Assignment 3: ALDA

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1 Reading the Data

We first read a demographics file into our final data frame, so that we can use gender and age as covariates in our analysis.

```
> cell_demo = read.csv("cell_demo.csv", header = TRUE, sep = ",")
> cell = read.csv("cell_withitems_complete.csv", header = TRUE, sep = ",")
> cell = merge(cell, cell_demo, by = "ID")
> cell$ID = as.factor(as.character(cell$ID))
> library(plyr)
> library(dplyr)
> cell = cell %>% filter(cell$Messages <= 50)
```

2 Regression Model

We first run a model with DV as TimeJudgmentDistance, and IV as Days, and Vividness as a continuous covariate. We will incorporate a random slope for Days in our model.

```
> library(lme4)
> cell$Days.z  = as.numeric(scale(cell$Days, scale = TRUE, center = TRUE))
> model = lmer(data = cell, TimeJudgmentDistance ~ Days.z*Vividness + (Days.z|ID))
> summary(model)
```

```
Linear mixed model fit by REML ['lmerMod']
Formula:
TimeJudgmentDistance ~ Days.z * Vividness + (Days.z | ID)
   Data: cell

REML criterion at convergence: 3698.2

Scaled residuals:
    Min      1Q  Median      3Q     Max
-3.1280 -0.4940 -0.0903  0.3262  4.4940

Random effects:
 Groups   Name        Variance Std.Dev. Corr
 ID       (Intercept) 0.5052   0.7108
          Days.z      0.4820   0.6943   1.00
 Residual             4.7362   2.1763
Number of obs: 824, groups:  ID, 44

Fixed effects:
                Estimate Std. Error t value
(Intercept)      4.06068    0.24312  16.703
```

```
Days.z            1.95635    0.24193   8.086
Vividness        -0.32318    0.02722 -11.872
Days.z:Vividness -0.19418    0.02690  -7.218

Correlation of Fixed Effects:
            (Intr) Days.z Vvdnss
Days.z      -0.042
Vividness   -0.828  0.189
Dys.z:Vvdns  0.182 -0.828 -0.089
```

3 Making a Regression Output Table

Using xtable()

	type	term	b	CI
1	Fixed Parts	(Intercept)	4.06	(3.62, 4.10)
2	Fixed Parts	Days.z	1.96	(1.78, 2.33)
3	Fixed Parts	Vividness	-0.32	(-0.32, -0.25)
4	Fixed Parts	Days.z:Vividness	-0.19	(-0.24, -0.16)
5	Random Parts	τ_{00}	0.51	(0.29, 0.79)
6	Random Parts	τ_{11}	0.48	(0.35, 0.67)
7	Random Parts	τ_{10}	1.00	(0.79, 1.00)
8	Random Parts	$\hat{\sigma^2}$	4.74	(4.15, 5.13)
9	Model Terms	ICC	0.17	
10	Model Terms	R^2_m	0.28	
11	Model Terms	R^2_c	0.40	

Table 1: Regression Output

		Model 1	
type	term	b	CI
Fixed Parts	Intercept	4.06	(3.62, 4.10)
	Days.z	1.96	(1.78, 2.33)
	Vividness	-0.32	(-0.32, -0.25)
	Days.z:Vividness	-0.19	(-0.24, -0.16)
Random Parts	τ_{00}	0.51	(0.29, 0.79)
	τ_{11}	0.48	(0.35, 0.67)
	τ_{10}	1.00	(0.79, 1.00)
	$\hat{\sigma^2}$	4.74	(4.15, 5.13)
	ICC	0.17	
Model Terms	R^2_m	0.28	
Model Terms	R^2_c	0.40	

Table 2: papaja MLM Table Example

	TimeJudgmentDistance	
term	b	CI
Fixed		
(Intercept)	4.06	(3.62, 4.10)
Days.z	1.96	(1.78, 2.33)
Vividness	-0.32	(-0.32, -0.25)
Days.z:Vividness	-0.19	(-0.24, -0.16)
Random		
τ_{00}	0.51	(0.29, 0.79)
τ_{11}	0.48	(0.35, 0.67)
τ_{10}	1.00	(0.79, 1.00)
$\hat{\sigma^2}$	4.74	(4.15, 5.13)
Summary		
ICC	0.17	
R^2_m	0.28	
R^2_c	0.40	

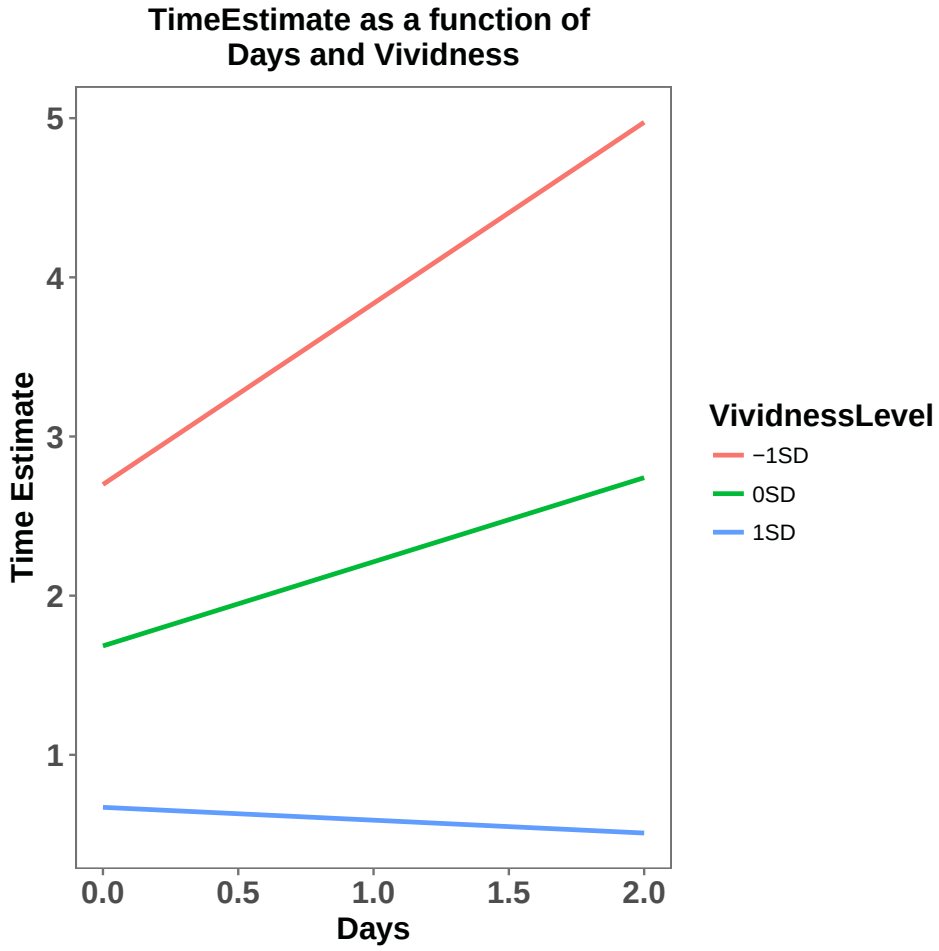
Using kable() and kableExtra()

Using papaja

4 Plotting

Plotting Continuous Covariate: Matrix Multiplication

Using matrix multiplication



Using predict() function