HW #11

11.2, 11.7, 11.18, 11.20, 11.23, 11.24

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2022-12-03

11.2

a

The models have different parameters (neither is a subset of the other), so can't be compared with the "full vs reduced" methods.
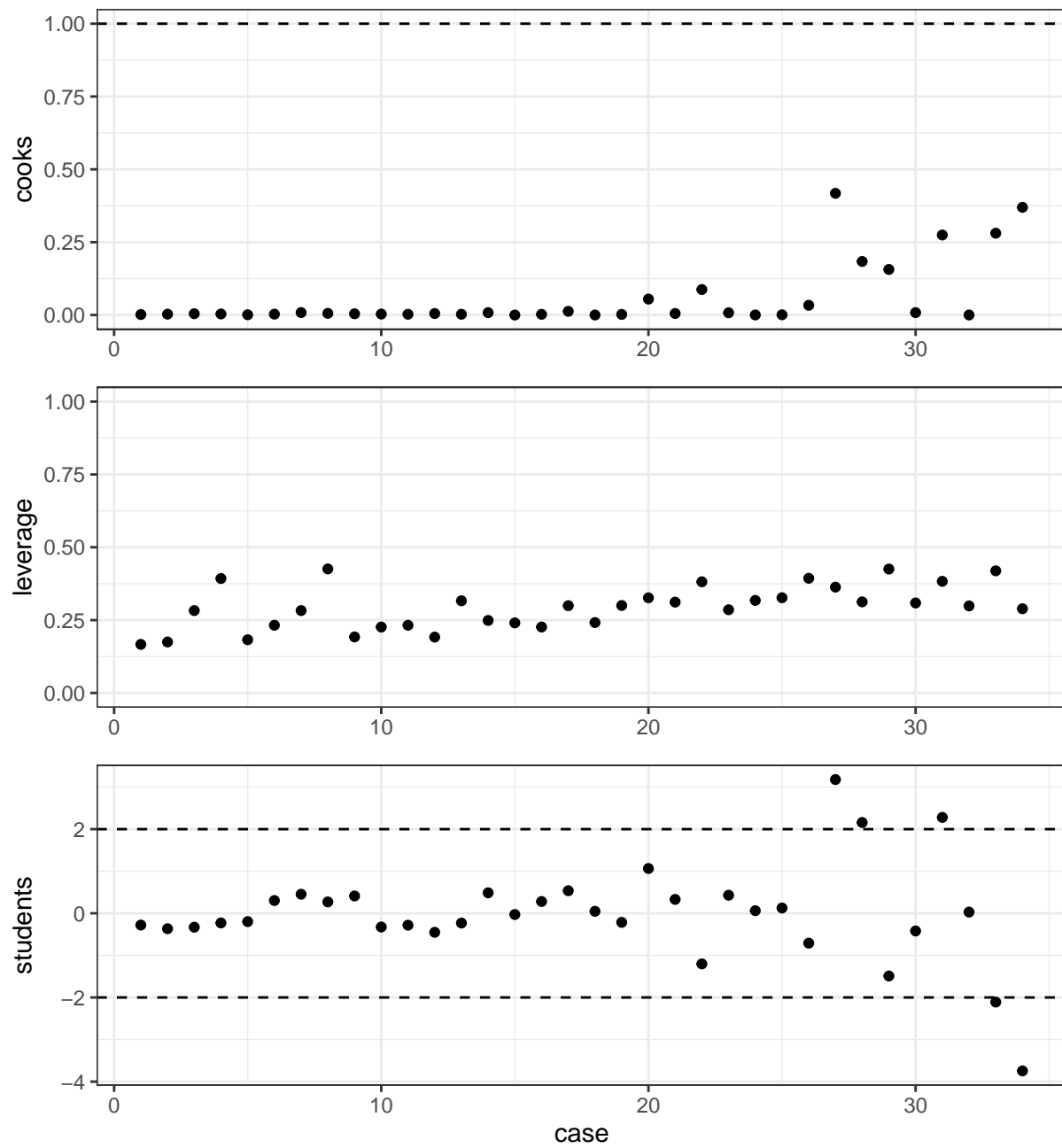
b

   (i) β_2

   (ii) $\beta_2 \times gast$

11.7

Since the offending observation is well outside the range of the rest of the data in terms of explanatory variable(s), it should be removed, noting that the model only fits in the new range of the data.

11.18

term	estimate	std.error	statistic	p.value
(Intercept)	-2.518	8.661	-0.291	0.774
Time3	0.281	0.810	0.347	0.731
Time24	1.661	0.929	1.789	0.086
Time72	4.833	0.939	5.147	0.000
TreatmentNS	-0.882	0.544	-1.622	0.118
Days	0.306	0.777	0.395	0.697
SexMale	-0.370	0.986	-0.375	0.711
Weight	-0.001	0.013	-0.103	0.919
Loss	-0.030	0.076	-0.392	0.698
Tumor	0.002	0.003	0.527	0.603

a

b

There are significant outliers as can be seen in the student's residual plot, but none of these values have particularly high leverage, so Cook's Distance shows only mild problems.

11.20

11.23

11.24