Pei data analysis in R

9/22/2023

> filename='PeiWT.pdf'

> compareTuningCurves(dTable,filename,degree)

fixed-effect model matrix is rank deficient so dropping 12 columns / coefficients

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

(Intercept) 13.8904807 0.7698051 11.18351 18.04415373 1.274361e-09

cohortMedium -0.1468887 0.7708528 145.00000 -0.19055354 8.491419e-01

cohortLarge -0.3458176 0.7708528 145.00000 -0.44861696 6.543777e-01

stats::poly(freq, degree)1 13.3250845 6.9376750 145.00000 1.92068446 5.673424e-02

stats::poly(freq, degree)2 -87.9132887 6.9376750 145.00000 -12.67186618 3.059237e-25

stats::poly(freq, degree)3 -10.6449167 6.9376750 145.00000 -1.53436372 1.271193e-01

cohortMedium:stats::poly(freq, degree)1 -2.5682960 9.8113540 145.00000 -0.26176774 7.938720e-01

cohortLarge:stats::poly(freq, degree)1 -1.2971028 9.8113540 145.00000 -0.13220426 8.950060e-01

cohortMedium:stats::poly(freq, degree)2 0.3985702 9.8113540 145.00000 0.04062337 9.676520e-01

cohortLarge:stats::poly(freq, degree)2 0.7212305 9.8113540 145.00000 0.07350978 9.415018e-01

cohortMedium:stats::poly(freq, degree)3 -2.7544839 9.8113540 145.00000 -0.28074452 7.793065e-01

cohortLarge:stats::poly(freq, degree)3 -1.5954025 9.8113540 145.00000 -0.16260778 8.710537e-01

Type III Analysis of Variance Table with Satterthwaite's method

Sum Sq Mean Sq NumDF DenDF F value Pr(>F)

cohort 3.3 1.63 2 145 0.1014 0.9036

stats::poly(freq, degree) 7954.4 2651.47 3 145 165.2649 <2e-16 \*\*\*

cohort:stats::poly(freq, degree) 2.5 0.41 6 145 0.0256 0.9999

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

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

(Intercept) 1.17584122 0.1147774 12.84104 10.24453597 1.516693e-07

cohortMedium -0.01532116 0.1225491 145.00000 -0.12502054 9.006804e-01

cohortLarge -0.05114206 0.1225491 145.00000 -0.41731890 6.770624e-01

stats::poly(freq, degree)1 1.68367810 1.1029420 145.00000 1.52653368 1.290554e-01

stats::poly(freq, degree)2 -9.27947915 1.1029420 145.00000 -8.41338818 3.461901e-14

stats::poly(freq, degree)3 -2.08362109 1.1029420 145.00000 -1.88914838 6.086864e-02

cohortMedium:stats::poly(freq, degree)1 -0.16334565 1.5597955 145.00000 -0.10472247 9.167407e-01

cohortLarge:stats::poly(freq, degree)1 -0.07838471 1.5597955 145.00000 -0.05025320 9.599898e-01

cohortMedium:stats::poly(freq, degree)2 0.05785233 1.5597955 145.00000 0.03708969 9.704645e-01

cohortLarge:stats::poly(freq, degree)2 0.48560766 1.5597955 145.00000 0.31132777 7.559986e-01

cohortMedium:stats::poly(freq, degree)3 -0.06008122 1.5597955 145.00000 -0.03851865 9.693271e-01

cohortLarge:stats::poly(freq, degree)3 -0.07840553 1.5597955 145.00000 -0.05026655 9.599792e-01

Type III Analysis of Variance Table with Satterthwaite's method

Sum Sq Mean Sq NumDF DenDF F value Pr(>F)

cohort 0.074 0.0372 2 145 0.0917 0.9124

stats::poly(freq, degree) 89.885 29.9618 3 145 73.8897 <2e-16 \*\*\*

cohort:stats::poly(freq, degree) 0.052 0.0087 6 145 0.0216 1.0000

level

cohort:level

stats::poly(freq, degree):level

cohort:stats::poly(freq, degree):level

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

[1] ""

[1] ""

[1] "Mag:Number of frequencies with a significant p-value: 0"

[1] "Phase:Number of frequencies with a significant p-value: 0"

[1] "Magnitude data cohort comparison p-value: 0.99993"

[1] "Phase data cohort comparison p-value: 0.99996"

> dTable<-filter(dTab,genotype==genotypes[2])

> dTable<-subset(dTable, select = -c(condition,protocol,genotype))

> filename='PeiAlpha9.pdf'

> compareTuningCurves(dTable,filename,degree)

fixed-effect model matrix is rank deficient so dropping 12 columns / coefficients

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

(Intercept) 13.44136676 1.3301806 10.13858 10.10491864 1.294084e-06

cohortMedium 0.45445066 0.9509731 193.99149 0.47787962 6.332739e-01

cohortLarge 0.04064417 0.9509731 193.99149 0.04273956 9.659531e-01

stats::poly(freq, degree)1 2.08707305 9.8195498 194.04708 0.21254264 8.319068e-01

stats::poly(freq, degree)2 -99.81070867 9.8203361 194.05483 -10.16367539 9.972686e-20

stats::poly(freq, degree)3 -19.88111941 9.8187170 194.03886 -2.02481845 4.425637e-02

cohortMedium:stats::poly(freq, degree)1 -7.94255776 13.8789954 193.99149 -0.57227181 5.678004e-01

cohortLarge:stats::poly(freq, degree)1 -11.33595688 13.8789954 193.99149 -0.81677071 4.150614e-01

cohortMedium:stats::poly(freq, degree)2 0.52649303 13.8789954 193.99149 0.03793452 9.697789e-01

cohortLarge:stats::poly(freq, degree)2 4.17584469 13.8789954 193.99149 0.30087514 7.638319e-01

cohortMedium:stats::poly(freq, degree)3 9.02631047 13.8789954 193.99149 0.65035762 5.162307e-01

cohortLarge:stats::poly(freq, degree)3 16.04972969 13.8789954 193.99149 1.15640428 2.489379e-01

Type III Analysis of Variance Table with Satterthwaite's method

Sum Sq Mean Sq NumDF DenDF F value Pr(>F)

cohort 9.0 4.5 2 193.99 0.1398 0.8696

stats::poly(freq, degree) 9754.5 3251.5 3 194.15 101.2786 <2e-16 \*\*\*

cohort:stats::poly(freq, degree) 69.2 11.5 6 193.99 0.3591 0.9039

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

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

(Intercept) 1.248123198 0.1760506 10.11523 7.089571419 3.143270e-05

cohortMedium 0.017514093 0.1258999 193.97330 0.139111275 8.895065e-01

cohortLarge -0.036334330 0.1258999 193.97330 -0.288597013 7.731980e-01

stats::poly(freq, degree)1 0.667934001 1.3000159 194.02907 0.513789112 6.079840e-01

stats::poly(freq, degree)2 -11.725307573 1.3001200 194.03685 -9.018635110 1.848315e-16

stats::poly(freq, degree)3 -1.819677006 1.2999056 194.02082 -1.399853157 1.631542e-01

cohortMedium:stats::poly(freq, degree)1 -0.677301135 1.8374483 193.97330 -0.368609625 7.128207e-01

cohortLarge:stats::poly(freq, degree)1 -0.964686556 1.8374483 193.97330 -0.525014253 6.001728e-01

cohortMedium:stats::poly(freq, degree)2 -0.007952124 1.8374483 193.97330 -0.004327809 9.965514e-01

cohortLarge:stats::poly(freq, degree)2 0.613122760 1.8374483 193.97330 0.333681636 7.389802e-01

cohortMedium:stats::poly(freq, degree)3 1.035804264 1.8374483 193.97330 0.563718857 5.735966e-01

cohortLarge:stats::poly(freq, degree)3 1.596963775 1.8374483 193.97330 0.869120378 3.858554e-01

Type III Analysis of Variance Table with Satterthwaite's method

Sum Sq Mean Sq NumDF DenDF F value Pr(>F)

cohort 0.107 0.054 2 193.97 0.0952 0.9092

stats::poly(freq, degree) 133.116 44.372 3 194.14 78.8550 <2e-16 \*\*\*

cohort:stats::poly(freq, degree) 0.686 0.114 6 193.97 0.2031 0.9755

level

cohort:level

stats::poly(freq, degree):level

cohort:stats::poly(freq, degree):level

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

[1] ""

[1] ""

[1] "Mag:Number of frequencies with a significant p-value: 0"

[1] "Phase:Number of frequencies with a significant p-value: 0"

[1] "Magnitude data cohort comparison p-value: 0.90395"

[1] "Phase data cohort comparison p-value: 0.97551"

Warning messages:

1: Removed 18 rows containing missing values (`geom\_point()`).

2: Removed 122 rows containing missing values (`geom\_point()`).

3: Removed 9 rows containing missing values (`geom\_point()`).

4: Removed 17 rows containing missing values (`geom\_point()`).

5: Removed 158 rows containing missing values (`geom\_point()`).