AFINN DATA

> summary(afinnmodel1)

Call:

lm(formula = Valence ~ letter\_freq, data = afinndata)

Residuals:

Min 1Q Median 3Q Max

-4.466 -1.448 -1.337 2.512 5.631

Coefficients:

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

(Intercept) -0.88863 0.25550 -3.478 0.000514 \*\*\*

letter\_freq 0.04956 0.04033 1.229 0.219265

---

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

Residual standard error: 2.121 on 2450 degrees of freedom

Multiple R-squared: 0.0006159, Adjusted R-squared: 0.000208

F-statistic: 1.51 on 1 and 2450 DF, p-value: 0.2193

> summary(afinnmodel2)

Call:

lm(formula = Valence ~ letter\_freq + rha + LR\_switch + finger\_switch,

data = afinndata)

Residuals:

Min 1Q Median 3Q Max

-4.457 -1.507 -1.103 2.355 5.739

Coefficients:

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

(Intercept) -1.32683 0.29432 -4.508 6.85e-06 \*\*\*

letter\_freq 0.14708 0.04837 3.041 0.00239 \*\*

rha 0.07593 0.01870 4.060 5.07e-05 \*\*\*

LR\_switch -0.03507 0.03805 -0.922 0.35679

finger\_switch 0.01133 0.02773 0.409 0.68286

---

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

Residual standard error: 2.116 on 2447 degrees of freedom

Multiple R-squared: 0.007333, Adjusted R-squared: 0.005711

F-statistic: 4.519 on 4 and 2447 DF, p-value: 0.001224

> summary(afinnmodel3)

Call:

lm(formula = Valence ~ letter\_freq + rha \* LR\_switch \* finger\_switch,

data = afinndata)

Residuals:

Min 1Q Median 3Q Max

-4.465 -1.510 -1.102 2.337 5.779

Coefficients:

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

(Intercept) -1.4994233 0.3518300 -4.262 2.1e-05 \*\*\*

letter\_freq 0.1589792 0.0493538 3.221 0.00129 \*\*

rha 0.1117588 0.0689949 1.620 0.10540

LR\_switch 0.0440313 0.0833573 0.528 0.59739

finger\_switch 0.0131639 0.0462750 0.284 0.77607

rha:LR\_switch 0.0129299 0.0272398 0.475 0.63507

rha:finger\_switch -0.0111967 0.0120390 -0.930 0.35244

LR\_switch:finger\_switch -0.0073941 0.0104164 -0.710 0.47786

rha:LR\_switch:finger\_switch 0.0001208 0.0034788 0.035 0.97229

---

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

Residual standard error: 2.116 on 2443 degrees of freedom

Multiple R-squared: 0.008332, Adjusted R-squared: 0.005085

F-statistic: 2.566 on 8 and 2443 DF, p-value: 0.008712

> anova(afinnmodel1, afinnmodel2, afinnmodel3)

Analysis of Variance Table

Model 1: Valence ~ letter\_freq

Model 2: Valence ~ letter\_freq + rha + LR\_switch + finger\_switch

Model 3: Valence ~ letter\_freq + rha \* LR\_switch \* finger\_switch

Res.Df RSS Df Sum of Sq F Pr(>F)

1 2450 11027

2 2447 10953 3 74.116 5.5161 0.0008972 \*\*\*

3 2443 10942 4 11.020 0.6151 0.6517849

---

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

ANEW DATA

> summary(anewmodel1)

Call:

lm(formula = Valence.Mean ~ letter\_freq, data = anewdata)

Residuals:

Min 1Q Median 3Q Max

-3.8994 -1.8764 0.1458 1.7523 3.6703

Coefficients:

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

(Intercept) 5.158327 0.321480 16.046 <2e-16 \*\*\*

letter\_freq -0.001461 0.051353 -0.028 0.977

---

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

Residual standard error: 1.994 on 1032 degrees of freedom

Multiple R-squared: 7.845e-07, Adjusted R-squared: -0.0009682

F-statistic: 0.0008096 on 1 and 1032 DF, p-value: 0.9773

> summary(anewmodel2)

Call:

lm(formula = Valence.Mean ~ letter\_freq + rha + LR\_switch + finger\_switch,

data = anewdata)

Residuals:

Min 1Q Median 3Q Max

-3.930 -1.838 0.166 1.747 3.731

Coefficients:

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

(Intercept) 5.007110 0.369641 13.546 <2e-16 \*\*\*

letter\_freq 0.054139 0.059630 0.908 0.3641

rha 0.059110 0.028626 2.065 0.0392 \*

LR\_switch -0.047139 0.060591 -0.778 0.4368

finger\_switch -0.001317 0.049355 -0.027 0.9787

---

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

Residual standard error: 1.992 on 1029 degrees of freedom

Multiple R-squared: 0.005037, Adjusted R-squared: 0.001169

F-statistic: 1.302 on 4 and 1029 DF, p-value: 0.2673

> summary(anewmodel3)

Call:

lm(formula = Valence.Mean ~ letter\_freq + rha \* LR\_switch \* finger\_switch,

data = anewdata)

Residuals:

Min 1Q Median 3Q Max

-3.9343 -1.8542 0.1753 1.7468 3.6886

Coefficients:

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

(Intercept) 5.341553 0.464527 11.499 <2e-16 \*\*\*

letter\_freq 0.049721 0.061216 0.812 0.417

rha 0.019195 0.114368 0.168 0.867

LR\_switch -0.187090 0.145087 -1.289 0.198

finger\_switch -0.057498 0.084802 -0.678 0.498

rha:LR\_switch 0.027517 0.054771 0.502 0.615

rha:finger\_switch 0.015662 0.025378 0.617 0.537

LR\_switch:finger\_switch 0.022782 0.025034 0.910 0.363

rha:LR\_switch:finger\_switch -0.008119 0.009073 -0.895 0.371

---

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

Residual standard error: 1.992 on 1025 degrees of freedom

Multiple R-squared: 0.008989, Adjusted R-squared: 0.001254

F-statistic: 1.162 on 8 and 1025 DF, p-value: 0.3191

> anova(anewmodel1, anewmodel2, anewmodel3)

Analysis of Variance Table

Model 1: Valence.Mean ~ letter\_freq

Model 2: Valence.Mean ~ letter\_freq + rha + LR\_switch + finger\_switch

Model 3: Valence.Mean ~ letter\_freq + rha \* LR\_switch \* finger\_switch

Res.Df RSS Df Sum of Sq F Pr(>F)

1 1032 4104.0

2 1029 4083.4 3 20.669 1.7363 0.1578

3 1025 4067.1 4 16.218 1.0218 0.3949

DODDS DATA

> summary(doddsmodel1)

Call:

lm(formula = happiness\_average ~ letter\_freq, data = doddsdata)

Residuals:

Min 1Q Median 3Q Max

-4.1167 -0.4822 0.0712 0.6592 3.1171

Coefficients:

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

(Intercept) 5.227374 0.054543 95.839 < 2e-16 \*\*\*

letter\_freq 0.024496 0.008617 2.843 0.00448 \*\*

---

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

Residual standard error: 1.093 on 9910 degrees of freedom

Multiple R-squared: 0.0008148, Adjusted R-squared: 0.000714

F-statistic: 8.082 on 1 and 9910 DF, p-value: 0.004481

> summary(doddsmodel2)

Call:

lm(formula = happiness\_average ~ letter\_freq + rha + LR\_switch +

finger\_switch, data = doddsdata)

Residuals:

Min 1Q Median 3Q Max

-4.2070 -0.4235 0.0574 0.6370 3.1911

Coefficients:

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

(Intercept) 5.0441066 0.0594544 84.840 < 2e-16 \*\*\*

letter\_freq 0.0097996 0.0096540 1.015 0.3101

rha 0.0086320 0.0049649 1.739 0.0821 .

LR\_switch -0.0004304 0.0104753 -0.041 0.9672

finger\_switch 0.0617200 0.0076119 8.108 5.74e-16 \*\*\*

---

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

Residual standard error: 1.085 on 9907 degrees of freedom

Multiple R-squared: 0.01634, Adjusted R-squared: 0.01594

F-statistic: 41.13 on 4 and 9907 DF, p-value: < 2.2e-16

> summary(doddsmodel3)

Call:

lm(formula = happiness\_average ~ letter\_freq + rha \* LR\_switch \*

finger\_switch, data = doddsdata)

Residuals:

Min 1Q Median 3Q Max

-4.2353 -0.4217 0.0590 0.6379 3.2007

Coefficients:

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

(Intercept) 4.9939771 0.0658884 75.795 < 2e-16 \*\*\*

letter\_freq 0.0098945 0.0097439 1.015 0.3099

rha 0.0102856 0.0154261 0.667 0.5049

LR\_switch 0.0207280 0.0186904 1.109 0.2674

finger\_switch 0.0758336 0.0109639 6.917 4.91e-12 \*\*\*

rha:LR\_switch -0.0002082 0.0071516 -0.029 0.9768

rha:finger\_switch 0.0015298 0.0035200 0.435 0.6639

LR\_switch:finger\_switch -0.0047351 0.0026029 -1.819 0.0689 .

rha:LR\_switch:finger\_switch -0.0006035 0.0009802 -0.616 0.5381

---

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

Residual standard error: 1.085 on 9903 degrees of freedom

Multiple R-squared: 0.01685, Adjusted R-squared: 0.01606

F-statistic: 21.22 on 8 and 9903 DF, p-value: < 2.2e-16

> anova(doddsmodel1, doddsmodel2, doddsmodel3)

Analysis of Variance Table

Model 1: happiness\_average ~ letter\_freq

Model 2: happiness\_average ~ letter\_freq + rha + LR\_switch + finger\_switch

Model 3: happiness\_average ~ letter\_freq + rha \* LR\_switch \* finger\_switch

Res.Df RSS Df Sum of Sq F Pr(>F)

1 9910 11839

2 9907 11655 3 183.897 52.111 <2e-16 \*\*\*

3 9903 11649 4 6.136 1.304 0.2659

---

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

FERSTL DATA

> summary(ferstlmodel1)

Call:

lm(formula = valence ~ letter\_freq, data = ferstldata)

Residuals:

Min 1Q Median 3Q Max

-2.5668 -1.4309 -0.2462 1.4533 3.0704

Coefficients:

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

(Intercept) -0.1089 0.7594 -0.143 0.886

letter\_freq -0.0354 0.1139 -0.311 0.756

Residual standard error: 1.599 on 286 degrees of freedom

Multiple R-squared: 0.0003375, Adjusted R-squared: -0.003158

F-statistic: 0.09656 on 1 and 286 DF, p-value: 0.7562

> summary(ferstlmodel2)

Call:

lm(formula = valence ~ letter\_freq + rha + LR\_switch + finger\_switch,

data = ferstldata)

Residuals:

Min 1Q Median 3Q Max

-2.8334 -1.3546 -0.2547 1.4414 3.0913

Coefficients:

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

(Intercept) 0.04499 0.83408 0.054 0.9570

letter\_freq -0.05889 0.12730 -0.463 0.6440

rha 0.04156 0.04684 0.887 0.3757

LR\_switch -0.16241 0.09381 -1.731 0.0845 .

finger\_switch 0.11157 0.07221 1.545 0.1234

---

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

Residual standard error: 1.598 on 283 degrees of freedom

Multiple R-squared: 0.01167, Adjusted R-squared: -0.002301

F-statistic: 0.8353 on 4 and 283 DF, p-value: 0.5037

> summary(ferstlmodel3)

Call:

lm(formula = valence ~ letter\_freq + rha \* LR\_switch \* finger\_switch,

data = ferstldata)

Residuals:

Min 1Q Median 3Q Max

-2.8746 -1.3494 -0.3323 1.3939 3.0862

Coefficients:

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

(Intercept) 0.918809 1.176682 0.781 0.4356

letter\_freq -0.105383 0.129517 -0.814 0.4165

rha 0.093123 0.201110 0.463 0.6437

LR\_switch -0.665615 0.331941 -2.005 0.0459 \*

finger\_switch 0.056645 0.187751 0.302 0.7631

rha:LR\_switch -0.122459 0.093994 -1.303 0.1937

rha:finger\_switch 0.002187 0.040444 0.054 0.9569

LR\_switch:finger\_switch 0.066515 0.055589 1.197 0.2325

rha:LR\_switch:finger\_switch 0.015030 0.015566 0.966 0.3351

---

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

Residual standard error: 1.597 on 279 degrees of freedom

Multiple R-squared: 0.02621, Adjusted R-squared: -0.001717

F-statistic: 0.9385 on 8 and 279 DF, p-value: 0.485

> anova(ferstlmodel1, ferstlmodel2, ferstlmodel3)

Analysis of Variance Table

Model 1: valence ~ letter\_freq

Model 2: valence ~ letter\_freq + rha + LR\_switch + finger\_switch

Model 3: valence ~ letter\_freq + rha \* LR\_switch \* finger\_switch

Res.Df RSS Df Sum of Sq F Pr(>F)

1 286 730.92

2 283 722.63 3 8.2846 1.0821 0.3570

3 279 712.01 4 10.6292 1.0413 0.3862

WARRINER DATA

> summary(warrinermodel1)

Call:

lm(formula = V.Mean.Sum ~ letter\_freq, data = warrinerdata)

Residuals:

Min 1Q Median 3Q Max

-3.8108 -0.8141 0.1333 0.8744 3.4842

Coefficients:

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

(Intercept) 4.845565 0.059139 81.935 < 2e-16 \*\*\*

letter\_freq 0.034888 0.009439 3.696 0.00022 \*\*\*

---

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

Residual standard error: 1.274 on 13806 degrees of freedom

Multiple R-squared: 0.0009886, Adjusted R-squared: 0.0009162

F-statistic: 13.66 on 1 and 13806 DF, p-value: 0.0002197

> summary(warrinermodel2)

Call:

lm(formula = V.Mean.Sum ~ letter\_freq + rha + LR\_switch + finger\_switch,

data = warrinerdata)

Residuals:

Min 1Q Median 3Q Max

-3.8399 -0.8168 0.1291 0.8731 3.5337

Coefficients:

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

(Intercept) 4.799224 0.066061 72.648 < 2e-16 \*\*\*

letter\_freq 0.056973 0.010849 5.252 1.53e-07 \*\*\*

rha 0.013381 0.004740 2.823 0.00477 \*\*

LR\_switch 0.013754 0.009456 1.454 0.14585

finger\_switch -0.021230 0.007171 -2.961 0.00308 \*\*

---

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

Residual standard error: 1.273 on 13803 degrees of freedom

Multiple R-squared: 0.002373, Adjusted R-squared: 0.002084

F-statistic: 8.209 on 4 and 13803 DF, p-value: 1.312e-06

> summary(warrinermodel3)

Call:

lm(formula = V.Mean.Sum ~ letter\_freq + rha \* LR\_switch \* finger\_switch,

data = warrinerdata)

Residuals:

Min 1Q Median 3Q Max

-3.8378 -0.8195 0.1278 0.8732 3.5276

Coefficients:

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

(Intercept) 4.7648779 0.0780507 61.049 < 2e-16 \*\*\*

letter\_freq 0.0602339 0.0110354 5.458 4.89e-08 \*\*\*

rha 0.0291202 0.0177857 1.637 0.102

LR\_switch 0.0246649 0.0190725 1.293 0.196

finger\_switch -0.0179436 0.0111147 -1.614 0.106

rha:LR\_switch 0.0008910 0.0070146 0.127 0.899

rha:finger\_switch -0.0019906 0.0034439 -0.578 0.563

LR\_switch:finger\_switch -0.0018442 0.0024972 -0.739 0.460

rha:LR\_switch:finger\_switch -0.0003051 0.0009045 -0.337 0.736

---

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

Residual standard error: 1.273 on 13799 degrees of freedom

Multiple R-squared: 0.002687, Adjusted R-squared: 0.002109

F-statistic: 4.647 on 8 and 13799 DF, p-value: 1.088e-05

> anova(warrinermodel1, warrinermodel2, warrinermodel3)

Analysis of Variance Table

Model 1: V.Mean.Sum ~ letter\_freq

Model 2: V.Mean.Sum ~ letter\_freq + rha + LR\_switch + finger\_switch

Model 3: V.Mean.Sum ~ letter\_freq + rha \* LR\_switch \* finger\_switch

Res.Df RSS Df Sum of Sq F Pr(>F)

1 13806 22416

2 13803 22384 3 31.072 6.3867 0.0002548 \*\*\*

3 13799 22378 4 7.033 1.0842 0.3623715

---

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