

Leg Length vs Nest Size Stepwise model regression

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Model Reduction

[1] "number of terms" [1] 5 [1] "pvalue" [1] 1

	Sum Sq	Mean Sq	NumDF	DenDF	F.value	p_value
logCtFm	0.00	0.00	1	30.59	0.89	0.353
InstarNumber	1.40	1.40	1	1265.81	1537.59	0.000***
I(logCtFm^2)	0.00	0.00	1	22.54	0.02	0.889 RMVD
InstarNumber:InstarSex	0.00	0.00	1	1258.77	0.40	0.528
logCtFm:InstarNumber	0.02	0.02	1	1268.93	26.26	0.000***
logCtFm:InstarNumber:InstarSex	0.00	0.00	1	1257.70	3.45	0.064.

[1] "term with highest p value is: I(logCtFm^2)" [1] "number of terms" [1] 6 [1] "pvalue" [1] 0.8891712

	Sum Sq	Mean Sq	NumDF	DenDF	F.value	p_value
logCtFm	0.01	0.01	1	284.30	7.42	0.007**
InstarNumber	1.42	1.42	1	1246.77	1558.08	0.000***
InstarNumber:InstarSex	0.00	0.00	1	1259.53	0.40	0.526 RMVD
logCtFm:InstarNumber	0.02	0.02	1	1257.50	26.40	0.000***
logCtFm:InstarNumber:InstarSex	0.00	0.00	1	1258.33	3.46	0.063.

[1] "term with highest p value is: InstarNumber:InstarSex" [1] "number of terms" [1] 5 [1] "pvalue" [1] 0.5257336

	Sum Sq	Mean Sq	NumDF	DenDF	F.value	p_value
logCtFm	0.01	0.01	1	282.21	7.32	0.007**
InstarNumber	1.56	1.56	1	1228.26	1712.07	0.000***
logCtFm:InstarNumber	0.02	0.02	1	1245.66	26.67	0.000***
logCtFm:InstarNumber:InstarSex	0.03	0.03	1	1255.23	30.77	0.000***

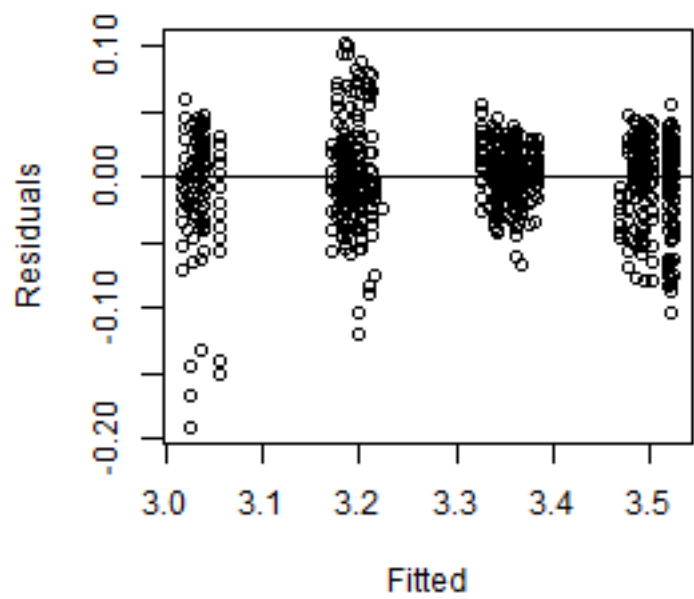
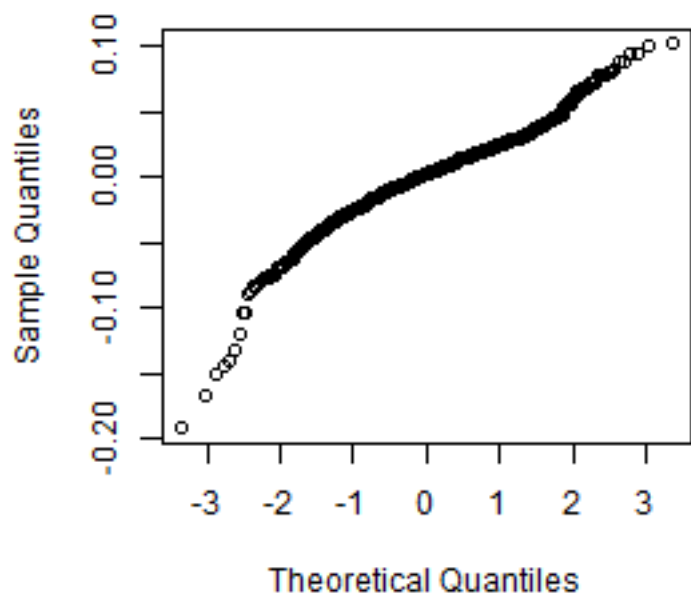
[1] "i = 1" [1] "term with highest p value is: logCtFm:InstarNumber"

Final Model is: logLeg ~ logCtFm + InstarNumber + 1 | NestID + logCtFm:InstarNumber:InstarSex

	Sum Sq	Mean Sq	NumDF	DenDF	F.value	Pr(>F)
logCtFm	0.01	0.01	1.00	282.21	7.32	0.0072
InstarNumber	1.56	1.56	1.00	1228.26	1712.07	0.0000
logCtFm:InstarNumber:InstarSex	0.05	0.02	2.00	1250.31	27.38	0.0000

Checking full model fit

$\log(\text{LegLength}) = \log(\text{ColonySize}) + \text{InstarAge} + \text{InstarAge}:\text{InstarSex} + \log(\text{ColonySize}):\text{InstarAge} + \log(\text{ColonySize}):\text{InstarSex}$



Graph with full model superimposed

Model:

```
logLeg ~ logCtFm + InstarNumber + InstarNumber:InstarSex + logCtFm:InstarNumber + logCtFm:InstarNumber:InstarSex
```

Note: If line on graph is blue R could not plot the lmer, plotting a simple lm instead[1] "lmer"

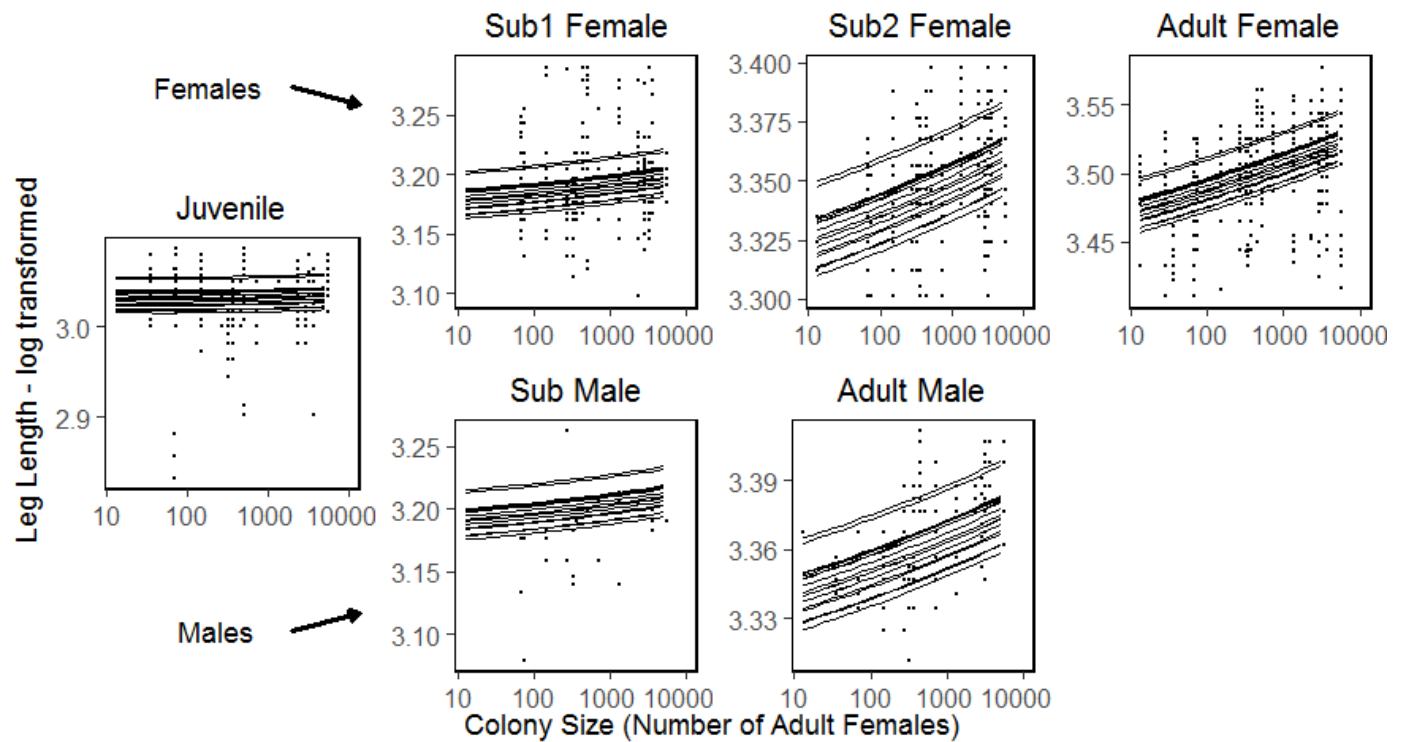


Figure 1: plot of chunk Graph