Outputting meta-model tables

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library(tidyverse)

## -- Attaching packages --------------------------------------- tidyverse 1.3.2 --  
## v ggplot2 3.4.1 v purrr 1.0.1  
## v tibble 3.1.7 v dplyr 1.1.0  
## v tidyr 1.2.1 v stringr 1.4.0  
## v readr 2.1.2 v forcats 0.5.1  
## -- Conflicts ------------------------------------------ tidyverse\_conflicts() --  
## x dplyr::filter() masks stats::filter()  
## x dplyr::lag() masks stats::lag()

library(effectsize)  
library(knitr) ##THIS IS THE PACKAGE THAT HELPS YOU MAKE NICE TABLES  
  
dMACS<- readRDS(file = "C:/Users/colev/Dropbox/Conor/dMACS/Thesis/data/dat\_dMACS.Rev3.RDS")  
  
dMACS\_obtained <- unlist(dMACS, use.names = FALSE)  
  
dMACS\_shrunk <- readRDS(file = "C:/Users/colev/Dropbox/Conor/dMACS/Thesis/data/dat\_dMACS.Rev3.RDS")  
  
dMACS\_shrunk\_obtained <- unlist(dMACS\_shrunk, use.names = FALSE)  
  
#Create dMACS\_compare  
dMACS\_compare <- rep(c(rep(.1, 1500), rep(.5, 1500), rep(.9, 1500)),6)  
  
# OK, now we will simulate the value of shrinkage for each of the different types of dMACS  
shrinkage\_dMACS <- (dMACS\_compare - dMACS\_obtained) / dMACS\_compare  
shrinkage\_dMACS\_shrunk <- (dMACS\_compare - dMACS\_shrunk\_obtained) / dMACS\_compare  
  
# Now we will simulate the conditions  
# Simulate replication ID.  
RepID <- rep(1:500, 54)  
# Simulate effect size  
ES <- rep(c(rep(1, 1500), rep(2, 1500), rep(3, 1500)),6)  
ES <- factor(ES, labels = c("SM", "M", "L"))  
# Simulate sample size  
SS <- rep(c(rep(1, 500), rep(2, 500), rep(3, 500)), 18)  
SS <- factor(SS, labels = c("SM", "M", "L"))  
# Simulate prior probability  
PP <- rep(c(rep(1, 4500), rep(2, 4500), rep(3, 4500)), 2)  
PP <- factor(PP, labels = c(".25", ".5", ".75"))  
# Simulate latent variable means  
LV <- c(rep(1, 13500), rep(2, 13500))  
LV <- factor(LV, labels = c("Equal", "Unequal"))  
  
# Now let's put it all together  
the.data <- data.frame(RepID, dMACS\_compare, dMACS\_obtained, dMACS\_shrunk\_obtained,  
 shrinkage\_dMACS, shrinkage\_dMACS\_shrunk,  
 ES, SS, PP, LV)  
  
##################################################################################  
######################## Running the meta-models #################################  
##################################################################################  
  
# OK, so here's what a meta-model would look like  
# Here's the model for the degree of shrinkage for dMACS\_shrunk  
the.model <- lm(shrinkage\_dMACS\_shrunk ~ ES\*SS\*PP\*LV, data = the.data)  
kable(anova(the.model))

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Df | Sum Sq | Mean Sq | F value | Pr(>F) |
| ES | 2 | 358.1045227 | 179.0522613 | 1553.0810715 | 0.0000000 |
| SS | 2 | 23.7291759 | 11.8645880 | 102.9122272 | 0.0000000 |
| PP | 2 | 0.3754480 | 0.1877240 | 1.6282988 | 0.1962825 |
| LV | 1 | 275.3568912 | 275.3568912 | 2388.4176190 | 0.0000000 |
| ES:SS | 4 | 33.1435977 | 8.2858994 | 71.8710474 | 0.0000000 |
| ES:PP | 4 | 1.0231371 | 0.2557843 | 2.2186467 | 0.0643415 |
| SS:PP | 4 | 0.2839414 | 0.0709854 | 0.6157198 | 0.6512988 |
| ES:LV | 2 | 117.3811637 | 58.6905819 | 509.0761272 | 0.0000000 |
| SS:LV | 2 | 0.5313804 | 0.2656902 | 2.3045696 | 0.0998214 |
| PP:LV | 2 | 0.0584860 | 0.0292430 | 0.2536507 | 0.7759646 |
| ES:SS:PP | 8 | 0.8140528 | 0.1017566 | 0.8826264 | 0.5300795 |
| ES:SS:LV | 4 | 1.5018062 | 0.3754516 | 3.2566286 | 0.0111598 |
| ES:PP:LV | 4 | 0.1177787 | 0.0294447 | 0.2554000 | 0.9065004 |
| SS:PP:LV | 4 | 0.2420671 | 0.0605168 | 0.5249163 | 0.7174346 |
| ES:SS:PP:LV | 8 | 0.3887656 | 0.0485957 | 0.4215142 | 0.9088730 |
| Residuals | 26946 | 3106.5617388 | 0.1152884 | NA | NA |

kable(eta\_squared(the.model, partial = TRUE)) #KABLE IS WHAT MAKES THE NICE TABLES

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Eta2\_partial | CI | CI\_low | CI\_high |
| ES | 0.1033590 | 0.95 | 0.0977528 | 1 |
| SS | 0.0075805 | 0.95 | 0.0059141 | 1 |
| PP | 0.0001208 | 0.95 | 0.0000000 | 1 |
| LV | 0.0814203 | 0.95 | 0.0763347 | 1 |
| ES:SS | 0.0105563 | 0.95 | 0.0085152 | 1 |
| ES:PP | 0.0003292 | 0.95 | 0.0000000 | 1 |
| SS:PP | 0.0000914 | 0.95 | 0.0000000 | 1 |
| ES:LV | 0.0364092 | 0.95 | 0.0328055 | 1 |
| SS:LV | 0.0001710 | 0.95 | 0.0000000 | 1 |
| PP:LV | 0.0000188 | 0.95 | 0.0000000 | 1 |
| ES:SS:PP | 0.0002620 | 0.95 | 0.0000000 | 1 |
| ES:SS:LV | 0.0004832 | 0.95 | 0.0000613 | 1 |
| ES:PP:LV | 0.0000379 | 0.95 | 0.0000000 | 1 |
| SS:PP:LV | 0.0000779 | 0.95 | 0.0000000 | 1 |
| ES:SS:PP:LV | 0.0001251 | 0.95 | 0.0000000 | 1 |