

Leg Length vs Nest Size Up Step model addition

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Model Addition

- logCtFm + InstarNumber (1 | NestID)

vs

- logCtFm + InstarNumber + (1 | NestID) logCtFm:InstarNumber

SIGNIFICANT

| | Df | AIC | BIC | logLik | deviance | Chisq | Chi Df | Pr(>Chisq) | stars |
|--------|------|----------|----------|---------|----------|-------|--------|------------|-------|
| object | 5.00 | -5182.01 | -5156.28 | 2596.01 | -5192.01 | | | | |
| ..1 | 6.00 | -5203.19 | -5172.31 | 2607.59 | -5215.19 | 23.17 | 1.00 | 0.00 | *** |

- logCtFm + InstarNumber + (1 | NestID) logCtFm:InstarNumber

vs

- logCtFm + InstarNumber + (1 | NestID) + logCtFm:InstarNumber InstarNumber:InstarSex

SIGNIFICANT

| | Df | AIC | BIC | logLik | deviance | Chisq | Chi Df | Pr(>Chisq) | stars |
|--------|------|----------|----------|---------|----------|-------|--------|------------|-------|
| object | 6.00 | -5203.19 | -5172.31 | 2607.59 | -5215.19 | | | | |
| ..1 | 7.00 | -5228.53 | -5192.51 | 2621.27 | -5242.53 | 27.35 | 1.00 | 0.00 | *** |

- logCtFm + InstarNumber + (1 | NestID) + logCtFm:InstarNumber InstarNumber:InstarSex

vs

- logCtFm + InstarNumber + (1 | NestID) + logCtFm:InstarNumber + InstarNumber:InstarSex logCtFm:InstarNumber:InstarSex

*****NOT SIGNIFICANT — STOP HERE *****

| | Df | AIC | BIC | logLik | deviance | Chisq | Chi Df | Pr(>Chisq) | stars |
|--------|------|----------|----------|---------|----------|-------|--------|------------|-------|
| object | 7.00 | -5228.53 | -5192.51 | 2621.27 | -5242.53 | | | | |
| ..1 | 8.00 | -5229.98 | -5188.81 | 2622.99 | -5245.98 | 3.45 | 1.00 | 0.06 | . |

- logCtFm + InstarNumber + (1 | NestID) + logCtFm:InstarNumber + InstarNumber:InstarSex logCtFm:InstarNumber:InstarSex

vs

- logCtFm + InstarNumber + (1 | NestID) + logCtFm:InstarNumber + InstarNumber:InstarSex + logCtFm:InstarNumber:InstarSex I(logCtFm^2)

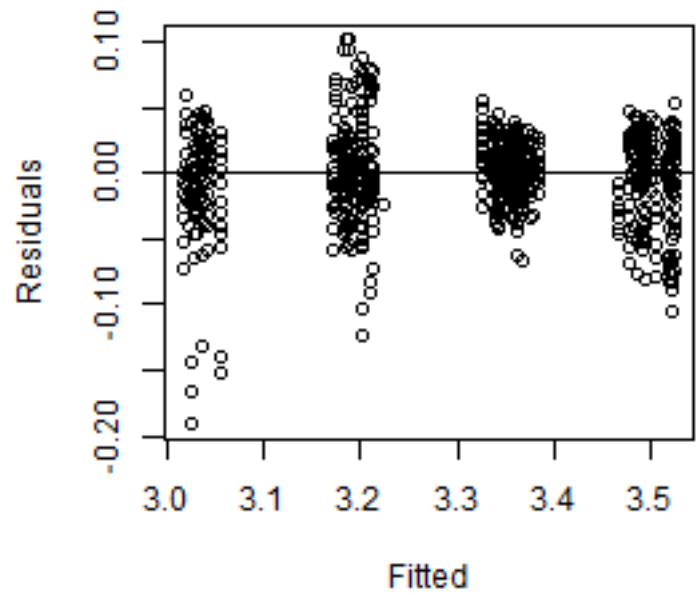
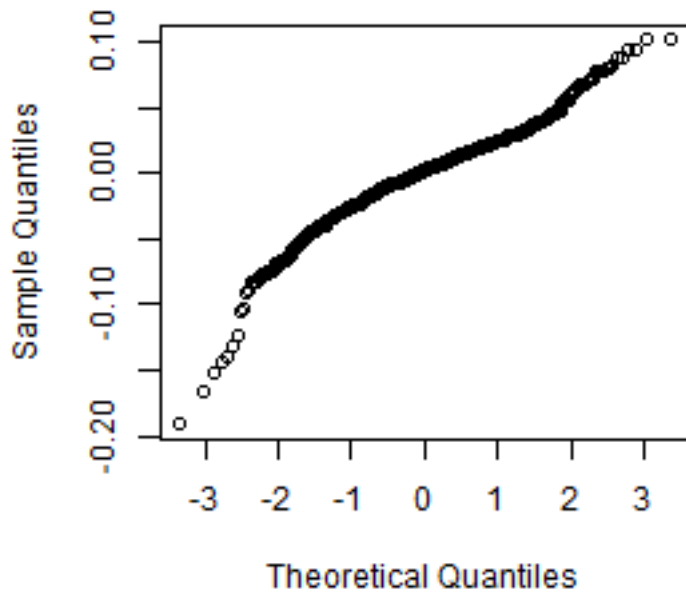
*****NOT SIGNIFICANT — STOP HERE *****

| | Df | AIC | BIC | logLik | deviance | Chisq | Chi Df | Pr(>Chisq) | stars |
|--------|------|----------|----------|---------|----------|-------|--------|------------|-------|
| object | 8.00 | -5229.98 | -5188.81 | 2622.99 | -5245.98 | | | | |
| ..1 | 9.00 | -5228.00 | -5181.68 | 2623.00 | -5246.00 | 0.02 | 1.00 | 0.89 | |

Final model is logLeg ~ logCtFm + InstarNumber + logCtFm:InstarNumber + InstarNumber:InstarSex + (1 | NestID)

Checking full model fit

$\log(\text{LegLength}) = \log(\text{ColonySize}) + \text{InstarAge} + \log(\text{ColonySize}) : \text{InstarAge} + \text{InstarAge} : \text{InstarSex} + (1 | \text{Colony})$



Graph with full model superimposed

Model:

$\log\text{Leg} \sim \log\text{CtFm} + \text{InstarNumber} + \log\text{CtFm} : \text{InstarNumber} + \text{InstarNumber} : \text{InstarSex} + (1 | \text{NestID})$

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

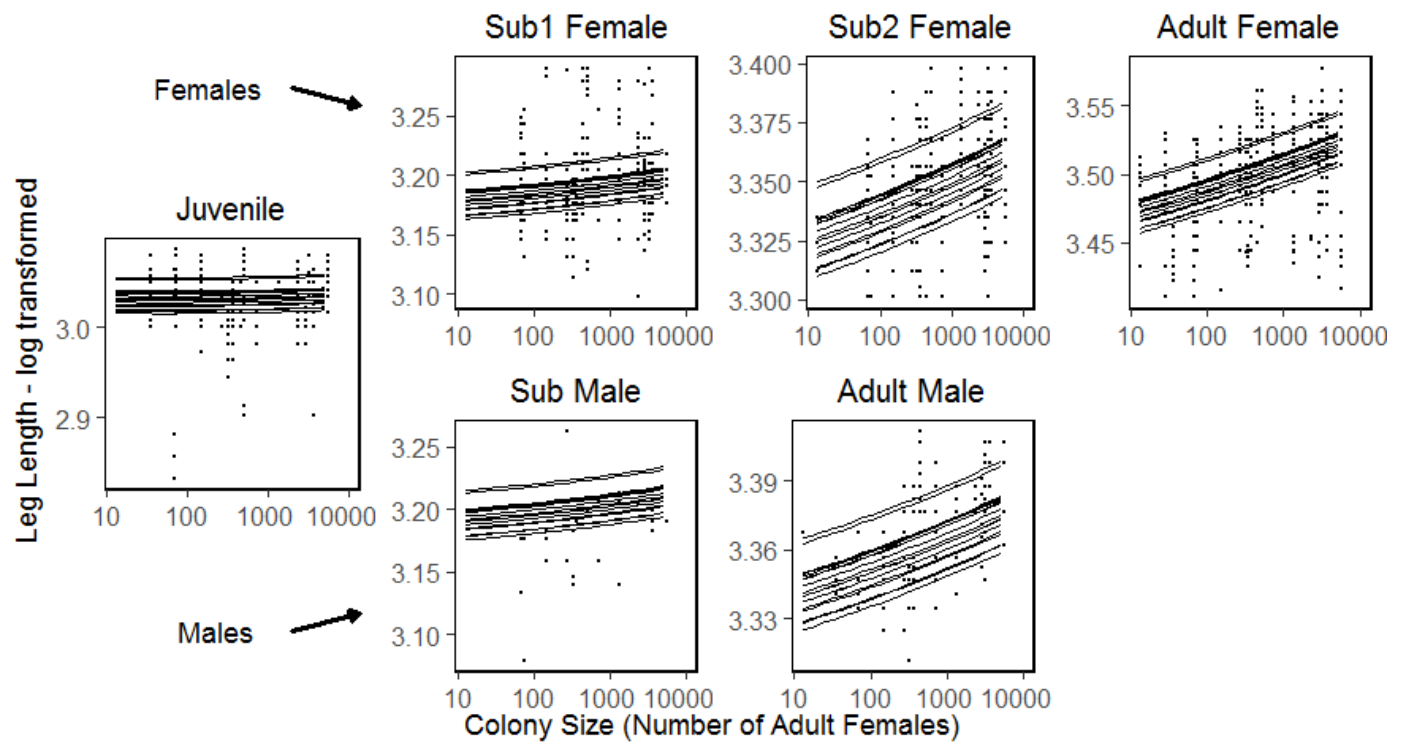


Figure 1: plot of chunk Graph