library(tidyverse)

library(MASS)

data<-read\_csv('/content/final\_dot\_age (1).csv')

View(data)

install.packages("ordinal")

Installing package into ‘/usr/local/lib/R/site-library’

(as ‘lib’ is unspecified)

library(ordinal)

model\_1\_ans\_acndotc<-clmm(as.factor(Answer)~age\_category+no\_dot+close+(1|response), data=data)

summary(model\_1\_ans\_acndotc)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ age\_category + no\_dot + close + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1574.16 3164.32 545(2184) 1.33e-03 1.1e+02

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.7219 0.8496

Number of groups: response 49

Coefficients:

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

age\_category 0.4751 0.2696 1.762 0.07801 .

no\_dot 0.3667 0.1139 3.220 0.00128 \*\*

close 0.1466 0.1133 1.294 0.19552

---

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

Threshold coefficients:

Estimate Std. Error z value

1|2 -1.6567 0.2011 -8.239

2|3 -0.9568 0.1961 -4.878

3|4 0.7017 0.1959 3.582

4|5 1.9501 0.2029 9.611

model\_2\_ans\_acwdotc<-clmm(as.factor(Answer)~age\_category+with\_dot+close+(1|response), data=data)

summary(model\_2\_ans\_acwdotc)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ age\_category + with\_dot + close + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1578.20 3172.39 534(2140) 9.98e-04 1.1e+02

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.7148 0.8455

Number of groups: response 49

Coefficients:

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

age\_category 0.4830 0.2684 1.799 0.0720 .

with\_dot -0.1735 0.1136 -1.527 0.1267

close 0.2109 0.1135 1.858 0.0631 .

---

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

Threshold coefficients:

Estimate Std. Error z value

1|2 -1.8391 0.2021 -9.102

2|3 -1.1523 0.1966 -5.862

3|4 0.4948 0.1940 2.550

4|5 1.7495 0.2000 8.748

model\_3\_ans\_acndotr<-clmm(as.factor(Answer)~age\_category+no\_dot+remote+(1|response), data=data)

summary(model\_3\_ans\_acndotr)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ age\_category + no\_dot + remote + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1575.00 3166.00 544(2180) 1.46e-03 1.1e+02

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.7193 0.8481

Number of groups: response 49

Coefficients:

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

age\_category 0.477495 0.269142 1.774 0.076041 .

no\_dot 0.383604 0.114040 3.364 0.000769 \*\*\*

remote -0.002177 0.113558 -0.019 0.984702

---

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

Threshold coefficients:

Estimate Std. Error z value

1|2 -1.7091 0.2009 -8.508

2|3 -1.0128 0.1957 -5.174

3|4 0.6447 0.1952 3.303

4|5 1.8955 0.2021 9.380

model\_4\_ans\_acwdotr<-clmm(as.factor(Answer)~age\_category+with\_dot+remote+(1|response), data=data)

summary(model\_4\_ans\_acwdotr)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ age\_category + with\_dot + remote + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1579.76 3175.53 625(2504) 6.14e-04 1.1e+02

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.7106 0.843

Number of groups: response 49

Coefficients:

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

age\_category 0.48452 0.26774 1.810 0.0704 .

with\_dot -0.15327 0.11331 -1.353 0.1761

remote 0.06465 0.11323 0.571 0.5680

---

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

Threshold coefficients:

Estimate Std. Error z value

1|2 -1.8885 0.2020 -9.350

2|3 -1.2054 0.1963 -6.140

3|4 0.4396 0.1936 2.271

4|5 1.6961 0.1993 8.509

model\_5\_ans\_close<-clmm(as.factor(Answer)~close+(1|response), data=data)

summary(model\_5\_ans\_close)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ close + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1580.91 3173.82 348(1397) 1.90e-04 5.2e+01

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.7684 0.8766

Number of groups: response 49

Coefficients:

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

close 0.1903 0.1126 1.691 0.0909 .

---

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

Threshold coefficients:

Estimate Std. Error z value

1|2 -1.9859 0.1633 -12.160

2|3 -1.2988 0.1553 -8.363

3|4 0.3413 0.1501 2.274

4|5 1.5923 0.1577 10.096

model\_6\_ans\_remote<-clmm(as.factor(Answer)~remote+(1|response), data=data)

summary(model\_6\_ans\_remote)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ remote + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1582.25 3176.49 349(1401) 3.96e-03 5.2e+01

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.7657 0.875

Number of groups: response 49

Coefficients:

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

remote 0.04911 0.11256 0.436 0.663

Threshold coefficients:

Estimate Std. Error z value

1|2 -2.0428 0.1635 -12.498

2|3 -1.3597 0.1552 -8.760

3|4 0.2789 0.1498 1.863

4|5 1.5324 0.1571 9.753

model\_7\_ans\_age<-clmm(as.factor(Answer)~age\_category+(1|response), data=data)

summary(model\_7\_ans\_age)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ age\_category + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1580.77 3173.53 356(1428) 1.29e-03 1.0e+02

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.7083 0.8416

Number of groups: response 49

Coefficients:

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

age\_category 0.4808 0.2674 1.798 0.0721 .

---

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

Threshold coefficients:

Estimate Std. Error z value

1|2 -1.8484 0.1917 -9.641

2|3 -1.1648 0.1850 -6.296

3|4 0.4758 0.1827 2.604

4|5 1.7280 0.1903 9.079

model\_8\_ans\_nd<-clmm(as.factor(Answer)~no\_dot+(1|response), data=data)

summary(model\_8\_ans\_nd)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ no\_dot + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1576.53 3165.07 313(1257) 1.13e-03 5.1e+01

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.7765 0.8812

Number of groups: response 49

Coefficients:

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

no\_dot 0.3847 0.1131 3.401 0.00067 \*\*\*

---

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

Threshold coefficients:

Estimate Std. Error z value

1|2 -1.9206 0.1628 -11.800

2|3 -1.2257 0.1549 -7.914

3|4 0.4295 0.1511 2.843

4|5 1.6826 0.1594 10.558

model\_9\_ans\_wd<-clmm(as.factor(Answer)~with\_dot+(1|response), data=data)

summary(model\_9\_ans\_wd)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ with\_dot + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1581.53 3175.06 410(1652) 2.20e-04 5.3e+01

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.7703 0.8777

Number of groups: response 49

Coefficients:

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

with\_dot -0.1435 0.1126 -1.274 0.203

Threshold coefficients:

Estimate Std. Error z value

1|2 -2.1269 0.1652 -12.873

2|3 -1.4463 0.1568 -9.223

3|4 0.1956 0.1498 1.305

4|5 1.4557 0.1566 9.297

model\_10\_ans\_wd\_age<-clmm(as.factor(Answer)~with\_dot+age\_category+(1|response), data=data)

summary(model\_10\_ans\_wd\_age)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ with\_dot + age\_category + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1579.93 3173.85 535(2144) 7.62e-04 1.1e+02

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.711 0.8432

Number of groups: response 49

Coefficients:

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

with\_dot -0.1459 0.1126 -1.296 0.1950

age\_category 0.4860 0.2678 1.815 0.0696 .

---

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

Threshold coefficients:

Estimate Std. Error z value

1|2 -1.9111 0.1981 -9.645

2|3 -1.2292 0.1920 -6.404

3|4 0.4152 0.1888 2.199

4|5 1.6730 0.1951 8.573

model\_11\_ans\_nd\_age<-clmm(as.factor(Answer)~no\_dot+age\_category+(1|response), data=data)

summary(model\_11\_ans\_nd\_age)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ no\_dot + age\_category + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1575.00 3164.00 438(1756) 9.62e-04 1.0e+02

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.7193 0.8481

Number of groups: response 49

Coefficients:

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

no\_dot 0.3833 0.1131 3.389 0.000701 \*\*\*

age\_category 0.4774 0.2691 1.774 0.076039 .

---

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

Threshold coefficients:

Estimate Std. Error z value

1|2 -1.7084 0.1969 -8.676

2|3 -1.0120 0.1913 -5.292

3|4 0.6455 0.1907 3.386

4|5 1.8963 0.1982 9.570

model\_12\_ans\_close\_age<-clmm(as.factor(Answer)~close+age\_category+(1|response), data=data)

summary(model\_12\_ans\_close\_age)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ close + age\_category + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1579.36 3172.73 475(1904) 8.20e-04 1.1e+02

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.7114 0.8434

Number of groups: response 49

Coefficients:

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

close 0.1883 0.1125 1.674 0.0942 .

age\_category 0.4771 0.2679 1.781 0.0749 .

---

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

Threshold coefficients:

Estimate Std. Error z value

1|2 -1.7738 0.1970 -9.005

2|3 -1.0854 0.1912 -5.678

3|4 0.5571 0.1894 2.941

4|5 1.8058 0.1964 9.194

model\_13\_ans\_remote\_age<-clmm(as.factor(Answer)~remote+age\_category+(1|response), data=data)

summary(model\_13\_ans\_remote\_age)

Cumulative Link Mixed Model fitted with the Laplace approximation

formula: as.factor(Answer) ~ remote + age\_category + (1 | response)

data: data

link threshold nobs logLik AIC niter max.grad cond.H

logit flexible 1070 -1580.68 3175.36 487(1952) 8.48e-04 1.1e+02

Random effects:

Groups Name Variance Std.Dev.

response (Intercept) 0.708 0.8414

Number of groups: response 49

Coefficients:

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

remote 0.04713 0.11253 0.419 0.6753

age\_category 0.47952 0.26731 1.794 0.0728 .

---

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

Threshold coefficients:

Estimate Std. Error z value

1|2 -1.8296 0.1968 -9.296

2|3 -1.1452 0.1908 -6.002

3|4 0.4958 0.1888 2.626

4|5 1.7469 0.1956 8.929

AIC(model\_1\_ans\_acndotc, model\_2\_ans\_acwdotc, model\_3\_ans\_acndotr, model\_4\_ans\_acwdotr, model\_5\_ans\_close, model\_6\_ans\_remote,model\_7\_ans\_age,model\_8\_ans\_nd, model\_9\_ans\_wd, model\_10\_ans\_wd\_age, model\_11\_ans\_nd\_age, model\_12\_ans\_close\_age, model\_13\_ans\_remote\_age)

| A data.frame: 13 × 2 | | |
| --- | --- | --- |
|  | **df** | **AIC** |
|  | **<dbl>** | **<dbl>** |
| **model\_1\_ans\_acndotc** | 8 | 3164.320 |
| **model\_2\_ans\_acwdotc** | 8 | 3172.395 |
| **model\_3\_ans\_acndotr** | 8 | 3165.997 |
| **model\_4\_ans\_acwdotr** | 8 | 3175.527 |
| **model\_5\_ans\_close** | 6 | 3173.823 |
| **model\_6\_ans\_remote** | 6 | 3176.495 |
| **model\_7\_ans\_age** | 6 | 3173.533 |
| **model\_8\_ans\_nd** | 6 | 3165.067 |
| **model\_9\_ans\_wd** | 6 | 3175.061 |
| **model\_10\_ans\_wd\_age** | 7 | 3173.853 |
| **model\_11\_ans\_nd\_age** | 7 | 3163.997 |
| **model\_12\_ans\_close\_age** | 7 | 3172.729 |
| **model\_13\_ans\_remote\_age** | 7 | 3175.357 |