Variance in Condition vs Nest Size Instar As Number

Ruth Sharpe

09 September, 2016

AIC Values of all possible models with instar included and sample size as weight

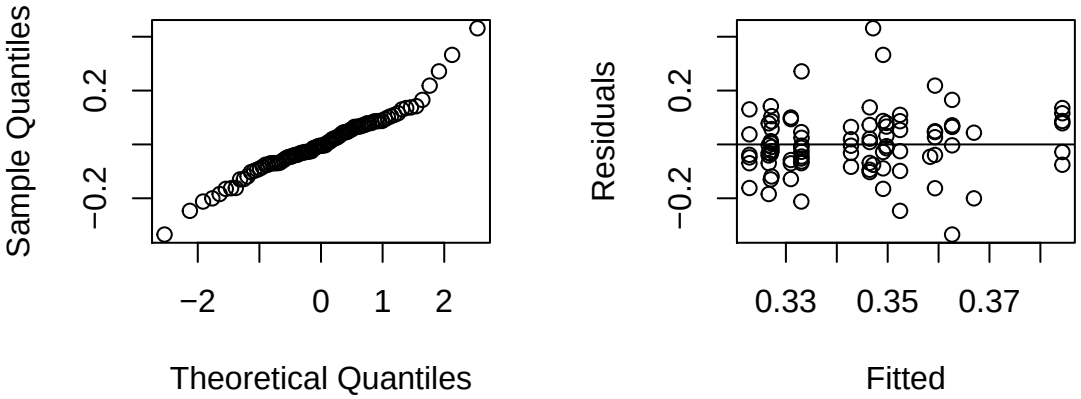
Rows removed with 0 or fewer data points data points

[1] "Using a standardized sample size as weight in model"

AIC_Diff	AIC	model	num.predictors
0	-155.9	relativeVar ~ logCtFm + logCtFm + (1|NestID)	4
0.11	-155.8	relativeVar ~ logCtFm + logCtFm + logCtFm:InstarNumber + (1|NestID)	5
0.89	-155	relativeVar ~ logCtFm + logCtFm + logCtFm:InstarNumber:InstarSex + logCtFm:InstarNumber + InstarSex:logCtFm + (1|NestID)	7
1.98	-153.9	relativeVar ~ logCtFm + logCtFm + InstarSex:logCtFm + (1|NestID)	5
2.06	-153.9	relativeVar ~ logCtFm + logCtFm + logCtFm:InstarNumber:InstarSex + logCtFm:InstarNumber + (1|NestID)	6
2.08	-153.8	relativeVar ~ logCtFm + logCtFm + logCtFm:InstarNumber + InstarSex:InstarNumber + (1|NestID)	6
2.1	-153.8	relativeVar ~ logCtFm + logCtFm + logCtFm:InstarNumber + InstarSex:logCtFm + (1|NestID)	6
2.11	-153.8	relativeVar ~ logCtFm + logCtFm + InstarSex:InstarNumber + (1|NestID)	6
2.89	-153	relativeVar ~ logCtFm + logCtFm + logCtFm:InstarNumber:InstarSex + logCtFm:InstarNumber + InstarSex:InstarNumber + InstarSex:logCtFm + (1|NestID)	8
3.98	-151.9	relativeVar ~ logCtFm + logCtFm + logCtFm:InstarNumber + InstarSex:InstarNumber + InstarSex:logCtFm + (1|NestID)	7
4.01	-151.9	relativeVar ~ logCtFm + logCtFm + logCtFm:InstarNumber:InstarSex + logCtFm:InstarNumber + InstarSex:InstarNumber + (1|NestID)	7
4.02	-151.9	relativeVar ~ logCtFm + logCtFm + InstarSex:InstarNumber + InstarSex:logCtFm + (1|NestID)	7
4.88	-151	relativeVar ~ logCtFm + logCtFm + logCtFm:InstarNumber:InstarSex + InstarSex:InstarNumber + InstarSex:logCtFm + (1|NestID)	9
5.99	-149.9	relativeVar ~ logCtFm + logCtFm + logCtFm:InstarNumber:InstarSex + InstarSex:InstarNumber + (1|NestID)	8

Checking full model fit

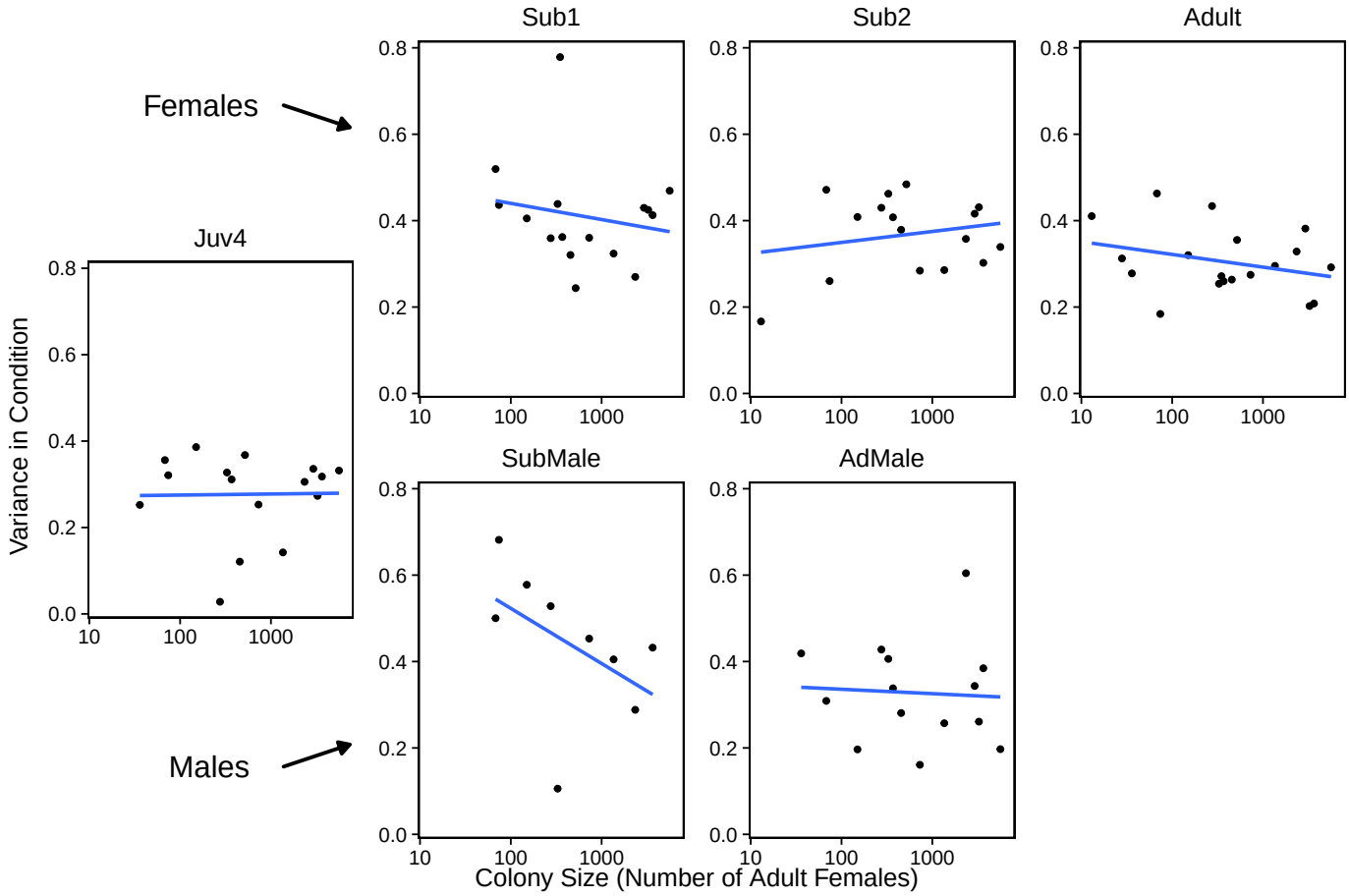
```
(relativeVar ~ logCtFm + logCtFm + (1 | NestID))()
```



Graph

note: blue line just lm model

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



Statistics using model with the almost lowest AIC as full model

Full Model: relativeVar ~ InstarSex:InstarNumber + InstarNumber + InstarSex + logCtFm + (1 | NestID)

Table 2: Anova of full model alone

	Sum Sq	Mean Sq	NumDF	DenDF	F.value	Pr(>F)
InstarNumber	0.531	0.531	1	75.449	5.800	0.018
InstarSex	0.411	0.411	1	75.005	4.482	0.038
logCtFm	0.084	0.084	1	21.946	0.917	0.349
InstarNumber:InstarSex	0.414	0.414	1	75.025	4.515	0.037

Testing Individual Variables by preforming an Anova of full vs reduced model)

Table 3: Testing Instar Number against full model. - $p < 0.05$ SIGNIFICANT *

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	5	-153.929	-141.430	81.965	-163.929			
object	7	-156.175	-138.677	85.088	-170.175	6.246	2	0.044

Reduced Model: relativeVar = logCtFm + InstarSex + (1 | NestID)

Table 4: Testing Sex against full model. - NOT significant

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	5	-155.785	-143.286	82.892	-165.785			
object	7	-156.175	-138.677	85.088	-170.175	4.391	2	0.111

Reduced Model: relativeVar = logCtFm + InstarNumber + (1 | NestID)

Table 5: Testing NestSize against full model. - NOT significant

	Df	AIC	BIC	logLik	deviance	Chisq	Chi Df	Pr(>Chisq)
..1	6	-157.311	-142.312	84.655	-169.311			
object	7	-156.175	-138.677	85.088	-170.175	0.865	1	0.352

Reduced Model: relativeVar = InstarNumber + InstarSex + InstarNumber:InstarSex + (1 | NestID)

Note: See next page for graph

Graph of condition variance against instar