Ovsanna

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Environment

```
#Choose problem
newdata <- data[which(data$...3=="Average Anxiety Today"),]
newdata <- newdata[,-c(1:3)]
p <- as.matrix(newdata)
y <- c(t(p))
y <- y[!is.na(y)]
t <- c(1:22,1:29,1:22,1:36,1:29,1:29,1:35,1:29)
T <- c(rep(0,14),rep(1,8),rep(0,21),rep(1,8),rep(0,14),rep(1,8),rep(0,28),rep(1,8),rep(0,21),rep(1,8),r
ID <- c(rep(1,22),rep(5,29),rep(3,22),rep(6,36),rep(9,29),rep(12,29),rep(11,35),rep(17,29))
m <- data.frame(y,ID,t,T)
m$y <- as.numeric(y)
```

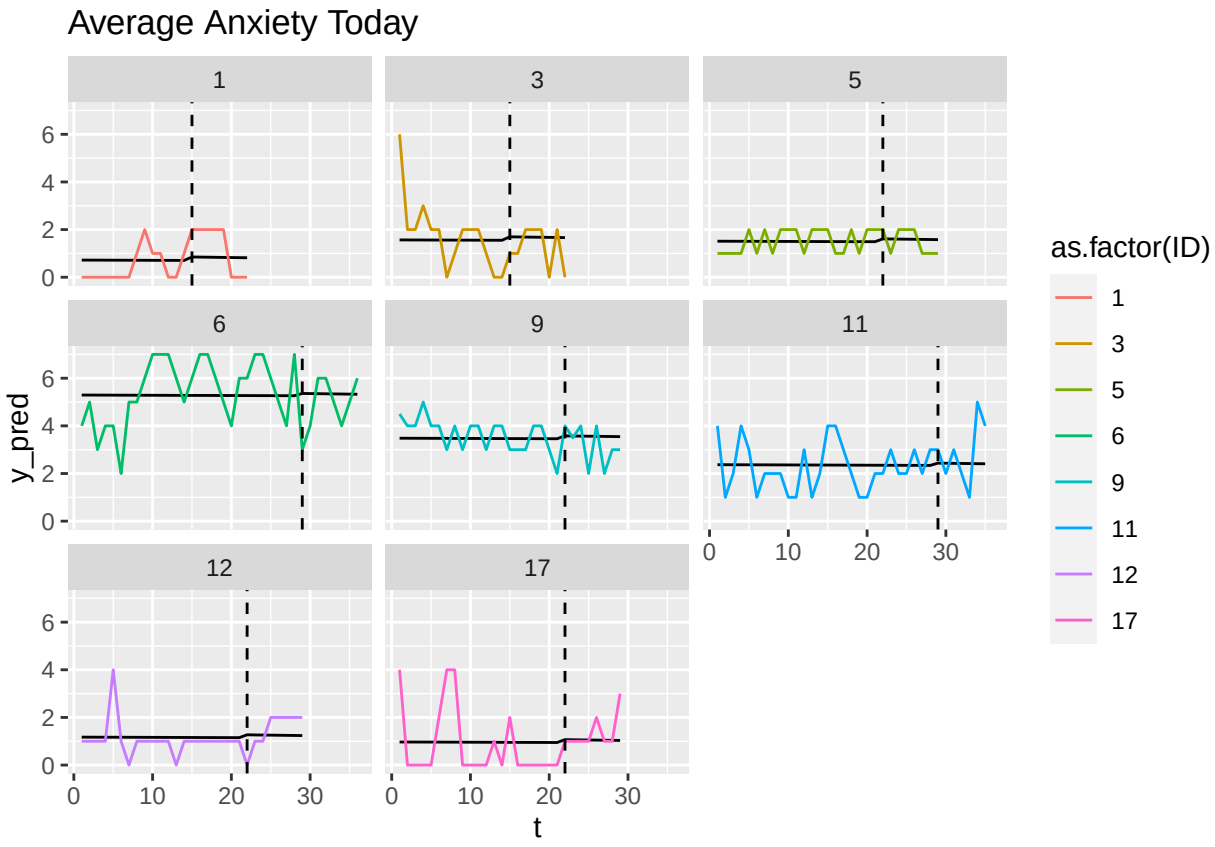
```
model2 <- lmer(y ~ T + t*T + (1 | as.factor(ID)), data = m)
m$y_pred <- fitted(model2)
summary(model2)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: y ~ T + t * T + (1 | as.factor(ID))
##    Data: m
##
## REML criterion at convergence: 721.6
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -3.1265 -0.6162 -0.1529  0.5058  4.2155
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 2.449    1.565
##  Residual                  1.106    1.052
## Number of obs: 231, groups:  as.factor(ID), 8
##
## Fixed effects:
##               Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)   2.136820   0.575868   7.930387   3.711  0.00604 **
## T             0.197230   0.747232 222.208907   0.264  0.79206
```

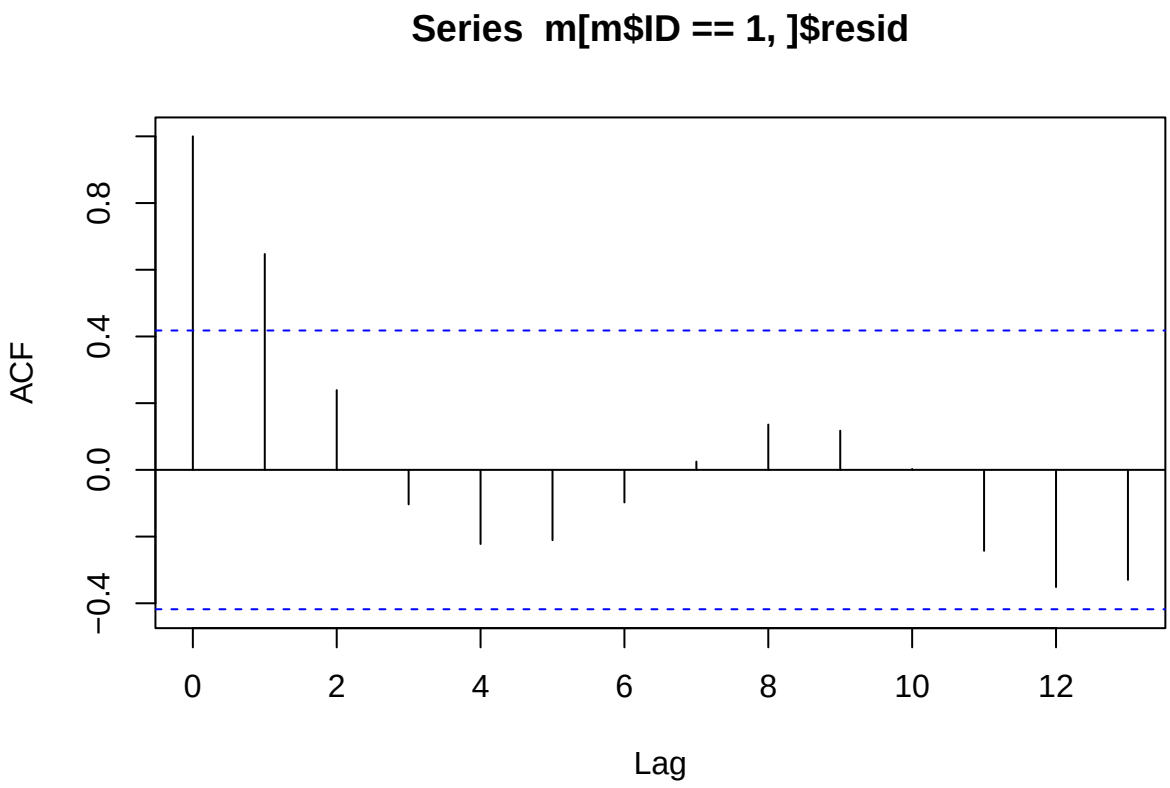
```
## t            -0.001098   0.012335 221.085339  -0.089  0.92916
## T:t          -0.003483   0.029450 221.412337  -0.118  0.90596
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##     (Intr) T      t
## T   -0.037
## t   -0.237  0.023
## T:t  0.077 -0.950 -0.260
```

```
vline_data <- data.frame(ID = c(1,3,5,6,9,11,12,17),  xintercept=c(15,15,22,29,22,29,22,22) )
```

```
ggplot(m, mapping = aes(x=t, y=y_pred, group=as.factor(ID))) +
  geom_line()+geom_line(aes(x=t, y=y, group=as.factor(ID), colour=as.factor(ID))) +facet_wrap(~ID)+ggti
```




```
 m$resid <- resid(model2)
acf(m[m$ID==1,]$resid)
```

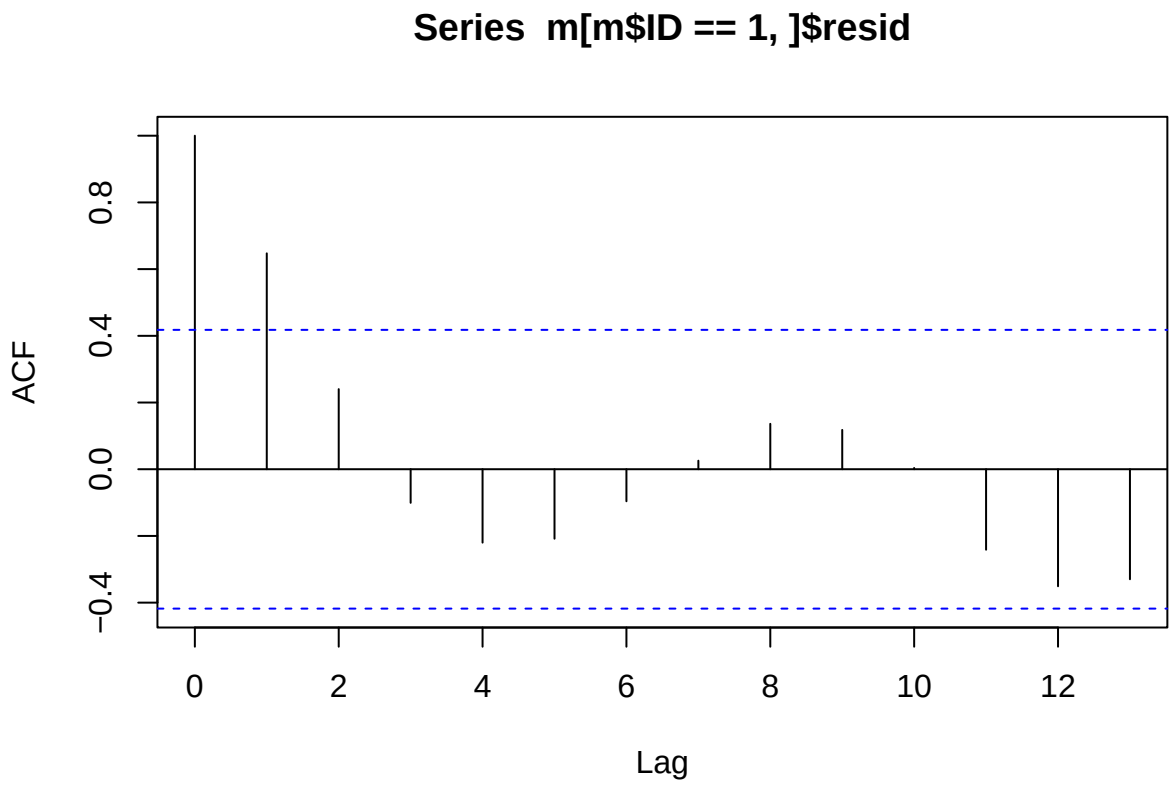



```
fm1 <- lme(y ~ T+t*T, random = ~1|as.factor(ID),correlation = corAR1(),data = m)
summary(fm1)
```

```
## Linear mixed-effects model fit by REML
##   Data: m
##       AIC      BIC   logLik
##   706.966 730.9407 -346.483
##
## Random effects:
##  Formula: ~1 | as.factor(ID)
##         (Intercept) Residual
## StdDev:    1.542756 1.095664
##
## Correlation Structure: AR(1)
##  Formula: ~1 | as.factor(ID)
##  Parameter estimate(s):
##       Phi
## 0.3979963
## Fixed effects:  y ~ T + t * T
##                 Value Std.Error  DF   t-value p-value
## (Intercept)  2.1727949 0.5938342 220  3.658925  0.0003
## T            0.2639243 1.0007579 220  0.263724  0.7922
## t           -0.0010191 0.0175076 220 -0.058210  0.9536
## T:t         -0.0075201 0.0405089 220 -0.185641  0.8529
##  Correlation:
```

```
##     (Intr) T      t
## T   -0.069
## t   -0.333  0.110
## T:t  0.118 -0.952 -0.328
##
## Standardized Within-Group Residuals:
##        Min         Q1        Med         Q3        Max
## -2.9515774 -0.6233737 -0.1871959  0.4940575  3.9596775
##
## Number of Observations: 231
## Number of Groups: 8
```

```
m$resid <- resid(fm1)
acf(m[m$ID==1,]$resid)
```




```
m$y <- as.factor(m$y)
model <- clmm(ordered(y) ~ T + t*T + (1 | as.factor(ID)), data = m)
```

```
## Warning in update.uC(rho): Non finite negative log-likelihood
##   at iteration 1010

## Warning in update.uC(rho): Non finite negative log-likelihood
##   at iteration 1530

## Warning in update.uC(rho): Non finite negative log-likelihood
##   at iteration 1600
```

```
summary(model)
```

```
## Cumulative Link Mixed Model fitted with the Laplace approximation
##
## formula: ordered(y) ~ T + t * T + (1 | as.factor(ID))
## data:    m
##
##  link  threshold nobs logLik  AIC    niter      max.grad cond.H
##  logit flexible  231  -335.79 697.59 1201(7538) 1.59e+00 2.8e+03
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 6.777    2.603
## Number of groups:  as.factor(ID) 8
##
## Coefficients:
##      Estimate Std. Error z value Pr(>|z|)
## T    1.521429   0.006924 219.735   <2e-16 ***
## t    0.007117   0.005055   1.408    0.159
## T:t -0.047490   0.004960  -9.574   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Threshold coefficients:
##        Estimate Std. Error z value
## 0|1   -2.617792   0.236740  -11.06
## 1|2   -0.647175   0.007012  -92.30
## 2|3    1.447853   0.006936  208.74
## 3|3.5  2.511110   0.006919  362.94
## 3.5|4  2.560820   0.006828  375.04
## 4|4.5  4.562857   0.006984  653.37
## 4.5|5  4.650258   0.006983  665.99
## 5|6    5.568657   0.007019  793.35
## 6|7    6.844701   0.006989  979.38
```

##Max Anxiety Today

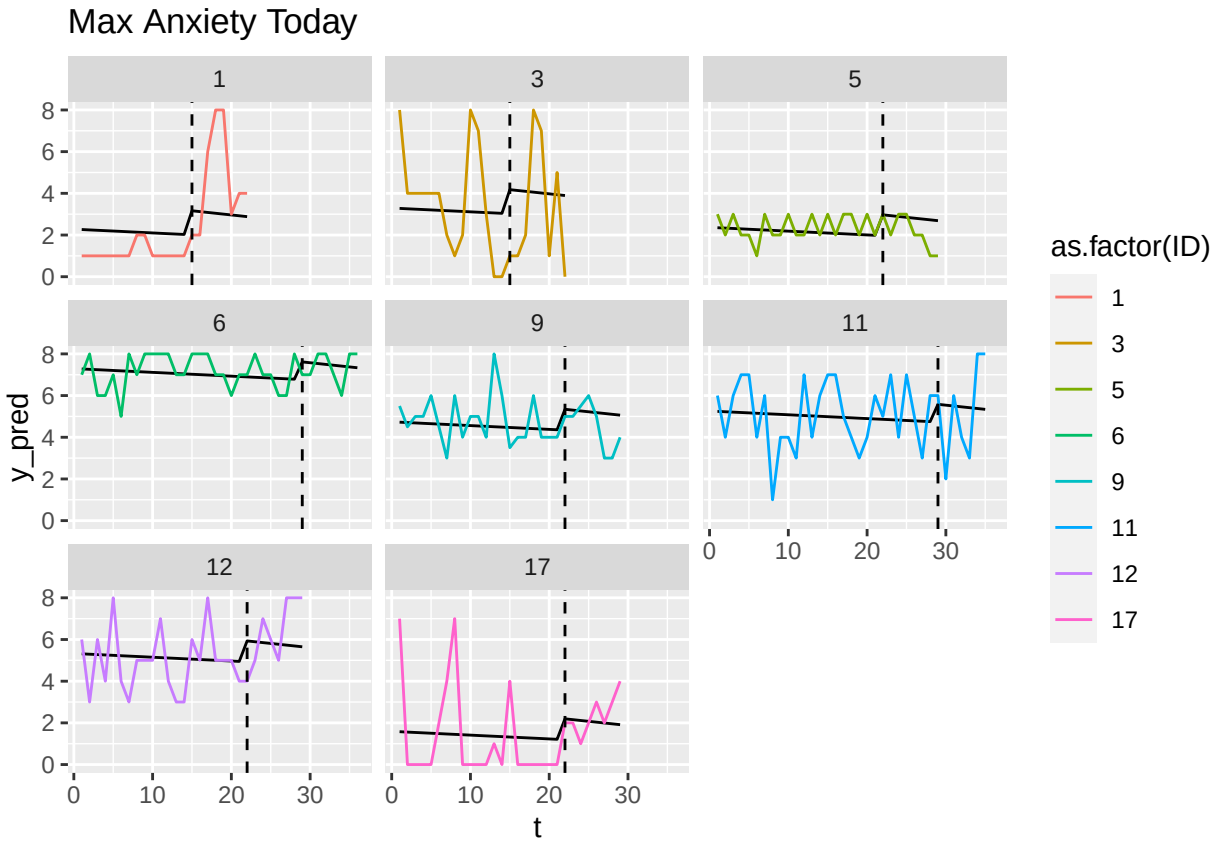
```
newdata <- data[which(data$...3=="Max Anxiety Today"),]
newdata <- newdata[,-c(1:3)]
p <- as.matrix(newdata)
y <- c(t(p))
y <- y[!is.na(y)]
t <- c(1:22,1:29,1:22,1:36,1:29,1:29,1:35,1:29)
T <- c(rep(0,14),rep(1,8),rep(0,21),rep(1,8),rep(0,14),rep(1,8),rep(0,28),rep(1,8),rep(0,21),rep(1,8),r
ID <- c(rep(1,22),rep(5,29),rep(3,22),rep(6,36),rep(9,29),rep(12,29),rep(11,35),rep(17,29))
m1 <- data.frame(y,ID,t,T)
m1$y <- as.numeric(y)
```

```
model3 <- lmer(y ~ T + t*T + (1 | as.factor(ID)), data = m1)
m1$y_pred <- fitted(model3)
summary(model3)
```

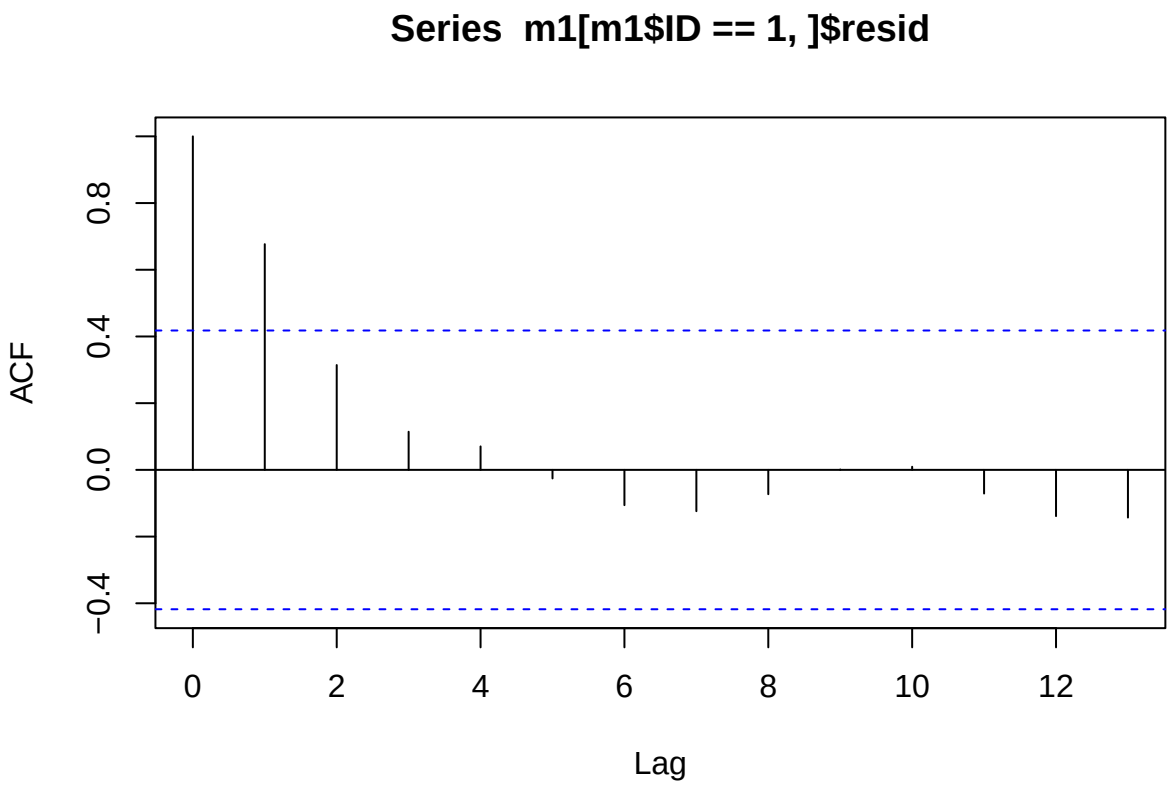
```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
```

```
## lmerModLmerTest]
## Formula: y ~ T + t * T + (1 | as.factor(ID))
##    Data: m1
##
## REML criterion at convergence: 925.7
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -2.4789 -0.6876 -0.0800  0.5115  3.3440
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 3.912    1.978
##  Residual                  2.756    1.660
## Number of obs: 231, groups:  as.factor(ID), 8
##
## Fixed effects:
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)   4.02130    0.74339   8.44541   5.409 0.000532 ***
## T             1.48380    1.17753 223.22366   1.260 0.208951
## t            -0.01821    0.01945 221.62260  -0.936 0.350308
## T:t          -0.02194    0.04643 222.09728  -0.473 0.636988
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##     (Intr) T      t
## T   -0.046
## t   -0.289  0.025
## T:t  0.095 -0.950 -0.262
```

```
ggplot(m1, mapping = aes(x=t, y=y_pred, group=as.factor(ID))) +
  geom_line()+geom_line(aes(x=t, y=y, group=as.factor(ID), colour=as.factor(ID))) +facet_wrap(~ID)+ggti
```




```
m1$resid <- resid(model3)
acf(m1[m1$ID==1,]$resid)
```

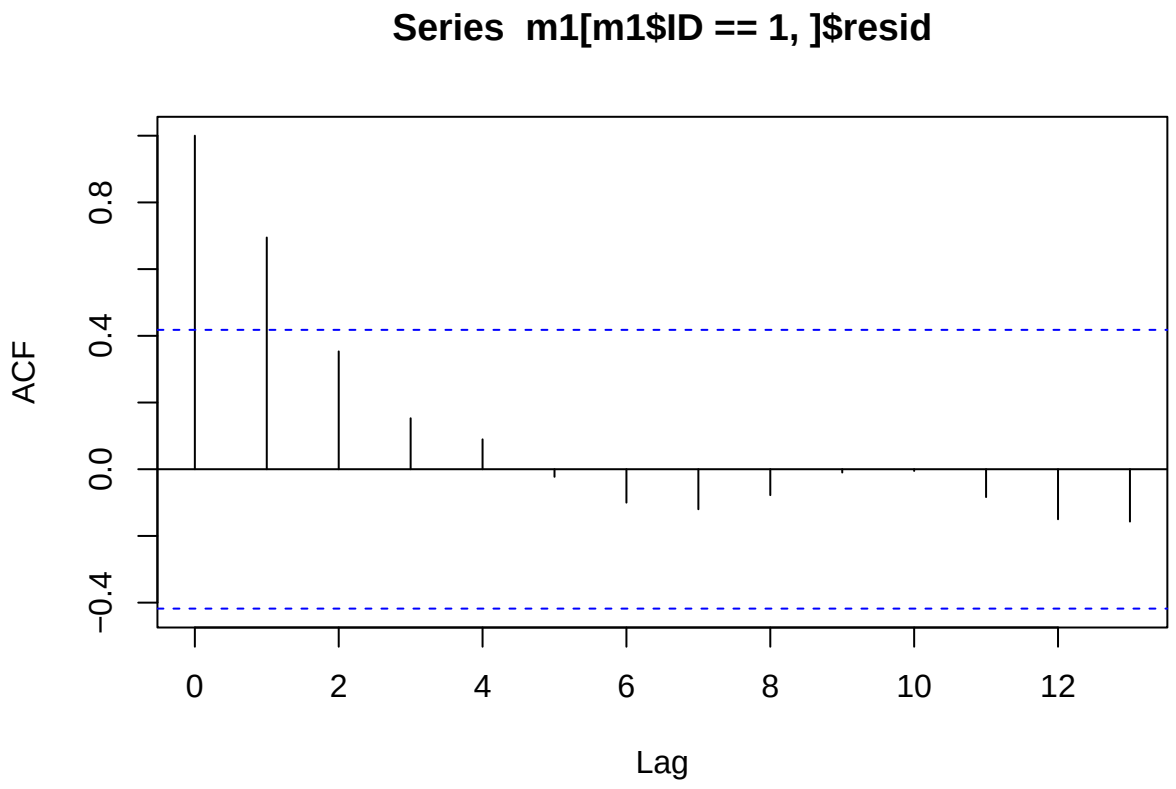



```
fm2 <- lme(y ~ T+t*T, random = ~1|as.factor(ID),correlation = corAR1(),data = m1)
summary(fm2)
```

```
## Linear mixed-effects model fit by REML
##   Data: m1
##        AIC      BIC   logLik
##   920.3059 944.2806 -453.153
##
## Random effects:
##  Formula: ~1 | as.factor(ID)
##         (Intercept) Residual
## StdDev:      1.9288 1.705292
##
## Correlation Structure: AR(1)
##  Formula: ~1 | as.factor(ID)
##  Parameter estimate(s):
##       Phi
## 0.3228426
## Fixed effects:  y ~ T + t * T
##                 Value Std.Error  DF   t-value p-value
## (Intercept)  4.096115 0.7630646 220  5.367980  0.0000
## T            0.931428 1.4995962 220  0.621119  0.5352
## t           -0.020236 0.0257955 220 -0.784460  0.4336
## T:t         -0.001454 0.0602599 220 -0.024126  0.9808
##  Correlation:
```

```
##     (Intr) T      t
## T   -0.075
## t   -0.379  0.088
## T:t  0.133 -0.951 -0.313
##
## Standardized Within-Group Residuals:
##         Min          Q1         Med          Q3         Max
## -2.42294175 -0.69885558 -0.09197737  0.49122749  3.13779198
##
## Number of Observations: 231
## Number of Groups: 8
```

```
m1$resid <- resid(fm2)
acf(m1[m1$ID==1,]$resid)
```




```
m1$y <- as.factor(m1$y)
ordnal1 <- clmm(ordered(y) ~ T+t*T + (1 | as.factor(ID)), data = m1)
```

```
## Warning in update.uC(rho): Non finite negative log-likelihood
##   at iteration 350

## Warning in update.uC(rho): Non finite negative log-likelihood
##   at iteration 618

## Warning in update.uC(rho): Non finite negative log-likelihood
##   at iteration 758
```

```
## Warning in update.uC(rho): Non finite negative log-likelihood
##   at iteration 1471
```

```
summary(ordnal1)
```

```
## Cumulative Link Mixed Model fitted with the Laplace approximation
##
## formula: ordered(y) ~ T + t * T + (1 | as.factor(ID))
## data:    m1
##
##  link  threshold nobs logLik  AIC    niter      max.grad cond.H
##  logit flexible  231  -439.51 909.03 1527(9089) 6.71e-04 9.1e+04
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 4.534    2.129
## Number of groups:  as.factor(ID) 8
##
## Coefficients:
##      Estimate Std. Error z value Pr(>|z|)
## T    1.230835   1.457618   0.844    0.398
## t   -0.017650   0.020088  -0.879    0.380
## T:t -0.004956   0.057090  -0.087    0.931
##
## Threshold coefficients:
##       Estimate Std. Error z value
## 0|1    -3.6952     0.8574  -4.310
## 1|2    -2.3857     0.8301  -2.874
## 2|3    -1.2853     0.8216  -1.564
## 3|3.5  -0.2761     0.8174  -0.338
## 3.5|4  -0.2409     0.8173  -0.295
## 4|4.5   0.8386     0.8179   1.025
## 4.5|5   0.9051     0.8181   1.106
## 5|5.5   1.5909     0.8212   1.937
## 5.5|6   1.6572     0.8216   2.017
## 6|7     2.4975     0.8293   3.012
## 7|8     3.6631     0.8485   4.317
```

##Avg Avoidance of Thoughts, Situatoins, Sensations

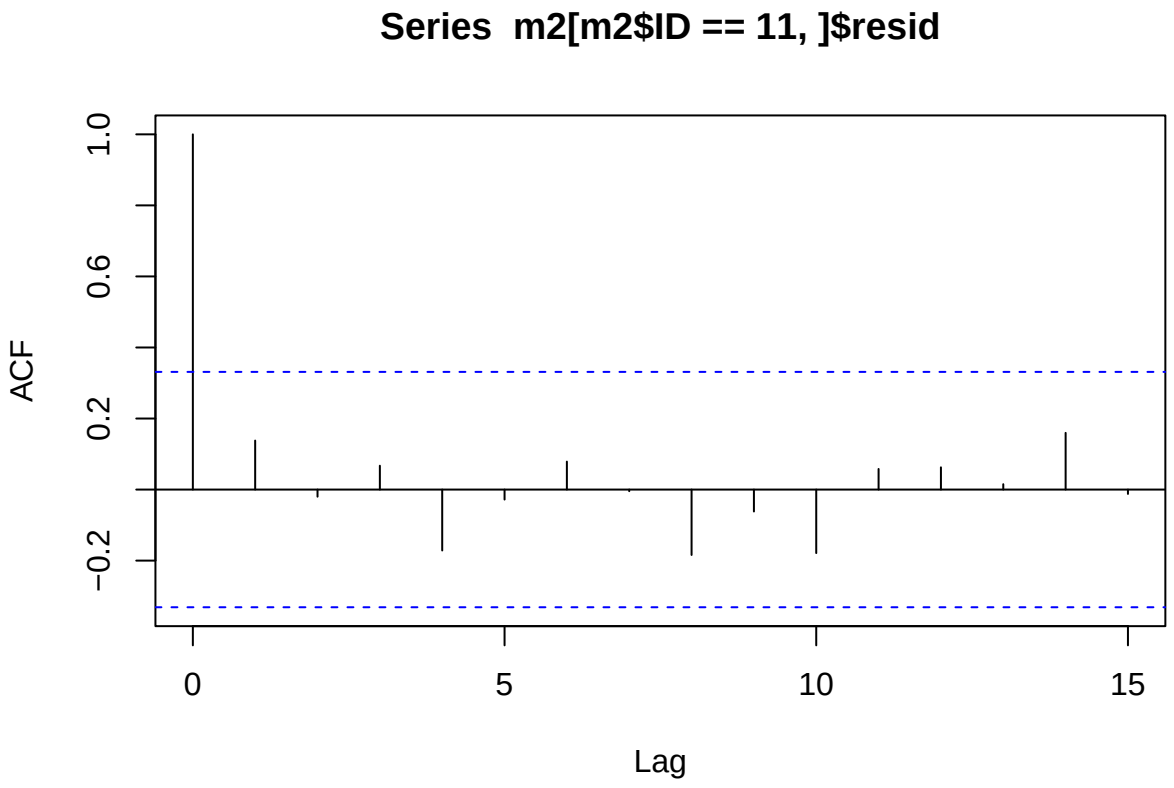
```
newdata <- data[which(data$...3=="Avg Avoidance of Thoughts, Situatoins, Sensations"),]
newdata <- newdata[,-c(1:3)]
p <- as.matrix(newdata)
y <- c(t(p))
y <- y[!is.na(y)]
t <- c(1:22,1:29,1:22,1:36,1:29,1:29,1:35,1:29)
T <- c(rep(0,14),rep(1,8),rep(0,21),rep(1,8),rep(0,14),rep(1,8),rep(0,28),rep(1,8),rep(0,21),rep(1,8),r
ID <- c(rep(1,22),rep(5,29),rep(3,22),rep(6,36),rep(9,29),rep(12,29),rep(11,35),rep(17,29))
m2 <- data.frame(y,ID,t,T)
m2$y <- as.numeric(y)
```

```r
model4 <- lmer(y ~ T + t*T + (1 | as.factor(ID)), data = m2)
m2$y_pred <- fitted(model4)
summary(model4)
```

```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: y ~ T + t * T + (1 | as.factor(ID))
##    Data: m2
##
## REML criterion at convergence: 969.5
##
## Scaled residuals:
##      Min       1Q   Median       3Q      Max
## -2.46862 -0.46695 -0.08721  0.50280  3.04935
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 2.403    1.550
##  Residual                  3.412    1.847
## Number of obs: 231, groups:  as.factor(ID), 8
##
## Fixed effects:
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)   2.96285    0.61566   9.86430   4.812 0.000738 ***
## T             1.05237    1.30502 225.35824   0.806 0.420863
## t            -0.05534    0.02161 222.91949  -2.561 0.011094 *
## T:t          -0.01090    0.05154 223.69761  -0.211 0.832764
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##     (Intr) T      t
## T   -0.063
## t   -0.389  0.030
## T:t  0.128 -0.950 -0.267
```

```r
ggplot(m2, mapping = aes(x=t, y=y_pred, group=as.factor(ID))) +
  geom_line()+geom_line(aes(x=t, y=y, group=as.factor(ID), colour=as.factor(ID))) +facet_wrap(~ID)+ggti
```


```
m2$resid <- resid(model4)
acf(m2[m2$ID==11,]$resid)
```

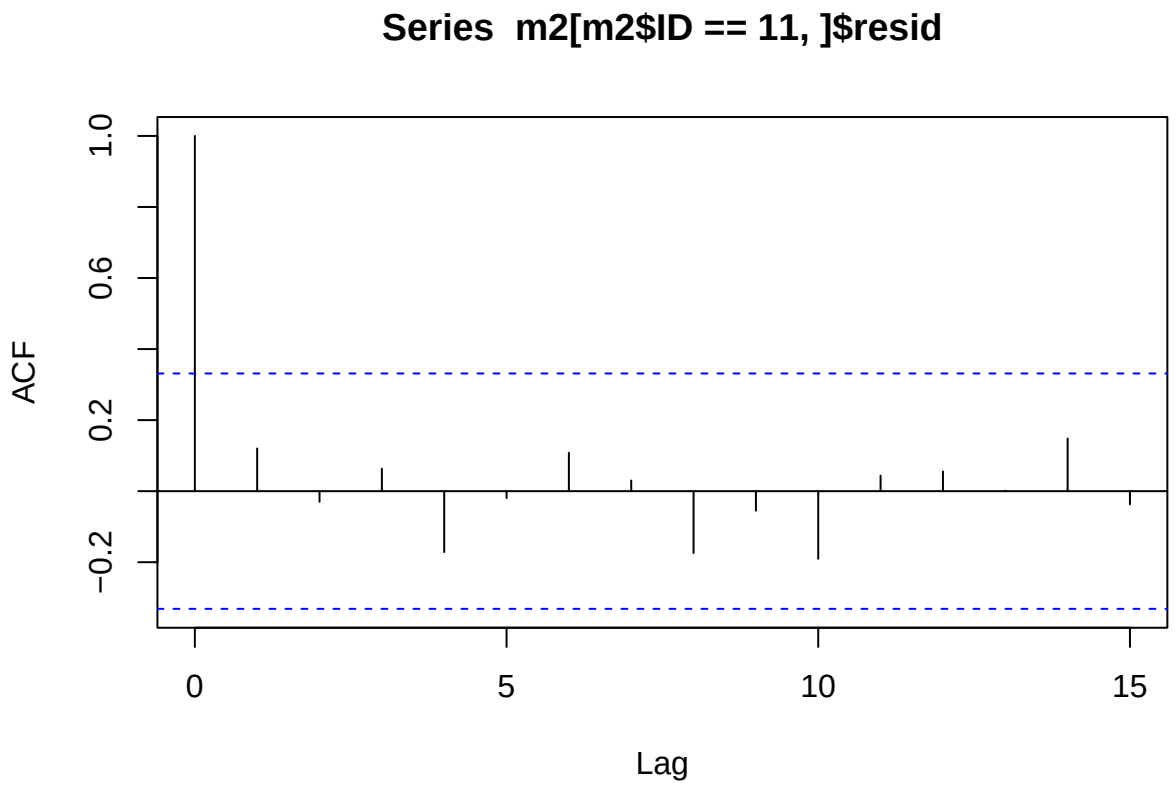



```
fm3 <- lme(y ~ T+t*T, random = ~1|as.factor(ID),correlation = corAR1(),data = m2)
summary(fm3)
```

```
## Linear mixed-effects model fit by REML
##   Data: m2
##        AIC     BIC    logLik
##   899.7494 923.724 -442.8747
##
## Random effects:
##  Formula: ~1 | as.factor(ID)
##         (Intercept) Residual
## StdDev:    1.453105 1.950894
##
## Correlation Structure: AR(1)
##  Formula: ~1 | as.factor(ID)
##  Parameter estimate(s):
##       Phi
## 0.5905531
## Fixed effects:  y ~ T + t * T
##                 Value Std.Error  DF   t-value p-value
## (Intercept)  2.9351754 0.7138132 220  4.111966  0.0001
## T            1.3935362 1.8438800 220  0.755763  0.4506
## t           -0.0498347 0.0351442 220 -1.418006  0.1576
## T:t         -0.0297657 0.0771783 220 -0.385674  0.7001
##  Correlation:
```

```
##     (Intr) T      t
## T   -0.147
## t   -0.577  0.209
## T:t  0.213 -0.955 -0.396
##
## Standardized Within-Group Residuals:
##        Min         Q1        Med         Q3        Max
## -2.2479146 -0.4204762 -0.1520656  0.5043553  2.8666134
##
## Number of Observations: 231
## Number of Groups: 8
```

```
m2$resid <- resid(fm3)
acf(m2[m2$ID==11,]$resid)
```




```
m2$y <- as.factor(m2$y)
ordnal2 <- clmm(ordered(y) ~ T+t*T + (1 | as.factor(ID)), data = m2)
```

```
## Warning in update.uC(rho): Non finite negative log-likelihood
##   at iteration 822
```

```
summary(ordnal2)
```

```
## Cumulative Link Mixed Model fitted with the Laplace approximation
```

```
##
## formula: ordered(y) ~ T + t * T + (1 | as.factor(ID))
## data:    m2
##
##  link  threshold nobs logLik  AIC    niter      max.grad cond.H
##  logit flexible  231  -404.26 834.53 1162(5801) 7.43e-04 7.4e+04
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 5.559    2.358
## Number of groups:  as.factor(ID) 8
##
## Coefficients:
##      Estimate Std. Error z value Pr(>|z|)
## T    0.585437   1.488180   0.393   0.6940
## t   -0.043191   0.020932  -2.063   0.0391 *
## T:t -0.007854   0.055677  -0.141   0.8878
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Threshold coefficients:
##       Estimate Std. Error z value
## 0|1    -2.1710     0.7513  -2.889
## 1|2    -0.5731     0.7538  -0.760
## 2|3     0.6361     0.7565   0.841
## 3|4     1.3162     0.7585   1.735
## 4|4.5   2.0933     0.7649   2.737
## 4.5|5   2.1310     0.7654   2.784
## 5|6     2.6462     0.7734   3.421
## 6|7     2.9689     0.7804   3.805
## 7|8     3.4511     0.7962   4.335
```

##Jump to Negative Conclusions

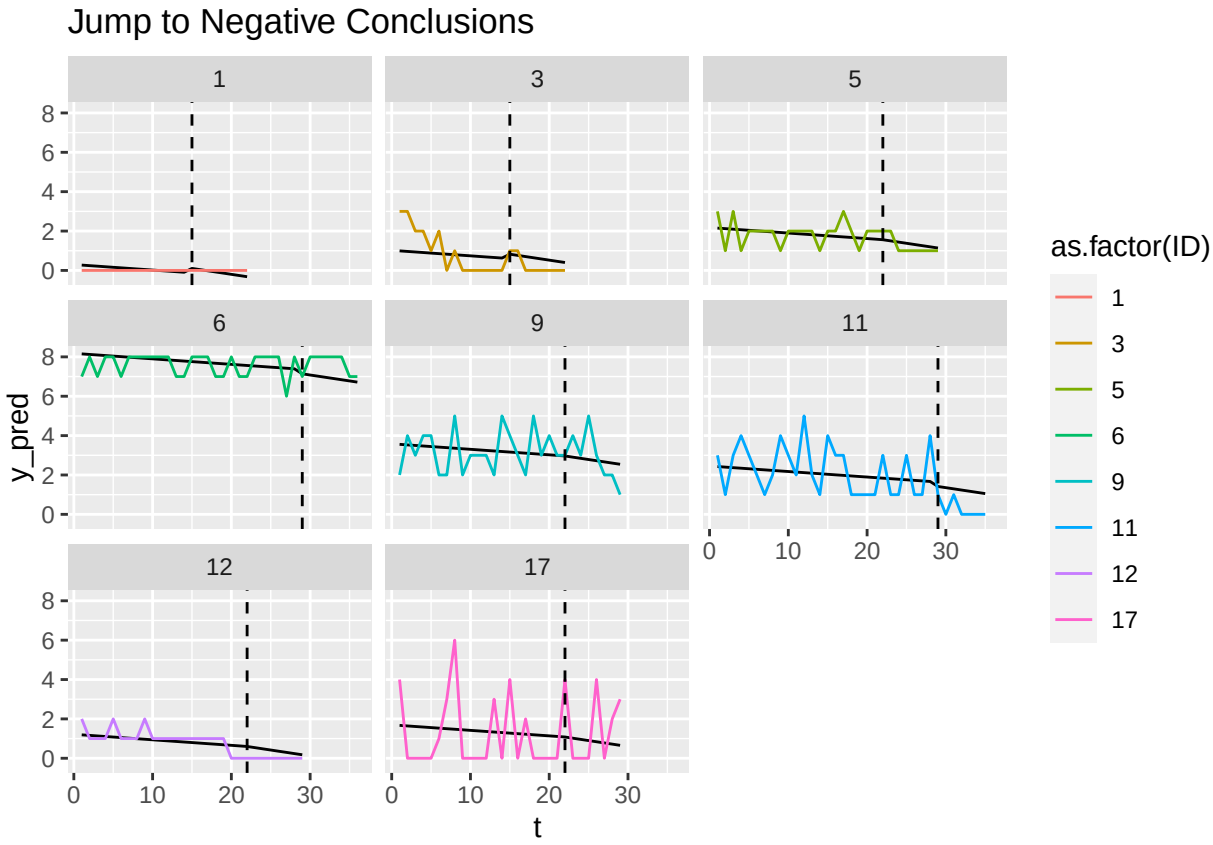
```
newdata <- data[which(data$...3=="Jump to Negative Conclusions"),]
newdata <- newdata[,-c(1:3)]
p <- as.matrix(newdata)
y <- c(t(p))
y <- y[!is.na(y)]
t <- c(1:22,1:29,1:22,1:36,1:29,1:29,1:35,1:29)
T <- c(rep(0,14),rep(1,8),rep(0,21),rep(1,8),rep(0,14),rep(1,8),rep(0,28),rep(1,8),rep(0,21),rep(1,8),r
ID <- c(rep(1,22),rep(5,29),rep(3,22),rep(6,36),rep(9,29),rep(12,29),rep(11,35),rep(17,29))
m3 <- data.frame(y,ID,t,T)
m3$y <- as.numeric(y)
```

```
model5 <- lmer(y ~ T + t*T + (1 | as.factor(ID)), data = m3)
m3$y_pred <- fitted(model5)
summary(model5)
```

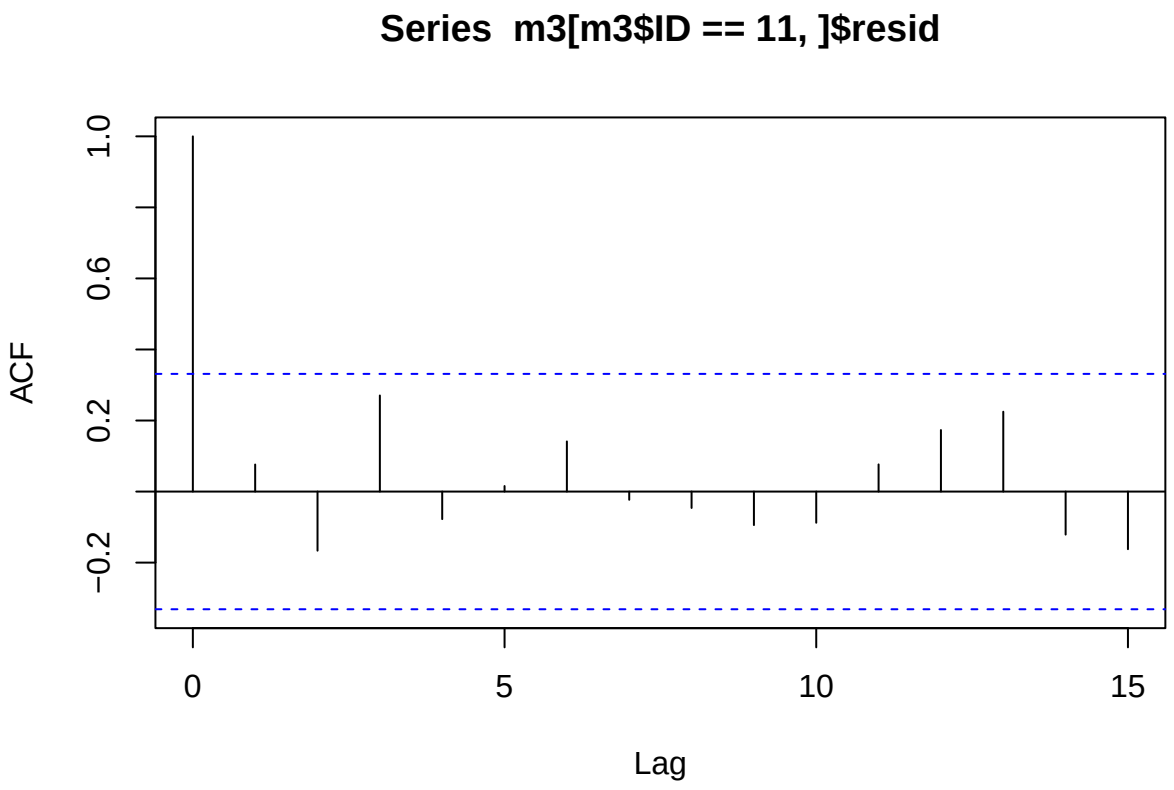
```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: y ~ T + t * T + (1 | as.factor(ID))
##    Data: m3
```

```
##
## REML criterion at convergence: 709.9
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.6271 -0.6634 -0.0498  0.3780  4.4834
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 6.153    2.481
##  Residual                  1.019    1.009
## Number of obs: 231, groups:  as.factor(ID), 8
##
## Fixed effects:
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)   2.57940    0.89034   7.33575   2.897   0.0219 *
## T             0.70662    0.71833 220.86647   0.984   0.3263
## t            -0.02803    0.01185 220.41221  -2.366   0.0189 *
## T:t          -0.03221    0.02829 220.54215  -1.139   0.2561
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##     (Intr) T      t
## T   -0.023
## t   -0.147  0.020
## T:t  0.048 -0.950 -0.258
```

```
ggplot(m3, mapping = aes(x=t, y=y_pred, group=as.factor(ID))) +
  geom_line()+geom_line(aes(x=t, y=y, group=as.factor(ID), colour=as.factor(ID))) +facet_wrap(~ID)+ggti
```




```
m3$resid <- resid(model5)
acf(m3[m3$ID==11,]$resid)
```

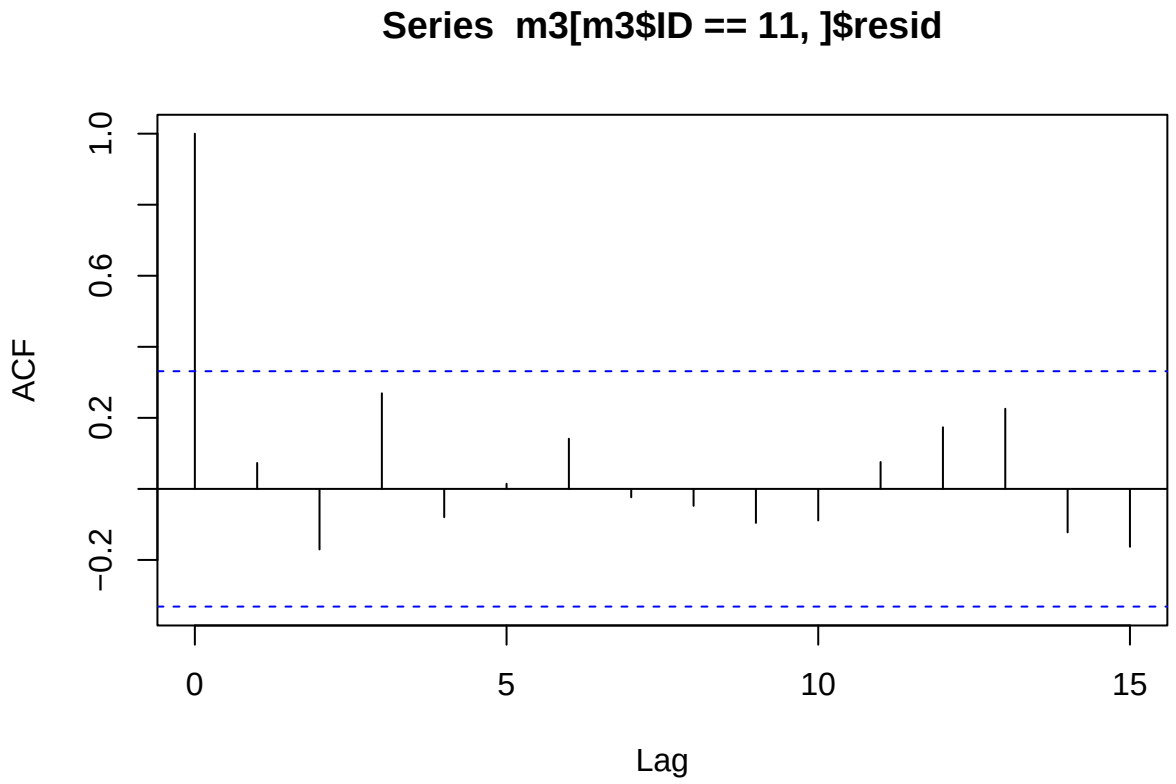



```
fm4 <- lme(y ~ T+t*T, random = ~1|as.factor(ID),correlation = corAR1(),data = m3)
summary(fm4)
```

```
## Linear mixed-effects model fit by REML
##   Data: m3
##        AIC      BIC    logLik
##   722.2966 746.2713 -354.1483
##
## Random effects:
##  Formula: ~1 | as.factor(ID)
##         (Intercept) Residual
## StdDev:    2.479103 1.014317
##
## Correlation Structure: AR(1)
##  Formula: ~1 | as.factor(ID)
##  Parameter estimate(s):
##        Phi
## 0.09105591
## Fixed effects:  y ~ T + t * T
##                 Value Std.Error  DF    t-value p-value
## (Intercept)  2.5834499 0.8922526 220  2.8954243  0.0042
## T            0.7627374 0.7733931 220  0.9862221  0.3251
## t           -0.0282528 0.0128449 220 -2.1995349  0.0289
## T:t         -0.0343015 0.0305548 220 -1.1226242  0.2628
##  Correlation:
```

```
##     (Intr) T      t
## T   -0.026
## t   -0.159  0.032
## T:t  0.052 -0.950 -0.267
##
## Standardized Within-Group Residuals:
##         Min          Q1         Med          Q3         Max
## -1.63813204 -0.65743251 -0.05458645  0.37839029  4.44430361
##
## Number of Observations: 231
## Number of Groups: 8
```

```
m3$resid <- resid(fm4)
acf(m3[m3$ID==11,]$resid)
```




```
m3$y <- as.factor(m3$y)
ordnal3 <- clmm(ordered(y) ~ T+t*T + (1 | as.factor(ID)), data = m3)
summary(ordnal3)
```

```
## Cumulative Link Mixed Model fitted with the Laplace approximation
##
## formula: ordered(y) ~ T + t * T + (1 | as.factor(ID))
## data:    m3
##
##  link  threshold nobs logLik  AIC    niter       max.grad cond.H
```

```
##  logit flexible  231  -288.62 601.23 1089(11331) 1.06e-04 3.0e+05
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 25.07    5.007
## Number of groups:  as.factor(ID) 8
##
## Coefficients:
##     Estimate Std. Error z value Pr(>|z|)
## T    0.98291    1.63579   0.601   0.5479
## t   -0.05472    0.02322  -2.357   0.0184 *
## T:t -0.05465    0.06252  -0.874   0.3821
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Threshold coefficients:
##     Estimate Std. Error z value
## 0|1  -2.7378     1.8521  -1.478
## 1|2  -1.0018     1.8463  -0.543
## 2|3   0.3107     1.8459   0.168
## 3|4   1.6044     1.8523   0.866
## 4|5   3.0195     1.8766   1.609
## 5|6   4.5991     1.9917   2.309
## 6|7   6.3342     2.3702   2.672
## 7|8   9.1337     2.5084   3.641
```

##Scares Me when I am Nervous

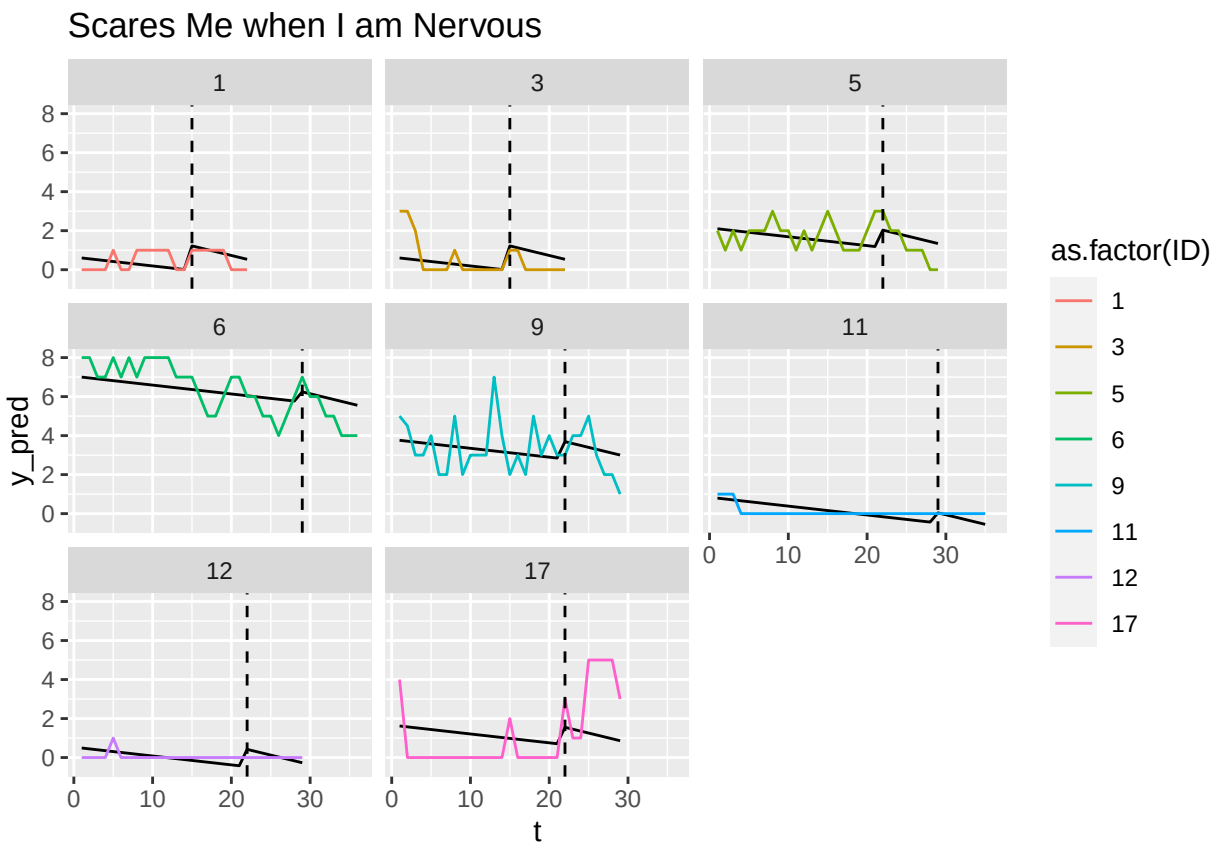
```
newdata <- data[which(data$...3=="Scares Me when I am Nervous"),]
newdata <- newdata[,-c(1:3)]
p <- as.matrix(newdata)
y <- c(t(p))
y <- y[!is.na(y)]
t <- c(1:22,1:29,1:22,1:36,1:29,1:29,1:35,1:29)
T <- c(rep(0,14),rep(1,8),rep(0,21),rep(1,8),rep(0,14),rep(1,8),rep(0,28),rep(1,8),rep(0,21),rep(1,8),r
ID <- c(rep(1,22),rep(5,29),rep(3,22),rep(6,36),rep(9,29),rep(12,29),rep(11,35),rep(17,29))
m4 <- data.frame(y,ID,t,T)
m4$y <- as.numeric(y)
```

```
model6 <- lmer(y ~ T+ t*T + (1 | as.factor(ID)), data = m4)
m4$y_pred <- fitted(model6)
summary(model6)
```

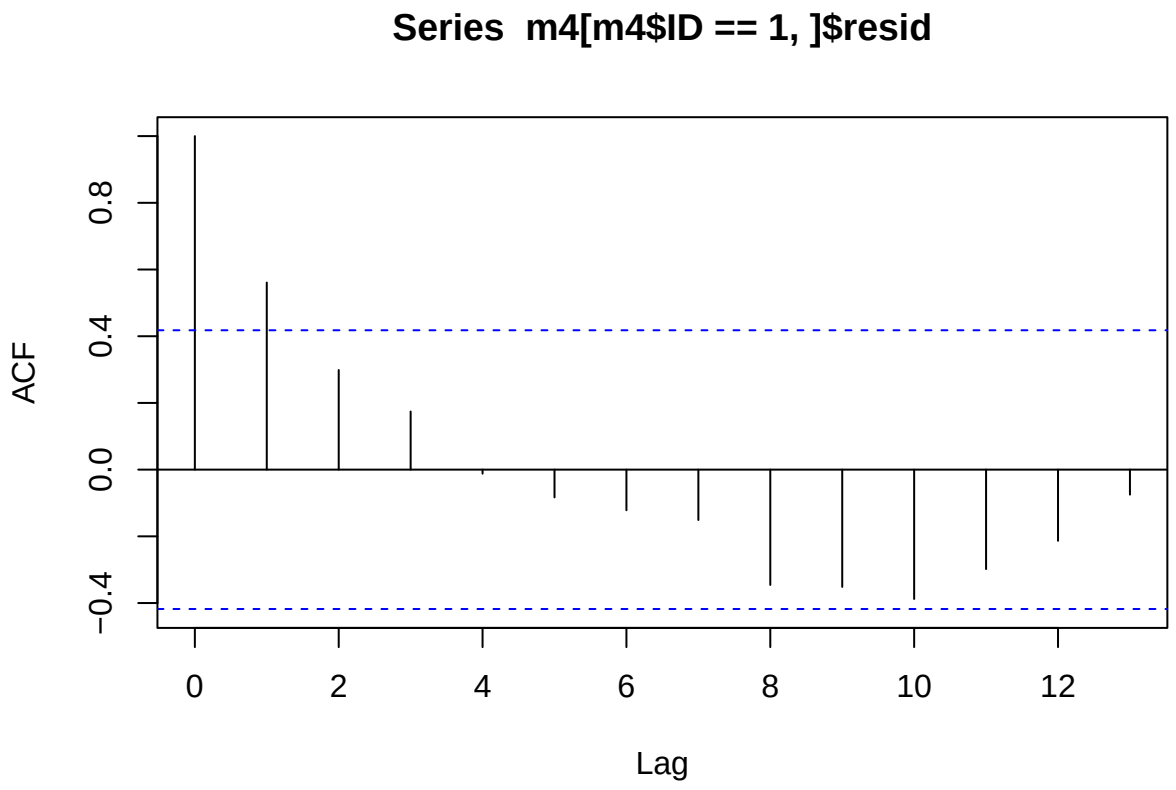
```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: y ~ T + t * T + (1 | as.factor(ID))
##    Data: m4
##
## REML criterion at convergence: 715.7
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -1.9535 -0.5700 -0.0776  0.3550  3.9370
```

```
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 5.150    2.269
##  Residual                  1.052    1.026
## Number of obs: 231, groups:  as.factor(ID), 8
##
## Fixed effects:
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)   2.16590    0.81736   7.42557   2.650 0.031243 *
## T             2.04479    0.72973 221.06774   2.802 0.005527 **
## t            -0.04548    0.01204 220.51531  -3.778 0.000203 ***
## T:t          -0.05264    0.02874 220.67366  -1.831 0.068379 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##     (Intr) T      t
## T   -0.025
## t   -0.163  0.021
## T:t  0.053 -0.950 -0.258
```

```
ggplot(m4, mapping = aes(x=t, y=y_pred, group=as.factor(ID))) +
  geom_line()+geom_line(aes(x=t, y=y, group=as.factor(ID), colour=as.factor(ID))) +facet_wrap(~ID)+ggti
```



```r
m4$resid <- resid(model6)
acf(m4[m4$ID==1,]$resid)
```

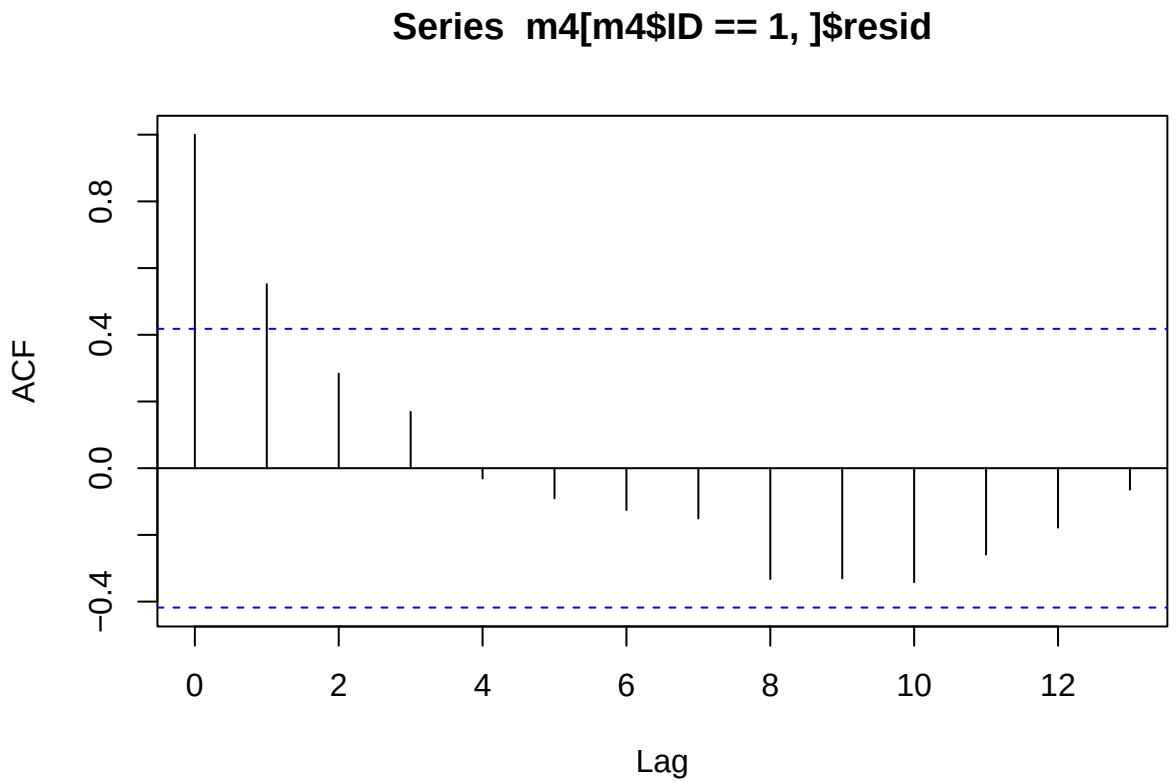



```r
fm5 <- lme(y ~ T+t*T, random = ~1|as.factor(ID),correlation = corAR1(),data = m4)
summary(fm5)
```

```
## Linear mixed-effects model fit by REML
##   Data: m4
##        AIC     BIC    logLik
##   626.5114 650.486 -306.2557
##
## Random effects:
##  Formula: ~1 | as.factor(ID)
##         (Intercept) Residual
## StdDev:     2.22368 1.134915
##
## Correlation Structure: AR(1)
##  Formula: ~1 | as.factor(ID)
##  Parameter estimate(s):
##       Phi
## 0.6709375
## Fixed effects:  y ~ T + t * T
##                  Value Std.Error  DF   t-value p-value
## (Intercept)  2.3685784 0.8454966 220  2.801405  0.0055
## T            1.8656768 1.0657592 220  1.750561  0.0814
```

```
## t           -0.0566064 0.0214366 220 -2.640642  0.0089
## T:t         -0.0463229 0.0451578 220 -1.025802  0.3061
##  Correlation:
##     (Intr) T      t
## T   -0.077
## t   -0.302  0.233
## T:t  0.107 -0.958 -0.401
##
## Standardized Within-Group Residuals:
##         Min          Q1         Med          Q3         Max
## -1.76879049 -0.56613158 -0.07944127  0.36307998  3.43259283
##
## Number of Observations: 231
## Number of Groups: 8
```

```
m4$resid <- resid(fm5)
acf(m4[m4$ID==1,]$resid)
```




```
m4$y <- as.factor(m4$y)
ordnal4 <- clmm(ordered(y) ~ T+t*T + (1 | as.factor(ID)), data = m4)
```

```
## Warning in update.uC(rho): Non finite negative log-likelihood
##   at iteration 2053
```

```
summary(ordnal4)
```

```
## Cumulative Link Mixed Model fitted with the Laplace approximation
##
## formula: ordered(y) ~ T + t * T + (1 | as.factor(ID))
## data:    m4
##
##  link  threshold nobs logLik  AIC    niter       max.grad cond.H
##  logit flexible  231  -257.82 541.64 1222(10787) 1.06e-03 1.7e+05
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 15.08    3.883
## Number of groups:  as.factor(ID) 8
##
## Coefficients:
##     Estimate Std. Error z value Pr(>|z|)
## T    5.61462    1.50481   3.731 0.000191 ***
## t   -0.11888    0.02770  -4.291 1.78e-05 ***
## T:t -0.16486    0.06022  -2.738 0.006186 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Threshold coefficients:
##       Estimate Std. Error z value
## 0|1    -1.9914     1.4317  -1.391
## 1|2    -0.3544     1.4340  -0.247
## 2|3     0.9626     1.4402   0.668
## 3|4     2.2800     1.4539   1.568
## 4|4.5   3.1977     1.4669   2.180
## 4.5|5   3.2910     1.4686   2.241
## 5|6     5.1397     1.5205   3.380
## 6|7     6.1305     1.5391   3.983
## 7|8     7.9343     1.5737   5.042
```

##Confident in My Ability to Handle Situations

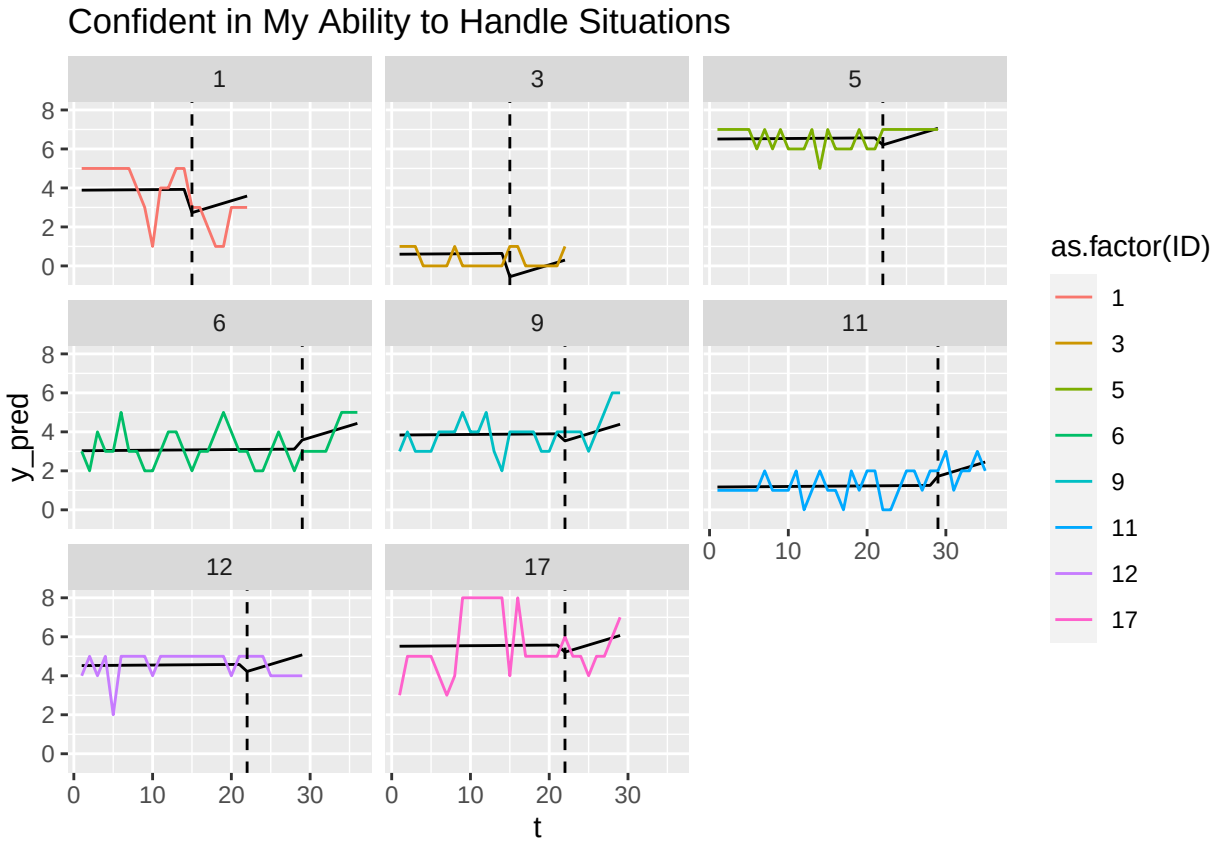
```
newdata <- data[which(data$...3=="Confident in My Ability to Handle Situations"),]
newdata <- newdata[,-c(1:3)]
p <- as.matrix(newdata)
y <- c(t(p))
y <- y[!is.na(y)]
t <- c(1:22,1:29,1:22,1:36,1:29,1:29,1:35,1:29)
T <- c(rep(0,14),rep(1,8),rep(0,21),rep(1,8),rep(0,14),rep(1,8),rep(0,28),rep(1,8),rep(0,21),rep(1,8),r
ID <- c(rep(1,22),rep(5,29),rep(3,22),rep(6,36),rep(9,29),rep(12,29),rep(11,35),rep(17,29))
m5 <- data.frame(y,ID,t,T)
m5$y <- as.numeric(y)
```

```
model7 <- lmer(y ~ T+ t*T + (1 | as.factor(ID)), data = m5)
m5$y_pred <- fitted(model7)
summary(model7)
```

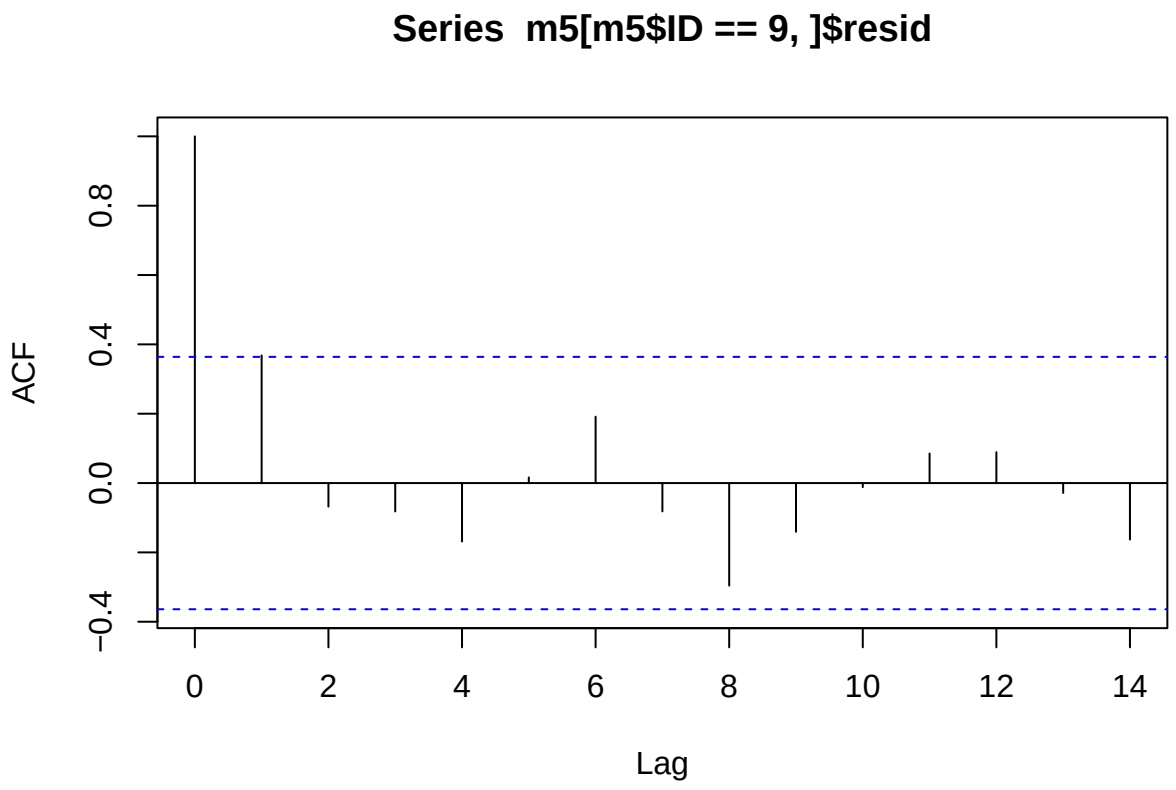
```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
```

```
## lmerModLmerTest]
## Formula: y ~ T + t * T + (1 | as.factor(ID))
##    Data: m5
##
## REML criterion at convergence: 676
##
## Scaled residuals:
##      Min       1Q   Median       3Q      Max
## -3.09674 -0.61119 -0.04734  0.51128  2.61474
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 4.0812   2.0202
##  Residual                  0.8851   0.9408
## Number of obs: 231, groups:  as.factor(ID), 8
##
## Fixed effects:
##               Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)   3.631392   0.728410   7.451728   4.985  0.00132 **
## T            -2.978075   0.669260 221.129847  -4.450 1.36e-05 ***
## t             0.003036   0.011040 220.545842   0.275  0.78354
## T:t           0.118754   0.026362 220.713363   4.505 1.08e-05 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##     (Intr) T      t
## T   -0.026
## t   -0.167  0.021
## T:t  0.054 -0.950 -0.258
```

```
ggplot(m5, mapping = aes(x=t, y=y_pred, group=as.factor(ID))) +
  geom_line()+geom_line(aes(x=t, y=y, group=as.factor(ID), colour=as.factor(ID))) +facet_wrap(~ID)+ggti
```




```
m5$resid <- resid(model7)
acf(m5[m5$ID==9,]$resid)
```

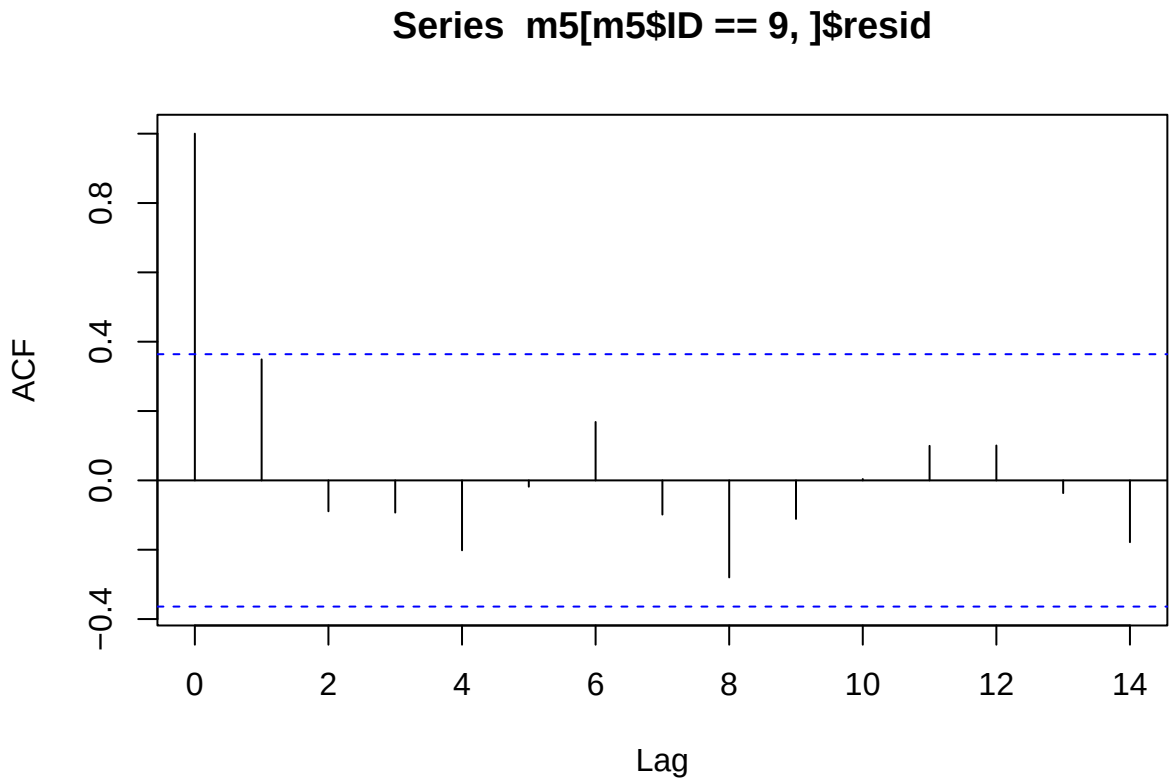



```
fm6 <- lme(y ~ T+t*T, random = ~1|as.factor(ID),correlation = corAR1(),data = m5)
summary(fm6)
```

```
## Linear mixed-effects model fit by REML
##   Data: m5
##        AIC      BIC    logLik
##   646.5545 670.5292 -316.2773
##
## Random effects:
##  Formula: ~1 | as.factor(ID)
##         (Intercept)  Residual
## StdDev:    1.996783 0.9790513
##
## Correlation Structure: AR(1)
##  Formula: ~1 | as.factor(ID)
##  Parameter estimate(s):
##       Phi
## 0.4546163
## Fixed effects:  y ~ T + t * T
##                 Value Std.Error  DF   t-value p-value
## (Intercept)  3.624237 0.7395952 220  4.900298  0.0000
## T           -2.465010 0.9154983 220 -2.692534  0.0076
## t           -0.000107 0.0162789 220 -0.006600  0.9947
## T:t          0.105658 0.0373027 220  2.832463  0.0050
##  Correlation:
```

```
##     (Intr) T      t
## T   -0.054
## t   -0.250  0.129
## T:t  0.089 -0.952 -0.340
##
## Standardized Within-Group Residuals:
##         Min          Q1         Med          Q3         Max
## -2.89451854 -0.50611903 -0.08502216  0.55065363  2.61464026
##
## Number of Observations: 231
## Number of Groups: 8
```

```
m5$resid <- resid(fm6)
acf(m5[m5$ID==9,]$resid)
```




```
m5$y <- as.factor(m5$y)
ordnal5 <- clmm(ordered(y) ~ T+t*T + (1 | as.factor(ID)), data = m5)
summary(ordnal5)
```

```
## Cumulative Link Mixed Model fitted with the Laplace approximation
##
## formula: ordered(y) ~ T + t * T + (1 | as.factor(ID))
## data:    m5
##
##  link  threshold nobs logLik  AIC    niter     max.grad cond.H
```

```
##  logit flexible  231  -311.87 647.74 981(7739) 6.82e-04 2.1e+05
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 16.08    4.01
## Number of groups:  as.factor(ID) 8
##
## Coefficients:
##      Estimate Std. Error z value Pr(>|z|)
## T   -6.264064   1.497744  -4.182 2.89e-05 ***
## t    0.001652   0.021297   0.078    0.938
## T:t  0.252169   0.057923   4.353 1.34e-05 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Threshold coefficients:
##     Estimate Std. Error z value
## 0|1  -6.8482     1.5645  -4.377
## 1|2  -4.1106     1.5088  -2.724
## 2|3  -1.9650     1.4736  -1.333
## 3|4   0.0388     1.4635   0.027
## 4|5   1.6613     1.4636   1.135
## 5|6   4.3446     1.4885   2.919
## 6|7   5.5311     1.5105   3.662
## 7|8   7.3934     1.5534   4.760
```

##Push Away Thoughts and Feelings I Do Not Like

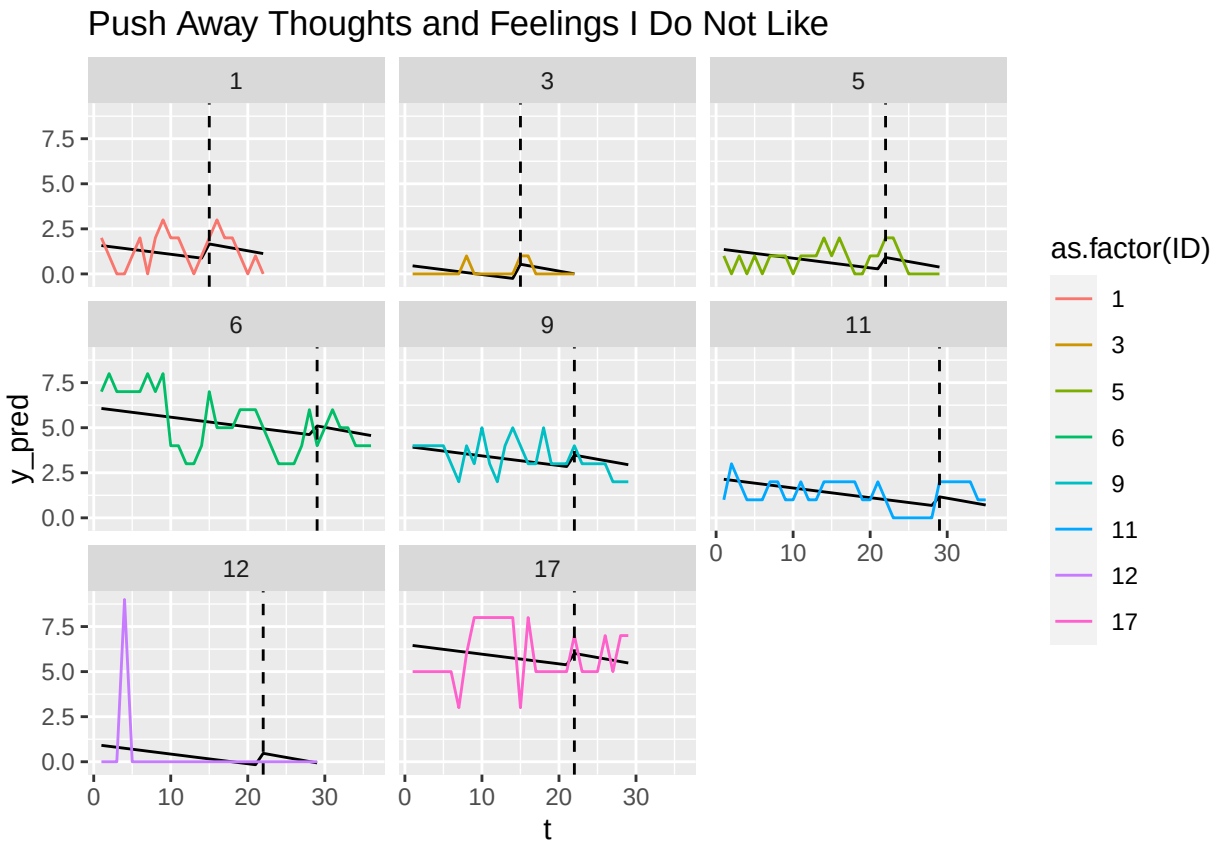
```
newdata <- data[which(data$...3=="Push Away Thoughts and Feelings I Do Not Like"),]
newdata <- newdata[,-c(1:3)]
p <- as.matrix(newdata)
y <- c(t(p))
y <- y[!is.na(y)]
t <- c(1:22,1:29,1:22,1:36,1:29,1:29,1:35,1:29)
T <- c(rep(0,14),rep(1,8),rep(0,21),rep(1,8),rep(0,14),rep(1,8),rep(0,28),rep(1,8),rep(0,21),rep(1,8),r
ID <- c(rep(1,22),rep(5,29),rep(3,22),rep(6,36),rep(9,29),rep(12,29),rep(11,35),rep(17,29))
m6 <- data.frame(y,ID,t,T)
m6$y <- as.numeric(y)
```

```
model8 <- lmer(y ~ T+ t*T + (1 | as.factor(ID)), data = m6)
m6$y_pred <- fitted(model8)
summary(model8)
```

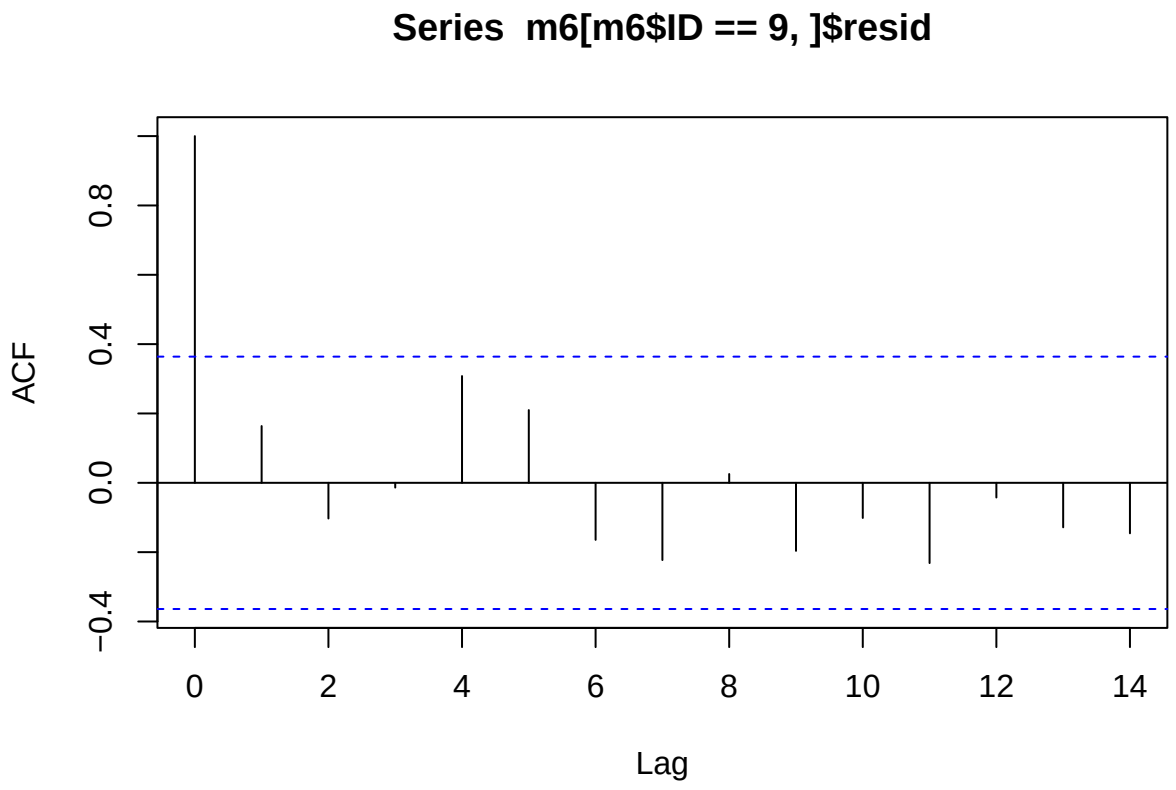
```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: y ~ T + t * T + (1 | as.factor(ID))
##    Data: m6
##
## REML criterion at convergence: 760.2
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -2.7610 -0.5608 -0.1045  0.4846  7.2786
```

```
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 5.532    2.352
##  Residual                  1.285    1.134
## Number of obs: 231, groups:  as.factor(ID), 8
##
## Fixed effects:
##              Estimate Std. Error        df t value Pr(>|t|)
## (Intercept)   2.91240    0.84920   7.47426   3.430  0.00994 **
## T             1.17029    0.80633 221.19792   1.451  0.14809
## t            -0.05375    0.01330 220.57485  -4.041 7.37e-05 ***
## T:t          -0.02202    0.03176 220.75374  -0.693  0.48878
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##     (Intr) T      t
## T   -0.027
## t   -0.173  0.021
## T:t  0.056 -0.950 -0.258
```

```
ggplot(m6, mapping = aes(x=t, y=y_pred, group=as.factor(ID))) +
  geom_line()+geom_line(aes(x=t, y=y, group=as.factor(ID), colour=as.factor(ID))) +facet_wrap(~ID)+ggti
```



```
m6$resid <- resid(model8)
acf(m6[m6$ID==9,]$resid)
```

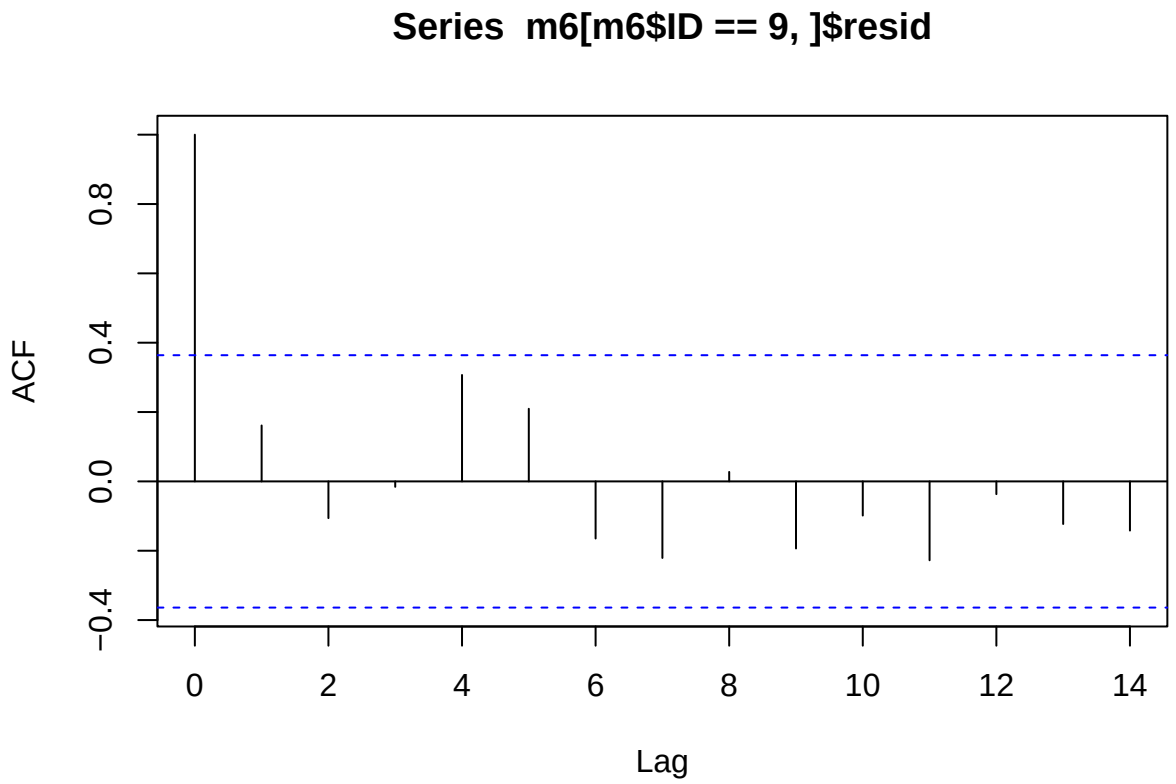



```
fm7 <- lme(y ~ T+t*T, random = ~1|as.factor(ID),correlation = corAR1(),data = m6)
summary(fm7)
```

```
## Linear mixed-effects model fit by REML
##   Data: m6
##        AIC      BIC    logLik
##   750.9272 774.9019 -368.4636
##
## Random effects:
##  Formula: ~1 | as.factor(ID)
##         (Intercept) Residual
## StdDev:    2.351128 1.155872
##
## Correlation Structure: AR(1)
##  Formula: ~1 | as.factor(ID)
##  Parameter estimate(s):
##       Phi
## 0.3271351
## Fixed effects:  y ~ T + t * T
##                  Value Std.Error  DF   t-value p-value
## (Intercept)  2.8771326 0.8633003 220  3.332713  0.0010
## T            1.3259463 1.0232815 220  1.295779  0.1964
```

```
## t           -0.0516173 0.0175745 220 -2.937062  0.0037
## T:t         -0.0288226 0.0410666 220 -0.701851  0.4835
##  Correlation:
##     (Intr) T      t
## T   -0.044
## t   -0.228  0.083
## T:t  0.079 -0.951 -0.308
##
## Standardized Within-Group Residuals:
##        Min         Q1        Med         Q3        Max
## -2.6735718 -0.5284025 -0.1054118  0.4539406  7.1520062
##
## Number of Observations: 231
## Number of Groups: 8
```

```
m6$resid <- resid(fm7)
acf(m6[m6$ID==9,]$resid)
```




```
m6$y <- factor(m6$y, ordered = TRUE)
ordnal6 <- clmm(y ~ T+ t*T + (1 | as.factor(ID)), data = m6)
summary(ordnal6)
```

```
## Warning in summary.clmm(ordnal6): Variance-covariance matrix of the parameters
## is not defined
```

```
## Cumulative Link Mixed Model fitted with the Laplace approximation
##
## formula: y ~ T + t * T + (1 | as.factor(ID))
## data:    m6
##
##  link  threshold nobs logLik  AIC    niter       max.grad cond.H
##  logit flexible  231  -289.61 605.23 1125(10014) 1.82e+00 NaN
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 21.75    4.663
## Number of groups:  as.factor(ID) 8
##
## Coefficients:
##     Estimate Std. Error z value Pr(>|z|)
## T    2.86726        NaN     NaN      NaN
## t   -0.08152        NaN     NaN      NaN
## T:t -0.07006        NaN     NaN      NaN
##
## Threshold coefficients:
##     Estimate Std. Error z value
## 0|1  -3.6809        NaN     NaN
## 1|2  -1.8605        NaN     NaN
## 2|3   0.6938        NaN     NaN
## 3|4   2.8286        NaN     NaN
## 4|5   4.1175        NaN     NaN
## 5|6   5.7295        NaN     NaN
## 6|7   6.1387        NaN     NaN
## 7|8   7.1348        NaN     NaN
## 8|9   9.7243        NaN     NaN
```

##Physical Feelings in My Body Scare Me

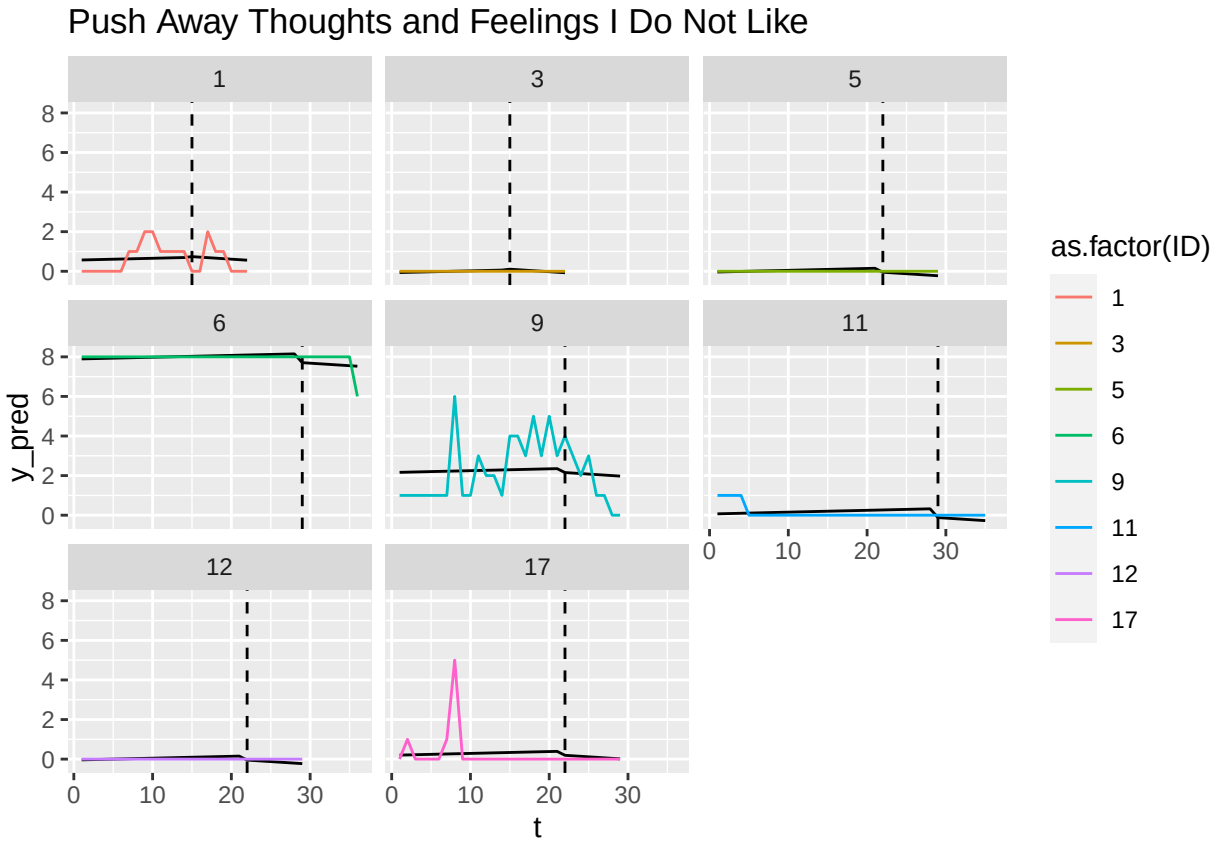
```
newdata <- data[which(data$...3=="Physical Feelings in My Body Scare Me"),]
newdata <- newdata[,-c(1:3)]
p <- as.matrix(newdata)
y <- c(t(p))
y <- y[!is.na(y)]
t <- c(1:22,1:29,1:22,1:36,1:29,1:29,1:35,1:29)
T <- c(rep(0,14),rep(1,8),rep(0,21),rep(1,8),rep(0,14),rep(1,8),rep(0,28),rep(1,8),rep(0,21),rep(1,8),r
ID <- c(rep(1,22),rep(5,29),rep(3,22),rep(6,36),rep(9,29),rep(12,29),rep(11,35),rep(17,29))
m7 <- data.frame(y,ID,t,T)
m7$y <- as.numeric(y)
```

```
model9 <- lmer(y ~ T+ t*T + (1 | as.factor(ID)), data = m7)
m7$y_pred <- fitted(model9)
summary(model9)
```

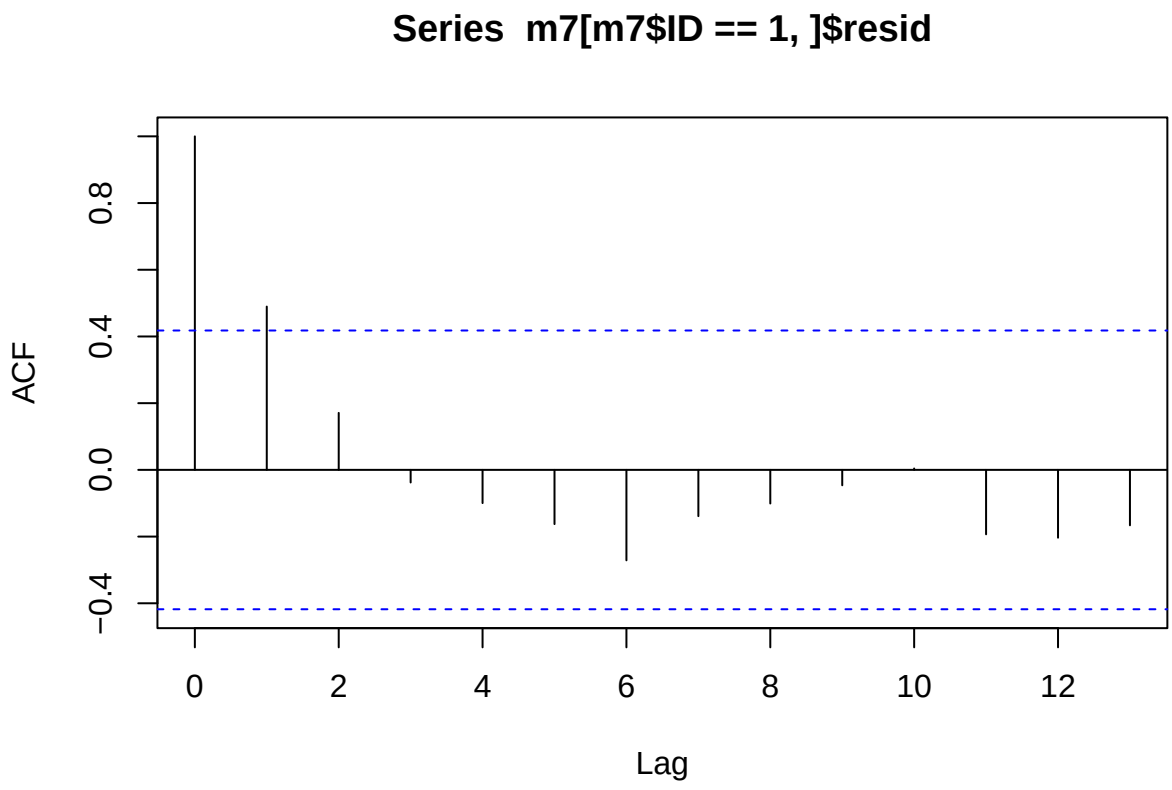
```
## Linear mixed model fit by REML. t-tests use Satterthwaite's method [
## lmerModLmerTest]
## Formula: y ~ T + t * T + (1 | as.factor(ID))
##    Data: m7
##
```

```
## REML criterion at convergence: 556.6
##
## Scaled residuals:
##     Min      1Q  Median      3Q     Max
## -2.8165 -0.2910 -0.0668  0.1268  6.6611
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 7.5792   2.7530
##  Residual                  0.5043   0.7102
## Number of obs: 231, groups:  as.factor(ID), 8
##
## Fixed effects:
##               Estimate Std. Error         df t value Pr(>|t|)
## (Intercept)   1.336496   0.979308   7.140944   1.365   0.2138
## T             0.561208   0.505673 220.362513   1.110   0.2683
## t             0.009391   0.008337 220.174137   1.126   0.2613
## T:t          -0.034975   0.019912 220.227741  -1.757   0.0804 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Correlation of Fixed Effects:
##     (Intr) T      t
## T   -0.015
## t   -0.094  0.020
## T:t  0.030 -0.950 -0.257
```

```
ggplot(m7, mapping = aes(x=t, y=y_pred, group=as.factor(ID))) +
  geom_line()+geom_line(aes(x=t, y=y, group=as.factor(ID), colour=as.factor(ID))) +facet_wrap(~ID)+ggti
```




```
m7$resid <- resid(model9)
acf(m7[m7$ID==1,]$resid)
```

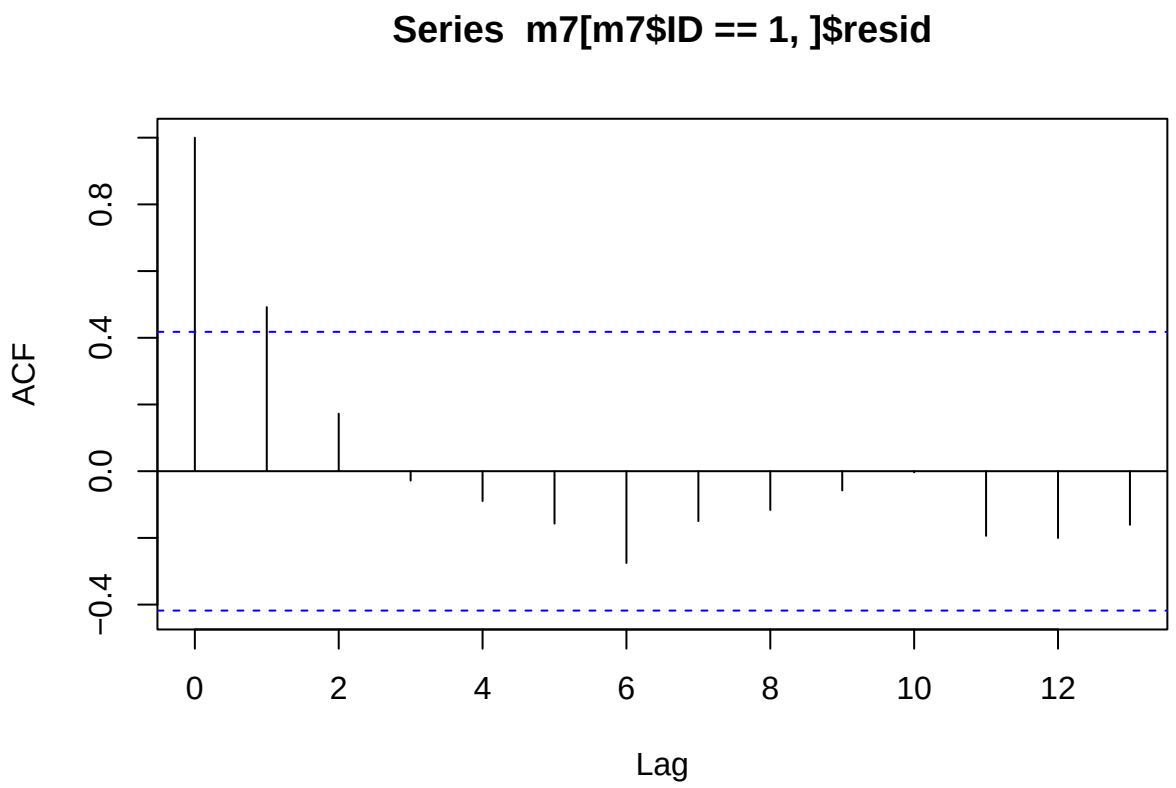



```
fm8 <- lme(y ~ T+t*T, random = ~1|as.factor(ID),correlation = corAR1(),data = m7)
summary(fm8)
```

```
## Linear mixed-effects model fit by REML
##   Data: m7
##        AIC      BIC    logLik
##   543.8212 567.7959 -264.9106
##
## Random effects:
##  Formula: ~1 | as.factor(ID)
##         (Intercept)  Residual
## StdDev:    2.745514 0.7291276
##
## Correlation Structure: AR(1)
##  Formula: ~1 | as.factor(ID)
##  Parameter estimate(s):
##       Phi
## 0.3603219
## Fixed effects:  y ~ T + t * T
##                  Value Std.Error  DF   t-value p-value
## (Intercept)  1.3543270 0.9824060 220  1.378582  0.1694
## T            0.6377633 0.6572827 220  0.970303  0.3330
## t            0.0068061 0.0113633 220  0.598956  0.5498
## T:t         -0.0364790 0.0264524 220 -1.379041  0.1693
##  Correlation:
```

```
##     (Intr) T      t
## T   -0.026
## t   -0.130  0.092
## T:t  0.045 -0.951 -0.313
##
## Standardized Within-Group Residuals:
##         Min          Q1         Med          Q3         Max
## -2.64643410 -0.30198290 -0.05895287  0.11544185  6.47916091
##
## Number of Observations: 231
## Number of Groups: 8
```

```
m7$resid <- resid(fm8)
acf(m7[m7$ID==1,]$resid)
```




```
m7$y <- factor(m7$y, ordered = TRUE)
ordnal7 <- clmm(y ~ T+ t*T + (1 | as.factor(ID)), data = m7)
summary(ordnal7)
```

```
## Cumulative Link Mixed Model fitted with the Laplace approximation
##
## formula: y ~ T + t * T + (1 | as.factor(ID))
## data:    m7
##
##  link  threshold nobs logLik  AIC    niter       max.grad cond.H
```

```
##  logit flexible  231  -117.22 256.43 1247(13567) 1.12e+02 1.2e+07
##
## Random effects:
##  Groups        Name        Variance Std.Dev.
##  as.factor(ID) (Intercept) 65.07    8.067
## Number of groups:  as.factor(ID) 8
##
## Coefficients:
##       Estimate Std. Error z value Pr(>|z|)
## T    5.3052130  0.0006685 7935.50   <2e-16 ***
## t    0.0080512  0.0006694   12.03   <2e-16 ***
## T:t -0.2772134  0.0006686 -414.62   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Threshold coefficients:
##      Estimate Std. Error  z value
## 0|1 2.863e+00  6.686e-04 4282.211
## 1|2 5.151e+00  4.280e-01   12.035
## 2|3 5.811e+00  4.794e-01   12.121
## 3|4 6.704e+00  5.624e-01   11.920
## 4|5 7.363e+00  6.512e-01   11.306
## 5|6 8.637e+00  9.682e-01    8.921
## 6|8 1.113e+01  2.213e+00    5.030
```