additional\_values\_interactions

2023-03-29

Table of Contents

# Data Import & Cleaning

## Import data

raw\_psych\_hum\_subj <- import("data/raw/raw\_psych\_hum\_subj.csv")  
raw\_mktg\_hum\_subj <- import("data/raw/raw\_mktg\_hum\_subj.csv")  
raw\_gen\_uo\_pop <- import("data/raw/raw\_gen\_uo\_pop.csv")  
pre\_fall22 <- import("data/prescreen/dittersdorf\_matches\_f22.csv")  
pre\_winter23 <- import("data/prescreen/dittersdorf\_matches\_w23.csv")  
pre\_spring23 <- import("data/prescreen/dittersdorf\_matches\_s23.csv")  
participant\_list <- import("data/prescreen/dittersdorf\_participants.csv")

Fix age before converting variable types

table(raw\_psych\_hum\_subj$Age) # 18 years old = 18

##   
## 18 18 years old 19 20 21   
## 117 220 1 297 120 76   
## 22 23 24 25 27 28   
## 41 4 3 2 1 1   
## 29 30 31 32 33 50   
## 1 1 1 1 1 1

table(raw\_mktg\_hum\_subj$Age) # 1999 = 24

##   
## 18 19 1999 20 21 22 23 24 25 28 test   
## 11 4 13 1 50 119 66 7 9 3 1 3

table(raw\_gen\_uo\_pop$Age)

##   
## 18 20 21 22 28   
## 2 1 2 1 1

raw\_psych\_hum\_subj$Age[raw\_psych\_hum\_subj$Age == "18 years old"] <- 18  
raw\_mktg\_hum\_subj$Age[raw\_mktg\_hum\_subj$Age == 1999] <- 24  
  
table(raw\_psych\_hum\_subj$Age) # 18 years old = 18

##   
## 18 19 20 21 22 23 24 25 27 28 29 30 31 32 33 50   
## 117 221 297 120 76 41 4 3 2 1 1 1 1 1 1 1 1

table(raw\_mktg\_hum\_subj$Age) # 1999 = 24

##   
## 18 19 20 21 22 23 24 25 28 test   
## 11 4 13 50 119 66 7 10 3 1 3

## Combine dataframes

raw\_psych\_hum\_subj <- raw\_psych\_hum\_subj %>%  
 mutate(Age = as.integer(Age),  
 Gender = as.factor(Gender),  
 framing\_condition\_DO = as.factor(framing\_condition\_DO),  
 norm\_condition\_DO = as.factor(norm\_condition\_DO),  
 consumer\_behaviors = as.factor(consumer\_behaviors),  
 skepticism = as.factor(skepticism),  
 id = as.factor(id),  
 source = strrep("psych\_hsp", times = 1))  
  
levels(raw\_psych\_hum\_subj$framing\_condition\_DO)

## [1] "" "control\_framing" "pro\_env\_framing" "self\_enh\_framing"

raw\_mktg\_hum\_subj <- raw\_mktg\_hum\_subj %>%  
 mutate(Age = as.integer(Age),  
 Gender = as.factor(Gender),  
 Gender\_5\_TEXT = as.character(Gender\_5\_TEXT),  
 Class\_Lvl\_7\_TEXT = as.character(Class\_Lvl\_7\_TEXT),  
 Pol\_Ornt\_8\_TEXT = as.character(Pol\_Ornt\_8\_TEXT),  
 Ethnicity\_8\_TEXT = as.character(Ethnicity\_8\_TEXT),  
 skept\_open = as.character(skept\_open),  
 skepticism = as.factor(skepticism),  
 id = as.factor(id),  
 framing\_condition\_DO = as.factor(framing\_condition\_DO),  
 norm\_condition\_DO = as.factor(norm\_condition\_DO),  
 consumer\_behaviors = as.factor(consumer\_behaviors),  
 source = strrep("mktg\_hsp", times = 1))  
  
raw\_gen\_uo\_pop <- raw\_gen\_uo\_pop %>%  
 mutate(Gender = as.factor(Gender),  
 Gender\_5\_TEXT = as.character(Gender\_5\_TEXT),  
 Class\_Lvl\_7\_TEXT = as.character(Class\_Lvl\_7\_TEXT),  
 Pol\_Ornt\_8\_TEXT = as.character(Pol\_Ornt\_8\_TEXT),  
 skept\_open = as.character(skept\_open),  
 skepticism = as.factor(skepticism),  
 id = as.factor(id),  
 framing\_condition\_DO = as.factor(framing\_condition\_DO),  
 norm\_condition\_DO = as.factor(norm\_condition\_DO),  
 consumer\_behaviors = as.factor(consumer\_behaviors),  
 source = strrep("gen\_UO", times = 1))

Specify unique variables to combine prescreen data sets

# Create unique full\_name variable  
pre\_fall22$full\_name <- paste(pre\_fall22$first\_name, pre\_fall22$last\_name, sep="\_")  
  
pre\_winter23$full\_name <- paste(pre\_winter23$first\_name, pre\_winter23$last\_name, sep="\_")  
  
pre\_spring23$full\_name <- paste(pre\_spring23$first\_name, pre\_spring23$last\_name, sep="\_")  
  
participant\_list$full\_name <- paste(participant\_list$first\_name, participant\_list$last\_name, sep="\_")  
  
# Create column indicating which data set rows came from  
  
pre\_fall22 <- pre\_fall22 %>%  
 mutate(term = "fall22")  
  
pre\_winter23 <- pre\_winter23 %>%  
 mutate(term = "winter23")  
  
pre\_spring23 <- pre\_spring23 %>%  
 mutate(term = "spring23")

Combine prescreen data

combine1 <- smartbind(pre\_fall22, pre\_winter23)  
combined\_prescreen <- smartbind(combine1, pre\_spring23)  
  
# nrow(pre\_fall22) + nrow(pre\_winter23) + nrow(pre\_spring23) # n = 1167  
  
combined\_prescreen\_unique <- combined\_prescreen[!duplicated(combined\_prescreen$full\_name), ] # keeps first row (fall22)

Subset key variables

combined\_prescreen\_key <- combined\_prescreen\_unique %>%  
 dplyr::select(full\_name, term, respecting:gratification, honest:gossip)  
  
participant\_list\_key <- participant\_list %>%  
 dplyr::select(full\_name, survey\_id)

Merge with participant list

merged\_prescreen <- merge(combined\_prescreen\_key, participant\_list\_key, by = "full\_name")

Rename SDR items to match

Convert variable types

merged\_prescreen <- merged\_prescreen %>%  
 mutate(respecting = as.integer(respecting),  
 unity = as.integer(unity),  
 protecting = as.integer(protecting),  
 preventing = as.integer(preventing),  
 equality = as.integer(equality),  
 peace = as.integer(peace),  
 justice = as.integer(justice),  
 helpful = as.integer(helpful),  
 power = as.integer(power),  
 wealth = as.integer(wealth),  
 authority = as.integer(authority),  
 influential = as.integer(influential),  
 ambition = as.integer(ambition),  
 pleasures = as.integer(pleasures),  
 enjoying = as.integer(enjoying),  
 gratification = as.integer(gratification),  
 honest = as.integer(honest),  
 like = as.integer(like),  
 disturbing = as.integer(disturbing),  
 regret = as.integer(regret),  
 lose\_out = as.integer(lose\_out),  
 rational = as.integer(rational),  
 confident = as.integer(confident),  
 lover = as.integer(lover),  
 lies = as.integer(lies),  
 cover\_up = as.integer(cover\_up),  
 advantage = as.integer(advantage),  
 get\_even = as.integer(get\_even),  
 behind\_back = as.integer(behind\_back),  
 private\_talk = as.integer(private\_talk),  
 take\_things = as.integer(take\_things),  
 gossip = as.integer(gossip),  
 id = as.factor(id))

Rename values & socially desirable items in prescreen data to match names in main data:

Combine all data

* First, combine Psych Hum Subj data with Prescreen data based on id
* Second, add Mktg Hum Subj data
* Third, add gen UO Pop data

combine1 <- merge(raw\_psych\_hum\_subj, merged\_prescreen, by = "id")  
combine2 <- smartbind(combine1, raw\_mktg\_hum\_subj)  
combine3 <- smartbind(combine2, raw\_gen\_uo\_pop)

## Remove duplicate cases

Identify duplicate cases

# first, add unique row #s  
combine3 <- combine3 %>%  
 mutate(row = 1:nrow(combine3))  
  
combine3[duplicated(combine3$id),] # Only rows 1 through 858 have unique id #s  
  
# write.csv(combine3, "combined\_data.csv")

Row IDs to remove:

* 13 (participant’s second time completing study)
* 134 (participant didn’t complete study first time)
* 145 (participant didn’t complete study first time)
* 308 (participant’s second time completing study)
* 672 (participant’s second time completing study)
* 743 (participant didn’t complete study first time)
* 790 (participant didn’t complete study first time)
* 800 (participant didn’t complete study first time)

Remove duplicate rows after resolving:

combine3 <- combine3 %>%  
 filter(!row %in% c(13, 134, 145, 308, 672, 743, 790, 800))

## Remove rows of all NAs

Identify completely missing rows:

key\_vars <- combine3 %>%  
 dplyr::select(row, big\_2\_1:big\_2\_65, consumer\_intentions\_1:consumer\_intentions\_9, consumer\_behaviors, clothing\_interest\_1:clothing\_interest\_20, ingroup\_ident\_1:ingroup\_ident\_14, values\_1:values\_16, socially\_desirable\_1:socially\_desirable\_16, source)  
  
ncol(key\_vars) # number of columns - the row # & source column = 141  
  
all\_NA\_rows <- key\_vars[rowSums(is.na(key\_vars)) == 141,] # identify rows with 141 NAs (all missing values), row numbers are preserved  
  
all\_NA\_rows

Removing rows of fully missing data

data <- combine3 %>%  
 dplyr::filter(!row %in% c(859, 860, 900, 926, 927, 941, 1139, 1141, 1142, 1143, 1144, 1146, 1149, 1150, 1152)) %>% # remove rows containing all NAs  
 dplyr::select(-StartDate, -EndDate, -Status, -Progress, -"Duration (in seconds)", -Finished, -RecordedDate, -ResponseId, -DistributionChannel, -UserLanguage, -big\_2\_DO, -consumer\_intentions\_DO, -consumer\_behaviors\_DO, -clothing\_interest\_DO, -ingroup\_ident\_DO, -full\_name, -code, -socially\_desirable\_DO, -values\_DO, -email\_giftcard, -term) # removing variables not in analysis

## Number per source

table(data$source)

##   
## gen\_UO mktg\_hsp psych\_hsp   
## 7 276 850

* 850 = psych human subjects pool
* 276 = mktg human subjects pool
* 7 = general UO pop

Rename variables

data <- data %>%  
 rename("framing\_condition" = "framing\_condition\_DO",   
 "norm\_condition" = "norm\_condition\_DO")

Drop unused levels

Re-order levels of norm condition

data$norm\_condition <- factor(data$norm\_condition, levels = c("control\_norm", "descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"))

## Inspect final data

str(data, list.len = ncol(data))  
  
# write.csv(data, "final\_data.csv")

# Aggregate Variables

## Personality

### Reverse-code

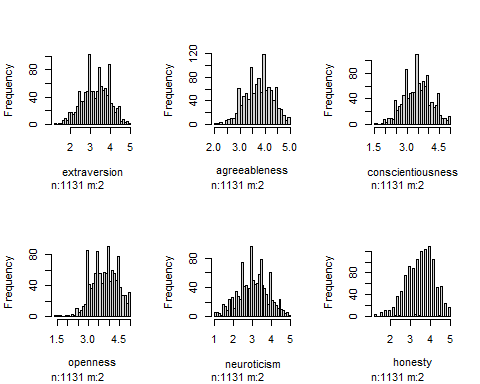
data\_R <- data %>%  
 mutate(across(c(big\_2\_11,  
 big\_2\_16,  
 big\_2\_26,  
 big\_2\_31,  
 big\_2\_36,  
 big\_2\_51,  
 big\_2\_12,  
 big\_2\_17,  
 big\_2\_22,  
 big\_2\_37,  
 big\_2\_42,  
 big\_2\_47,  
 big\_2\_3,  
 big\_2\_8,  
 big\_2\_23,  
 big\_2\_28,  
 big\_2\_48,  
 big\_2\_58,  
 big\_2\_4,  
 big\_2\_9,  
 big\_2\_24,  
 big\_2\_29,  
 big\_2\_44,  
 big\_2\_49,  
 big\_2\_5,  
 big\_2\_25,  
 big\_2\_30,  
 big\_2\_45,  
 big\_2\_50,  
 big\_2\_55,  
 big\_2\_63), ~6 - .)) # replace '6' with the max possible value plus 1 for any particular scale

### Average items

data\_R$extraversion <- data\_R %>%  
 dplyr::select(big\_2\_1, big\_2\_6, big\_2\_11, big\_2\_16, big\_2\_21, big\_2\_26, big\_2\_31, big\_2\_36, big\_2\_41, big\_2\_46, big\_2\_51, big\_2\_56) %>%  
 rowMeans(na.rm = TRUE)   
  
  
data\_R$conscientiousness <- data\_R %>%  
 dplyr::select(big\_2\_3, big\_2\_8, big\_2\_13, big\_2\_18, big\_2\_23, big\_2\_28, big\_2\_33, big\_2\_38, big\_2\_43, big\_2\_48, big\_2\_53, big\_2\_58) %>%  
 rowMeans(na.rm = TRUE)  
  
  
data\_R$agreeableness <- data\_R %>%  
 dplyr::select(big\_2\_2, big\_2\_7, big\_2\_12, big\_2\_17, big\_2\_22, big\_2\_27, big\_2\_32, big\_2\_37, big\_2\_42, big\_2\_47, big\_2\_52, big\_2\_57) %>%  
 rowMeans(na.rm = TRUE)  
  
  
data\_R$neuroticism <- data\_R %>%  
 dplyr::select(big\_2\_4, big\_2\_9, big\_2\_14, big\_2\_19, big\_2\_24, big\_2\_29, big\_2\_34, big\_2\_39, big\_2\_44, big\_2\_49, big\_2\_54, big\_2\_59) %>%  
 rowMeans(na.rm = TRUE)  
  
  
data\_R$openness <- data\_R %>%  
 dplyr::select(big\_2\_5, big\_2\_10, big\_2\_15, big\_2\_20, big\_2\_25, big\_2\_30, big\_2\_35, big\_2\_40, big\_2\_45, big\_2\_50, big\_2\_55, big\_2\_60) %>%  
 rowMeans(na.rm = TRUE)  
  
  
data\_R$honesty <- data\_R %>%  
 dplyr::select(big\_2\_61, big\_2\_62, big\_2\_63, big\_2\_64, big\_2\_65) %>%  
 rowMeans(na.rm = TRUE)

### Visually inspect

data\_R %>%  
 dplyr::select(extraversion, agreeableness, conscientiousness, openness, neuroticism, honesty) %>%  
 hist()



## Clothing Interest

### Reverse-code

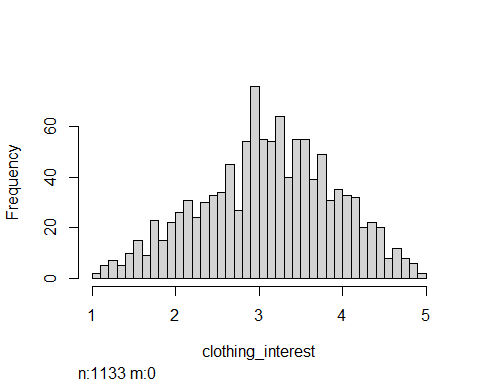
data\_R <- data\_R %>%  
 mutate(across(c(clothing\_interest\_3,  
 clothing\_interest\_5,  
 clothing\_interest\_7,  
 clothing\_interest\_9,  
 clothing\_interest\_12,  
 clothing\_interest\_14,  
 clothing\_interest\_15,  
 clothing\_interest\_16,  
 clothing\_interest\_18,  
 clothing\_interest\_20), ~6 - .)) # replace '#' with the max possible value plus 1 for any particular scale

### Average items

data\_R$clothing\_interest <- data\_R %>%  
 dplyr::select(clothing\_interest\_1:clothing\_interest\_20) %>%  
 rowMeans(na.rm = TRUE)

### Visually Inspect

data\_R %>%  
 dplyr::select(clothing\_interest) %>%  
 hist()



## In-group Identification

### Reverse-code

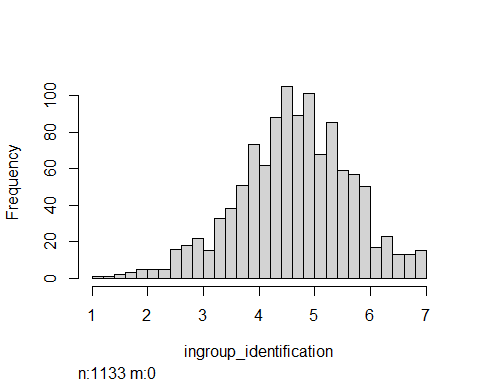
No items need to be reverse-coded.

### Average items

data\_R$ingroup\_identification <- data\_R %>%  
 dplyr::select(ingroup\_ident\_1:ingroup\_ident\_14) %>%  
 rowMeans(na.rm = TRUE)

### Visually Inspect

data\_R %>%  
 dplyr::select(ingroup\_identification) %>%  
 hist()



## Values

### Reverse-code

No items need to be reverse-coded.

### Recoding scale options

Recoding values:

* -3 = 1
* -2 = 2
* -1 = 3
* 0 = 4
* +1 = 5
* +2 = 6
* +3 = 7

table(data\_R$values\_1)

##   
## -3 -2 -1 0 1 2 3   
## 5 10 17 40 176 362 508

data\_R$values\_1\_rec <- dplyr::recode(data\_R$values\_1, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
  
table(data\_R$values\_1\_rec)

##   
## 1 2 3 4 5 6 7   
## 5 10 17 40 176 362 508

data\_R$values\_2\_rec <- dplyr::recode(data\_R$values\_2, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_3\_rec <- dplyr::recode(data\_R$values\_3, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_4\_rec <- dplyr::recode(data\_R$values\_4, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_5\_rec <- dplyr::recode(data\_R$values\_5, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_6\_rec <- dplyr::recode(data\_R$values\_6, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_7\_rec <- dplyr::recode(data\_R$values\_7, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_8\_rec <- dplyr::recode(data\_R$values\_8, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_9\_rec <- dplyr::recode(data\_R$values\_9, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_10\_rec <- dplyr::recode(data\_R$values\_10, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_11\_rec <- dplyr::recode(data\_R$values\_11, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_12\_rec <- dplyr::recode(data\_R$values\_12, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_13\_rec <- dplyr::recode(data\_R$values\_13, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_14\_rec <- dplyr::recode(data\_R$values\_14, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_15\_rec <- dplyr::recode(data\_R$values\_15, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
data\_R$values\_16\_rec <- dplyr::recode(data\_R$values\_16, `-3` = 1, `-2` = 2, `-1` = 3, `0` = 4, `1` = 5, `2` = 6, `3` = 7)  
  
table(data\_R$values\_16)

##   
## -3 -2 -1 0 1 2 3   
## 4 11 29 116 250 394 312

table(data\_R$values\_16\_rec)

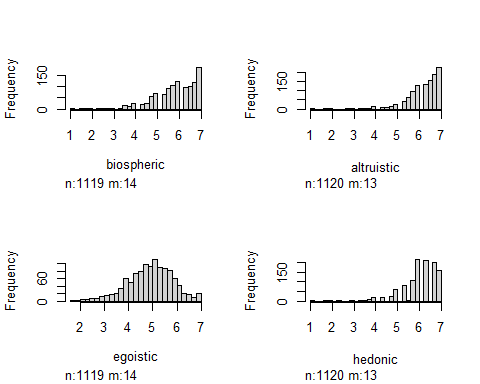
##   
## 1 2 3 4 5 6 7   
## 4 11 29 116 250 394 312

### Average items

data\_R$biospheric <- data\_R %>%  
 dplyr::select(values\_1\_rec:values\_4\_rec) %>%  
 rowMeans(na.rm = TRUE)  
  
data\_R$altruistic <- data\_R %>%  
 dplyr::select(values\_5\_rec:values\_8\_rec) %>%  
 rowMeans(na.rm = TRUE)  
  
data\_R$egoistic <- data\_R %>%  
 dplyr::select(values\_9\_rec:values\_13\_rec) %>%  
 rowMeans(na.rm = TRUE)  
  
data\_R$hedonic <- data\_R %>%  
 dplyr::select(values\_14\_rec:values\_16\_rec) %>%  
 rowMeans(na.rm = TRUE)

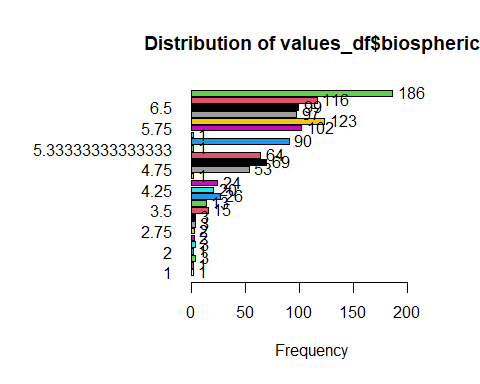
### Visually inspect

values\_df <- data\_R %>%  
 dplyr::select(biospheric, altruistic, egoistic, hedonic)  
  
values\_df %>%  
 hist()



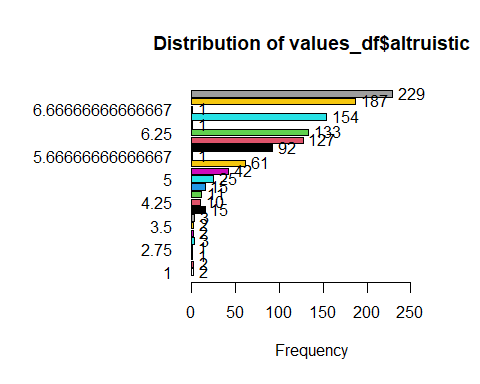
### Frequency tables

# Biospheric values  
tab1(values\_df$biospheric, sort.group = "descending", cum.percent = TRUE, missing = FALSE, horiz = TRUE)



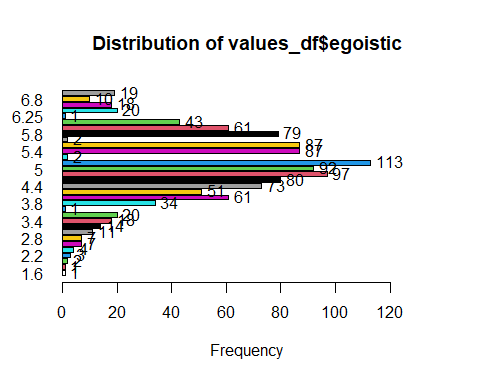
## values\_df$biospheric :   
## Frequency %(NA+) cum.%(NA+) %(NA-) cum.%(NA-)  
## 1 1 0.1 0.1 0.1 0.1  
## 1.5 1 0.1 0.2 0.1 0.2  
## 1.75 3 0.3 0.4 0.3 0.4  
## 2 1 0.1 0.5 0.1 0.5  
## 2.25 3 0.3 0.8 0.3 0.8  
## 2.5 2 0.2 1.0 0.2 1.0  
## 2.75 2 0.2 1.1 0.2 1.2  
## 3 3 0.3 1.4 0.3 1.4  
## 3.25 3 0.3 1.7 0.3 1.7  
## 3.5 15 1.3 3.0 1.3 3.0  
## 3.75 13 1.1 4.1 1.2 4.2  
## 4 26 2.3 6.4 2.3 6.5  
## 4.25 20 1.8 8.2 1.8 8.3  
## 4.5 24 2.1 10.3 2.1 10.5  
## 4.66666666666667 1 0.1 10.4 0.1 10.5  
## 4.75 53 4.7 15.1 4.7 15.3  
## 5 69 6.1 21.2 6.2 21.4  
## 5.25 64 5.6 26.8 5.7 27.2  
## 5.33333333333333 1 0.1 26.9 0.1 27.3  
## 5.5 90 7.9 34.9 8.0 35.3  
## 5.66666666666667 1 0.1 35.0 0.1 35.4  
## 5.75 102 9.0 44.0 9.1 44.5  
## 6 123 10.9 54.8 11.0 55.5  
## 6.25 97 8.6 63.4 8.7 64.2  
## 6.5 99 8.7 72.1 8.8 73.0  
## 6.75 116 10.2 82.3 10.4 83.4  
## 7 186 16.4 98.8 16.6 100.0  
## NaN 14 1.2 100.0 0.0 100.0  
## Total 1133 100.0 100.0 100.0 100.0

# Altruistic values  
tab1(values\_df$altruistic, sort.group = "descending", cum.percent = TRUE, missing = FALSE, horiz = TRUE)



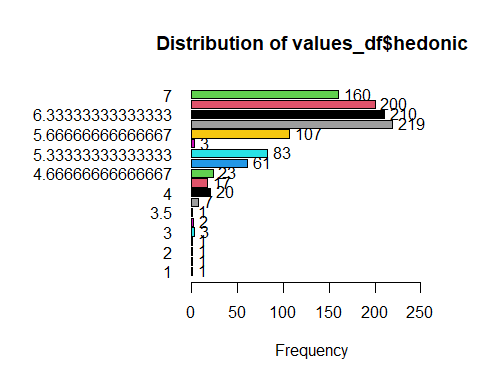
## values\_df$altruistic :   
## Frequency %(NA+) cum.%(NA+) %(NA-) cum.%(NA-)  
## 1 2 0.2 0.2 0.2 0.2  
## 1.75 2 0.2 0.4 0.2 0.4  
## 2 1 0.1 0.4 0.1 0.4  
## 2.75 1 0.1 0.5 0.1 0.5  
## 3 3 0.3 0.8 0.3 0.8  
## 3.25 2 0.2 1.0 0.2 1.0  
## 3.5 2 0.2 1.1 0.2 1.2  
## 3.75 3 0.3 1.4 0.3 1.4  
## 4 15 1.3 2.7 1.3 2.8  
## 4.25 10 0.9 3.6 0.9 3.7  
## 4.5 11 1.0 4.6 1.0 4.6  
## 4.75 15 1.3 5.9 1.3 6.0  
## 5 25 2.2 8.1 2.2 8.2  
## 5.25 42 3.7 11.8 3.8 12.0  
## 5.5 61 5.4 17.2 5.4 17.4  
## 5.66666666666667 1 0.1 17.3 0.1 17.5  
## 5.75 92 8.1 25.4 8.2 25.7  
## 6 127 11.2 36.6 11.3 37.1  
## 6.25 133 11.7 48.4 11.9 48.9  
## 6.33333333333333 1 0.1 48.5 0.1 49.0  
## 6.5 154 13.6 62.0 13.8 62.8  
## 6.66666666666667 1 0.1 62.1 0.1 62.9  
## 6.75 187 16.5 78.6 16.7 79.6  
## 7 229 20.2 98.9 20.4 100.0  
## NaN 13 1.1 100.0 0.0 100.0  
## Total 1133 100.0 100.0 100.0 100.0

# Egoistic values  
tab1(values\_df$egoistic, sort.group = "descending", cum.percent = TRUE, missing = FALSE, horiz = TRUE)



## values\_df$egoistic :   
## Frequency %(NA+) cum.%(NA+) %(NA-) cum.%(NA-)  
## 1.6 1 0.1 0.1 0.1 0.1  
## 1.8 1 0.1 0.2 0.1 0.2  
## 2 2 0.2 0.4 0.2 0.4  
## 2.2 3 0.3 0.6 0.3 0.6  
## 2.4 4 0.4 1.0 0.4 1.0  
## 2.6 7 0.6 1.6 0.6 1.6  
## 2.8 7 0.6 2.2 0.6 2.2  
## 3 11 1.0 3.2 1.0 3.2  
## 3.2 14 1.2 4.4 1.3 4.5  
## 3.4 18 1.6 6.0 1.6 6.1  
## 3.6 20 1.8 7.8 1.8 7.9  
## 3.75 1 0.1 7.9 0.1 8.0  
## 3.8 34 3.0 10.9 3.0 11.0  
## 4 61 5.4 16.2 5.5 16.4  
## 4.2 51 4.5 20.7 4.6 21.0  
## 4.4 73 6.4 27.2 6.5 27.5  
## 4.6 80 7.1 34.2 7.1 34.7  
## 4.8 97 8.6 42.8 8.7 43.3  
## 5 92 8.1 50.9 8.2 51.6  
## 5.2 113 10.0 60.9 10.1 61.7  
## 5.25 2 0.2 61.1 0.2 61.8  
## 5.4 87 7.7 68.8 7.8 69.6  
## 5.6 87 7.7 76.4 7.8 77.4  
## 5.75 2 0.2 76.6 0.2 77.6  
## 5.8 79 7.0 83.6 7.1 84.6  
## 6 61 5.4 89.0 5.5 90.1  
## 6.2 43 3.8 92.8 3.8 93.9  
## 6.25 1 0.1 92.9 0.1 94.0  
## 6.4 20 1.8 94.6 1.8 95.8  
## 6.6 18 1.6 96.2 1.6 97.4  
## 6.8 10 0.9 97.1 0.9 98.3  
## 7 19 1.7 98.8 1.7 100.0  
## NaN 14 1.2 100.0 0.0 100.0  
## Total 1133 100.0 100.0 100.0 100.0

# Hedonic values  
tab1(values\_df$hedonic, sort.group = "descending", cum.percent = TRUE, missing = FALSE, horiz = TRUE)



## values\_df$hedonic :   
## Frequency %(NA+) cum.%(NA+) %(NA-) cum.%(NA-)  
## 1 1 0.1 0.1 0.1 0.1  
## 1.66666666666667 1 0.1 0.2 0.1 0.2  
## 2 1 0.1 0.3 0.1 0.3  
## 2.33333333333333 1 0.1 0.4 0.1 0.4  
## 3 3 0.3 0.6 0.3 0.6  
## 3.33333333333333 2 0.2 0.8 0.2 0.8  
## 3.5 1 0.1 0.9 0.1 0.9  
## 3.66666666666667 7 0.6 1.5 0.6 1.5  
## 4 20 1.8 3.3 1.8 3.3  
## 4.33333333333333 17 1.5 4.8 1.5 4.8  
## 4.66666666666667 23 2.0 6.8 2.1 6.9  
## 5 61 5.4 12.2 5.4 12.3  
## 5.33333333333333 83 7.3 19.5 7.4 19.7  
## 5.5 3 0.3 19.8 0.3 20.0  
## 5.66666666666667 107 9.4 29.2 9.6 29.6  
## 6 219 19.3 48.5 19.6 49.1  
## 6.33333333333333 210 18.5 67.1 18.8 67.9  
## 6.66666666666667 200 17.7 84.7 17.9 85.7  
## 7 160 14.1 98.9 14.3 100.0  
## NaN 13 1.1 100.0 0.0 100.0  
## Total 1133 100.0 100.0 100.0 100.0

## Socially Desirable Responding

### Reverse-code

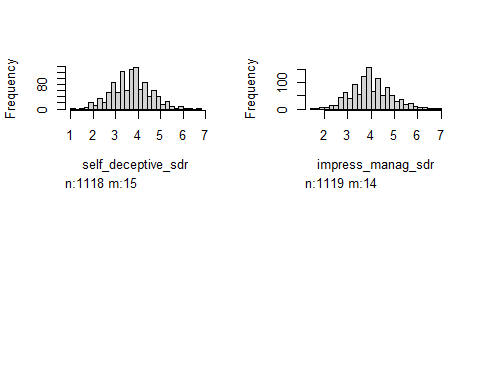
data\_R <- data\_R %>%  
 mutate(across(c(socially\_desirable\_1,  
 socially\_desirable\_3,  
 socially\_desirable\_5,  
 socially\_desirable\_8,  
 socially\_desirable\_9,  
 socially\_desirable\_11,  
 socially\_desirable\_12,  
 socially\_desirable\_13), ~8 - .)) # replace '#' with the max possible value plus 1 for any particular scale

### Average items

data\_R$self\_deceptive\_sdr <- data\_R %>%  
 dplyr::select(socially\_desirable\_1:socially\_desirable\_8) %>%  
 rowMeans(na.rm = TRUE)  
   
data\_R$impress\_manag\_sdr <- data\_R %>%  
 dplyr::select(socially\_desirable\_9:socially\_desirable\_16) %>%  
 rowMeans(na.rm = TRUE)

### Visually inspect

data\_R %>%  
 dplyr::select(self\_deceptive\_sdr, impress\_manag\_sdr) %>%  
 hist()



## Consumer Intentions

### Reverse-code

Higher scores mean better consumer intentions (intentions to *reduce* future consumption):

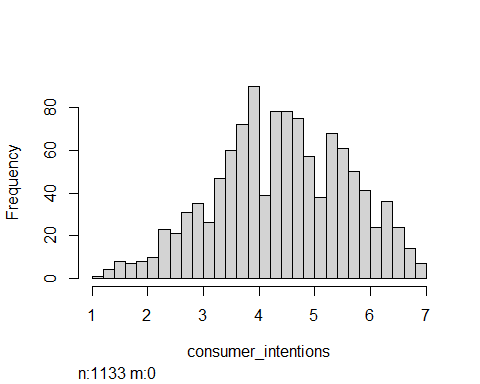
data\_R <- data\_R %>%  
 mutate(across(c(consumer\_intentions\_2,  
 consumer\_intentions\_4,  
 consumer\_intentions\_7,  
 consumer\_intentions\_9), ~8 - .)) # replace '#' with the max possible value plus 1 for any particular scale

### Average items

data\_R$consumer\_intentions <- data\_R %>%  
 dplyr::select(consumer\_intentions\_1:consumer\_intentions\_9) %>%  
 rowMeans(na.rm = TRUE)

### Visually inspect

data\_R %>%  
 dplyr::select(consumer\_intentions) %>%  
 hist()



# Contrast Coding

Subset variables

Contrast Coding using ifelse() approach:

# Framing  
data\_R\_alt$FramingCode1 <- ifelse(data\_R\_alt$framing\_condition == "control\_framing", -1/2, ifelse(data\_R\_alt$framing\_condition == "self\_enh\_framing", 1/2, 0))  
  
data\_R\_alt$FramingCode2 <- ifelse(data\_R\_alt$framing\_condition == "pro\_env\_framing", 2/3, -1/3)  
  
  
# Norm  
data\_R\_alt$NormCode1 <- ifelse(data\_R\_alt$norm\_condition == "moral\_norm", 4, -1)  
  
data\_R\_alt$NormCode2 <- ifelse(data\_R\_alt$norm\_condition == "social\_norm", 3, ifelse(data\_R\_alt$norm\_condition == "moral\_norm", 0, -1))  
  
data\_R\_alt$NormCode3 <- ifelse(data\_R\_alt$norm\_condition == "convention\_norm", 2, ifelse(data\_R\_alt$norm\_condition == "moral\_norm", 0, ifelse(data\_R\_alt$norm\_condition == "social\_norm", 0, -1)))  
data\_R\_alt$NormCode4 <- ifelse(data\_R\_alt$norm\_condition == "descriptive\_norm", 1, ifelse(data\_R\_alt$norm\_condition == "control\_norm", -1, 0))  
  
  
## Adding contrast codes to Framing & Norm Condition  
# Framing  
FrameCode1 <- c(-1/2, 0, 1/2) # control vs self-enhancing  
FrameCode2 <- c(-1/3, 2/3, -1/3) # arbitrary code  
  
contrasts(data\_R\_alt$framing\_condition) <- cbind(FrameCode1, FrameCode2)  
contrasts(data\_R\_alt$framing\_condition)

## FrameCode1 FrameCode2  
## control\_framing -0.5 -0.3333333  
## pro\_env\_framing 0.0 0.6666667  
## self\_enh\_framing 0.5 -0.3333333

# Norm  
contrasts(data\_R\_alt$norm\_condition) <- contr.helmert(5)  
contrasts(data\_R\_alt$norm\_condition) # control vs DN

## [,1] [,2] [,3] [,4]  
## control\_norm -1 -1 -1 -1  
## descriptive\_norm 1 -1 -1 -1  
## convention\_norm 0 2 -1 -1  
## social\_norm 0 0 3 -1  
## moral\_norm 0 0 0 4

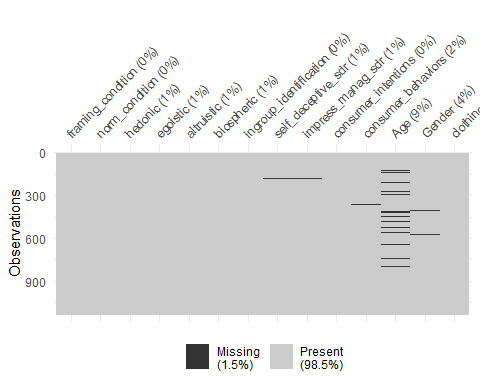
# Gender  
levels(data\_R\_alt$Gender) <- c("Woman", "Man", "Non-binary", "I prefer not to identify", "Other")  
  
data\_R\_alt$Gender[data\_R\_alt$Gender == "Non-binary"] <- NA  
data\_R\_alt$Gender[data\_R\_alt$Gender == "I prefer not to identify"] <- NA  
data\_R\_alt$Gender[data\_R\_alt$Gender == "Other"] <- NA  
  
data\_R\_alt$Gender <- droplevels(data\_R\_alt$Gender)  
  
  
contrasts(data\_R\_alt$Gender) <- c(1, 0)  
levels(data\_R\_alt$Gender)

## [1] "Woman" "Man"

# Multiple Imputation

## Examine Missingness

data\_R\_alt %>%  
 dplyr::select(framing\_condition, norm\_condition, hedonic, egoistic, altruistic, biospheric, ingroup\_identification, self\_deceptive\_sdr, impress\_manag\_sdr, consumer\_intentions, consumer\_behaviors, Age, Gender, clothing\_interest) %>%  
 vis\_miss()



n\_missing <- data\_R\_alt %>%  
 dplyr::select(framing\_condition, norm\_condition, hedonic, egoistic, altruistic, biospheric, ingroup\_identification, self\_deceptive\_sdr, impress\_manag\_sdr, consumer\_intentions, consumer\_behaviors, Age, Gender, clothing\_interest) %>%  
 lapply(function(x) sum(is.na(x)))  
  
n\_missing

## $framing\_condition  
## [1] 0  
##   
## $norm\_condition  
## [1] 0  
##   
## $hedonic  
## [1] 13  
##   
## $egoistic  
## [1] 14  
##   
## $altruistic  
## [1] 13  
##   
## $biospheric  
## [1] 14  
##   
## $ingroup\_identification  
## [1] 0  
##   
## $self\_deceptive\_sdr  
## [1] 15  
##   
## $impress\_manag\_sdr  
## [1] 14  
##   
## $consumer\_intentions  
## [1] 0  
##   
## $consumer\_behaviors  
## [1] 18  
##   
## $Age  
## [1] 103  
##   
## $Gender  
## [1] 41  
##   
## $clothing\_interest  
## [1] 0

# percent missing  
lapply(n\_missing, function(x) (x/nrow(data\_R\_alt))\*100)

## $framing\_condition  
## [1] 0  
##   
## $norm\_condition  
## [1] 0  
##   
## $hedonic  
## [1] 1.147396  
##   
## $egoistic  
## [1] 1.235658  
##   
## $altruistic  
## [1] 1.147396  
##   
## $biospheric  
## [1] 1.235658  
##   
## $ingroup\_identification  
## [1] 0  
##   
## $self\_deceptive\_sdr  
## [1] 1.323919  
##   
## $impress\_manag\_sdr  
## [1] 1.235658  
##   
## $consumer\_intentions  
## [1] 0  
##   
## $consumer\_behaviors  
## [1] 1.588703  
##   
## $Age  
## [1] 9.090909  
##   
## $Gender  
## [1] 3.618711  
##   
## $clothing\_interest  
## [1] 0

Variables with NO missing data:

* ingroup\_identification
* clothing\_interest
* consumer\_intentions
* framing\_condition
* norm\_condition

## Adding interaction terms

## Imputation model

set.seed(114950518)

* check out mice.impute.smcfcs

## [1] "Outcome variable(s): consumer\_intentions"  
## [1] "Passive variables: framing1Xbiospheric,framing2Xbiospheric,norm1Xbiospheric,norm2Xbiospheric,norm3Xbiospheric,norm4Xbiospheric,framing1Xnorm1Xbiospheric,framing1Xnorm2Xbiospheric,framing1Xnorm3Xbiospheric,framing1Xnorm4Xbiospheric,framing2Xnorm1Xbiospheric,framing2Xnorm2Xbiospheric,framing2Xnorm3Xbiospheric,framing2Xnorm4Xbiospheric,framing1Xaltruistic,framing2Xaltruistic,norm1Xaltruistic,norm2Xaltruistic,norm3Xaltruistic,norm4Xaltruistic,framing1Xnorm1Xaltruistic,framing1Xnorm2Xaltruistic,framing1Xnorm3Xaltruistic,framing1Xnorm4Xaltruistic,framing2Xnorm1Xaltruistic,framing2Xnorm2Xaltruistic,framing2Xnorm3Xaltruistic,framing2Xnorm4Xaltruistic,framing1Xegoistic,framing2Xegoistic,norm1Xegoistic,norm2Xegoistic,norm3Xegoistic,norm4Xegoistic,framing1Xnorm1Xegoistic,framing1Xnorm2Xegoistic,framing1Xnorm3Xegoistic,framing1Xnorm4Xegoistic,framing2Xnorm1Xegoistic,framing2Xnorm2Xegoistic,framing2Xnorm3Xegoistic,framing2Xnorm4Xegoistic,framing1Xhedonic,framing2Xhedonic,norm1Xhedonic,norm2Xhedonic,norm3Xhedonic,norm4Xhedonic,framing1Xnorm1Xhedonic,framing1Xnorm2Xhedonic,framing1Xnorm3Xhedonic,framing1Xnorm4Xhedonic,framing2Xnorm1Xhedonic,framing2Xnorm2Xhedonic,framing2Xnorm3Xhedonic,framing2Xnorm4Xhedonic"  
## [1] "Partially obs. variables: hedonic,egoistic,altruistic,biospheric,Age,self\_deceptive\_sdr,impress\_manag\_sdr,consumer\_behaviors,Gender"  
## [1] "Fully obs. substantive model variables: ingroup\_identification,clothing\_interest,framing\_condition,norm\_condition,framing1Xingroup,framing2Xingroup,norm1Xingroup,norm2Xingroup,norm3Xingroup,norm4Xingroup,framing1Xnorm1Xingroup,framing1Xnorm2Xingroup,framing1Xnorm3Xingroup,framing1Xnorm4Xingroup,framing2Xnorm1Xingroup,framing2Xnorm2Xingroup,framing2Xnorm3Xingroup,framing2Xnorm4Xingroup"  
## [1] "Imputation 1"  
## [1] "Imputing: hedonic using egoistic,altruistic,biospheric,Age,self\_deceptive\_sdr,impress\_manag\_sdr,consumer\_behaviors,Gender,ingroup\_identification,clothing\_interest,framing\_condition,norm\_condition,framing1Xingroup,framing2Xingroup,norm1Xingroup,norm2Xingroup,norm3Xingroup,norm4Xingroup,framing1Xnorm1Xingroup,framing1Xnorm2Xingroup,framing1Xnorm3Xingroup,framing1Xnorm4Xingroup,framing2Xnorm1Xingroup,framing2Xnorm2Xingroup,framing2Xnorm3Xingroup,framing2Xnorm4Xingroup plus outcome"  
## [1] "Imputing: egoistic using hedonic,altruistic,biospheric,Age,self\_deceptive\_sdr,impress\_manag\_sdr,consumer\_behaviors,Gender,ingroup\_identification,clothing\_interest,framing\_condition,norm\_condition,framing1Xingroup,framing2Xingroup,norm1Xingroup,norm2Xingroup,norm3Xingroup,norm4Xingroup,framing1Xnorm1Xingroup,framing1Xnorm2Xingroup,framing1Xnorm3Xingroup,framing1Xnorm4Xingroup,framing2Xnorm1Xingroup,framing2Xnorm2Xingroup,framing2Xnorm3Xingroup,framing2Xnorm4Xingroup plus outcome"  
## [1] "Imputing: altruistic using hedonic,egoistic,biospheric,Age,self\_deceptive\_sdr,impress\_manag\_sdr,consumer\_behaviors,Gender,ingroup\_identification,clothing\_interest,framing\_condition,norm\_condition,framing1Xingroup,framing2Xingroup,norm1Xingroup,norm2Xingroup,norm3Xingroup,norm4Xingroup,framing1Xnorm1Xingroup,framing1Xnorm2Xingroup,framing1Xnorm3Xingroup,framing1Xnorm4Xingroup,framing2Xnorm1Xingroup,framing2Xnorm2Xingroup,framing2Xnorm3Xingroup,framing2Xnorm4Xingroup plus outcome"  
## [1] "Imputing: biospheric using hedonic,egoistic,altruistic,Age,self\_deceptive\_sdr,impress\_manag\_sdr,consumer\_behaviors,Gender,ingroup\_identification,clothing\_interest,framing\_condition,norm\_condition,framing1Xingroup,framing2Xingroup,norm1Xingroup,norm2Xingroup,norm3Xingroup,norm4Xingroup,framing1Xnorm1Xingroup,framing1Xnorm2Xingroup,framing1Xnorm3Xingroup,framing1Xnorm4Xingroup,framing2Xnorm1Xingroup,framing2Xnorm2Xingroup,framing2Xnorm3Xingroup,framing2Xnorm4Xingroup plus outcome"  
## [1] "Imputing: Age using hedonic,egoistic,altruistic,biospheric,self\_deceptive\_sdr,impress\_manag\_sdr,consumer\_behaviors,Gender,ingroup\_identification,clothing\_interest,framing\_condition,norm\_condition,framing1Xingroup,framing2Xingroup,norm1Xingroup,norm2Xingroup,norm3Xingroup,norm4Xingroup,framing1Xnorm1Xingroup,framing1Xnorm2Xingroup,framing1Xnorm3Xingroup,framing1Xnorm4Xingroup,framing2Xnorm1Xingroup,framing2Xnorm2Xingroup,framing2Xnorm3Xingroup,framing2Xnorm4Xingroup plus outcome"  
## [1] "Imputing: self\_deceptive\_sdr using hedonic,egoistic,altruistic,biospheric,Age,impress\_manag\_sdr,consumer\_behaviors,Gender,ingroup\_identification,clothing\_interest,framing\_condition,norm\_condition,framing1Xingroup,framing2Xingroup,norm1Xingroup,norm2Xingroup,norm3Xingroup,norm4Xingroup,framing1Xnorm1Xingroup,framing1Xnorm2Xingroup,framing1Xnorm3Xingroup,framing1Xnorm4Xingroup,framing2Xnorm1Xingroup,framing2Xnorm2Xingroup,framing2Xnorm3Xingroup,framing2Xnorm4Xingroup plus outcome"  
## [1] "Imputing: impress\_manag\_sdr using hedonic,egoistic,altruistic,biospheric,Age,self\_deceptive\_sdr,consumer\_behaviors,Gender,ingroup\_identification,clothing\_interest,framing\_condition,norm\_condition,framing1Xingroup,framing2Xingroup,norm1Xingroup,norm2Xingroup,norm3Xingroup,norm4Xingroup,framing1Xnorm1Xingroup,framing1Xnorm2Xingroup,framing1Xnorm3Xingroup,framing1Xnorm4Xingroup,framing2Xnorm1Xingroup,framing2Xnorm2Xingroup,framing2Xnorm3Xingroup,framing2Xnorm4Xingroup plus outcome"  
## [1] "Imputing: consumer\_behaviors using hedonic,egoistic,altruistic,biospheric,Age,self\_deceptive\_sdr,impress\_manag\_sdr,Gender,ingroup\_identification,clothing\_interest,framing\_condition,norm\_condition,framing1Xingroup,framing2Xingroup,norm1Xingroup,norm2Xingroup,norm3Xingroup,norm4Xingroup,framing1Xnorm1Xingroup,framing1Xnorm2Xingroup,framing1Xnorm3Xingroup,framing1Xnorm4Xingroup,framing2Xnorm1Xingroup,framing2Xnorm2Xingroup,framing2Xnorm3Xingroup,framing2Xnorm4Xingroup plus outcome"  
## [1] "Imputing: Gender using hedonic,egoistic,altruistic,biospheric,Age,self\_deceptive\_sdr,impress\_manag\_sdr,consumer\_behaviors,ingroup\_identification,clothing\_interest,framing\_condition,norm\_condition,framing1Xingroup,framing2Xingroup,norm1Xingroup,norm2Xingroup,norm3Xingroup,norm4Xingroup,framing1Xnorm1Xingroup,framing1Xnorm2Xingroup,framing1Xnorm3Xingroup,framing1Xnorm4Xingroup,framing2Xnorm1Xingroup,framing2Xnorm2Xingroup,framing2Xnorm3Xingroup,framing2Xnorm4Xingroup plus outcome"  
## [1] "Imputation 2"  
## [1] "Imputation 3"  
## [1] "Imputation 4"  
## [1] "Imputation 5"

Storing imputed data sets

Restrict range of values on imputed variables

# bio values  
impobject$imputations[[1]]$biospheric <- ifelse(impobject$imputations[[1]]$biospheric > 7, 7, impobject$imputations[[1]]$biospheric)  
  
impobject$imputations[[2]]$biospheric <- ifelse(impobject$imputations[[2]]$biospheric > 7, 7, impobject$imputations[[2]]$biospheric)  
  
impobject$imputations[[3]]$biospheric <- ifelse(impobject$imputations[[3]]$biospheric > 7, 7, impobject$imputations[[3]]$biospheric)  
  
impobject$imputations[[4]]$biospheric <- ifelse(impobject$imputations[[4]]$biospheric > 7, 7, impobject$imputations[[4]]$biospheric)  
  
impobject$imputations[[5]]$biospheric <- ifelse(impobject$imputations[[5]]$biospheric > 7, 7, impobject$imputations[[5]]$biospheric)  
  
  
# alt values  
impobject$imputations[[1]]$altruistic <- ifelse(impobject$imputations[[1]]$altruistic > 7, 7, impobject$imputations[[1]]$altruistic)  
  
impobject$imputations[[2]]$altruistic <- ifelse(impobject$imputations[[2]]$altruistic > 7, 7, impobject$imputations[[2]]$altruistic)  
  
impobject$imputations[[3]]$altruistic <- ifelse(impobject$imputations[[3]]$altruistic > 7, 7, impobject$imputations[[3]]$altruistic)  
  
impobject$imputations[[4]]$altruistic <- ifelse(impobject$imputations[[4]]$altruistic > 7, 7, impobject$imputations[[4]]$altruistic)  
  
impobject$imputations[[5]]$altruistic <- ifelse(impobject$imputations[[5]]$altruistic > 7, 7, impobject$imputations[[5]]$altruistic)  
  
  
# ego values  
impobject$imputations[[1]]$egoistic <- ifelse(impobject$imputations[[1]]$egoistic > 7, 7, impobject$imputations[[1]]$egoistic)  
  
impobject$imputations[[2]]$egoistic <- ifelse(impobject$imputations[[2]]$egoistic > 7, 7, impobject$imputations[[2]]$egoistic)  
  
impobject$imputations[[3]]$egoistic <- ifelse(impobject$imputations[[3]]$egoistic > 7, 7, impobject$imputations[[3]]$egoistic)  
  
impobject$imputations[[4]]$egoistic <- ifelse(impobject$imputations[[4]]$egoistic > 7, 7, impobject$imputations[[4]]$egoistic)  
  
impobject$imputations[[5]]$egoistic <- ifelse(impobject$imputations[[5]]$egoistic > 7, 7, impobject$imputations[[5]]$egoistic)  
  
  
# hed values  
impobject$imputations[[1]]$hedonic <- ifelse(impobject$imputations[[1]]$hedonic > 7, 7, impobject$imputations[[1]]$hedonic)  
  
impobject$imputations[[2]]$hedonic <- ifelse(impobject$imputations[[2]]$hedonic > 7, 7, impobject$imputations[[2]]$hedonic)  
  
impobject$imputations[[3]]$hedonic <- ifelse(impobject$imputations[[3]]$hedonic > 7, 7, impobject$imputations[[3]]$hedonic)  
  
impobject$imputations[[4]]$hedonic <- ifelse(impobject$imputations[[4]]$hedonic > 7, 7, impobject$imputations[[4]]$hedonic)  
  
impobject$imputations[[5]]$hedonic <- ifelse(impobject$imputations[[5]]$hedonic > 7, 7, impobject$imputations[[5]]$hedonic)  
  
  
# self-deceptive enhancement  
with(impobject, describe(self\_deceptive\_sdr))

## [[1]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 3.72 0.85 3.75 3.71 0.74 1 6.62 5.62 0.14 0.14 0.03  
##   
## [[2]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 3.72 0.86 3.75 3.71 0.74 1 6.62 5.62 0.15 0.13 0.03  
##   
## [[3]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 3.72 0.85 3.75 3.71 0.74 1 6.62 5.62 0.16 0.18 0.03  
##   
## [[4]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 3.72 0.85 3.75 3.71 0.74 0.89 6.62 5.73 0.11 0.19 0.03  
##   
## [[5]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 3.72 0.86 3.75 3.71 0.74 1 6.62 5.62 0.15 0.15 0.03  
##   
## attr(,"call")  
## with(impobject, describe(self\_deceptive\_sdr))

impobject$imputations[[4]]$self\_deceptive\_sdr <- ifelse(impobject$imputations[[4]]$self\_deceptive\_sdr < 1, 1, impobject$imputations[[4]]$self\_deceptive\_sdr)  
  
  
# impr manag  
with(impobject, describe(impress\_manag\_sdr))

## [[1]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 4.01 0.85 4 3.99 0.74 1.5 7 5.5 0.26 0.15 0.03  
##   
## [[2]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 4.01 0.85 4 3.98 0.74 1.5 7 5.5 0.26 0.16 0.03  
##   
## [[3]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 4.01 0.85 4 3.99 0.74 1.5 7 5.5 0.25 0.15 0.03  
##   
## [[4]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 4 0.85 4 3.98 0.74 1.5 7 5.5 0.24 0.15 0.03  
##   
## [[5]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 4 0.85 4 3.98 0.74 1.5 7 5.5 0.26 0.17 0.03  
##   
## attr(,"call")  
## with(impobject, describe(impress\_manag\_sdr))

# Age  
describe(data\_R\_alt$Age)

## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1030 19.87 1.95 19 19.67 1.48 18 50 32 4.91 59.29 0.06

with(impobject, describe(Age))

## [[1]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 19.88 1.95 19.18 19.69 1.76 15.42 50 34.58 4.51 54.36 0.06  
##   
## [[2]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 19.85 1.96 19 19.67 1.48 14.79 50 35.21 4.39 53.26 0.06  
##   
## [[3]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 19.88 1.96 19.29 19.69 1.92 15.83 50 34.17 4.42 52.66 0.06  
##   
## [[4]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 19.87 1.95 19 19.68 1.48 15.63 50 34.37 4.51 54.13 0.06  
##   
## [[5]]  
## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 19.87 1.95 19.14 19.69 1.69 14.17 50 35.83 4.48 54.54 0.06  
##   
## attr(,"call")  
## with(impobject, describe(Age))

impobject$imputations[[1]]$Age <- ifelse(impobject$imputations[[1]]$Age < 18, 18, impobject$imputations[[1]]$Age)  
  
impobject$imputations[[2]]$Age <- ifelse(impobject$imputations[[2]]$Age < 18, 18, impobject$imputations[[2]]$Age)  
  
impobject$imputations[[3]]$Age <- ifelse(impobject$imputations[[3]]$Age < 18, 18, impobject$imputations[[3]]$Age)  
  
impobject$imputations[[4]]$Age <- ifelse(impobject$imputations[[4]]$Age < 18, 18, impobject$imputations[[4]]$Age)  
  
impobject$imputations[[5]]$Age <- ifelse(impobject$imputations[[5]]$Age < 18, 18, impobject$imputations[[5]]$Age)

## Centering continuous predictors

Convert scmfcs object to a mids object (to make the object compatible with mice, and thus, emmeans):

mids\_obj <- datlist2mids(impobject)

Complete data set:

# Regression Analysis (DV = Consumer Intentions)

## Running Model

Averaging scores across imputations

complete\_data\_subset <- complete\_data %>%  
 dplyr::select(.imp, .id, consumer\_intentions, consumer\_behaviors, Gender, framing\_condition, norm\_condition, biospheric\_center, altruistic\_center, egoistic\_center, hedonic\_center, ingroup\_center, Age\_center, clothing\_center, self\_dec\_center, impress\_manag\_center)  
  
average\_df <- complete\_data\_subset %>%   
 group\_by(.id) %>%  
 transmute(.imp = .imp,   
 consumer\_behaviors = consumer\_behaviors,   
 Gender = Gender,  
 framing\_condition = framing\_condition,  
 norm\_condition = norm\_condition,  
 biospheric\_center = mean(biospheric\_center),  
 altruistic\_center = mean(altruistic\_center),  
 egoistic\_center = mean(egoistic\_center),  
 hedonic\_center = mean(hedonic\_center),  
 ingroup\_center = mean(ingroup\_center),  
 Age\_center = mean(Age\_center),  
 clothing\_center = mean(clothing\_center),  
 self\_dec\_center = mean(self\_dec\_center),  
 impress\_manag\_center = mean(impress\_manag\_center),  
 consumer\_intentions = mean(consumer\_intentions))  
  
  
average\_df <- average\_df %>%  
 filter(.imp == 1)

# Simple effects

## Biospheric values

Storing low (-1SD) and high (+1SD) biospheric values

sd\_below <- mean(average\_df$biospheric\_center) - sd(average\_df$biospheric\_center)  
  
sd\_above <- mean(average\_df$biospheric\_center) + sd(average\_df$biospheric\_center)

### Overall effect

EMM for low and high bio

# emmeans  
atlist <- list(biospheric\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ biospheric\_center, at = atlist)  
emms %>% knitr::kable(digits = 2)

| biospheric\_center | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| -0.99 | 4.03 | 0.06 | 1038 | 3.92 | 4.14 |
| 0.99 | 4.75 | 0.06 | 1038 | 4.63 | 4.86 |

Compare EMM for low and high bio

# custom contrast  
low\_bio <- c(1,0)  
hi\_bio <- c(0,1)  
  
# compare  
effect\_bio <- contrast(emms, method = list("High Bio - Low Bio" = hi\_bio - low\_bio), adjust = "none")  
effect\_bio %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| High Bio - Low Bio | 0.72 | 0.09 | 1038 | 7.79 | 0 |

# confidence intervals  
effect\_bio %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| High Bio - Low Bio | 0.72 | 0.09 | 1038 | 0.54 | 0.9 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(emms, method = list("High Bio - Low Bio" = hi\_bio - low\_bio), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| High Bio - Low Bio | 0.67 | 0.09 | 1038 | 0.5 | 0.84 |

### Framing Condition

EMM for low vs high bio in each framing

atlist <- list(biospheric\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ biospheric\_center\*framing\_condition, at=atlist)  
emms %>% knitr::kable(digits = 2)

| biospheric\_center | framing\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| -0.99 | control\_framing | 3.96 | 0.11 | 1038 | 3.76 | 4.17 |
| 0.99 | control\_framing | 4.69 | 0.10 | 1038 | 4.49 | 4.89 |
| -0.99 | pro\_env\_framing | 4.08 | 0.09 | 1038 | 3.91 | 4.25 |
| 0.99 | pro\_env\_framing | 4.88 | 0.09 | 1038 | 4.70 | 5.06 |
| -0.99 | self\_enh\_framing | 4.05 | 0.10 | 1038 | 3.84 | 4.25 |
| 0.99 | self\_enh\_framing | 4.67 | 0.10 | 1038 | 4.47 | 4.88 |

Compare EMMs for low vs high bio in each framing

# custom contrasts  
control\_low\_bio <- c(1,0,0,0,0,0)  
control\_hi\_bio <- c(0,1,0,0,0,0)  
proenv\_low\_bio <- c(0,0,1,0,0,0)  
proenv\_hi\_bio <- c(0,0,0,1,0,0)  
selfenh\_low\_bio <- c(0,0,0,0,1,0)  
self\_enh\_hi\_bio <- c(0,0,0,0,0,1)  
  
# compare  
effect\_frame\_bio <- contrast(emms, method = list("Control: High Bio - Low Bio" = control\_hi\_bio - control\_low\_bio,  
 "Pro-env: High Bio - Low Bio" = proenv\_hi\_bio - proenv\_low\_bio,  
 "Self-enh: High Bio - Low Bio" = self\_enh\_hi\_bio - selfenh\_low\_bio), adjust = "none")  
effect\_frame\_bio %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Control: High Bio - Low Bio | 0.72 | 0.17 | 1038 | 4.29 | 0 |
| Pro-env: High Bio - Low Bio | 0.80 | 0.14 | 1038 | 5.83 | 0 |
| Self-enh: High Bio - Low Bio | 0.63 | 0.17 | 1038 | 3.67 | 0 |

# confidence intervals  
effect\_frame\_bio %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High Bio - Low Bio | 0.72 | 0.17 | 1038 | 0.39 | 1.06 |
| Pro-env: High Bio - Low Bio | 0.80 | 0.14 | 1038 | 0.53 | 1.07 |
| Self-enh: High Bio - Low Bio | 0.63 | 0.17 | 1038 | 0.29 | 0.97 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(emms, method = list("Control: High Bio - Low Bio" = control\_hi\_bio - control\_low\_bio,  
 "Pro-env: High Bio - Low Bio" = proenv\_hi\_bio - proenv\_low\_bio,  
 "Self-enh: High Bio - Low Bio" = self\_enh\_hi\_bio - selfenh\_low\_bio), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High Bio - Low Bio | 0.68 | 0.16 | 1038 | 0.37 | 0.99 |
| Pro-env: High Bio - Low Bio | 0.75 | 0.13 | 1038 | 0.49 | 1.00 |
| Self-enh: High Bio - Low Bio | 0.59 | 0.16 | 1038 | 0.27 | 0.91 |

### Norm Condition

EMM for low vs high bio in each norm

atlist <- list(biospheric\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ biospheric\_center\*norm\_condition, at=atlist)  
emms %>% knitr::kable(digits = 2)

| biospheric\_center | norm\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| -0.99 | control\_norm | 3.99 | 0.12 | 1038 | 3.76 | 4.22 |
| 0.99 | control\_norm | 4.87 | 0.12 | 1038 | 4.63 | 5.12 |
| -0.99 | descriptive\_norm | 4.10 | 0.13 | 1038 | 3.85 | 4.35 |
| 0.99 | descriptive\_norm | 4.71 | 0.13 | 1038 | 4.46 | 4.95 |
| -0.99 | convention\_norm | 3.90 | 0.12 | 1038 | 3.65 | 4.14 |
| 0.99 | convention\_norm | 5.11 | 0.13 | 1038 | 4.86 | 5.36 |
| -0.99 | social\_norm | 4.02 | 0.12 | 1038 | 3.79 | 4.25 |
| 0.99 | social\_norm | 4.53 | 0.13 | 1038 | 4.27 | 4.79 |
| -0.99 | moral\_norm | 4.14 | 0.15 | 1038 | 3.84 | 4.43 |
| 0.99 | moral\_norm | 4.52 | 0.12 | 1038 | 4.28 | 4.76 |

Compare EMMs for low vs high bio in each framing

# custom contrasts  
control\_low\_bio <- c(1,rep(0,9))  
control\_hi\_bio <- c(0,1,rep(0,8))  
dn\_low\_bio <- c(0,0,1,rep(0,7))  
dn\_hi\_bio <- c(0,0,0,1,rep(0,6))  
conv\_low\_bio <- c(0,0,0,0,1,rep(0,5))  
conv\_hi\_bio <- c(rep(0,5),1,rep(0,4))  
sn\_low\_bio <- c(rep(0,6),1,0,0,0)  
sn\_hi\_bio <- c(rep(0,7),1,0,0)  
mn\_low\_bio <- c(rep(0,8),1,0)  
mn\_hi\_bio <- c(rep(0,9),1)  
  
# compare  
effect\_norm\_bio <- contrast(emms, method = list("Control: High Bio - Low Bio" = control\_hi\_bio - control\_low\_bio,  
 "DN: High Bio - Low Bio" = dn\_hi\_bio - dn\_low\_bio,  
 "Conv: High Bio - Low Bio" = conv\_hi\_bio - conv\_low\_bio,  
 "SN: High Bio - Low Bio" = sn\_hi\_bio - sn\_low\_bio,  
 "MN: High Bio - Low Bio" = mn\_hi\_bio - mn\_low\_bio), adjust = "none")  
effect\_norm\_bio %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Control: High Bio - Low Bio | 0.89 | 0.19 | 1038 | 4.58 | 0.000 |
| DN: High Bio - Low Bio | 0.61 | 0.20 | 1038 | 2.97 | 0.003 |
| Conv: High Bio - Low Bio | 1.21 | 0.20 | 1038 | 5.95 | 0.000 |
| SN: High Bio - Low Bio | 0.51 | 0.20 | 1038 | 2.55 | 0.011 |
| MN: High Bio - Low Bio | 0.38 | 0.23 | 1038 | 1.65 | 0.099 |

# confidence intervals  
effect\_norm\_bio %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High Bio - Low Bio | 0.89 | 0.19 | 1038 | 0.51 | 1.26 |
| DN: High Bio - Low Bio | 0.61 | 0.20 | 1038 | 0.21 | 1.01 |
| Conv: High Bio - Low Bio | 1.21 | 0.20 | 1038 | 0.81 | 1.61 |
| SN: High Bio - Low Bio | 0.51 | 0.20 | 1038 | 0.12 | 0.90 |
| MN: High Bio - Low Bio | 0.38 | 0.23 | 1038 | -0.07 | 0.83 |

# effect size  
eff\_size(emms, method = list("Control: High Bio - Low Bio" = control\_hi\_bio - control\_low\_bio,  
 "DN: High Bio - Low Bio" = dn\_hi\_bio - dn\_low\_bio,  
 "Conv: High Bio - Low Bio" = conv\_hi\_bio - conv\_low\_bio,  
 "SN: High Bio - Low Bio" = sn\_hi\_bio - sn\_low\_bio,  
 "MN: High Bio - Low Bio" = mn\_hi\_bio - mn\_low\_bio), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High Bio - Low Bio | 0.83 | 0.18 | 1038 | 0.47 | 1.18 |
| DN: High Bio - Low Bio | 0.57 | 0.19 | 1038 | 0.19 | 0.94 |
| Conv: High Bio - Low Bio | 1.13 | 0.19 | 1038 | 0.76 | 1.51 |
| SN: High Bio - Low Bio | 0.48 | 0.19 | 1038 | 0.11 | 0.85 |
| MN: High Bio - Low Bio | 0.35 | 0.21 | 1038 | -0.07 | 0.77 |

## Altruistic values

Storing low (-1SD) and high (+1SD) altruistic values

sd\_below <- mean(average\_df$altruistic\_center) - sd(average\_df$altruistic\_center)  
  
sd\_above <- mean(average\_df$altruistic\_center) + sd(average\_df$altruistic\_center)

### Overall effect

EMM for low and high alt

# emmeans  
atlist <- list(altruistic\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ altruistic\_center, at = atlist)  
emms %>% knitr::kable(digits = 2)

| altruistic\_center | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| -0.8 | 4.32 | 0.06 | 1038 | 4.21 | 4.44 |
| 0.8 | 4.45 | 0.06 | 1038 | 4.33 | 4.57 |

Compare EMM for low and high alt

# custom contrast  
low\_alt <- c(1,0)  
hi\_alt <- c(0,1)  
  
# compare  
effect\_alt <- contrast(emms, method = list("High alt - Low alt" = hi\_alt - low\_alt), adjust = "none")  
effect\_alt %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| High alt - Low alt | 0.13 | 0.1 | 1038 | 1.23 | 0.22 |

# confidence intervals  
effect\_alt %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| High alt - Low alt | 0.13 | 0.1 | 1038 | -0.08 | 0.33 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(emms, method = list("High alt - Low alt" = hi\_alt - low\_alt), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| High alt - Low alt | 0.12 | 0.1 | 1038 | -0.07 | 0.31 |

### Framing Condition

EMM for low vs high alt in each framing

atlist <- list(altruistic\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ altruistic\_center\*framing\_condition, at=atlist)  
emms %>% knitr::kable(digits = 2)

| altruistic\_center | framing\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| -0.8 | control\_framing | 4.24 | 0.10 | 1038 | 4.04 | 4.43 |
| 0.8 | control\_framing | 4.42 | 0.11 | 1038 | 4.21 | 4.63 |
| -0.8 | pro\_env\_framing | 4.49 | 0.10 | 1038 | 4.29 | 4.68 |
| 0.8 | pro\_env\_framing | 4.47 | 0.10 | 1038 | 4.28 | 4.66 |
| -0.8 | self\_enh\_framing | 4.25 | 0.11 | 1038 | 4.03 | 4.48 |
| 0.8 | self\_enh\_framing | 4.47 | 0.11 | 1038 | 4.25 | 4.69 |

Compare EMMs for low vs high alt in each framing

# custom contrasts  
control\_low\_alt <- c(1,0,0,0,0,0)  
control\_hi\_alt <- c(0,1,0,0,0,0)  
proenv\_low\_alt <- c(0,0,1,0,0,0)  
proenv\_hi\_alt <- c(0,0,0,1,0,0)  
selfenh\_low\_alt <- c(0,0,0,0,1,0)  
self\_enh\_hi\_alt <- c(0,0,0,0,0,1)  
  
# compare  
effect\_frame\_alt <- contrast(emms, method = list("Control: High alt - Low alt" = control\_hi\_alt - control\_low\_alt,  
 "Pro-env: High alt - Low alt" = proenv\_hi\_alt - proenv\_low\_alt,  
 "Self-enh: High alt - Low alt" = self\_enh\_hi\_alt - selfenh\_low\_alt), adjust = "none")  
effect\_frame\_alt %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Control: High alt - Low alt | 0.18 | 0.17 | 1038 | 1.07 | 0.284 |
| Pro-env: High alt - Low alt | -0.01 | 0.16 | 1038 | -0.09 | 0.928 |
| Self-enh: High alt - Low alt | 0.21 | 0.19 | 1038 | 1.10 | 0.272 |

# confidence intervals  
effect\_frame\_alt %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High alt - Low alt | 0.18 | 0.17 | 1038 | -0.15 | 0.51 |
| Pro-env: High alt - Low alt | -0.01 | 0.16 | 1038 | -0.33 | 0.30 |
| Self-enh: High alt - Low alt | 0.21 | 0.19 | 1038 | -0.17 | 0.59 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(emms, method = list("Control: High alt - Low alt" = control\_hi\_alt - control\_low\_alt,  
 "Pro-env: High alt - Low alt" = proenv\_hi\_alt - proenv\_low\_alt,  
 "Self-enh: High alt - Low alt" = self\_enh\_hi\_alt - selfenh\_low\_alt), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High alt - Low alt | 0.17 | 0.16 | 1038 | -0.14 | 0.48 |
| Pro-env: High alt - Low alt | -0.01 | 0.15 | 1038 | -0.31 | 0.28 |
| Self-enh: High alt - Low alt | 0.20 | 0.18 | 1038 | -0.16 | 0.55 |

### Norm Condition

EMM for low vs high alt in each norm

atlist <- list(altruistic\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ altruistic\_center\*norm\_condition, at=atlist)  
emms %>% knitr::kable(digits = 2)

| altruistic\_center | norm\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| -0.8 | control\_norm | 4.33 | 0.15 | 1038 | 4.04 | 4.62 |
| 0.8 | control\_norm | 4.53 | 0.14 | 1038 | 4.25 | 4.81 |
| -0.8 | descriptive\_norm | 4.51 | 0.13 | 1038 | 4.25 | 4.76 |
| 0.8 | descriptive\_norm | 4.30 | 0.13 | 1038 | 4.05 | 4.55 |
| -0.8 | convention\_norm | 4.54 | 0.13 | 1038 | 4.28 | 4.80 |
| 0.8 | convention\_norm | 4.46 | 0.13 | 1038 | 4.21 | 4.71 |
| -0.8 | social\_norm | 4.19 | 0.15 | 1038 | 3.91 | 4.48 |
| 0.8 | social\_norm | 4.36 | 0.13 | 1038 | 4.09 | 4.62 |
| -0.8 | moral\_norm | 4.05 | 0.12 | 1038 | 3.82 | 4.28 |
| 0.8 | moral\_norm | 4.61 | 0.14 | 1038 | 4.33 | 4.88 |

Compare EMMs for low vs high alt in each framing

# custom contrasts  
control\_low\_alt <- c(1,rep(0,9))  
control\_hi\_alt <- c(0,1,rep(0,8))  
dn\_low\_alt <- c(0,0,1,rep(0,7))  
dn\_hi\_alt <- c(0,0,0,1,rep(0,6))  
conv\_low\_alt <- c(0,0,0,0,1,rep(0,5))  
conv\_hi\_alt <- c(rep(0,5),1,rep(0,4))  
sn\_low\_alt <- c(rep(0,6),1,0,0,0)  
sn\_hi\_alt <- c(rep(0,7),1,0,0)  
mn\_low\_alt <- c(rep(0,8),1,0)  
mn\_hi\_alt <- c(rep(0,9),1)  
  
# compare  
effect\_norm\_alt <- contrast(emms, method = list("Control: High alt - Low alt" = control\_hi\_alt - control\_low\_alt,  
 "DN: High alt - Low alt" = dn\_hi\_alt - dn\_low\_alt,  
 "Conv: High alt - Low alt" = conv\_hi\_alt - conv\_low\_alt,  
 "SN: High alt - Low alt" = sn\_hi\_alt - sn\_low\_alt,  
 "MN: High alt - Low alt" = mn\_hi\_alt - mn\_low\_alt), adjust = "none")  
effect\_norm\_alt %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Control: High alt - Low alt | 0.20 | 0.25 | 1038 | 0.79 | 0.428 |
| DN: High alt - Low alt | -0.21 | 0.21 | 1038 | -0.98 | 0.325 |
| Conv: High alt - Low alt | -0.08 | 0.21 | 1038 | -0.38 | 0.705 |
| SN: High alt - Low alt | 0.17 | 0.24 | 1038 | 0.70 | 0.485 |
| MN: High alt - Low alt | 0.56 | 0.21 | 1038 | 2.67 | 0.008 |

# confidence intervals  
effect\_norm\_alt %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High alt - Low alt | 0.20 | 0.25 | 1038 | -0.30 | 0.69 |
| DN: High alt - Low alt | -0.21 | 0.21 | 1038 | -0.62 | 0.21 |
| Conv: High alt - Low alt | -0.08 | 0.21 | 1038 | -0.50 | 0.34 |
| SN: High alt - Low alt | 0.17 | 0.24 | 1038 | -0.30 | 0.63 |
| MN: High alt - Low alt | 0.56 | 0.21 | 1038 | 0.15 | 0.96 |

# effect size  
eff\_size(emms, method = list("Control: High alt - Low alt" = control\_hi\_alt - control\_low\_alt,  
 "DN: High alt - Low alt" = dn\_hi\_alt - dn\_low\_alt,  
 "Conv: High alt - Low alt" = conv\_hi\_alt - conv\_low\_alt,  
 "SN: High alt - Low alt" = sn\_hi\_alt - sn\_low\_alt,  
 "MN: High alt - Low alt" = mn\_hi\_alt - mn\_low\_alt), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High alt - Low alt | 0.19 | 0.24 | 1038 | -0.28 | 0.65 |
| DN: High alt - Low alt | -0.20 | 0.20 | 1038 | -0.58 | 0.19 |
| Conv: High alt - Low alt | -0.08 | 0.20 | 1038 | -0.47 | 0.32 |
| SN: High alt - Low alt | 0.16 | 0.22 | 1038 | -0.28 | 0.59 |
| MN: High alt - Low alt | 0.52 | 0.20 | 1038 | 0.14 | 0.90 |

## Egoistic values

Storing low (-1SD) and high (+1SD) egoistic values

sd\_below <- mean(average\_df$egoistic\_center) - sd(average\_df$egoistic\_center)  
  
sd\_above <- mean(average\_df$egoistic\_center) + sd(average\_df$egoistic\_center)

### Overall effect

EMM for low and high ego

# emmeans  
atlist <- list(egoistic\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ egoistic\_center, at = atlist)  
emms %>% knitr::kable(digits = 2)

| egoistic\_center | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| -0.92 | 4.66 | 0.05 | 1038 | 4.56 | 4.76 |
| 0.92 | 4.12 | 0.05 | 1038 | 4.02 | 4.22 |

Compare EMM for low and high ego

# custom contrast  
low\_ego <- c(1,0)  
hi\_ego <- c(0,1)  
  
# compare  
effect\_ego <- contrast(emms, method = list("High ego - Low ego" = hi\_ego - low\_ego), adjust = "none")  
effect\_ego %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| High ego - Low ego | -0.54 | 0.08 | 1038 | -6.93 | 0 |

# confidence intervals  
effect\_ego %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| High ego - Low ego | -0.54 | 0.08 | 1038 | -0.7 | -0.39 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(emms, method = list("High ego - Low ego" = hi\_ego - low\_ego), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| High ego - Low ego | -0.51 | 0.07 | 1038 | -0.65 | -0.36 |

### Framing Condition

EMM for low vs high ego in each framing

atlist <- list(egoistic\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ egoistic\_center\*framing\_condition, at=atlist)  
emms %>% knitr::kable(digits = 2)

| egoistic\_center | framing\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| -0.92 | control\_framing | 4.60 | 0.09 | 1038 | 4.42 | 4.77 |
| 0.92 | control\_framing | 4.06 | 0.09 | 1038 | 3.88 | 4.23 |
| -0.92 | pro\_env\_framing | 4.72 | 0.09 | 1038 | 4.55 | 4.89 |
| 0.92 | pro\_env\_framing | 4.23 | 0.08 | 1038 | 4.07 | 4.40 |
| -0.92 | self\_enh\_framing | 4.66 | 0.09 | 1038 | 4.48 | 4.84 |
| 0.92 | self\_enh\_framing | 4.06 | 0.09 | 1038 | 3.89 | 4.23 |

Compare EMMs for low vs high ego in each framing

# custom contrasts  
control\_low\_ego <- c(1,0,0,0,0,0)  
control\_hi\_ego <- c(0,1,0,0,0,0)  
proenv\_low\_ego <- c(0,0,1,0,0,0)  
proenv\_hi\_ego <- c(0,0,0,1,0,0)  
selfenh\_low\_ego <- c(0,0,0,0,1,0)  
self\_enh\_hi\_ego <- c(0,0,0,0,0,1)  
  
# compare  
effect\_frame\_ego <- contrast(emms, method = list("Control: High ego - Low ego" = control\_hi\_ego - control\_low\_ego,  
 "Pro-env: High ego - Low ego" = proenv\_hi\_ego - proenv\_low\_ego,  
 "Self-enh: High ego - Low ego" = self\_enh\_hi\_ego - selfenh\_low\_ego), adjust = "none")  
effect\_frame\_ego %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Control: High ego - Low ego | -0.54 | 0.13 | 1038 | -4.03 | 0 |
| Pro-env: High ego - Low ego | -0.49 | 0.13 | 1038 | -3.84 | 0 |
| Self-enh: High ego - Low ego | -0.60 | 0.14 | 1038 | -4.43 | 0 |

# confidence intervals  
effect\_frame\_ego %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High ego - Low ego | -0.54 | 0.13 | 1038 | -0.81 | -0.28 |
| Pro-env: High ego - Low ego | -0.49 | 0.13 | 1038 | -0.74 | -0.24 |
| Self-enh: High ego - Low ego | -0.60 | 0.14 | 1038 | -0.87 | -0.34 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(emms, method = list("Control: High ego - Low ego" = control\_hi\_ego - control\_low\_ego,  
 "Pro-env: High ego - Low ego" = proenv\_hi\_ego - proenv\_low\_ego,  
 "Self-enh: High ego - Low ego" = self\_enh\_hi\_ego - selfenh\_low\_ego), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High ego - Low ego | -0.51 | 0.13 | 1038 | -0.76 | -0.26 |
| Pro-env: High ego - Low ego | -0.46 | 0.12 | 1038 | -0.69 | -0.22 |
| Self-enh: High ego - Low ego | -0.56 | 0.13 | 1038 | -0.82 | -0.31 |

### Norm Condition

EMM for low vs high ego in each norm

atlist <- list(egoistic\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ egoistic\_center\*norm\_condition, at=atlist)  
emms %>% knitr::kable(digits = 2)

| egoistic\_center | norm\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| -0.92 | control\_norm | 4.76 | 0.11 | 1038 | 4.55 | 4.98 |
| 0.92 | control\_norm | 4.10 | 0.11 | 1038 | 3.88 | 4.32 |
| -0.92 | descriptive\_norm | 4.64 | 0.12 | 1038 | 4.40 | 4.89 |
| 0.92 | descriptive\_norm | 4.16 | 0.12 | 1038 | 3.93 | 4.39 |
| -0.92 | convention\_norm | 4.83 | 0.10 | 1038 | 4.63 | 5.04 |
| 0.92 | convention\_norm | 4.17 | 0.11 | 1038 | 3.95 | 4.39 |
| -0.92 | social\_norm | 4.52 | 0.11 | 1038 | 4.30 | 4.74 |
| 0.92 | social\_norm | 4.04 | 0.11 | 1038 | 3.82 | 4.25 |
| -0.92 | moral\_norm | 4.54 | 0.12 | 1038 | 4.31 | 4.78 |
| 0.92 | moral\_norm | 4.11 | 0.11 | 1038 | 3.89 | 4.33 |

Compare EMMs for low vs high ego in each framing

# custom contrasts  
control\_low\_ego <- c(1,rep(0,9))  
control\_hi\_ego <- c(0,1,rep(0,8))  
dn\_low\_ego <- c(0,0,1,rep(0,7))  
dn\_hi\_ego <- c(0,0,0,1,rep(0,6))  
conv\_low\_ego <- c(0,0,0,0,1,rep(0,5))  
conv\_hi\_ego <- c(rep(0,5),1,rep(0,4))  
sn\_low\_ego <- c(rep(0,6),1,0,0,0)  
sn\_hi\_ego <- c(rep(0,7),1,0,0)  
mn\_low\_ego <- c(rep(0,8),1,0)  
mn\_hi\_ego <- c(rep(0,9),1)  
  
# compare  
effect\_norm\_ego <- contrast(emms, method = list("Control: High ego - Low ego" = control\_hi\_ego - control\_low\_ego,  
 "DN: High ego - Low ego" = dn\_hi\_ego - dn\_low\_ego,  
 "Conv: High ego - Low ego" = conv\_hi\_ego - conv\_low\_ego,  
 "SN: High ego - Low ego" = sn\_hi\_ego - sn\_low\_ego,  
 "MN: High ego - Low ego" = mn\_hi\_ego - mn\_low\_ego), adjust = "none")  
effect\_norm\_ego %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Control: High ego - Low ego | -0.67 | 0.16 | 1038 | -4.04 | 0.000 |
| DN: High ego - Low ego | -0.48 | 0.19 | 1038 | -2.49 | 0.013 |
| Conv: High ego - Low ego | -0.66 | 0.16 | 1038 | -4.23 | 0.000 |
| SN: High ego - Low ego | -0.48 | 0.17 | 1038 | -2.90 | 0.004 |
| MN: High ego - Low ego | -0.43 | 0.17 | 1038 | -2.49 | 0.013 |

# confidence intervals  
effect\_norm\_ego %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High ego - Low ego | -0.67 | 0.16 | 1038 | -0.99 | -0.34 |
| DN: High ego - Low ego | -0.48 | 0.19 | 1038 | -0.86 | -0.10 |
| Conv: High ego - Low ego | -0.66 | 0.16 | 1038 | -0.97 | -0.36 |
| SN: High ego - Low ego | -0.48 | 0.17 | 1038 | -0.80 | -0.15 |
| MN: High ego - Low ego | -0.43 | 0.17 | 1038 | -0.77 | -0.09 |

# effect size  
eff\_size(emms, method = list("Control: High ego - Low ego" = control\_hi\_ego - control\_low\_ego,  
 "DN: High ego - Low ego" = dn\_hi\_ego - dn\_low\_ego,  
 "Conv: High ego - Low ego" = conv\_hi\_ego - conv\_low\_ego,  
 "SN: High ego - Low ego" = sn\_hi\_ego - sn\_low\_ego,  
 "MN: High ego - Low ego" = mn\_hi\_ego - mn\_low\_ego), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High ego - Low ego | -0.62 | 0.15 | 1038 | -0.93 | -0.32 |
| DN: High ego - Low ego | -0.45 | 0.18 | 1038 | -0.80 | -0.09 |
| Conv: High ego - Low ego | -0.62 | 0.15 | 1038 | -0.91 | -0.33 |
| SN: High ego - Low ego | -0.45 | 0.16 | 1038 | -0.75 | -0.14 |
| MN: High ego - Low ego | -0.40 | 0.16 | 1038 | -0.72 | -0.09 |

## Hedonic values

Storing low (-1SD) and high (+1SD) hedonic values

sd\_below <- mean(average\_df$hedonic\_center) - sd(average\_df$hedonic\_center)  
  
sd\_above <- mean(average\_df$hedonic\_center) + sd(average\_df$hedonic\_center)

### Overall effect

EMM for low and high hed

# emmeans  
atlist <- list(hedonic\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ hedonic\_center, at = atlist)  
emms %>% knitr::kable(digits = 2)

| hedonic\_center | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| -0.79 | 4.46 | 0.06 | 1038 | 4.35 | 4.57 |
| 0.79 | 4.31 | 0.05 | 1038 | 4.21 | 4.42 |

Compare EMM for low and high hed

# custom contrast  
low\_hed <- c(1,0)  
hi\_hed <- c(0,1)  
  
# compare  
effect\_hed <- contrast(emms, method = list("High hed - Low hed" = hi\_hed - low\_hed), adjust = "none")  
effect\_hed %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| High hed - Low hed | -0.15 | 0.09 | 1038 | -1.7 | 0.089 |

# confidence intervals  
effect\_hed %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| High hed - Low hed | -0.15 | 0.09 | 1038 | -0.32 | 0.02 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(emms, method = list("High hed - Low hed" = hi\_hed - low\_hed), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| High hed - Low hed | -0.14 | 0.08 | 1038 | -0.3 | 0.02 |

### Framing Condition

EMM for low vs high hed in each framing

atlist <- list(hedonic\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ hedonic\_center\*framing\_condition, at=atlist)  
emms %>% knitr::kable(digits = 2)

| hedonic\_center | framing\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| -0.79 | control\_framing | 4.44 | 0.10 | 1038 | 4.25 | 4.63 |
| 0.79 | control\_framing | 4.21 | 0.09 | 1038 | 4.03 | 4.39 |
| -0.79 | pro\_env\_framing | 4.47 | 0.09 | 1038 | 4.29 | 4.65 |
| 0.79 | pro\_env\_framing | 4.49 | 0.09 | 1038 | 4.30 | 4.67 |
| -0.79 | self\_enh\_framing | 4.47 | 0.10 | 1038 | 4.28 | 4.66 |
| 0.79 | self\_enh\_framing | 4.25 | 0.10 | 1038 | 4.06 | 4.44 |

Compare EMMs for low vs high hed in each framing

# custom contrasts  
control\_low\_hed <- c(1,0,0,0,0,0)  
control\_hi\_hed <- c(0,1,0,0,0,0)  
proenv\_low\_hed <- c(0,0,1,0,0,0)  
proenv\_hi\_hed <- c(0,0,0,1,0,0)  
selfenh\_low\_hed <- c(0,0,0,0,1,0)  
self\_enh\_hi\_hed <- c(0,0,0,0,0,1)  
  
# compare  
effect\_frame\_hed <- contrast(emms, method = list("Control: High hed - Low hed" = control\_hi\_hed - control\_low\_hed,  
 "Pro-env: High hed - Low hed" = proenv\_hi\_hed - proenv\_low\_hed,  
 "Self-enh: High hed - Low hed" = self\_enh\_hi\_hed - selfenh\_low\_hed), adjust = "none")  
effect\_frame\_hed %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Control: High hed - Low hed | -0.23 | 0.14 | 1038 | -1.62 | 0.106 |
| Pro-env: High hed - Low hed | 0.02 | 0.14 | 1038 | 0.10 | 0.917 |
| Self-enh: High hed - Low hed | -0.22 | 0.16 | 1038 | -1.42 | 0.156 |

# confidence intervals  
effect\_frame\_hed %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High hed - Low hed | -0.23 | 0.14 | 1038 | -0.52 | 0.05 |
| Pro-env: High hed - Low hed | 0.02 | 0.14 | 1038 | -0.27 | 0.30 |
| Self-enh: High hed - Low hed | -0.22 | 0.16 | 1038 | -0.53 | 0.08 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(emms, method = list("Control: High hed - Low hed" = control\_hi\_hed - control\_low\_hed,  
 "Pro-env: High hed - Low hed" = proenv\_hi\_hed - proenv\_low\_hed,  
 "Self-enh: High hed - Low hed" = self\_enh\_hi\_hed - selfenh\_low\_hed), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High hed - Low hed | -0.22 | 0.14 | 1038 | -0.48 | 0.05 |
| Pro-env: High hed - Low hed | 0.01 | 0.14 | 1038 | -0.25 | 0.28 |
| Self-enh: High hed - Low hed | -0.21 | 0.15 | 1038 | -0.49 | 0.08 |

### Norm Condition

EMM for low vs high hed in each norm

atlist <- list(hedonic\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ hedonic\_center\*norm\_condition, at=atlist)  
emms %>% knitr::kable(digits = 2)

| hedonic\_center | norm\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| -0.79 | control\_norm | 4.50 | 0.13 | 1038 | 4.24 | 4.76 |
| 0.79 | control\_norm | 4.37 | 0.11 | 1038 | 4.14 | 4.59 |
| -0.79 | descriptive\_norm | 4.44 | 0.12 | 1038 | 4.20 | 4.68 |
| 0.79 | descriptive\_norm | 4.36 | 0.13 | 1038 | 4.11 | 4.62 |
| -0.79 | convention\_norm | 4.40 | 0.12 | 1038 | 4.17 | 4.64 |
| 0.79 | convention\_norm | 4.60 | 0.11 | 1038 | 4.38 | 4.82 |
| -0.79 | social\_norm | 4.42 | 0.12 | 1038 | 4.18 | 4.66 |
| 0.79 | social\_norm | 4.13 | 0.12 | 1038 | 3.89 | 4.37 |
| -0.79 | moral\_norm | 4.55 | 0.11 | 1038 | 4.32 | 4.77 |
| 0.79 | moral\_norm | 4.11 | 0.12 | 1038 | 3.88 | 4.34 |

Compare EMMs for low vs high hed in each framing

# custom contrasts  
control\_low\_hed <- c(1,rep(0,9))  
control\_hi\_hed <- c(0,1,rep(0,8))  
dn\_low\_hed <- c(0,0,1,rep(0,7))  
dn\_hi\_hed <- c(0,0,0,1,rep(0,6))  
conv\_low\_hed <- c(0,0,0,0,1,rep(0,5))  
conv\_hi\_hed <- c(rep(0,5),1,rep(0,4))  
sn\_low\_hed <- c(rep(0,6),1,0,0,0)  
sn\_hi\_hed <- c(rep(0,7),1,0,0)  
mn\_low\_hed <- c(rep(0,8),1,0)  
mn\_hi\_hed <- c(rep(0,9),1)  
  
# compare  
effect\_norm\_hed <- contrast(emms, method = list("Control: High hed - Low hed" = control\_hi\_hed - control\_low\_hed,  
 "DN: High hed - Low hed" = dn\_hi\_hed - dn\_low\_hed,  
 "Conv: High hed - Low hed" = conv\_hi\_hed - conv\_low\_hed,  
 "SN: High hed - Low hed" = sn\_hi\_hed - sn\_low\_hed,  
 "MN: High hed - Low hed" = mn\_hi\_hed - mn\_low\_hed), adjust = "none")  
effect\_norm\_hed %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Control: High hed - Low hed | -0.13 | 0.20 | 1038 | -0.66 | 0.512 |
| DN: High hed - Low hed | -0.08 | 0.21 | 1038 | -0.37 | 0.715 |
| Conv: High hed - Low hed | 0.20 | 0.18 | 1038 | 1.09 | 0.275 |
| SN: High hed - Low hed | -0.28 | 0.19 | 1038 | -1.46 | 0.145 |
| MN: High hed - Low hed | -0.44 | 0.17 | 1038 | -2.52 | 0.012 |

# confidence intervals  
effect\_norm\_hed %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High hed - Low hed | -0.13 | 0.20 | 1038 | -0.52 | 0.26 |
| DN: High hed - Low hed | -0.08 | 0.21 | 1038 | -0.48 | 0.33 |
| Conv: High hed - Low hed | 0.20 | 0.18 | 1038 | -0.16 | 0.55 |
| SN: High hed - Low hed | -0.28 | 0.19 | 1038 | -0.66 | 0.10 |
| MN: High hed - Low hed | -0.44 | 0.17 | 1038 | -0.78 | -0.10 |

# effect size  
eff\_size(emms, method = list("Control: High hed - Low hed" = control\_hi\_hed - control\_low\_hed,  
 "DN: High hed - Low hed" = dn\_hi\_hed - dn\_low\_hed,  
 "Conv: High hed - Low hed" = conv\_hi\_hed - conv\_low\_hed,  
 "SN: High hed - Low hed" = sn\_hi\_hed - sn\_low\_hed,  
 "MN: High hed - Low hed" = mn\_hi\_hed - mn\_low\_hed), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High hed - Low hed | -0.12 | 0.19 | 1038 | -0.49 | 0.25 |
| DN: High hed - Low hed | -0.07 | 0.19 | 1038 | -0.45 | 0.31 |
| Conv: High hed - Low hed | 0.18 | 0.17 | 1038 | -0.15 | 0.51 |
| SN: High hed - Low hed | -0.26 | 0.18 | 1038 | -0.62 | 0.09 |
| MN: High hed - Low hed | -0.41 | 0.16 | 1038 | -0.73 | -0.09 |

# Ingroup identification

## Storing low (-1SD) and high (+1SD) ingroup identification

sd\_below <- mean(average\_df$ingroup\_center) - sd(average\_df$ingroup\_center)  
sd\_above <- mean(average\_df$ingroup\_center) + sd(average\_df$ingroup\_center)

## Overall effect

EMM for low and high ingroup

# emmeans  
atlist <- list(ingroup\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ ingroup\_center, at = atlist)  
emms %>% knitr::kable(digits = 2)

| ingroup\_center | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| -1.01 | 4.36 | 0.05 | 1038 | 4.26 | 4.46 |
| 1.01 | 4.42 | 0.05 | 1038 | 4.32 | 4.51 |

Compare EMM for low and high ing

# custom contrast  
low\_ing <- c(1,0)  
hi\_ing <- c(0,1)  
  
# compare  
effect\_ing <- contrast(emms, method = list("High ing - Low ing" = hi\_ing - low\_ing), adjust = "none")  
effect\_ing %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| High ing - Low ing | 0.06 | 0.07 | 1038 | 0.83 | 0.409 |

# confidence intervals  
effect\_ing %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| High ing - Low ing | 0.06 | 0.07 | 1038 | -0.08 | 0.19 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(emms, method = list("High ing - Low ing" = hi\_ing - low\_ing), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| High ing - Low ing | 0.05 | 0.06 | 1038 | -0.07 | 0.18 |

### Framing Condition

EMM for low vs high ing in each framing

atlist <- list(ingroup\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ ingroup\_center\*framing\_condition, at=atlist)  
emms %>% knitr::kable(digits = 2)

| ingroup\_center | framing\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| -1.01 | control\_framing | 4.29 | 0.08 | 1038 | 4.13 | 4.45 |
| 1.01 | control\_framing | 4.36 | 0.08 | 1038 | 4.20 | 4.52 |
| -1.01 | pro\_env\_framing | 4.49 | 0.08 | 1038 | 4.33 | 4.65 |
| 1.01 | pro\_env\_framing | 4.47 | 0.08 | 1038 | 4.30 | 4.63 |
| -1.01 | self\_enh\_framing | 4.30 | 0.08 | 1038 | 4.14 | 4.46 |
| 1.01 | self\_enh\_framing | 4.42 | 0.08 | 1038 | 4.26 | 4.59 |

Compare EMMs for low vs high ing in each framing

# custom contrasts  
control\_low\_ing <- c(1,0,0,0,0,0)  
control\_hi\_ing <- c(0,1,0,0,0,0)  
proenv\_low\_ing <- c(0,0,1,0,0,0)  
proenv\_hi\_ing <- c(0,0,0,1,0,0)  
selfenh\_low\_ing <- c(0,0,0,0,1,0)  
self\_enh\_hi\_ing <- c(0,0,0,0,0,1)  
  
# compare  
effect\_frame\_ing <- contrast(emms, method = list("Control: High ing - Low ing" = control\_hi\_ing - control\_low\_ing,  
 "Pro-env: High ing - Low ing" = proenv\_hi\_ing - proenv\_low\_ing,  
 "Self-enh: High ing - Low ing" = self\_enh\_hi\_ing - selfenh\_low\_ing), adjust = "none")  
effect\_frame\_ing %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Control: High ing - Low ing | 0.07 | 0.11 | 1038 | 0.63 | 0.529 |
| Pro-env: High ing - Low ing | -0.02 | 0.12 | 1038 | -0.19 | 0.849 |
| Self-enh: High ing - Low ing | 0.12 | 0.12 | 1038 | 1.00 | 0.316 |

# confidence intervals  
effect\_frame\_ing %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High ing - Low ing | 0.07 | 0.11 | 1038 | -0.15 | 0.30 |
| Pro-env: High ing - Low ing | -0.02 | 0.12 | 1038 | -0.25 | 0.21 |
| Self-enh: High ing - Low ing | 0.12 | 0.12 | 1038 | -0.12 | 0.36 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(emms, method = list("Control: High ing - Low ing" = control\_hi\_ing - control\_low\_ing,  
 "Pro-env: High ing - Low ing" = proenv\_hi\_ing - proenv\_low\_ing,  
 "Self-enh: High ing - Low ing" = self\_enh\_hi\_ing - selfenh\_low\_ing), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High ing - Low ing | 0.07 | 0.11 | 1038 | -0.14 | 0.28 |
| Pro-env: High ing - Low ing | -0.02 | 0.11 | 1038 | -0.24 | 0.20 |
| Self-enh: High ing - Low ing | 0.11 | 0.11 | 1038 | -0.11 | 0.34 |

### Norm Condition

EMM for low vs high ing in each norm

atlist <- list(ingroup\_center = c(sd\_below, sd\_above))  
  
emms <- emmeans(mod\_mice, ~ ingroup\_center\*norm\_condition, at=atlist)  
emms %>% knitr::kable(digits = 2)

| ingroup\_center | norm\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| -1.01 | control\_norm | 4.39 | 0.10 | 1038 | 4.20 | 4.58 |
| 1.01 | control\_norm | 4.48 | 0.11 | 1038 | 4.26 | 4.69 |
| -1.01 | descriptive\_norm | 4.34 | 0.11 | 1038 | 4.12 | 4.57 |
| 1.01 | descriptive\_norm | 4.46 | 0.10 | 1038 | 4.26 | 4.66 |
| -1.01 | convention\_norm | 4.49 | 0.11 | 1038 | 4.28 | 4.69 |
| 1.01 | convention\_norm | 4.52 | 0.11 | 1038 | 4.30 | 4.73 |
| -1.01 | social\_norm | 4.22 | 0.11 | 1038 | 4.01 | 4.43 |
| 1.01 | social\_norm | 4.33 | 0.11 | 1038 | 4.12 | 4.54 |
| -1.01 | moral\_norm | 4.36 | 0.11 | 1038 | 4.14 | 4.57 |
| 1.01 | moral\_norm | 4.30 | 0.10 | 1038 | 4.09 | 4.50 |

Compare EMMs for low vs high ing in each framing

# custom contrasts  
control\_low\_ing <- c(1,rep(0,9))  
control\_hi\_ing <- c(0,1,rep(0,8))  
dn\_low\_ing <- c(0,0,1,rep(0,7))  
dn\_hi\_ing <- c(0,0,0,1,rep(0,6))  
conv\_low\_ing <- c(0,0,0,0,1,rep(0,5))  
conv\_hi\_ing <- c(rep(0,5),1,rep(0,4))  
sn\_low\_ing <- c(rep(0,6),1,0,0,0)  
sn\_hi\_ing <- c(rep(0,7),1,0,0)  
mn\_low\_ing <- c(rep(0,8),1,0)  
mn\_hi\_ing <- c(rep(0,9),1)  
  
# compare  
effect\_norm\_ing <- contrast(emms, method = list("Control: High ing - Low ing" = control\_hi\_ing - control\_low\_ing,  
 "DN: High ing - Low ing" = dn\_hi\_ing - dn\_low\_ing,  
 "Conv: High ing - Low ing" = conv\_hi\_ing - conv\_low\_ing,  
 "SN: High ing - Low ing" = sn\_hi\_ing - sn\_low\_ing,  
 "MN: High ing - Low ing" = mn\_hi\_ing - mn\_low\_ing), adjust = "none")  
effect\_norm\_ing %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Control: High ing - Low ing | 0.09 | 0.15 | 1038 | 0.60 | 0.552 |
| DN: High ing - Low ing | 0.12 | 0.16 | 1038 | 0.74 | 0.458 |
| Conv: High ing - Low ing | 0.03 | 0.16 | 1038 | 0.20 | 0.844 |
| SN: High ing - Low ing | 0.11 | 0.15 | 1038 | 0.72 | 0.474 |
| MN: High ing - Low ing | -0.06 | 0.15 | 1038 | -0.40 | 0.691 |

# confidence intervals  
effect\_norm\_ing %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High ing - Low ing | 0.09 | 0.15 | 1038 | -0.20 | 0.37 |
| DN: High ing - Low ing | 0.12 | 0.16 | 1038 | -0.19 | 0.43 |
| Conv: High ing - Low ing | 0.03 | 0.16 | 1038 | -0.28 | 0.34 |
| SN: High ing - Low ing | 0.11 | 0.15 | 1038 | -0.19 | 0.41 |
| MN: High ing - Low ing | -0.06 | 0.15 | 1038 | -0.35 | 0.23 |

# effect size  
eff\_size(emms, method = list("Control: High ing - Low ing" = control\_hi\_ing - control\_low\_ing,  
 "DN: High ing - Low ing" = dn\_hi\_ing - dn\_low\_ing,  
 "Conv: High ing - Low ing" = conv\_hi\_ing - conv\_low\_ing,  
 "SN: High ing - Low ing" = sn\_hi\_ing - sn\_low\_ing,  
 "MN: High ing - Low ing" = mn\_hi\_ing - mn\_low\_ing), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Control: High ing - Low ing | 0.08 | 0.14 | 1038 | -0.19 | 0.35 |
| DN: High ing - Low ing | 0.11 | 0.15 | 1038 | -0.18 | 0.40 |
| Conv: High ing - Low ing | 0.03 | 0.15 | 1038 | -0.26 | 0.32 |
| SN: High ing - Low ing | 0.10 | 0.14 | 1038 | -0.18 | 0.38 |
| MN: High ing - Low ing | -0.06 | 0.14 | 1038 | -0.33 | 0.22 |

## Ingroup by Norm interaction

### Storing low (-1SD) and high (+1SD) ingroup identification

sd\_below <- mean(average\_df$ingroup\_center) - sd(average\_df$ingroup\_center)  
sd\_above <- mean(average\_df$ingroup\_center) + sd(average\_df$ingroup\_center)

### Calculate EM Means

atlist <- list(ingroup\_center = c(sd\_below, sd\_above))  
  
combinations <- emmeans(mod\_mice, ~ norm\_condition\*ingroup\_center, at=atlist)  
  
combinations %>% knitr::kable(digits = 2)

| norm\_condition | ingroup\_center | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm | -1.01 | 4.39 | 0.10 | 1038 | 4.20 | 4.58 |
| descriptive\_norm | -1.01 | 4.34 | 0.11 | 1038 | 4.12 | 4.57 |
| convention\_norm | -1.01 | 4.49 | 0.11 | 1038 | 4.28 | 4.69 |
| social\_norm | -1.01 | 4.22 | 0.11 | 1038 | 4.01 | 4.43 |
| moral\_norm | -1.01 | 4.36 | 0.11 | 1038 | 4.14 | 4.57 |
| control\_norm | 1.01 | 4.48 | 0.11 | 1038 | 4.26 | 4.69 |
| descriptive\_norm | 1.01 | 4.46 | 0.10 | 1038 | 4.26 | 4.66 |
| convention\_norm | 1.01 | 4.52 | 0.11 | 1038 | 4.30 | 4.73 |
| social\_norm | 1.01 | 4.33 | 0.11 | 1038 | 4.12 | 4.54 |
| moral\_norm | 1.01 | 4.30 | 0.10 | 1038 | 4.09 | 4.50 |

### Custom contrasts

control\_low\_ing <- c(1, rep(0,9))  
dn\_low\_ing <- c(0,1,rep(0,8))  
conv\_low\_ing <- c(0,0,1,rep(0,7))  
sn\_low\_ing <- c(0,0,0,1,rep(0,6))  
mn\_low\_ing <- c(rep(0,4),1,(rep(0,5)))  
  
control\_hi\_ing <- c(rep(0,5),1,rep(0,4))  
dn\_hi\_ing <- c(rep(0,6),1,0,0,0)  
conv\_hi\_ing <- c(rep(0,7),1,0,0)  
sn\_hi\_ing <- c(rep(0,8),1,0)  
mn\_hi\_ing <- c(rep(0,9),1)

Effect of norm for people low vs high on ingroup identification across framing conditions

#### Control framing

two\_way\_ing <- contrast(combinations,   
 method = list("Low Ing: DN - C" = dn\_low\_ing - control\_low\_ing,  
 "Low Ing: Conv - C" = conv\_low\_ing - control\_low\_ing,  
 "Low Ing: SN - C" = sn\_low\_ing - control\_low\_ing,  
 "Low Ing: MN - C" = mn\_low\_ing - control\_low\_ing,  
 "Hi Ing: DN - C" = dn\_hi\_ing - control\_hi\_ing,  
 "Hi Ing: Conv - C" = conv\_hi\_ing - control\_hi\_ing,  
 "Hi Ing: SN - C" = sn\_hi\_ing - control\_hi\_ing,  
 "Hi Ing: MN - C" = mn\_hi\_ing - control\_hi\_ing),   
 adjust = "none")  
  
two\_way\_ing %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Low Ing: DN - C | -0.04 | 0.15 | 1038 | -0.30 | 0.767 |
| Low Ing: Conv - C | 0.10 | 0.14 | 1038 | 0.68 | 0.495 |
| Low Ing: SN - C | -0.17 | 0.14 | 1038 | -1.15 | 0.249 |
| Low Ing: MN - C | -0.03 | 0.15 | 1038 | -0.21 | 0.831 |
| Hi Ing: DN - C | -0.01 | 0.15 | 1038 | -0.10 | 0.919 |
| Hi Ing: Conv - C | 0.04 | 0.15 | 1038 | 0.27 | 0.785 |
| Hi Ing: SN - C | -0.15 | 0.15 | 1038 | -0.96 | 0.337 |
| Hi Ing: MN - C | -0.18 | 0.15 | 1038 | -1.19 | 0.235 |

# confidence intervals  
two\_way\_ing %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Low Ing: DN - C | -0.04 | 0.15 | 1038 | -0.34 | 0.25 |
| Low Ing: Conv - C | 0.10 | 0.14 | 1038 | -0.18 | 0.38 |
| Low Ing: SN - C | -0.17 | 0.14 | 1038 | -0.45 | 0.12 |
| Low Ing: MN - C | -0.03 | 0.15 | 1038 | -0.32 | 0.26 |
| Hi Ing: DN - C | -0.01 | 0.15 | 1038 | -0.30 | 0.27 |
| Hi Ing: Conv - C | 0.04 | 0.15 | 1038 | -0.26 | 0.34 |
| Hi Ing: SN - C | -0.15 | 0.15 | 1038 | -0.44 | 0.15 |
| Hi Ing: MN - C | -0.18 | 0.15 | 1038 | -0.47 | 0.12 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(combinations,   
 method = list("Low Ing: DN - C" = dn\_low\_ing - control\_low\_ing,  
 "Low Ing: Conv - C" = conv\_low\_ing - control\_low\_ing,  
 "Low Ing: SN - C" = sn\_low\_ing - control\_low\_ing,  
 "Low Ing: MN - C" = mn\_low\_ing - control\_low\_ing,  
 "Hi Ing: DN - C" = dn\_hi\_ing - control\_hi\_ing,  
 "Hi Ing: Conv - C" = conv\_hi\_ing - control\_hi\_ing,  
 "Hi Ing: SN - C" = sn\_hi\_ing - control\_hi\_ing,  
 "Hi Ing: MN - C" = mn\_hi\_ing - control\_hi\_ing), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Low Ing: DN - C | -0.04 | 0.14 | 1038 | -0.32 | 0.23 |
| Low Ing: Conv - C | 0.09 | 0.13 | 1038 | -0.17 | 0.36 |
| Low Ing: SN - C | -0.16 | 0.14 | 1038 | -0.42 | 0.11 |
| Low Ing: MN - C | -0.03 | 0.14 | 1038 | -0.30 | 0.24 |
| Hi Ing: DN - C | -0.01 | 0.14 | 1038 | -0.28 | 0.26 |
| Hi Ing: Conv - C | 0.04 | 0.14 | 1038 | -0.24 | 0.32 |
| Hi Ing: SN - C | -0.14 | 0.14 | 1038 | -0.41 | 0.14 |
| Hi Ing: MN - C | -0.17 | 0.14 | 1038 | -0.44 | 0.11 |

## Ingroup by framing interaction

### Calculate EM Means

atlist <- list(ingroup\_center = c(sd\_below, sd\_above))  
  
combinations <- emmeans(mod\_mice, ~ framing\_condition\*ingroup\_center, at=atlist)  
  
combinations %>% knitr::kable(digits = 2)

| framing\_condition | ingroup\_center | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_framing | -1.01 | 4.29 | 0.08 | 1038 | 4.13 | 4.45 |
| pro\_env\_framing | -1.01 | 4.49 | 0.08 | 1038 | 4.33 | 4.65 |
| self\_enh\_framing | -1.01 | 4.30 | 0.08 | 1038 | 4.14 | 4.46 |
| control\_framing | 1.01 | 4.36 | 0.08 | 1038 | 4.20 | 4.52 |
| pro\_env\_framing | 1.01 | 4.47 | 0.08 | 1038 | 4.30 | 4.63 |
| self\_enh\_framing | 1.01 | 4.42 | 0.08 | 1038 | 4.26 | 4.59 |

### Custom contrasts

control\_low\_ing <- c(1, rep(0,5))  
pe\_low\_ing <- c(0,1,rep(0,4))  
se\_low\_ing <- c(0,0,1,rep(0,3))  
  
control\_hi\_ing <- c(0,0,0,1,0,0)  
pe\_hi\_ing <- c(0,0,0,0,1,0)  
se\_hi\_ing <- c(rep(0,5),1)

Effect of norm for people low vs high on ingroup identification across framing conditions

#### Control framing

two\_way\_ing <- contrast(combinations,   
 method = list("Low Ing: PE - C" = pe\_low\_ing - control\_low\_ing,  
 "Low Ing: SE - C" = se\_low\_ing - control\_low\_ing,  
 "Low Ing: PE - SE" = pe\_low\_ing - se\_low\_ing,  
 "Hi Ing: PE - C" = pe\_hi\_ing - control\_hi\_ing,  
 "Hi Ing: SE - C" = se\_hi\_ing - control\_hi\_ing,  
 "Hi Ing: PE - SE" = pe\_hi\_ing - se\_hi\_ing),   
 adjust = "none")  
  
two\_way\_ing %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Low Ing: PE - C | 0.20 | 0.12 | 1038 | 1.71 | 0.087 |
| Low Ing: SE - C | 0.01 | 0.12 | 1038 | 0.08 | 0.936 |
| Low Ing: PE - SE | 0.19 | 0.12 | 1038 | 1.64 | 0.102 |
| Hi Ing: PE - C | 0.10 | 0.11 | 1038 | 0.91 | 0.363 |
| Hi Ing: SE - C | 0.06 | 0.12 | 1038 | 0.51 | 0.614 |
| Hi Ing: PE - SE | 0.05 | 0.12 | 1038 | 0.39 | 0.696 |

# confidence intervals  
two\_way\_ing %>% confint() %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Low Ing: PE - C | 0.20 | 0.12 | 1038 | -0.03 | 0.43 |
| Low Ing: SE - C | 0.01 | 0.12 | 1038 | -0.22 | 0.24 |
| Low Ing: PE - SE | 0.19 | 0.12 | 1038 | -0.04 | 0.42 |
| Hi Ing: PE - C | 0.10 | 0.11 | 1038 | -0.12 | 0.33 |
| Hi Ing: SE - C | 0.06 | 0.12 | 1038 | -0.17 | 0.29 |
| Hi Ing: PE - SE | 0.05 | 0.12 | 1038 | -0.18 | 0.28 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(combinations,   
 method = list("Low Ing: PE - C" = pe\_low\_ing - control\_low\_ing,  
 "Low Ing: SE - C" = se\_low\_ing - control\_low\_ing,  
 "Low Ing: PE - SE" = pe\_low\_ing - se\_low\_ing,  
 "Hi Ing: PE - C" = pe\_hi\_ing - control\_hi\_ing,  
 "Hi Ing: SE - C" = se\_hi\_ing - control\_hi\_ing,  
 "Hi Ing: PE - SE" = pe\_hi\_ing - se\_hi\_ing), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Low Ing: PE - C | 0.19 | 0.11 | 1038 | -0.03 | 0.40 |
| Low Ing: SE - C | 0.01 | 0.11 | 1038 | -0.21 | 0.22 |
| Low Ing: PE - SE | 0.18 | 0.11 | 1038 | -0.04 | 0.39 |
| Hi Ing: PE - C | 0.10 | 0.11 | 1038 | -0.11 | 0.31 |
| Hi Ing: SE - C | 0.05 | 0.11 | 1038 | -0.16 | 0.27 |
| Hi Ing: PE - SE | 0.04 | 0.11 | 1038 | -0.17 | 0.26 |

# Correlations between values dimensions

data\_R\_alt %>%  
 dplyr::select(biospheric, altruistic, egoistic, hedonic) %>%  
 cor(use = "pairwise.complete.obs")

## biospheric altruistic egoistic hedonic  
## biospheric 1.0000000 0.6611935 0.1535496 0.3501140  
## altruistic 0.6611935 1.0000000 0.2303691 0.4646635  
## egoistic 0.1535496 0.2303691 1.0000000 0.4417566  
## hedonic 0.3501140 0.4646635 0.4417566 1.0000000