**Target TW – Random intercepts only**

**> summary(lmb)**

Linear mixed model fit by maximum likelihood . t-tests use

Satterthwaite's method [lmerModLmerTest]

Formula: Elog ~ cond\_clean + (1 | setid) + (1 | ParticipantID)

Data: tw\_AG\_T

Weights: WeightsBarr

Control: lmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 4e+06))

AIC BIC logLik deviance df.resid

8502.7 8532.7 -4246.3 8492.7 2978

Scaled residuals:

Min 1Q Median 3Q Max

-2.2346 -0.7554 -0.1191 0.7070 2.8911

Random effects:

Groups Name Variance Std.Dev.

ParticipantID (Intercept) 0.06070 0.2464

setid (Intercept) 0.02546 0.1596

Residual 116.18627 10.7790

Number of obs: 2983, groups: ParticipantID, 43; setid, 18

Fixed effects:

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

(Intercept) -0.47279 0.05702 48.32715 -8.292 7.61e-11 \*\*\*

cond\_clean1 0.60014 0.02952 2928.08825 20.330 < 2e-16 \*\*\*

---

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

Correlation of Fixed Effects:

(Intr)

cond\_clean1 -0.252

**> summary(lm1)**

Linear mixed model fit by maximum likelihood . t-tests use

Satterthwaite's method [lmerModLmerTest]

Formula: Elog ~ cond\_clean \* Group + (1 | setid) + (1 | ParticipantID)

Data: tw\_AG\_T

Weights: WeightsBarr

Control: lmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 4e+06))

AIC BIC logLik deviance df.resid

8477.6 8519.6 -4231.8 8463.6 2976

Scaled residuals:

Min 1Q Median 3Q Max

-2.3036 -0.7544 -0.1239 0.7119 2.8487

Random effects:

Groups Name Variance Std.Dev.

ParticipantID (Intercept) 0.03344 0.1829

setid (Intercept) 0.02531 0.1591

Residual 115.86768 10.7642

Number of obs: 2983, groups: ParticipantID, 43; setid, 18

Fixed effects:

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

(Intercept) -0.59296 0.06171 59.66151 -9.609 1e-13 \*\*\*

cond\_clean1 0.52067 0.04144 2927.13843 12.566 < 2e-16 \*\*\*

GroupNH 0.25081 0.06930 61.12563 3.619 0.000601 \*\*\*

cond\_clean1:GroupNH 0.16385 0.05897 2928.92770 2.778 0.005496 \*\*

---

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

Correlation of Fixed Effects:

(Intr) cnd\_c1 GropNH

cond\_clean1 -0.343

GroupNH -0.562 0.305

cnd\_cl1:GNH 0.241 -0.703 -0.412

**> anova(lmb, lm1)**

Data: tw\_AG\_T

Models:

lmb: Elog ~ cond\_clean + (1 | setid) + (1 | ParticipantID)

lm1: Elog ~ cond\_clean \* Group + (1 | setid) + (1 | ParticipantID)

Df AIC BIC logLik deviance Chisq Chi Df Pr(>Chisq)

lmb 5 8502.7 8532.7 -4246.3 8492.7

lm1 7 8477.6 8519.6 -4231.8 8463.6 29.063 2 4.887e-07 \*\*\*

---

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

**> summary(lm2a)**

Linear mixed model fit by maximum likelihood . t-tests use

Satterthwaite's method [lmerModLmerTest]

Formula:

Elog ~ cond\_clean \* Group \* PPVT\_GSV\_C + (1 | setid) + (1 | ParticipantID)

Data: tw\_AG\_T

Weights: WeightsBarr

Control: lmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 4e+06))

AIC BIC logLik deviance df.resid

8469.4 8535.4 -4223.7 8447.4 2972

Scaled residuals:

Min 1Q Median 3Q Max

-2.3160 -0.7577 -0.1198 0.7097 2.7979

Random effects:

Groups Name Variance Std.Dev.

ParticipantID (Intercept) 0.02627 0.1621

setid (Intercept) 0.02543 0.1595

Residual 115.53358 10.7487

Number of obs: 2983, groups: ParticipantID, 43; setid, 18

Fixed effects:

Estimate Std. Error df t value

(Intercept) -5.686e-01 6.176e-02 5.969e+01 -9.207

cond\_clean1 5.669e-01 4.419e-02 2.925e+03 12.827

GroupNH 2.093e-01 7.188e-02 6.261e+01 2.911

PPVT\_GSV\_C 1.887e-03 1.807e-03 6.708e+01 1.044

cond\_clean1:GroupNH 1.045e-01 6.536e-02 2.926e+03 1.599

cond\_clean1:PPVT\_GSV\_C 4.694e-03 1.628e-03 2.928e+03 2.884

GroupNH:PPVT\_GSV\_C -3.095e-04 2.992e-03 6.145e+01 -0.103

cond\_clean1:GroupNH:PPVT\_GSV\_C -3.427e-03 2.760e-03 2.933e+03 -1.241

Pr(>|t|)

(Intercept) 4.65e-13 \*\*\*

cond\_clean1 < 2e-16 \*\*\*

GroupNH 0.00498 \*\*

PPVT\_GSV\_C 0.30010

cond\_clean1:GroupNH 0.10996

cond\_clean1:PPVT\_GSV\_C 0.00396 \*\*

GroupNH:PPVT\_GSV\_C 0.91795

cond\_clean1:GroupNH:PPVT\_GSV\_C 0.21454

---

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

Correlation of Fixed Effects:

(Intr) cnd\_c1 GropNH PPVT\_G cn\_1:GNH c\_1:PP GNH:PP

cond\_clean1 -0.359

GroupNH -0.541 0.308

PPVT\_GSV\_C 0.293 -0.151 -0.251

cnd\_cl1:GNH 0.243 -0.676 -0.441 0.102

c\_1:PPVT\_GS -0.121 0.351 0.104 -0.469 -0.237

GNH:PPVT\_GS -0.177 0.091 -0.143 -0.604 0.066 0.283

c\_1:GNH:PPV 0.071 -0.207 0.064 0.276 -0.154 -0.590 -0.429

> anova(lm1, lm2a)

Data: tw\_AG\_T

Models:

lm1: Elog ~ cond\_clean \* Group + (1 | setid) + (1 | ParticipantID)

lm2a: Elog ~ cond\_clean \* Group \* PPVT\_GSV\_C + (1 | setid) + (1 | ParticipantID)

Df AIC BIC logLik deviance Chisq Chi Df Pr(>Chisq)

lm1 7 8477.6 8519.6 -4231.8 8463.6

lm2a 11 8469.4 8535.4 -4223.7 8447.4 16.18 4 0.002787 \*\*

---

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

**Target TW – with random slopes**

**> summary(lmb\_rs) # \*Fit is singular**

Linear mixed model fit by maximum likelihood . t-tests use

Satterthwaite's method [lmerModLmerTest]

Formula:

Elog ~ cond\_clean + (cond\_clean | setid) + (cond\_clean | ParticipantID)

Data: tw\_AG\_T

Weights: WeightsBarr

Control: lmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 4e+06))

AIC BIC logLik deviance df.resid

8468 8522 -4225 8450 2974

Scaled residuals:

Min 1Q Median 3Q Max

-2.5002 -0.7346 -0.1349 0.6926 2.7528

Random effects:

Groups Name Variance Std.Dev. Corr

ParticipantID (Intercept) 0.03145 0.1773

cond\_clean1 0.02232 0.1494 1.00

setid (Intercept) 0.03245 0.1801

cond\_clean1 0.03895 0.1974 -0.46

Residual 113.45243 10.6514

Number of obs: 2983, groups: ParticipantID, 43; setid, 18

Fixed effects:

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

(Intercept) -0.46873 0.05429 28.14436 -8.633 2.13e-09 \*\*\*

cond\_clean1 0.59869 0.05946 23.19420 10.068 6.16e-10 \*\*\*

---

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

Correlation of Fixed Effects:

(Intr)

cond\_clean1 -0.219

convergence code: 0

boundary (singular) fit: see ?isSingular

**> summary(lm1\_rs) # \*Fit is singular**

Linear mixed model fit by maximum likelihood . t-tests use

Satterthwaite's method [lmerModLmerTest]

Formula: Elog ~ cond\_clean \* Group + (cond\_clean | setid) + (cond\_clean |

ParticipantID)

Data: tw\_AG\_T

Weights: WeightsBarr

Control: lmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 4e+06))

AIC BIC logLik deviance df.resid

8450.1 8516.1 -4214.1 8428.1 2972

Scaled residuals:

Min 1Q Median 3Q Max

-2.5119 -0.7434 -0.1320 0.6934 2.7377

Random effects:

Groups Name Variance Std.Dev. Corr

ParticipantID (Intercept) 0.01563 0.1250

cond\_clean1 0.01488 0.1220 1.00

setid (Intercept) 0.03249 0.1803

cond\_clean1 0.03922 0.1980 -0.47

Residual 113.42728 10.6502

Number of obs: 2983, groups: ParticipantID, 43; setid, 18

Fixed effects:

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

(Intercept) -0.59136 0.05811 35.13937 -10.177 5.11e-12 \*\*\*

cond\_clean1 0.51333 0.06738 34.67067 7.619 6.58e-09 \*\*\*

GroupNH 0.25070 0.05572 50.54469 4.499 4.02e-05 \*\*\*

cond\_clean1:GroupNH 0.17771 0.06927 71.35317 2.565 0.0124 \*

---

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

Correlation of Fixed Effects:

(Intr) cnd\_c1 GropNH

cond\_clean1 -0.279

GroupNH -0.485 0.043

cnd\_cl1:GNH 0.041 -0.506 -0.058

convergence code: 0

boundary (singular) fit: see ?isSingular

**> anova(lmb\_rs, lm1\_rs)**

Data: tw\_AG\_T

Models:

lmb\_rs: Elog ~ cond\_clean + (cond\_clean | setid) + (cond\_clean | ParticipantID)

lm1\_rs: Elog ~ cond\_clean \* Group + (cond\_clean | setid) + (cond\_clean |

lm1\_rs: ParticipantID)

Df AIC BIC logLik deviance Chisq Chi Df Pr(>Chisq)

lmb\_rs 9 8468.0 8522.0 -4225.0 8450.0

lm1\_rs 11 8450.1 8516.1 -4214.1 8428.1 21.882 2 1.772e-05 \*\*\*

---

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

**> summary(lm2a\_rs) # \*Fit is singular**

Linear mixed model fit by maximum likelihood . t-tests use

Satterthwaite's method [lmerModLmerTest]

Formula: Elog ~ cond\_clean \* Group \* PPVT\_GSV\_C + (cond\_clean | setid) +

(cond\_clean | ParticipantID)

Data: tw\_AG\_T

Weights: WeightsBarr

Control: lmerControl(optimizer = "bobyqa", optCtrl = list(maxfun = 4e+06))

AIC BIC logLik deviance df.resid

8447.9 8537.9 -4208.9 8417.9 2968

Scaled residuals:

Min 1Q Median 3Q Max

-2.4780 -0.7448 -0.1294 0.6948 2.7449

Random effects:

Groups Name Variance Std.Dev. Corr

ParticipantID (Intercept) 1.438e-02 0.11994

cond\_clean1 8.051e-03 0.08973 1.00

setid (Intercept) 3.254e-02 0.18040

cond\_clean1 3.936e-02 0.19840 -0.47

Residual 1.134e+02 10.64781

Number of obs: 2983, groups: ParticipantID, 43; setid, 18

Fixed effects:

Estimate Std. Error df t value

(Intercept) -0.5689939 0.0595714 36.8119709 -9.551

cond\_clean1 0.5645677 0.0673941 35.8073299 8.377

GroupNH 0.2109859 0.0610514 48.0222470 3.456

PPVT\_GSV\_C 0.0019767 0.0015443 52.6835814 1.280

cond\_clean1:GroupNH 0.1126765 0.0717539 93.9309029 1.570

cond\_clean1:PPVT\_GSV\_C 0.0047446 0.0017831 96.5524324 2.661

GroupNH:PPVT\_GSV\_C -0.0004219 0.0025364 46.7840243 -0.166

cond\_clean1:GroupNH:PPVT\_GSV\_C -0.0035007 0.0030245 96.9827536 -1.157

Pr(>|t|)

(Intercept) 1.66e-11 \*\*\*

cond\_clean1 5.87e-10 \*\*\*

GroupNH 0.00116 \*\*

PPVT\_GSV\_C 0.20616

cond\_clean1:GroupNH 0.11970

cond\_clean1:PPVT\_GSV\_C 0.00913 \*\*

GroupNH:PPVT\_GSV\_C 0.86860

cond\_clean1:GroupNH:PPVT\_GSV\_C 0.24994

---

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

Correlation of Fixed Effects:

(Intr) cnd\_c1 GropNH PPVT\_G cn\_1:GNH c\_1:PP GNH:PP

cond\_clean1 -0.327

GroupNH -0.478 0.092

PPVT\_GSV\_C 0.251 -0.033 -0.245

cnd\_cl1:GNH 0.089 -0.487 -0.174 0.031

c\_1:PPVT\_GS -0.033 0.259 0.032 -0.210 -0.242

GNH:PPVT\_GS -0.153 0.020 -0.145 -0.609 0.029 0.128

c\_1:GNH:PPV 0.019 -0.152 0.028 0.124 -0.151 -0.590 -0.164

convergence code: 0

boundary (singular) fit: see ?isSingular

**> anova(lm1\_rs, lm2a\_rs)**

Data: tw\_AG\_T

Models:

lm1\_rs: Elog ~ cond\_clean \* Group + (cond\_clean | setid) + (cond\_clean |

lm1\_rs: ParticipantID)

lm2a\_rs: Elog ~ cond\_clean \* Group \* PPVT\_GSV\_C + (cond\_clean | setid) +

lm2a\_rs: (cond\_clean | ParticipantID)

Df AIC BIC logLik deviance Chisq Chi Df Pr(>Chisq)

lm1\_rs 11 8450.1 8516.1 -4214.1 8428.1

lm2a\_rs 15 8447.9 8537.9 -4208.9 8417.9 10.217 4 0.03693 \*

---

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