exp3=read.csv('./Experiment3.csv')

exp3$Motion=factor(exp3$Motion)

exp3$Disparity=factor(exp3$Disparity)

exp3$Animal=factor(exp3$Animal)

**PROBABILITY OF RESPONSES**

**Combined model with both preceding figure motion (simulated at 2.5 or at 5 cm) and disparity of elementary motion (crossed or uncrossed) as independent factors and animal identity as a random factor. The dependent variable was the probability of a response (either a strike or a tension)**

mr1=glmer(Presp~Motion\*Disparity+(1|Animal),family=binomial(link="logit"), data=exp3)

> summary(mr1)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']

 Family: binomial ( logit )

Formula: Presp ~ Motion \* Disparity + (1 | Animal)

 Data: exp3

 AIC BIC logLik deviance df.resid

 450.8 472.0 -220.4 440.8 507

Scaled residuals:

 Min 1Q Median 3Q Max

-3.5372 -0.4415 -0.1645 0.4569 4.7052

Random effects:

 Groups Name Variance Std.Dev.

 Animal (Intercept) 0.9333 0.9661

Number of obs: 512, groups: Animal, 8

Fixed effects:

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

(Intercept) -1.7368 0.4252 -4.085 4.41e-05 \*\*\*

Motion2 -1.3576 0.4485 -3.027 0.00247 \*\*

Disparity1 3.3064 0.3651 9.056 < 2e-16 \*\*\*

Motion2:Disparity1 0.4893 0.5434 0.900 0.36793

---

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

Correlation of Fixed Effects:

 (Intr) Motin2 Dsprt1

Motion2 -0.293

Disparity1 -0.447 0.327

Mtn2:Dsprt1 0.253 -0.822 -0.566

**Without interactions BEST MODEL**

mr2=glmer(Presp~Motion+Disparity+(1|Animal),family=binomial(link="logit"), data=exp3)

summary(mr2)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']

 Family: binomial ( logit )

Formula: Presp ~ Motion + Disparity + (1 | Animal)

 Data: exp3

 AIC BIC logLik deviance df.resid

 449.6 466.6 -220.8 441.6 508

Scaled residuals:

 Min 1Q Median 3Q Max

-3.7182 -0.4211 -0.1840 0.4338 4.6531

Random effects:

 Groups Name Variance Std.Dev.

 Animal (Intercept) 0.9376 0.9683

Number of obs: 512, groups: Animal, 8

Fixed effects:

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

(Intercept) -1.8402 0.4133 -4.452 8.50e-06 \*\*\*

Motion2 -1.0331 0.2531 -4.081 4.48e-05 \*\*\*

Disparity1 3.5050 0.2985 11.741 < 2e-16 \*\*\*

---

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

Correlation of Fixed Effects:

 (Intr) Motin2

Motion2 -0.179

Disparity1 -0.377 -0.270

**Model with only disparity**

mr3=glmer(Presp~Disparity+(1|Animal),family=binomial(link="logit"), data=exp3)

summary(mr3)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']

 Family: binomial ( logit )

Formula: Presp ~ Disparity + (1 | Animal)

 Data: exp3

 AIC BIC logLik deviance df.resid

 465.3 478.0 -229.7 459.3 509

Scaled residuals:

 Min 1Q Median 3Q Max

-3.5107 -0.3982 -0.1810 0.5514 5.5258

Random effects:

 Groups Name Variance Std.Dev.

 Animal (Intercept) 0.8547 0.9245

Number of obs: 512, groups: Animal, 8

Fixed effects:

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

(Intercept) -2.2473 0.3918 -5.737 9.66e-09 \*\*\*

Disparity1 3.3383 0.2831 11.793 < 2e-16 \*\*\*

---

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

Correlation of Fixed Effects:

 (Intr)

Disparity1 -0.460

**Model with only motion**

mr4=glmer(Presp~Motion+(1|Animal),family=binomial(link="logit"), data=exp3)

summary(mr4)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']

 Family: binomial ( logit )

Formula: Presp ~ Motion + (1 | Animal)

 Data: exp3

 AIC BIC logLik deviance df.resid

 673.1 685.8 -333.5 667.1 509

Scaled residuals:

 Min 1Q Median 3Q Max

-1.4292 -0.8114 -0.5175 0.9865 1.9322

Random effects:

 Groups Name Variance Std.Dev.

 Animal (Intercept) 0.2906 0.539

Number of obs: 512, groups: Animal, 8

Fixed effects:

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

(Intercept) -0.05092 0.23036 -0.221 0.82504

Motion2 -0.60359 0.18737 -3.221 0.00128 \*\*

---

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

Correlation of Fixed Effects:

 (Intr)

Motion2 -0.387

**PROBABILITY OF STRIKES**

**Combined model with both preceding figure motion (simulated at 2.5 or at 5 cm) and disparity of elementary motion (crossed or uncrossed) as independent factors and animal identity as a random factor. The dependent variable was the probability of a strike.**

m1=glmer(Pstrike~Motion\*Disparity+(1|Animal),family=binomial(link="logit"), data=exp3)

summary(m1)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']

 Family: binomial ( logit )

Formula: Pstrike ~ Motion \* Disparity + (1 | Animal)

 Data: exp3

 AIC BIC logLik deviance df.resid

 339.5 360.7 -164.8 329.5 507

Scaled residuals:

 Min 1Q Median 3Q Max

-2.4896 -0.3427 -0.1243 -0.0363 15.2890

Random effects:

 Groups Name Variance Std.Dev.

 Animal (Intercept) 1.599 1.265

Number of obs: 512, groups: Animal, 8

Fixed effects:

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

(Intercept) -4.1004 0.7059 -5.808 6.31e-09 \*\*\*

Motion2 -1.4439 1.1351 -1.272 0.203

Disparity1 4.0532 0.5852 6.926 4.33e-12 \*\*\*

Motion2:Disparity1 0.4378 1.1747 0.373 0.709

---

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

Correlation of Fixed Effects:

 (Intr) Motin2 Dsprt1

Motion2 -0.333

Disparity1 -0.723 0.402

Mtn2:Dsprt1 0.334 -0.966 -0.464

**Without interactions BEST MODEL**

m2=glmer(Pstrike~Motion+Disparity+(1|Animal),family=binomial(link="logit"), data=exp3)

summary(m2)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']

 Family: binomial ( logit )

Formula: Pstrike ~ Motion + Disparity + (1 | Animal)

 Data: exp3

 AIC BIC logLik deviance df.resid

 337.7 354.6 -164.8 329.7 508

Scaled residuals:

 Min 1Q Median 3Q Max

-2.5146 -0.3390 -0.1280 -0.0421 13.1345

Random effects:

 Groups Name Variance Std.Dev.

 Animal (Intercept) 1.608 1.268

Number of obs: 512, groups: Animal, 8

Fixed effects:

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

(Intercept) -4.2020 0.6666 -6.304 2.90e-10 \*\*\*

Motion2 -1.0388 0.2921 -3.556 0.000376 \*\*\*

Disparity1 4.1694 0.5141 8.110 5.08e-16 \*\*\*

---

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

Correlation of Fixed Effects:

 (Intr) Motin2

Motion2 -0.071

Disparity1 -0.679 -0.164

**Model with only disparity**

m3=glmer(Pstrike~Disparity+(1|Animal),family=binomial(link="logit"), data=exp3)

summary(m3)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']

 Family: binomial ( logit )

Formula: Pstrike ~ Disparity + (1 | Animal)

 Data: exp3

 AIC BIC logLik deviance df.resid

 348.9 361.7 -171.5 342.9 509

Scaled residuals:

 Min 1Q Median 3Q Max

-1.8690 -0.3283 -0.1080 -0.0441 9.2593

Random effects:

 Groups Name Variance Std.Dev.

 Animal (Intercept) 1.448 1.203

Number of obs: 512, groups: Animal, 8

Fixed effects:

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

(Intercept) -4.5400 0.6458 -7.03 2.07e-12 \*\*\*

Disparity1 4.0157 0.5014 8.01 1.15e-15 \*\*\*

---

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

Correlation of Fixed Effects:

 (Intr)

Disparity1 -0.716

**Model with only motion**

m4=glmer(Pstrike~Motion+(1|Animal),family=binomial(link="logit"), data=exp3)

summary(m4)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']

 Family: binomial ( logit )

Formula: Pstrike ~ Motion + (1 | Animal)

 Data: exp3

 AIC BIC logLik deviance df.resid

 490.1 502.8 -242.1 484.1 509

Scaled residuals:

 Min 1Q Median 3Q Max

-0.9932 -0.5840 -0.3713 -0.2010 3.7993

Random effects:

 Groups Name Variance Std.Dev.

 Animal (Intercept) 0.803 0.8961

Number of obs: 512, groups: Animal, 8

Fixed effects:

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

(Intercept) -1.2193 0.3558 -3.426 0.000611 \*\*\*

Motion2 -0.6879 0.2327 -2.956 0.003113 \*\*

---

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

Correlation of Fixed Effects:

 (Intr)

Motion2 -0.261