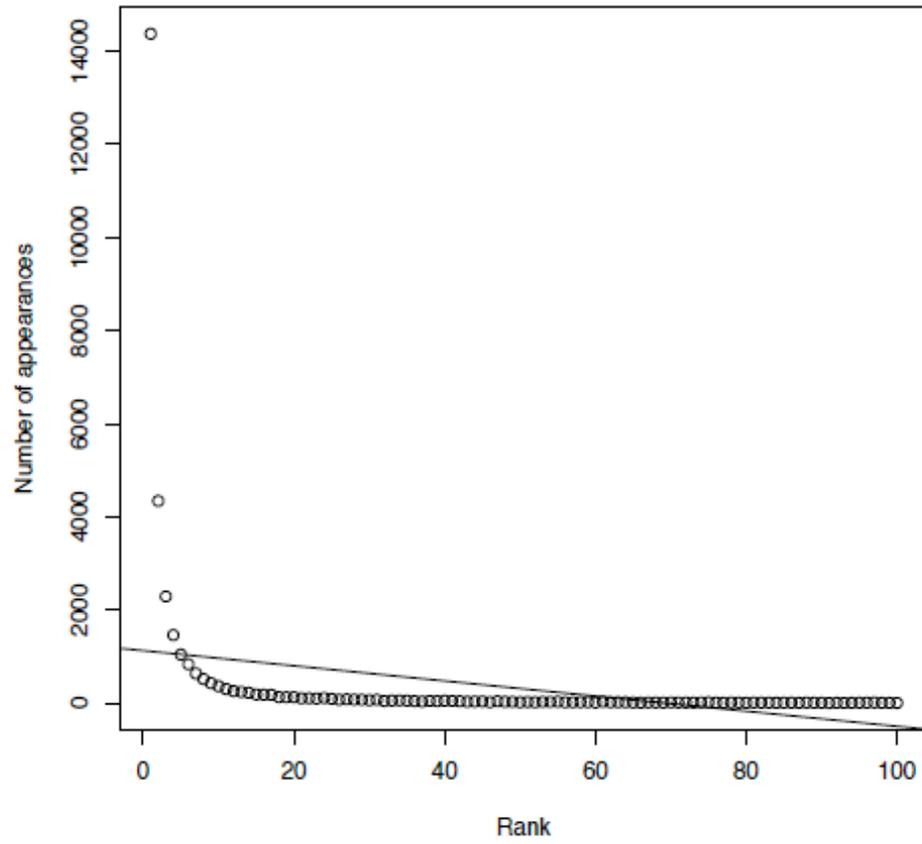
Weight against Height, outliers removed
Residuals vs Fitted



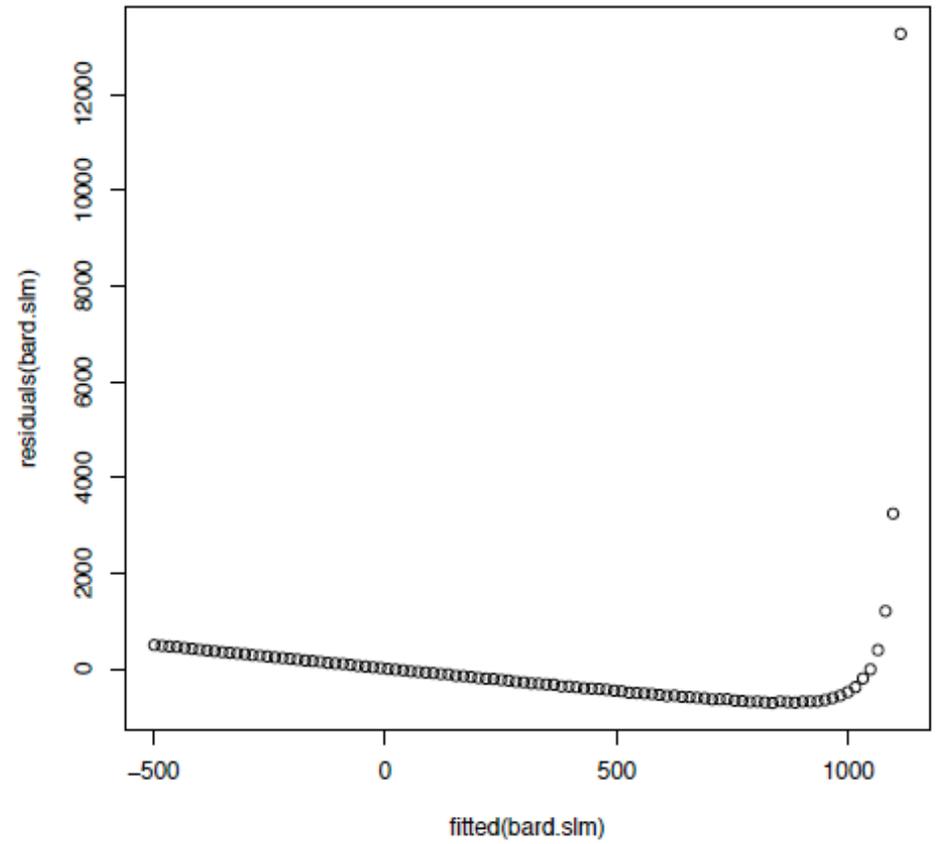
$R^2=0.29$

Outliers

Frequency of word usage In Shakespeare

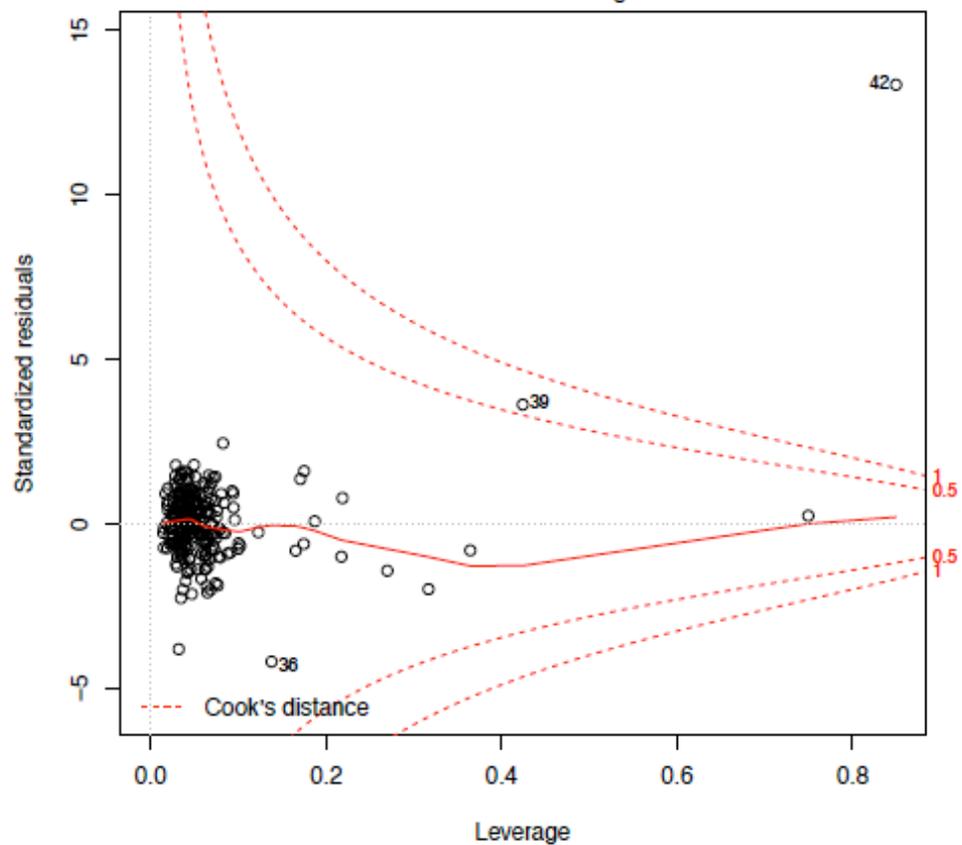


Residuals against fitted value, Shakespeare



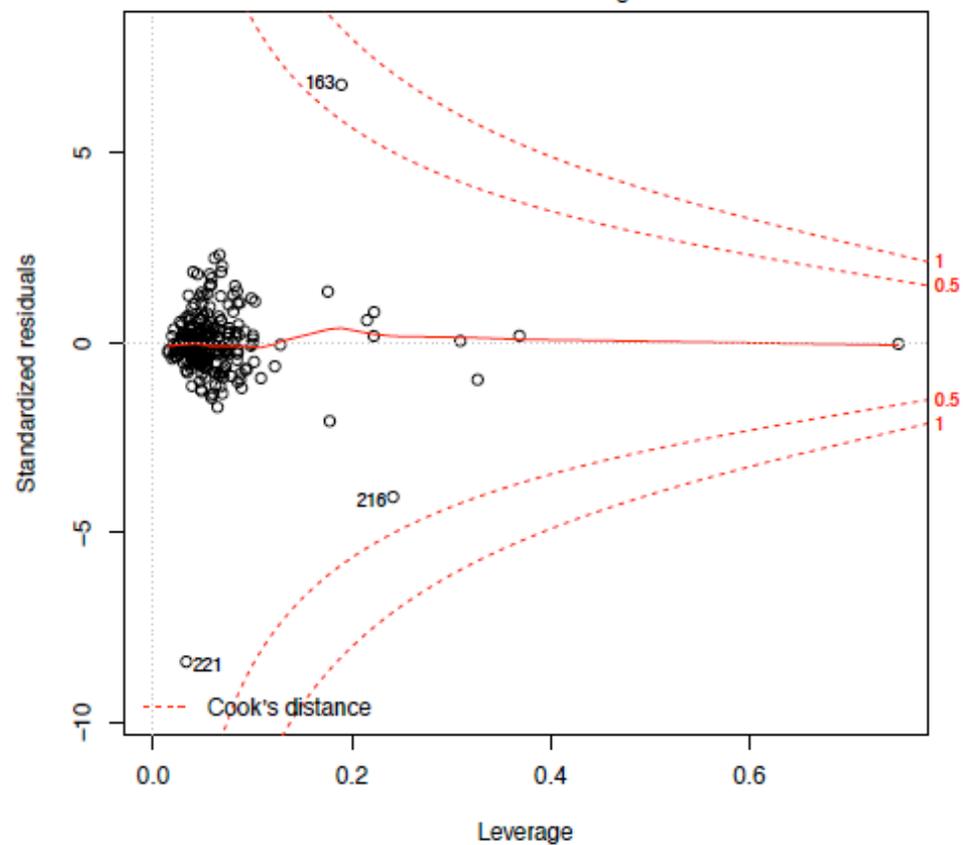
Leverage and Cook Distance

Residuals vs Leverage

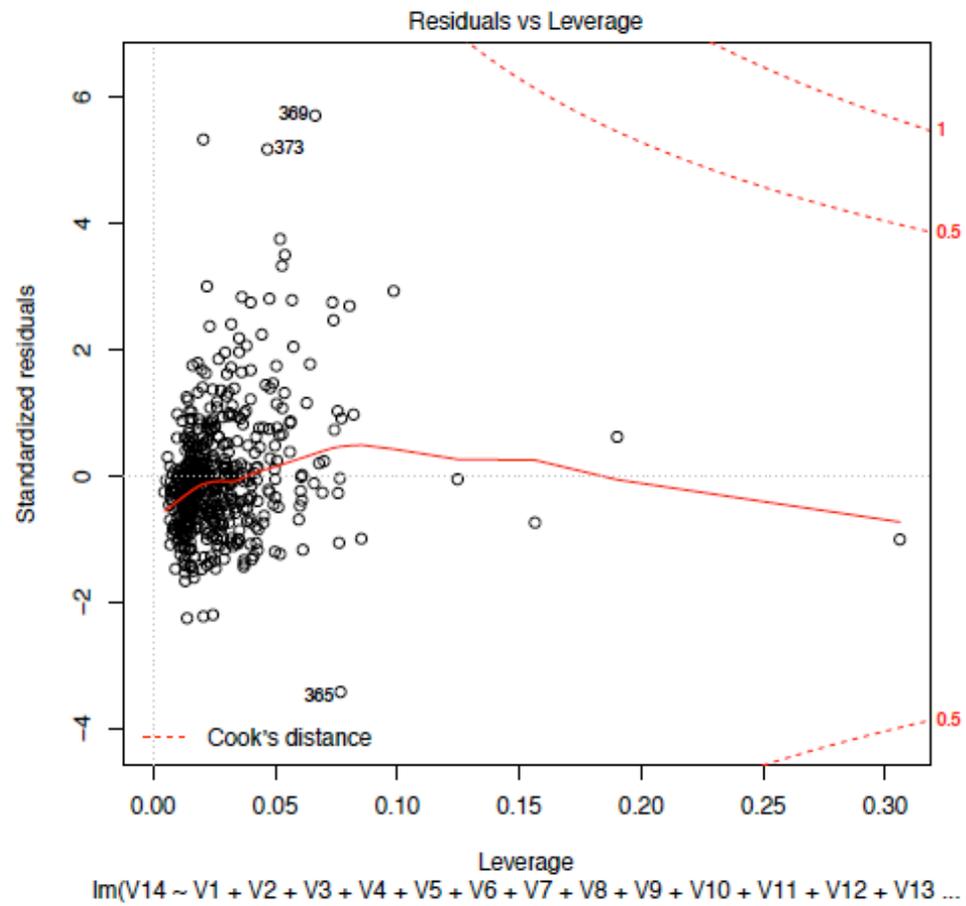


lm(WEIGHT ~ BODYFAT + DENSITY + AGE + HEIGHT + ADIPOSITY + NECK + CHEST + A

Residuals vs Leverage

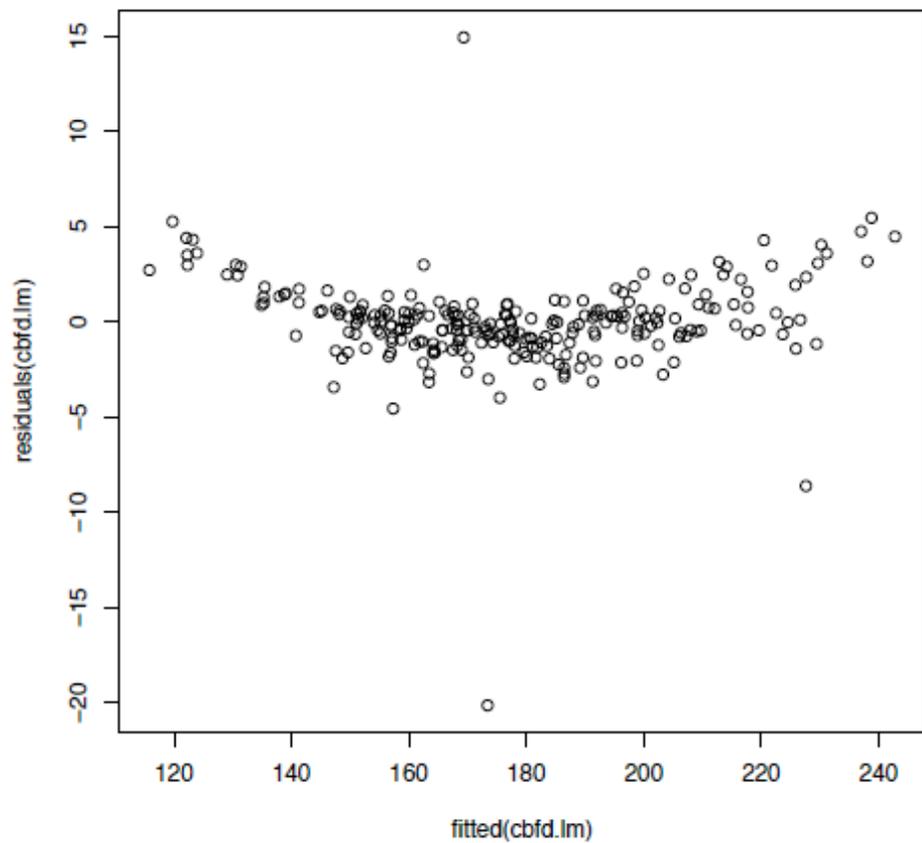


lm(WEIGHT ~ BODYFAT + DENSITY + AGE + HEIGHT + ADIPOSITY + NECK + CHEST + A

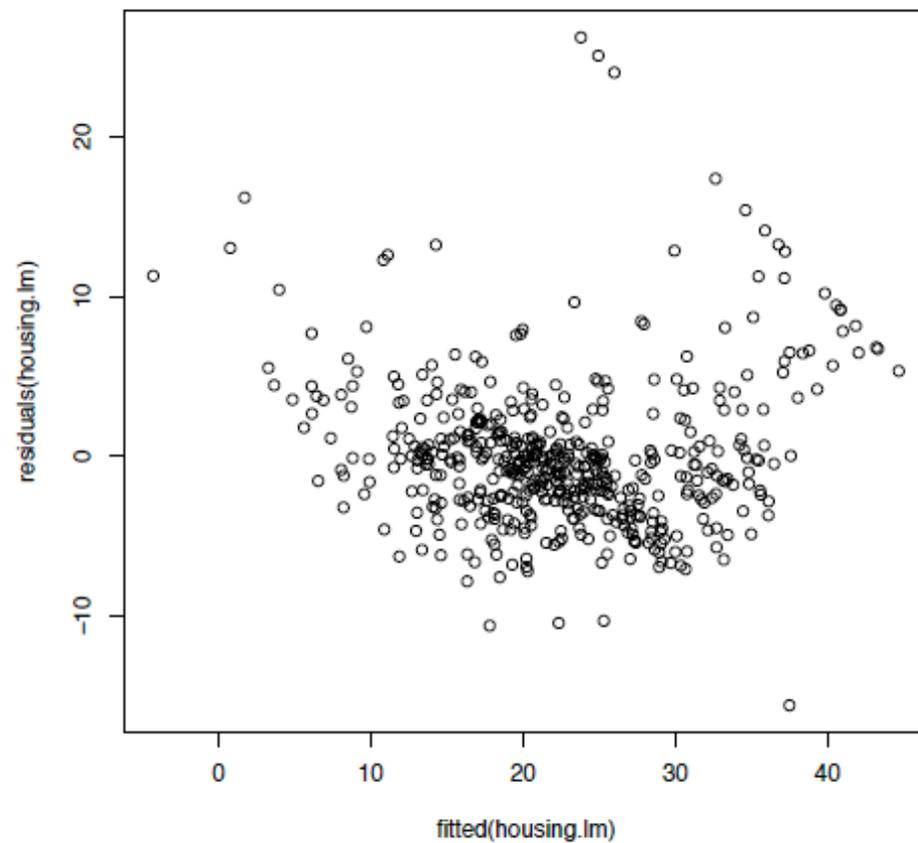


Variable Transformations

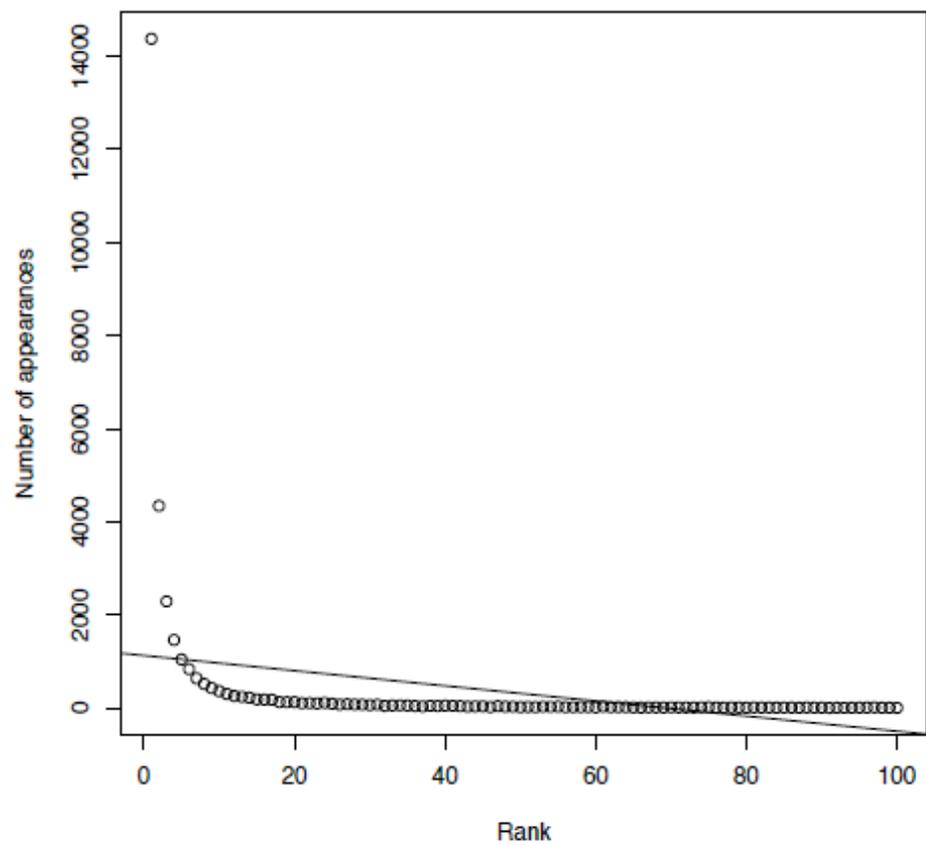
Residuals against fitted value, Bodyfat, no outliers



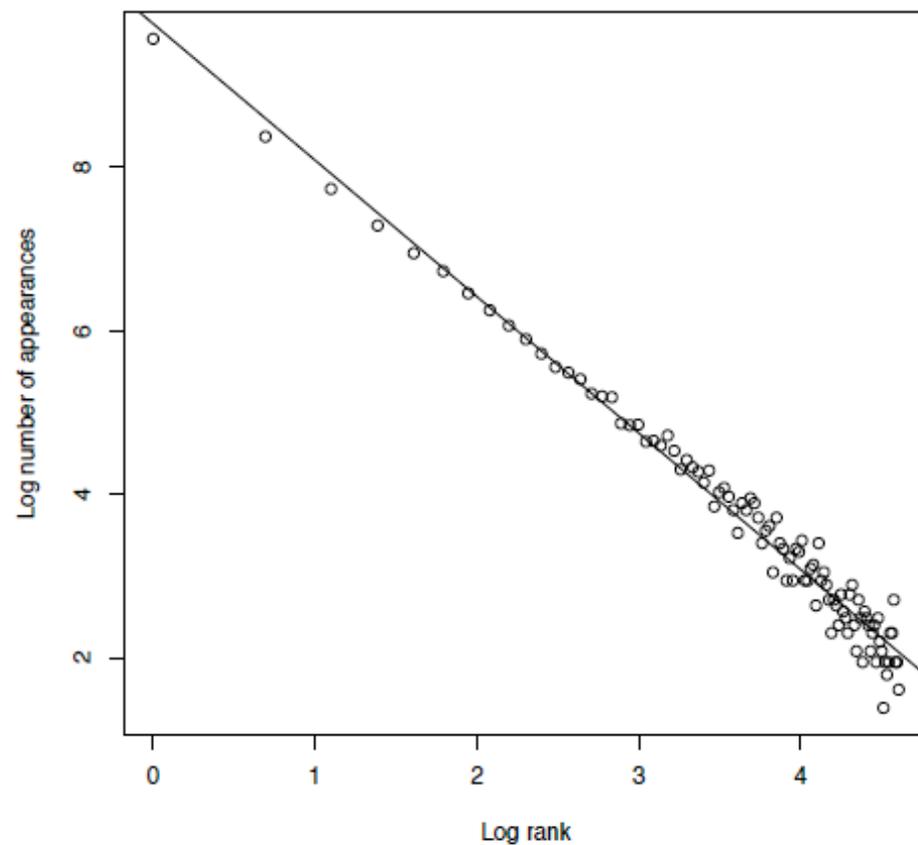
Residuals against fitted value, Boston Housing



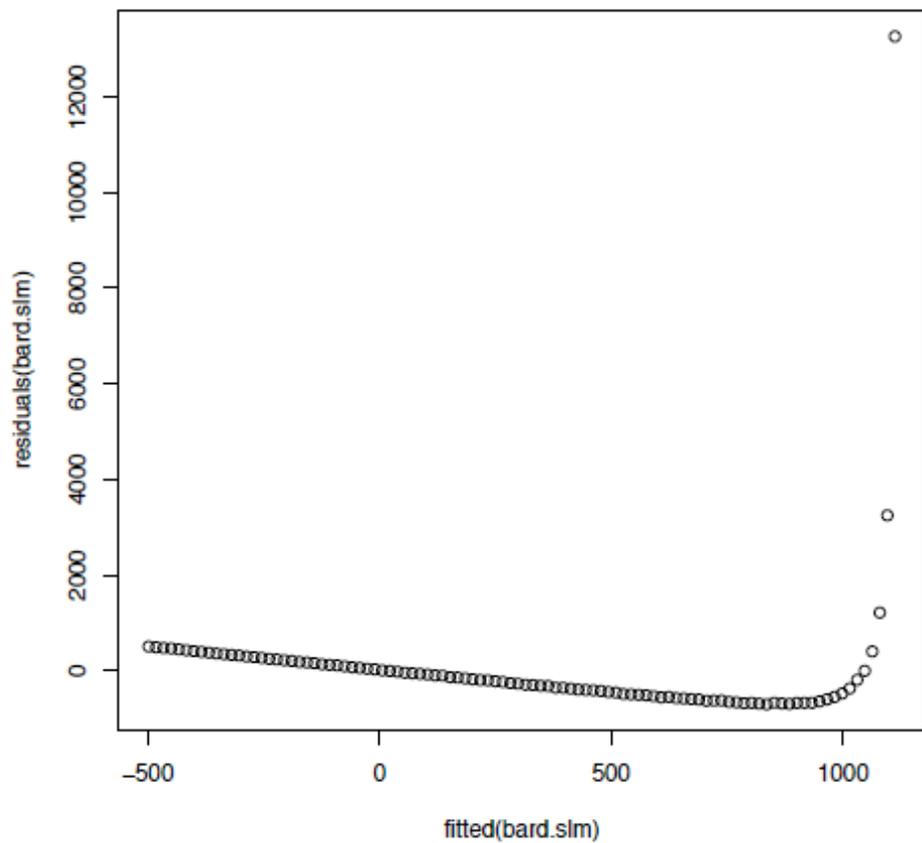
Frequency of word usage In Shakespeare



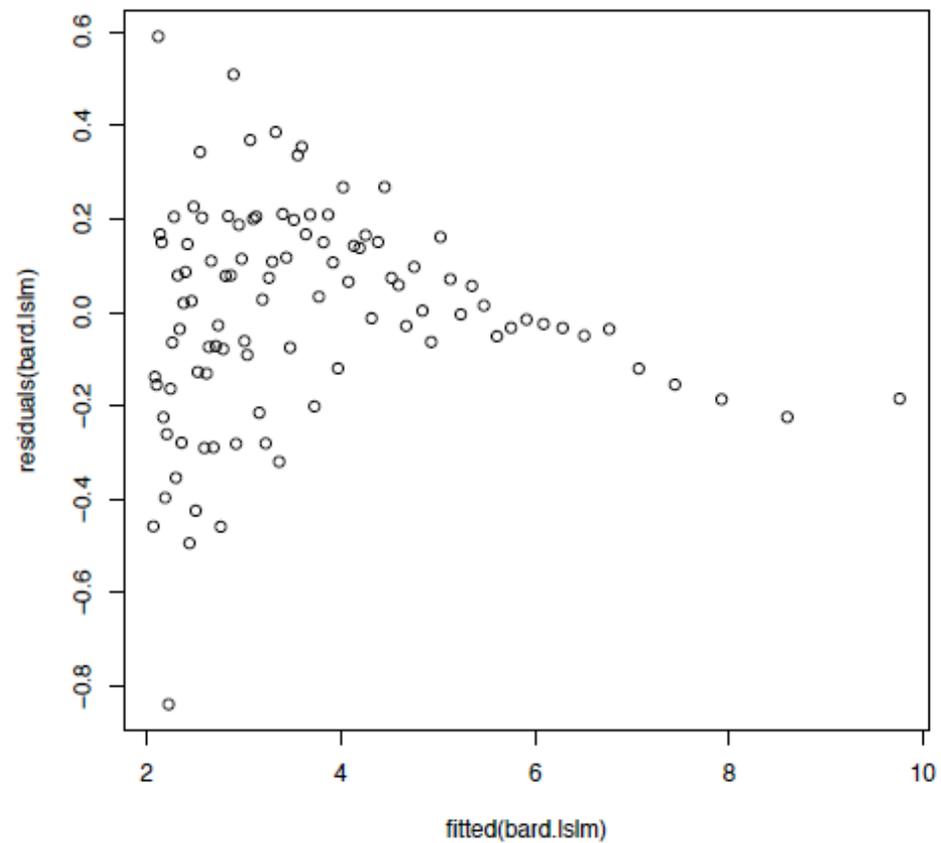
Frequency of word usage In Shakespeare, log-log



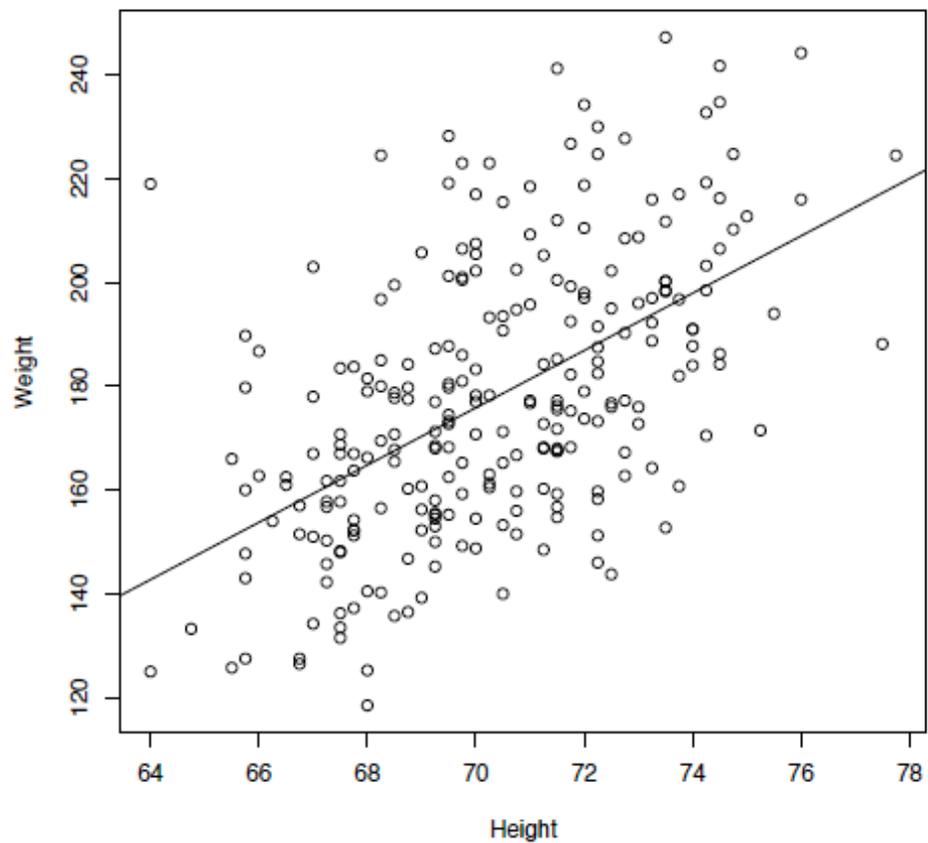
Residuals against fitted value, Shakespeare



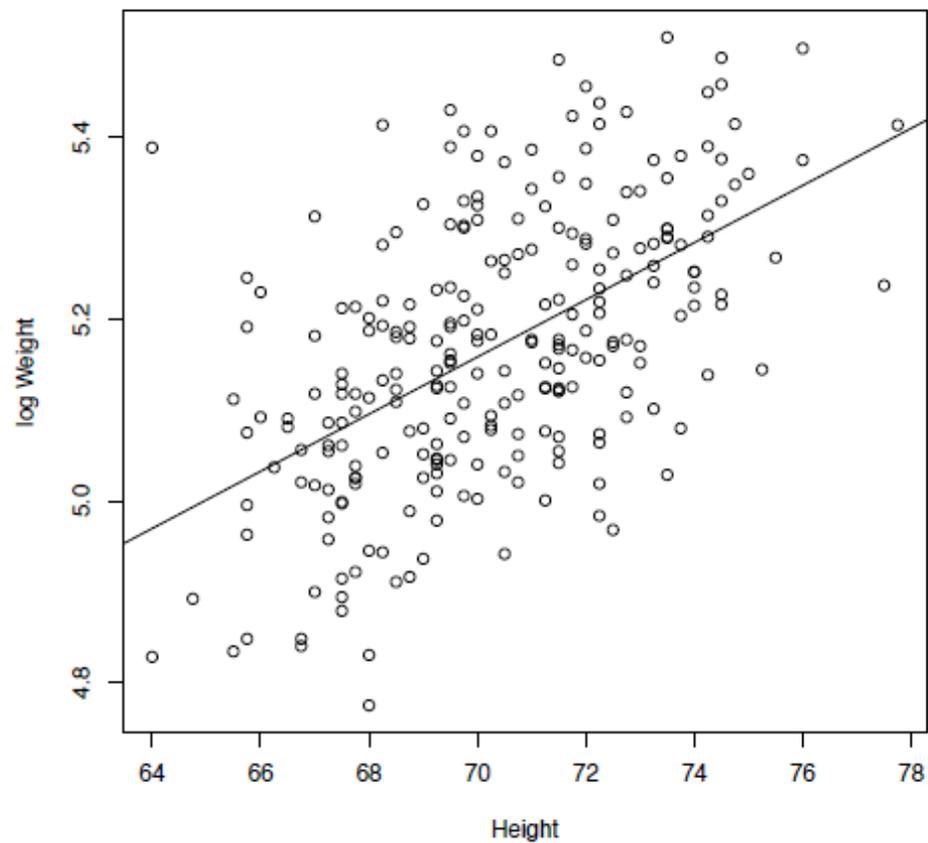
Residuals against fitted value, Shakespeare log-log



Linear regression of Weight against Height, outliers removed

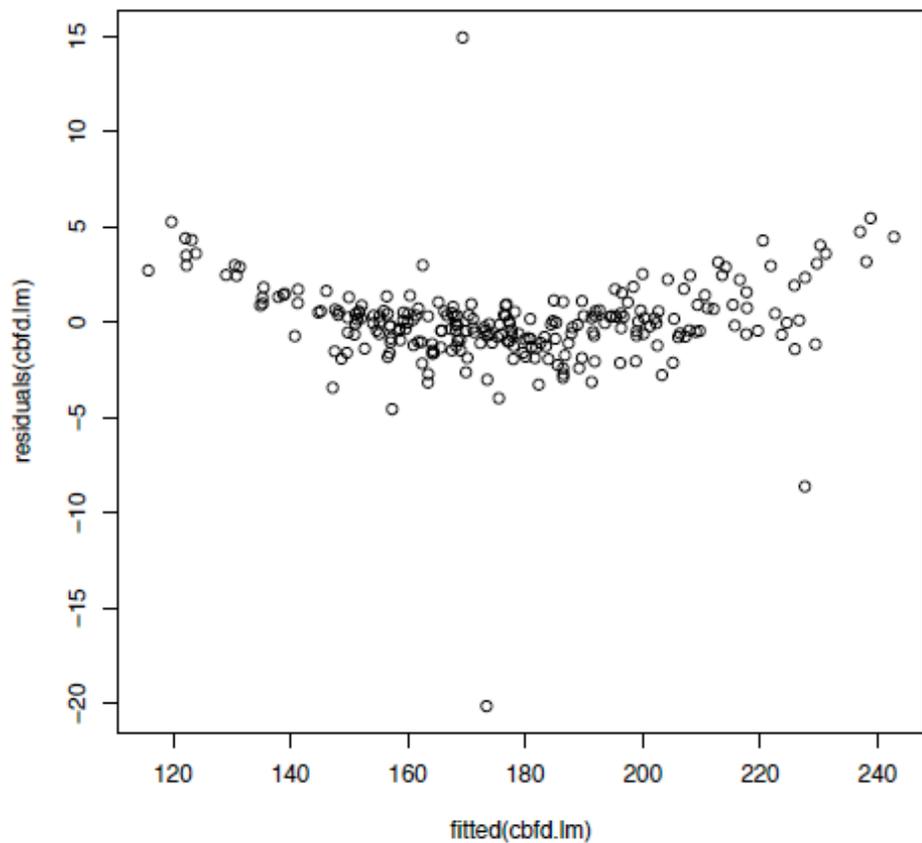


Linear regression of log Weight against Height, outliers removed

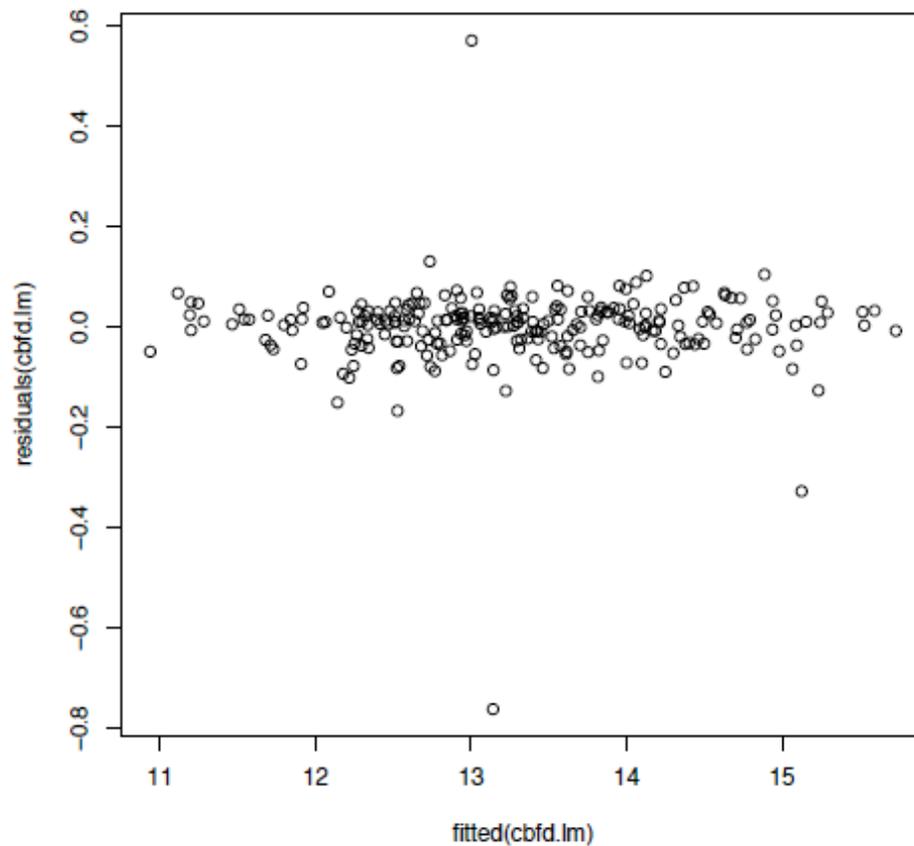


Box-Cox transformation

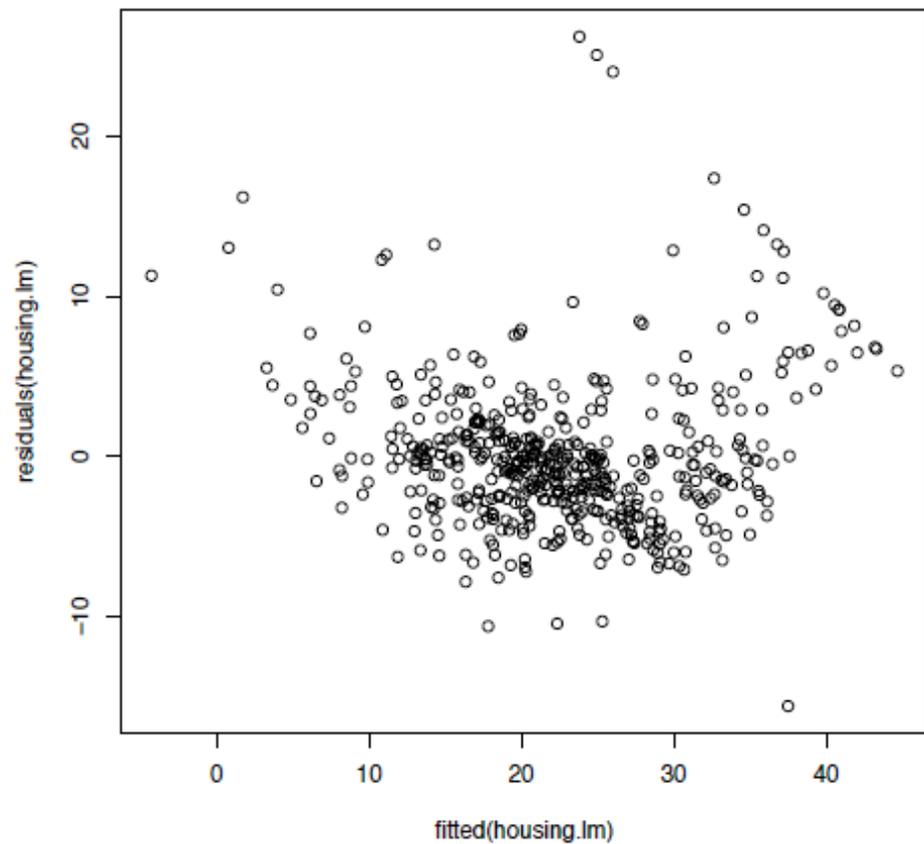
Residuals against fitted value, Bodyfat, no outliers



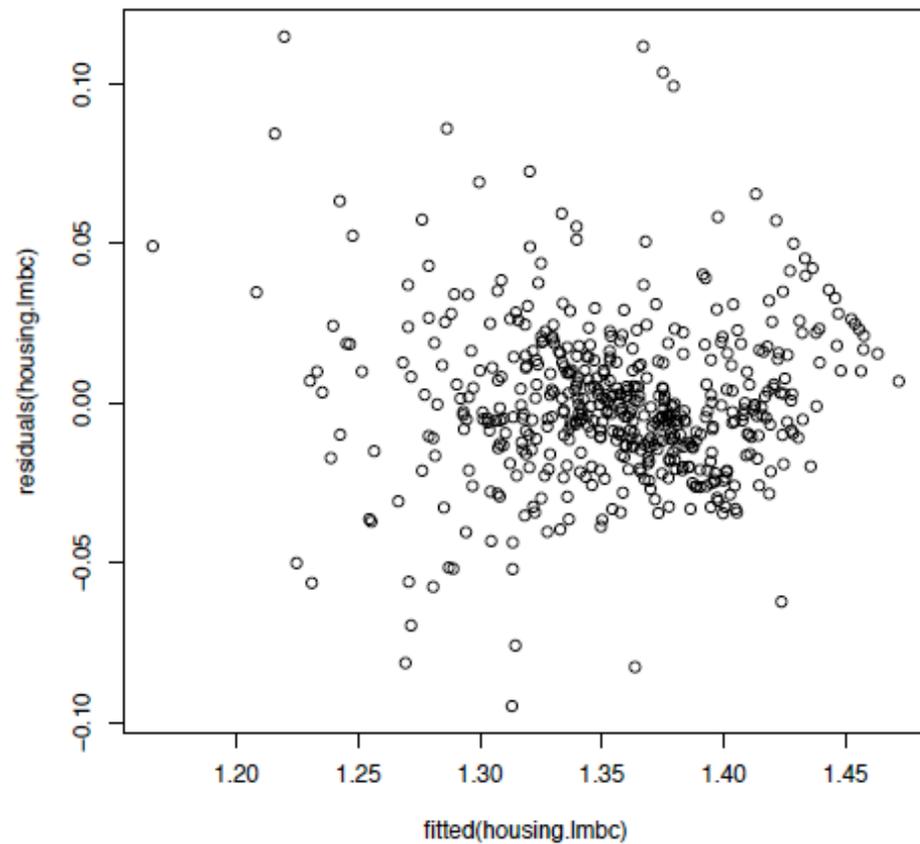
Residuals against fitted value, Bodyfat, Box-Cox, no outliers

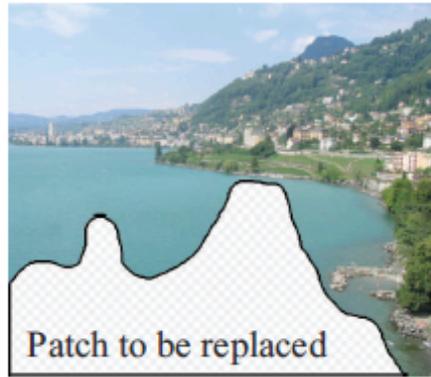


Residuals against fitted value, Boston Housing



Residuals against fitted value, Boston Housing





Initial image



Matched
Images



Final
composited
image

