Population nested in predation

2010

Linear effects

Population=fixed

> modelfr\_10<-lm(n\_intact\_fruits\_rel~most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta+

+ (LokalID%in%predator):most\_adv\_sta+(LokalID%in%predator):n\_fl\_sta+(LokalID%in%predator):h\_shoot\_sta,

+ data=subset(data,year==2010))

> Anova(modelfr\_10,type="II")

Anova Table (Type II tests)

Response: n\_intact\_fruits\_rel

Sum Sq Df F value Pr(>F)

most\_adv\_sta 0.1 1 0.0628 0.80222

n\_fl\_sta 319.5 1 199.5657 < 2.2e-16 \*\*\*

h\_shoot\_sta 12.3 1 7.6785 0.00564 \*\*

predator 0.2 1 0.1291 0.71936

most\_adv\_sta:predator 49.4 1 30.8643 3.136e-08 \*\*\*

n\_fl\_sta:predator 0.0 1 0.0120 0.91264

h\_shoot\_sta:predator 0.3 1 0.1809 0.67065

most\_adv\_sta:predator:LokalID 62.4 18 2.1643 0.00309 \*\*

n\_fl\_sta:predator:LokalID 122.5 18 4.2517 5.390e-09 \*\*\*

h\_shoot\_sta:predator:LokalID 36.7 18 1.2721 0.19608

Residuals 3205.2 2002

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Without population

> summary(lm(n\_intact\_fruits\_rel~most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta+

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta,

+ data=subset(data,year==2010)))

Call:

lm(formula = n\_intact\_fruits\_rel ~ most\_adv\_sta + n\_fl\_sta +

h\_shoot\_sta + predator \* most\_adv\_sta + predator \* n\_fl\_sta +

predator \* h\_shoot\_sta, data = subset(data, year == 2010))

Residuals:

Min 1Q Median 3Q Max

-3.6505 -0.7848 -0.2844 0.5331 12.5700

Coefficients:

Estimate Std. Error t value Pr(>|t|)

(Intercept) 1.000000 0.043372 23.056 < 2e-16 \*\*\*

most\_adv\_sta 0.217650 0.051855 4.197 2.82e-05 \*\*\*

n\_fl\_sta 0.497510 0.052878 9.409 < 2e-16 \*\*\*

h\_shoot\_sta 0.112747 0.052865 2.133 0.0331 \*

predator1 -0.020165 0.057784 -0.349 0.7271

most\_adv\_sta:predator1 -0.373772 0.067103 -5.570 2.88e-08 \*\*\*

n\_fl\_sta:predator1 -0.004285 0.071296 -0.060 0.9521

h\_shoot\_sta:predator1 -0.003330 0.069653 -0.048 0.9619

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 1.301 on 2056 degrees of freedom

(37 observations deleted due to missingness)

Multiple R-squared: 0.1735, Adjusted R-squared: 0.1707

F-statistic: 61.64 on 7 and 2056 DF, p-value: < 2.2e-16

Population=random

> modelfr\_10<-lmer(n\_intact\_fruits\_rel ~ most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta+

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta +

+ (1|predator/LokalID:most\_adv\_sta)+(1|predator/LokalID:n\_fl\_sta)+(1|predator/LokalID:h\_shoot\_sta),

+ data = subset(data,year==2010),REML=F)

> summary(modelfr\_10)

Linear mixed model fit by maximum likelihood t-tests use Satterthwaite approximations to

degrees of freedom [merModLmerTest]

Formula: n\_intact\_fruits\_rel ~ most\_adv\_sta + n\_fl\_sta + h\_shoot\_sta +

predator \* most\_adv\_sta + predator \* n\_fl\_sta + predator \*

h\_shoot\_sta + (1 | predator/LokalID:most\_adv\_sta) + (1 |

predator/LokalID:n\_fl\_sta) + (1 | predator/LokalID:h\_shoot\_sta)

Data: subset(data, year == 2010)

AIC BIC logLik deviance df.resid

6955.1 7039.6 -3462.6 6925.1 2049

Scaled residuals:

Min 1Q Median 3Q Max

-2.6925 -0.5811 -0.1887 0.3928 9.5669

Random effects:

Groups Name Variance Std.Dev.

LokalID.h\_shoot\_sta.predator (Intercept) 0.00000 0.0000

LokalID.n\_fl\_sta.predator (Intercept) 0.00000 0.0000

LokalID.most\_adv\_sta.predator (Intercept) 0.04486 0.2118

predator (Intercept) 0.00000 0.0000

predator.1 (Intercept) 0.00000 0.0000

predator.2 (Intercept) 0.00000 0.0000

Residual 1.64333 1.2819

Number of obs: 2064, groups:

LokalID:h\_shoot\_sta:predator, 1600; LokalID:n\_fl\_sta:predator, 133; LokalID:most\_adv\_sta:predator, 102; predator, 2

Fixed effects:

Estimate Std. Error df t value Pr(>|t|)

(Intercept) 1.011e+00 5.515e-02 8.040e+01 18.340 < 2e-16 \*\*\*

most\_adv\_sta 2.220e-01 5.873e-02 2.304e+02 3.780 0.0002 \*\*\*

n\_fl\_sta 4.933e-01 5.282e-02 2.063e+03 9.339 < 2e-16 \*\*\*

h\_shoot\_sta 1.078e-01 5.258e-02 2.059e+03 2.051 0.0404 \*

predator1 -5.944e-02 7.389e-02 7.920e+01 -0.804 0.4236

most\_adv\_sta:predator1 -3.836e-01 7.680e-02 2.068e+02 -4.995 1.25e-06 \*\*\*

n\_fl\_sta:predator1 2.506e-03 7.110e-02 2.064e+03 0.035 0.9719

h\_shoot\_sta:predator1 -8.679e-04 6.934e-02 2.062e+03 -0.013 0.9900

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Correlation of Fixed Effects:

(Intr) mst\_d\_ n\_fl\_s h\_sht\_ prdtr1 ms\_\_:1 n\_f\_:1

most\_adv\_st -0.008

n\_fl\_sta -0.013 -0.284

h\_shoot\_sta 0.012 -0.258 -0.359

predator1 -0.746 0.006 0.010 -0.009

mst\_dv\_st:1 0.006 -0.765 0.217 0.197 0.007

n\_fl\_st:pr1 0.010 0.211 -0.743 0.267 -0.022 -0.274

h\_sht\_st:p1 -0.009 0.196 0.272 -0.758 0.016 -0.200 -0.400

> Anova(modelfr\_10,type="II")

Analysis of Deviance Table (Type II Wald chisquare tests)

Response: n\_intact\_fruits\_rel

Chisq Df Pr(>Chisq)

most\_adv\_sta 0.0037 1 0.951382

n\_fl\_sta 195.7374 1 < 2.2e-16 \*\*\*

h\_shoot\_sta 9.7988 1 0.001746 \*\*

predator 0.6056 1 0.436460

most\_adv\_sta:predator 24.9474 1 5.892e-07 \*\*\*

n\_fl\_sta:predator 0.0012 1 0.971884

h\_shoot\_sta:predator 0.0002 1 0.990014

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Linear effects + interaction between traits

Population=fixed

> modelfr\_10\_2<-lm(n\_intact\_fruits\_rel~most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta+

+ most\_adv:n\_fl+most\_adv:h\_shoot+n\_fl:h\_shoot+

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta+

+ (LokalID%in%predator):most\_adv\_sta+(LokalID%in%predator):n\_fl\_sta+(LokalID%in%predator):h\_shoot\_sta,

+ data=subset(data,year==2010))

> Anova(modelfr\_10\_2,type="II")

Anova Table (Type II tests)

Response: n\_intact\_fruits\_rel

Sum Sq Df F value Pr(>F)

most\_adv\_sta 8.6 1 5.3824 0.020441 \*

n\_fl\_sta 51.8 1 32.3645 1.466e-08 \*\*\*

h\_shoot\_sta 5.8 1 3.6033 0.057808 .

predator 1.0 1 0.5976 0.439585

most\_adv:n\_fl 1.4 1 0.8674 0.351784

most\_adv:h\_shoot 1.6 1 0.9863 0.320773

n\_fl:h\_shoot 4.5 1 2.8376 0.092238 .

most\_adv\_sta:predator 46.1 1 28.8210 8.861e-08 \*\*\*

n\_fl\_sta:predator 0.5 1 0.3109 0.577200

h\_shoot\_sta:predator 0.1 1 0.0766 0.782000

most\_adv\_sta:predator:LokalID 57.3 18 1.9904 0.007817 \*\*

n\_fl\_sta:predator:LokalID 114.0 18 3.9569 4.078e-08 \*\*\*

h\_shoot\_sta:predator:LokalID 39.6 18 1.3755 0.133245

Residuals 3199.4 1999

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Population=random

> modelfr\_10\_2<-lmer(n\_intact\_fruits\_rel ~ most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta+

+ most\_adv:n\_fl+most\_adv:h\_shoot+n\_fl:h\_shoot+

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta +

+ (1|predator/LokalID:most\_adv\_sta)+(1|predator/LokalID:n\_fl\_sta)+(1|predator/LokalID:h\_shoot\_sta),

+ data = subset(data,year==2010),REML=F)

> summary(modelfr\_10\_2)

Linear mixed model fit by maximum likelihood t-tests use Satterthwaite approximations to

degrees of freedom [merModLmerTest]

Formula: n\_intact\_fruits\_rel ~ most\_adv\_sta + n\_fl\_sta + h\_shoot\_sta +

most\_adv:n\_fl + most\_adv:h\_shoot + n\_fl:h\_shoot + predator \*

most\_adv\_sta + predator \* n\_fl\_sta + predator \* h\_shoot\_sta +

(1 | predator/LokalID:most\_adv\_sta) + (1 | predator/LokalID:n\_fl\_sta) +

(1 | predator/LokalID:h\_shoot\_sta)

Data: subset(data, year == 2010)

AIC BIC logLik deviance df.resid

6946.2 7047.6 -3455.1 6910.2 2046

Scaled residuals:

Min 1Q Median 3Q Max

-2.7260 -0.5846 -0.1787 0.3801 9.6786

Random effects:

Groups Name Variance Std.Dev.

LokalID.h\_shoot\_sta.predator (Intercept) 4.200e-13 6.481e-07

LokalID.n\_fl\_sta.predator (Intercept) 0.000e+00 0.000e+00

LokalID.most\_adv\_sta.predator (Intercept) 4.634e-02 2.153e-01

predator (Intercept) 0.000e+00 0.000e+00

predator.1 (Intercept) 0.000e+00 0.000e+00

predator.2 (Intercept) 0.000e+00 0.000e+00

Residual 1.630e+00 1.277e+00

Number of obs: 2064, groups:

LokalID:h\_shoot\_sta:predator, 1600; LokalID:n\_fl\_sta:predator, 133; LokalID:most\_adv\_sta:predator, 102; predator, 2

Fixed effects:

Estimate Std. Error df t value Pr(>|t|)

(Intercept) 1.237e+00 1.511e-01 1.225e+02 8.185 2.96e-13 \*\*\*

most\_adv\_sta 3.991e-01 8.181e-02 2.552e+02 4.878 1.89e-06 \*\*\*

n\_fl\_sta 3.470e-01 6.783e-02 1.477e+03 5.115 3.55e-07 \*\*\*

h\_shoot\_sta 1.625e-01 6.904e-02 1.005e+03 2.354 0.01879 \*

predator1 -1.382e-01 7.858e-02 9.390e+01 -1.759 0.08189 .

most\_adv:n\_fl 8.456e-04 1.320e-02 6.415e+02 0.064 0.94894

most\_adv:h\_shoot -7.458e-03 2.475e-03 1.949e+02 -3.014 0.00292 \*\*

n\_fl:h\_shoot 5.725e-03 2.386e-03 1.021e+03 2.400 0.01657 \*

most\_adv\_sta:predator1 -3.786e-01 7.755e-02 2.136e+02 -4.882 2.05e-06 \*\*\*

n\_fl\_sta:predator1 -5.734e-02 7.358e-02 2.061e+03 -0.779 0.43589

h\_shoot\_sta:predator1 -3.214e-02 7.004e-02 2.064e+03 -0.459 0.64641

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Correlation of Fixed Effects:

(Intr) mst\_d\_ n\_fl\_s h\_sht\_ prdtr1 mst\_dv:n\_ mst\_dv:h\_ n\_fl:\_ ms\_\_:1 n\_f\_:1

most\_adv\_st 0.485

n\_fl\_sta 0.018 -0.350

h\_shoot\_sta 0.538 0.068 -0.210

predator1 -0.234 -0.051 0.206 -0.028

mst\_dv:n\_fl 0.227 -0.160 -0.043 0.437 -0.114

mst\_dv:h\_sh -0.828 -0.615 0.267 -0.518 0.120 -0.249

n\_fl:h\_shot -0.145 0.368 -0.399 -0.312 -0.125 -0.727 -0.150

mst\_dv\_st:1 -0.031 -0.518 0.157 0.088 0.014 -0.131 0.025 0.111

n\_fl\_st:pr1 -0.037 0.086 -0.407 0.128 0.066 -0.148 0.146 -0.047 -0.247

h\_sht\_st:p1 0.017 0.075 0.284 -0.523 0.042 0.103 0.035 -0.163 -0.211 -0.367

> Anova(modelfr\_10\_2,type="II")

Analysis of Deviance Table (Type II Wald chisquare tests)

Response: n\_intact\_fruits\_rel

Chisq Df Pr(>Chisq)

most\_adv\_sta 7.5491 1 0.006004 \*\*

n\_fl\_sta 27.5878 1 1.501e-07 \*\*\*

h\_shoot\_sta 6.1479 1 0.013157 \*

predator 1.7345 1 0.187841

most\_adv:n\_fl 0.0041 1 0.948922

most\_adv:h\_shoot 9.0826 1 0.002580 \*\*

n\_fl:h\_shoot 5.7601 1 0.016394 \*

most\_adv\_sta:predator 23.8380 1 1.048e-06 \*\*\*

n\_fl\_sta:predator 0.6073 1 0.435805

h\_shoot\_sta:predator 0.2105 1 0.646360

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Linear effects + quadratic effects

Population=fixed

> modelfr\_10\_3<-lm(n\_intact\_fruits\_rel~most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta+

+ most\_adv\_sta2+n\_fl\_sta2+h\_shoot\_sta2+

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta+

+ predator\*most\_adv\_sta2+predator\*n\_fl\_sta2+predator\*h\_shoot\_sta2+

+ (LokalID%in%predator):most\_adv\_sta+(LokalID%in%predator):n\_fl\_sta+(LokalID%in%predator):h\_shoot\_sta+

+ (LokalID%in%predator):most\_adv\_sta2+(LokalID%in%predator):n\_fl\_sta2+(LokalID%in%predator):h\_shoot\_sta2,

+ data=subset(data,year==2010))

> Anova(modelfr\_10\_3,type="II")

Anova Table (Type II tests)

Response: n\_intact\_fruits\_rel

Sum Sq Df F value Pr(>F)

most\_adv\_sta 0.33 1 0.2106 0.6463609

n\_fl\_sta 133.90 1 85.1452 < 2.2e-16 \*\*\*

h\_shoot\_sta 10.52 1 6.6894 0.0097709 \*\*

most\_adv\_sta2 3.73 1 2.3726 0.1236461

n\_fl\_sta2 8.28 1 5.2677 0.0218313 \*

h\_shoot\_sta2 0.01 1 0.0041 0.9488810

predator 0.13 1 0.0800 0.7773781

most\_adv\_sta:predator 45.10 1 28.6782 9.56e-08 \*\*\*

n\_fl\_sta:predator 0.00 1 0.0016 0.9680992

h\_shoot\_sta:predator 0.63 1 0.3975 0.5284573

most\_adv\_sta2:predator 7.81 1 4.9687 0.0259241 \*

n\_fl\_sta2:predator 0.00 1 0.0002 0.9891807

h\_shoot\_sta2:predator 0.48 1 0.3037 0.5816406

most\_adv\_sta:predator:LokalID 51.04 18 1.8030 0.0201579 \*

n\_fl\_sta:predator:LokalID 35.59 18 1.2574 0.2066101

h\_shoot\_sta:predator:LokalID 39.23 18 1.3859 0.1279859

most\_adv\_sta2:predator:LokalID 38.25 18 1.3514 0.1462806

n\_fl\_sta2:predator:LokalID 72.63 18 2.5656 0.0003143 \*\*\*

h\_shoot\_sta2:predator:LokalID 38.62 18 1.3643 0.1392001

Residuals 3054.04 1942

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Population=random

> modelfr\_10\_3<-lmer(n\_intact\_fruits\_rel ~ most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta+

+ most\_adv\_sta2+n\_fl\_sta2+h\_shoot\_sta2+

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta +

+ predator\*most\_adv\_sta2+predator\*n\_fl\_sta2+predator\*h\_shoot\_sta2+

+ (1|predator/LokalID:most\_adv\_sta)+(1|predator/LokalID:n\_fl\_sta)+(1|predator/LokalID:h\_shoot\_sta)+

+ (1|predator/LokalID:most\_adv\_sta2)+(1|predator/LokalID:n\_fl\_sta2)+(1|predator/LokalID:h\_shoot\_sta2),

+ data = subset(data,year==2010),REML=F,lmerControl(optimizer="bobyqa", optCtrl = list(maxfun = 100000)))

Warning message:

In checkConv(attr(opt, "derivs"), opt$par, ctrl = control$checkConv, :

Model failed to converge: degenerate Hessian with 1 negative eigenvalues

> summary(modelfr\_10\_3)

Model is not identifiable...

summary from lme4 is returned

some computational error has occurred in lmerTest

Linear mixed model fit by maximum likelihood ['merModLmerTest']

Formula: n\_intact\_fruits\_rel ~ most\_adv\_sta + n\_fl\_sta + h\_shoot\_sta +

most\_adv\_sta2 + n\_fl\_sta2 + h\_shoot\_sta2 + predator \* most\_adv\_sta +

predator \* n\_fl\_sta + predator \* h\_shoot\_sta + predator \*

most\_adv\_sta2 + predator \* n\_fl\_sta2 + predator \* h\_shoot\_sta2 +

(1 | predator/LokalID:most\_adv\_sta) + (1 | predator/LokalID:n\_fl\_sta) +

(1 | predator/LokalID:h\_shoot\_sta) + (1 | predator/LokalID:most\_adv\_sta2) +

(1 | predator/LokalID:n\_fl\_sta2) + (1 | predator/LokalID:h\_shoot\_sta2)

Data: subset(data, year == 2010)

Control: lmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 1e+05))

AIC BIC logLik deviance df.resid

6952.9 7105.0 -3449.4 6898.9 2037

Scaled residuals:

Min 1Q Median 3Q Max

-3.4129 -0.5765 -0.2052 0.4023 9.6222

Random effects:

Groups Name Variance Std.Dev.

LokalID.h\_shoot\_sta2.predator (Intercept) 0.000e+00 0.000000

LokalID.h\_shoot\_sta.predator (Intercept) 0.000e+00 0.000000

LokalID.n\_fl\_sta2.predator (Intercept) 0.000e+00 0.000000

LokalID.n\_fl\_sta.predator (Intercept) 0.000e+00 0.000000

LokalID.most\_adv\_sta2.predator (Intercept) 3.532e-02 0.187948

LokalID.most\_adv\_sta.predator (Intercept) 2.614e-05 0.005112

predator (Intercept) 0.000e+00 0.000000

predator.1 (Intercept) 0.000e+00 0.000000

predator.2 (Intercept) 0.000e+00 0.000000

predator.3 (Intercept) 0.000e+00 0.000000

predator.4 (Intercept) 0.000e+00 0.000000

predator.5 (Intercept) 0.000e+00 0.000000

Residual 1.628e+00 1.275987

Number of obs: 2064, groups:

LokalID:h\_shoot\_sta2:predator, 1600; LokalID:h\_shoot\_sta:predator, 1600; LokalID:n\_fl\_sta2:predator, 133; LokalID:n\_fl\_sta:predator, 133; LokalID:most\_adv\_sta2:predator, 102; LokalID:most\_adv\_sta:predator, 102; predator, 2

Fixed effects:

Estimate Std. Error t value

(Intercept) 0.82553 0.07764 10.633

most\_adv\_sta 0.24598 0.05836 4.215

n\_fl\_sta 0.34374 0.07458 4.609

h\_shoot\_sta 0.12160 0.05391 2.256

most\_adv\_sta2 0.05596 0.04122 1.358

n\_fl\_sta2 0.07384 0.03133 2.357

h\_shoot\_sta2 0.04535 0.03623 1.252

predator1 0.22083 0.10317 2.140

most\_adv\_sta:predator1 -0.40825 0.07574 -5.390

n\_fl\_sta:predator1 0.09499 0.09531 0.997

h\_shoot\_sta:predator1 -0.01176 0.07163 -0.164

most\_adv\_sta2:predator1 -0.18108 0.05510 -3.287

n\_fl\_sta2:predator1 -0.02991 0.03876 -0.772

h\_shoot\_sta2:predator1 -0.03758 0.04754 -0.790

Correlation of Fixed Effects:

(Intr) mst\_d\_ n\_fl\_s h\_sht\_ mst\_\_2 n\_fl\_2 h\_sh\_2 prdtr1 ms\_\_:1 n\_f\_:1 h\_s\_:1 m\_\_2:1 n\_\_2:1

most\_adv\_st -0.062

n\_fl\_sta 0.263 -0.283

h\_shoot\_sta -0.039 -0.278 -0.315

most\_dv\_st2 -0.473 -0.097 0.008 0.156

n\_fl\_sta2 -0.244 0.109 -0.696 0.100 -0.145

h\_shoot\_st2 -0.332 0.146 0.029 -0.183 -0.125 -0.172

predator1 -0.753 0.046 -0.198 0.029 0.356 0.184 0.250

mst\_dv\_st:1 0.047 -0.770 0.218 0.214 0.075 -0.084 -0.112 -0.060

n\_fl\_st:pr1 -0.206 0.222 -0.783 0.246 -0.006 0.545 -0.022 0.212 -0.277

h\_sht\_st:p1 0.029 0.209 0.237 -0.753 -0.117 -0.075 0.138 -0.032 -0.203 -0.385

mst\_dv\_s2:1 0.354 0.072 -0.006 -0.117 -0.748 0.108 0.093 -0.497 -0.033 0.003 0.126

n\_fl\_st2:p1 0.197 -0.088 0.563 -0.081 0.117 -0.808 0.139 -0.214 0.096 -0.659 0.153 -0.126

h\_sht\_st2:1 0.253 -0.111 -0.022 0.140 0.095 0.131 -0.762 -0.333 0.103 0.048 -0.194 -0.112 -0.182

Warning message:

In checkConv(attr(opt, "derivs"), opt$par, ctrl = control$checkConv, :

Model failed to converge: degenerate Hessian with 1 negative eigenvalues

> Anova(modelfr\_10\_3,type="II")

Analysis of Deviance Table (Type II Wald chisquare tests)

Response: n\_intact\_fruits\_rel

Chisq Df Pr(>Chisq)

most\_adv\_sta 0.0096 1 0.922114

n\_fl\_sta 74.9107 1 < 2.2e-16 \*\*\*

h\_shoot\_sta 10.4849 1 0.001204 \*\*

most\_adv\_sta2 2.7529 1 0.097078 .

n\_fl\_sta2 8.6615 1 0.003250 \*\*

h\_shoot\_sta2 1.0060 1 0.315872

predator 0.4473 1 0.503604

most\_adv\_sta:predator 29.0529 1 7.043e-08 \*\*\*

n\_fl\_sta:predator 0.9934 1 0.318920

h\_shoot\_sta:predator 0.0270 1 0.869547

most\_adv\_sta2:predator 10.8022 1 0.001014 \*\*

n\_fl\_sta2:predator 0.5955 1 0.440295

h\_shoot\_sta2:predator 0.6248 1 0.429252

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

2011

Linear effects

Population=fixed

> modelfr\_11<-lm(n\_intact\_fruits\_rel~most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta+

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta+

+ (LokalID%in%predator):most\_adv\_sta+(LokalID%in%predator):n\_fl\_sta+(LokalID%in%predator):h\_shoot\_sta,

+ data=subset(data,year==2011))

> Anova(modelfr\_11,type="II")

Anova Table (Type II tests)

Response: n\_intact\_fruits\_rel

Sum Sq Df F value Pr(>F)

most\_adv\_sta 1.2 1 0.4987 0.480170

n\_fl\_sta 123.7 1 50.7725 1.584e-12 \*\*\*

h\_shoot\_sta 1.1 1 0.4661 0.494888

predator 0.0 1 0.0001 0.991891

most\_adv\_sta:predator 40.8 1 16.7395 4.509e-05 \*\*\*

n\_fl\_sta:predator 19.4 1 7.9479 0.004876 \*\*

h\_shoot\_sta:predator 23.2 1 9.5080 0.002082 \*\*

most\_adv\_sta:predator:LokalID 31.5 14 0.9231 0.532868

n\_fl\_sta:predator:LokalID 86.6 14 2.5385 0.001339 \*\*

h\_shoot\_sta:predator:LokalID 62.5 14 1.8323 0.029590 \*

Residuals 3771.4 1548

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Population=random

> modelfr\_11<-lmer(n\_intact\_fruits\_rel ~ most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta+

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta +

+ (1|predator/LokalID:most\_adv\_sta)+(1|predator/LokalID:n\_fl\_sta)+(1|predator/LokalID:h\_shoot\_sta),

+ data = subset(data,year==2011),REML=F)

> summary(modelfr\_11)

Linear mixed model fit by maximum likelihood t-tests use Satterthwaite approximations to degrees of

freedom [merModLmerTest]

Formula: n\_intact\_fruits\_rel ~ most\_adv\_sta + n\_fl\_sta + h\_shoot\_sta +

predator \* most\_adv\_sta + predator \* n\_fl\_sta + predator \*

h\_shoot\_sta + (1 | predator/LokalID:most\_adv\_sta) + (1 |

predator/LokalID:n\_fl\_sta) + (1 | predator/LokalID:h\_shoot\_sta)

Data: subset(data, year == 2011)

AIC BIC logLik deviance df.resid

6046.1 6126.8 -3008.1 6016.1 1583

Scaled residuals:

Min 1Q Median 3Q Max

-2.1357 -0.5531 -0.3302 0.3277 7.9246

Random effects:

Groups Name Variance Std.Dev.

LokalID.h\_shoot\_sta.predator (Intercept) 0.21020 0.4585

LokalID.n\_fl\_sta.predator (Intercept) 0.02565 0.1602

LokalID.most\_adv\_sta.predator (Intercept) 0.00000 0.0000

predator (Intercept) 0.00000 0.0000

predator.1 (Intercept) 0.00000 0.0000

predator.2 (Intercept) 0.00000 0.0000

Residual 2.29950 1.5164

Number of obs: 1598, groups:

LokalID:h\_shoot\_sta:predator, 1211; LokalID:n\_fl\_sta:predator, 113; LokalID:most\_adv\_sta:predator, 81; predator, 2

Fixed effects:

Estimate Std. Error df t value Pr(>|t|)

(Intercept) 1.01052 0.08555 20.40000 11.813 1.4e-10 \*\*\*

most\_adv\_sta 0.30373 0.08003 1574.30000 3.795 0.000153 \*\*\*

n\_fl\_sta 0.20845 0.08635 197.30000 2.414 0.016695 \*

h\_shoot\_sta 0.18800 0.08275 1453.30000 2.272 0.023235 \*

predator1 -0.01359 0.10137 24.30000 -0.134 0.894487

most\_adv\_sta:predator1 -0.36338 0.09877 1595.40000 -3.679 0.000242 \*\*\*

n\_fl\_sta:predator1 0.32084 0.11046 275.40000 2.905 0.003975 \*\*

h\_shoot\_sta:predator1 -0.31791 0.10251 1454.90000 -3.101 0.001964 \*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Correlation of Fixed Effects:

(Intr) mst\_d\_ n\_fl\_s h\_sht\_ prdtr1 ms\_\_:1 n\_f\_:1

most\_adv\_st 0.000

n\_fl\_sta -0.099 -0.257

h\_shoot\_sta -0.003 -0.240 -0.318

predator1 -0.844 0.000 0.084 0.003

mst\_dv\_st:1 0.000 -0.810 0.208 0.194 0.001

n\_fl\_st:pr1 0.078 0.201 -0.782 0.249 -0.083 -0.323

h\_sht\_st:p1 0.003 0.194 0.257 -0.807 -0.005 -0.166 -0.383

> Anova(modelfr\_11,type="II")

Analysis of Deviance Table (Type II Wald chisquare tests)

Response: n\_intact\_fruits\_rel

Chisq Df Pr(>Chisq)

most\_adv\_sta 1.9304 1 0.164712

n\_fl\_sta 56.4322 1 5.817e-14 \*\*\*

h\_shoot\_sta 0.1537 1 0.694981

predator 0.0204 1 0.886319

most\_adv\_sta:predator 13.5364 1 0.000234 \*\*\*

n\_fl\_sta:predator 8.4367 1 0.003677 \*\*

h\_shoot\_sta:predator 9.6177 1 0.001927 \*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Linear effects + interaction between traits

Population=fixed

> modelfr\_11\_2<-lm(n\_intact\_fruits\_rel~most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta+

+ most\_adv:n\_fl+most\_adv:h\_shoot+n\_fl:h\_shoot+

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta+

+ (LokalID%in%predator):most\_adv\_sta+(LokalID%in%predator):n\_fl\_sta+(LokalID%in%predator):h\_shoot\_sta,

+ data=subset(data,year==2011))

> Anova(modelfr\_11\_2,type="II")

Anova Table (Type II tests)

Response: n\_intact\_fruits\_rel

Sum Sq Df F value Pr(>F)

most\_adv\_sta 7.8 1 3.2169 0.073077 .

n\_fl\_sta 13.0 1 5.3276 0.021121 \*

h\_shoot\_sta 0.5 1 0.2134 0.644165

predator 2.7 1 1.1103 0.292184

most\_adv:n\_fl 1.1 1 0.4414 0.506549

most\_adv:h\_shoot 1.6 1 0.6402 0.423778

n\_fl:h\_shoot 3.7 1 1.5362 0.215378

most\_adv\_sta:predator 37.6 1 15.4278 8.95e-05 \*\*\*

n\_fl\_sta:predator 12.2 1 5.0168 0.025245 \*

h\_shoot\_sta:predator 25.5 1 10.4774 0.001234 \*\*

most\_adv\_sta:predator:LokalID 30.9 14 0.9067 0.550965

n\_fl\_sta:predator:LokalID 79.7 14 2.3352 0.003425 \*\*

h\_shoot\_sta:predator:LokalID 63.0 14 1.8458 0.028030 \*

Residuals 3766.8 1545

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Population=random

> modelfr\_11\_2<-lmer(n\_intact\_fruits\_rel ~ most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta+

+ most\_adv:n\_fl+most\_adv:h\_shoot+n\_fl:h\_shoot+

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta +

+ (1|predator/LokalID:most\_adv\_sta)+(1|predator/LokalID:n\_fl\_sta)+(1|predator/LokalID:h\_shoot\_sta),

+ data = subset(data,year==2011),REML=F)

> summary(modelfr\_11\_2)

Linear mixed model fit by maximum likelihood t-tests use Satterthwaite approximations to degrees of

freedom [merModLmerTest]

Formula: n\_intact\_fruits\_rel ~ most\_adv\_sta + n\_fl\_sta + h\_shoot\_sta +

most\_adv:n\_fl + most\_adv:h\_shoot + n\_fl:h\_shoot + predator \*

most\_adv\_sta + predator \* n\_fl\_sta + predator \* h\_shoot\_sta +

(1 | predator/LokalID:most\_adv\_sta) + (1 | predator/LokalID:n\_fl\_sta) +

(1 | predator/LokalID:h\_shoot\_sta)

Data: subset(data, year == 2011)

AIC BIC logLik deviance df.resid

6041.7 6138.4 -3002.8 6005.7 1580

Scaled residuals:

Min 1Q Median 3Q Max

-2.0291 -0.5446 -0.3305 0.3152 7.9941

Random effects:

Groups Name Variance Std.Dev.

LokalID.h\_shoot\_sta.predator (Intercept) 0.21221 0.4607

LokalID.n\_fl\_sta.predator (Intercept) 0.02931 0.1712

LokalID.most\_adv\_sta.predator (Intercept) 0.00000 0.0000

predator (Intercept) 0.00000 0.0000

predator.1 (Intercept) 0.00000 0.0000

predator.2 (Intercept) 0.00000 0.0000

Residual 2.27834 1.5094

Number of obs: 1598, groups:

LokalID:h\_shoot\_sta:predator, 1211; LokalID:n\_fl\_sta:predator, 113; LokalID:most\_adv\_sta:predator, 81; predator, 2

Fixed effects:

Estimate Std. Error df t value Pr(>|t|)

(Intercept) 1.132e+00 2.597e-01 8.560e+01 4.359 3.62e-05 \*\*\*

most\_adv\_sta 3.909e-01 1.155e-01 4.624e+02 3.384 0.000776 \*\*\*

n\_fl\_sta 3.754e-02 1.018e-01 2.354e+02 0.369 0.712636

h\_shoot\_sta 2.632e-01 1.127e-01 5.657e+02 2.335 0.019901 \*

predator1 -1.118e-01 1.080e-01 3.190e+01 -1.035 0.308541

most\_adv:n\_fl 1.707e-02 1.613e-02 4.317e+02 1.059 0.290386

most\_adv:h\_shoot -5.487e-03 3.382e-03 1.603e+02 -1.623 0.106630

n\_fl:h\_shoot 3.217e-03 2.698e-03 3.728e+02 1.192 0.233982

most\_adv\_sta:predator1 -3.500e-01 9.913e-02 1.596e+03 -3.531 0.000426 \*\*\*

n\_fl\_sta:predator1 2.505e-01 1.129e-01 2.464e+02 2.219 0.027431 \*

h\_shoot\_sta:predator1 -3.408e-01 1.031e-01 1.432e+03 -3.306 0.000969 \*\*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Correlation of Fixed Effects:

(Intr) mst\_d\_ n\_fl\_s h\_sht\_ prdtr1 mst\_dv:n\_ mst\_dv:h\_ n\_fl:\_ ms\_\_:1 n\_f\_:1

most\_adv\_st 0.588

n\_fl\_sta -0.011 -0.227

h\_shoot\_sta 0.571 0.177 -0.230

predator1 -0.433 -0.134 0.202 -0.140

mst\_dv:n\_fl 0.102 -0.208 -0.114 0.373 -0.124

mst\_dv:h\_sh -0.876 -0.649 0.174 -0.592 0.252 -0.165

n\_fl:h\_shot -0.050 0.332 -0.247 -0.254 -0.061 -0.758 -0.137

mst\_dv\_st:1 0.037 -0.490 0.151 0.139 -0.012 -0.084 -0.055 0.109

n\_fl\_st:pr1 0.025 0.104 -0.547 0.152 -0.035 -0.062 0.076 -0.077 -0.320

h\_sht\_st:p1 -0.102 0.040 0.243 -0.644 0.026 0.019 0.124 -0.061 -0.174 -0.358

> Anova(modelfr\_11\_2,type="II")

Analysis of Deviance Table (Type II Wald chisquare tests)

Response: n\_intact\_fruits\_rel

Chisq Df Pr(>Chisq)

most\_adv\_sta 3.5969 1 0.0578875 .

n\_fl\_sta 3.5798 1 0.0584876 .

h\_shoot\_sta 0.0732 1 0.7867364

predator 1.0113 1 0.3145961

most\_adv:n\_fl 1.1206 1 0.2897942

most\_adv:h\_shoot 2.6330 1 0.1046645

n\_fl:h\_shoot 1.4211 1 0.2332237

most\_adv\_sta:predator 12.4652 1 0.0004146 \*\*\*

n\_fl\_sta:predator 4.9218 1 0.0265195 \*

h\_shoot\_sta:predator 10.9306 1 0.0009459 \*\*\*

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Linear effects + quadratic effects

Population=fixed

> modelfr\_11\_3<-lm(n\_intact\_fruits\_rel~most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta+

+ most\_adv\_sta2+n\_fl\_sta2+h\_shoot\_sta2+

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta+

+ predator\*most\_adv\_sta2+predator\*n\_fl\_sta2+predator\*h\_shoot\_sta2+

+ (LokalID%in%predator):most\_adv\_sta+(LokalID%in%predator):n\_fl\_sta+(LokalID%in%predator):h\_shoot\_sta+

+ (LokalID%in%predator):most\_adv\_sta2+(LokalID%in%predator):n\_fl\_sta2+(LokalID%in%predator):h\_shoot\_sta2,

+ data=subset(data,year==2011))

> Anova(modelfr\_11\_3,type="II")

Anova Table (Type II tests)

Response: n\_intact\_fruits\_rel

Sum Sq Df F value Pr(>F)

most\_adv\_sta 4.8 1 2.0413 0.1532834

n\_fl\_sta 45.0 1 18.9830 1.408e-05 \*\*\*

h\_shoot\_sta 0.1 1 0.0268 0.8700699

most\_adv\_sta2 0.3 1 0.1276 0.7209769

n\_fl\_sta2 4.8 1 2.0458 0.1528396

h\_shoot\_sta2 3.6 1 1.5103 0.2192900

predator 0.0 1 0.0001 0.9922041

most\_adv\_sta:predator 27.2 1 11.4925 0.0007169 \*\*\*

n\_fl\_sta:predator 2.8 1 1.1784 0.2778664

h\_shoot\_sta:predator 15.8 1 6.6786 0.0098515 \*\*

most\_adv\_sta2:predator 1.9 1 0.8096 0.3683703

n\_fl\_sta2:predator 25.4 1 10.7068 0.0010917 \*\*

h\_shoot\_sta2:predator 0.5 1 0.2250 0.6353293

most\_adv\_sta:predator:LokalID 40.8 14 1.2279 0.2476746

n\_fl\_sta:predator:LokalID 33.5 14 1.0086 0.4414652

h\_shoot\_sta:predator:LokalID 40.1 14 1.2080 0.2623876

most\_adv\_sta2:predator:LokalID 28.7 14 0.8641 0.5984686

n\_fl\_sta2:predator:LokalID 95.7 14 2.8845 0.0002544 \*\*\*

h\_shoot\_sta2:predator:LokalID 62.5 14 1.8821 0.0242289 \*

Residuals 3555.9 1500

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Population=random

> modelfr\_11\_3<-lmer(n\_intact\_fruits\_rel ~ most\_adv\_sta+n\_fl\_sta+h\_shoot\_sta+

+ most\_adv\_sta2+n\_fl\_sta2+h\_shoot\_sta2+

+ predator\*most\_adv\_sta+predator\*n\_fl\_sta+predator\*h\_shoot\_sta +

+ predator\*most\_adv\_sta2+predator\*n\_fl\_sta2+predator\*h\_shoot\_sta2+

+ (1|predator/LokalID:most\_adv\_sta)+(1|predator/LokalID:n\_fl\_sta)+(1|predator/LokalID:h\_shoot\_sta)+

+ (1|predator/LokalID:most\_adv\_sta2)+(1|predator/LokalID:n\_fl\_sta2)+(1|predator/LokalID:h\_shoot\_sta2),

+ data = subset(data,year==2011),REML=F,lmerControl(optimizer="bobyqa", optCtrl = list(maxfun = 100000)))

Warning message:

In checkConv(attr(opt, "derivs"), opt$par, ctrl = control$checkConv, :

Model is nearly unidentifiable: large eigenvalue ratio

- Rescale variables?

> summary(modelfr\_11\_3)

Linear mixed model fit by maximum likelihood t-tests use Satterthwaite approximations to degrees of

freedom [merModLmerTest]

Formula: n\_intact\_fruits\_rel ~ most\_adv\_sta + n\_fl\_sta + h\_shoot\_sta +

most\_adv\_sta2 + n\_fl\_sta2 + h\_shoot\_sta2 + predator \* most\_adv\_sta +

predator \* n\_fl\_sta + predator \* h\_shoot\_sta + predator \*

most\_adv\_sta2 + predator \* n\_fl\_sta2 + predator \* h\_shoot\_sta2 +

(1 | predator/LokalID:most\_adv\_sta) + (1 | predator/LokalID:n\_fl\_sta) +

(1 | predator/LokalID:h\_shoot\_sta) + (1 | predator/LokalID:most\_adv\_sta2) +

(1 | predator/LokalID:n\_fl\_sta2) + (1 | predator/LokalID:h\_shoot\_sta2)

Data: subset(data, year == 2011)

Control: lmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 1e+05))

AIC BIC logLik deviance df.resid

6060.5 6205.7 -3003.3 6006.5 1571

Scaled residuals:

Min 1Q Median 3Q Max

-2.6915 -0.5536 -0.3223 0.3272 7.8948

Random effects:

Groups Name Variance Std.Dev.

LokalID.h\_shoot\_sta2.predator (Intercept) 1.679e-01 4.097e-01

LokalID.h\_shoot\_sta.predator (Intercept) 3.932e-02 1.983e-01

LokalID.n\_fl\_sta.predator (Intercept) 2.938e-02 1.714e-01

LokalID.n\_fl\_sta2.predator (Intercept) 8.928e-14 2.988e-07

LokalID.most\_adv\_sta2.predator (Intercept) 0.000e+00 0.000e+00

LokalID.most\_adv\_sta.predator (Intercept) 7.146e-15 8.453e-08

predator (Intercept) 0.000e+00 0.000e+00

predator.1 (Intercept) 0.000e+00 0.000e+00

predator.2 (Intercept) 0.000e+00 0.000e+00

predator.3 (Intercept) 0.000e+00 0.000e+00

predator.4 (Intercept) 0.000e+00 0.000e+00

predator.5 (Intercept) 0.000e+00 0.000e+00

Residual 2.284e+00 1.511e+00

Number of obs: 1598, groups:

LokalID:h\_shoot\_sta2:predator, 1211; LokalID:h\_shoot\_sta:predator, 1211; LokalID:n\_fl\_sta:predator, 113; LokalID:n\_fl\_sta2:predator, 111; LokalID:most\_adv\_sta2:predator, 81; LokalID:most\_adv\_sta:predator, 81; predator, 2

Fixed effects:

Estimate Std. Error df t value Pr(>|t|)

(Intercept) 1.02009 0.12122 68.60000 8.415 3.65e-12 \*\*\*

most\_adv\_sta 0.31338 0.08639 1577.70000 3.628 0.000295 \*\*\*

n\_fl\_sta 0.35533 0.12634 101.00000 2.813 0.005907 \*\*

h\_shoot\_sta 0.18252 0.08319 1470.10000 2.194 0.028389 \*

most\_adv\_sta2 0.04359 0.06006 1593.80000 0.726 0.468104

n\_fl\_sta2 -0.07861 0.04201 248.10000 -1.871 0.062505 .

h\_shoot\_sta2 0.02402 0.05494 1362.40000 0.437 0.662036

predator1 -0.03884 0.14575 79.90000 -0.266 0.790561

most\_adv\_sta:predator1 -0.36028 0.10498 1585.90000 -3.432 0.000615 \*\*\*

n\_fl\_sta:predator1 0.09706 0.15479 124.10000 0.627 0.531784

h\_shoot\_sta:predator1 -0.31250 0.10347 1465.10000 -3.020 0.002570 \*\*

most\_adv\_sta2:predator1 -0.11657 0.07553 1594.90000 -1.543 0.122942

n\_fl\_sta2:predator1 0.12083 0.05270 274.70000 2.293 0.022607 \*

h\_shoot\_sta2:predator1 0.02170 0.06624 1359.30000 0.328 0.743323

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Correlation of Fixed Effects:

(Intr) mst\_d\_ n\_fl\_s h\_sht\_ mst\_\_2 n\_fl\_2 h\_sh\_2 prdtr1 ms\_\_:1 n\_f\_:1 h\_s\_:1 m\_\_2:1 n\_\_2:1

most\_adv\_st -0.229

n\_fl\_sta 0.276 -0.293

h\_shoot\_sta -0.091 -0.181 -0.286

most\_dv\_st2 -0.440 0.360 -0.142 0.065

n\_fl\_sta2 -0.302 0.104 -0.704 0.074 0.021

h\_shoot\_st2 -0.366 0.035 -0.052 0.068 -0.127 -0.094

predator1 -0.832 0.190 -0.230 0.076 0.366 0.251 0.305

mst\_dv\_st:1 0.188 -0.823 0.241 0.149 -0.297 -0.086 -0.029 -0.210

n\_fl\_st:pr1 -0.225 0.239 -0.816 0.234 0.116 0.574 0.043 0.261 -0.347

h\_sht\_st:p1 0.073 0.146 0.230 -0.804 -0.052 -0.060 -0.055 -0.081 -0.117 -0.349

mst\_dv\_s2:1 0.350 -0.287 0.113 -0.052 -0.795 -0.017 0.101 -0.452 0.272 -0.091 0.066

n\_fl\_st2:p1 0.241 -0.083 0.561 -0.059 -0.017 -0.797 0.075 -0.282 0.127 -0.673 0.105 -0.041

h\_sht\_st2:1 0.304 -0.029 0.044 -0.056 0.105 0.078 -0.829 -0.369 0.055 -0.051 0.014 -0.107 -0.105

Warning message:

In checkConv(attr(opt, "derivs"), opt$par, ctrl = control$checkConv, :

Model is nearly unidentifiable: large eigenvalue ratio

- Rescale variables?

> Anova(modelfr\_11\_3,type="II")

Analysis of Deviance Table (Type II Wald chisquare tests)

Response: n\_intact\_fruits\_rel

Chisq Df Pr(>Chisq)

most\_adv\_sta 1.9992 1 0.1573794

n\_fl\_sta 33.0973 1 8.766e-09 \*\*\*

h\_shoot\_sta 0.1551 1 0.6936820

most\_adv\_sta2 0.6838 1 0.4082898

n\_fl\_sta2 0.0051 1 0.9430716

h\_shoot\_sta2 1.6093 1 0.2045859

predator 0.0245 1 0.8756570

most\_adv\_sta:predator 11.7779 1 0.0005994 \*\*\*

n\_fl\_sta:predator 0.3932 1 0.5306319

h\_shoot\_sta:predator 9.1218 1 0.0025259 \*\*

most\_adv\_sta2:predator 2.3820 1 0.1227436

n\_fl\_sta2:predator 5.2576 1 0.0218516 \*

h\_shoot\_sta2:predator 0.1073 1 0.7432726

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1