Values Three-Way Interactions

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Table of Contents

[Data Import & Cleaning 3](#_Toc140952545)

[Import data 3](#_Toc140952546)

[Combine dataframes 5](#_Toc140952547)

[Remove duplicate cases 7](#_Toc140952548)

[Remove rows of all NAs 8](#_Toc140952549)

[Number per source 9](#_Toc140952550)

[Inspect final data 9](#_Toc140952551)

[Aggregate Variables 9](#_Toc140952552)

[Personality 9](#_Toc140952553)

[Reverse-code 9](#_Toc140952554)

[Average items 10](#_Toc140952555)

[Visually inspect 11](#_Toc140952556)

[Clothing Interest 11](#_Toc140952557)

[Reverse-code 11](#_Toc140952558)

[Average items 12](#_Toc140952559)

[Visually Inspect 12](#_Toc140952560)

[In-group Identification 12](#_Toc140952561)

[Reverse-code 12](#_Toc140952562)

[Average items 12](#_Toc140952563)

[Visually Inspect 13](#_Toc140952564)

[Values 13](#_Toc140952565)

[Reverse-code 13](#_Toc140952566)

[Recoding scale options 13](#_Toc140952567)

[Average items 15](#_Toc140952568)

[Visually inspect 15](#_Toc140952569)

[Frequency tables 16](#_Toc140952570)

[Socially Desirable Responding 22](#_Toc140952571)

[Reverse-code 22](#_Toc140952572)

[Average items 22](#_Toc140952573)

[Visually inspect 22](#_Toc140952574)

[Consumer Intentions 23](#_Toc140952575)

[Reverse-code 23](#_Toc140952576)

[Average items 23](#_Toc140952577)

[Visually inspect 23](#_Toc140952578)

[Contrast Coding 24](#_Toc140952579)

[Multiple Imputation 26](#_Toc140952580)

[Examine Missingness 26](#_Toc140952581)

[Adding interaction terms 28](#_Toc140952582)

[Imputation model 28](#_Toc140952583)

[Centering continuous predictors 35](#_Toc140952584)

[Regression Analysis (DV = Consumer Intentions) 35](#_Toc140952585)

[Running Model 35](#_Toc140952586)

[Simple effects 36](#_Toc140952587)

[Estimated Marginal Means 37](#_Toc140952588)

[Simples Slopes for Values & Ingroup Id across Norm and Framing Conditions 38](#_Toc140952589)

[Biospheric values 43](#_Toc140952590)

[Storing low (-1SD) and high (+1SD) biospheric values 43](#_Toc140952591)

[Calculate EM Means at low and high bio 43](#_Toc140952592)

[Custom contrasts 45](#_Toc140952593)

[Altruistic values 55](#_Toc140952594)

[Storing low (-1SD) and high (+1SD) altspheric values 56](#_Toc140952595)

[Calculate EM Means at low and high alt 56](#_Toc140952596)

[Custom contrasts 57](#_Toc140952597)

[Egoistic values 68](#_Toc140952598)

[Storing low (-1SD) and high (+1SD) egoistic values 68](#_Toc140952599)

[Calculate EM Means at low and high ego 68](#_Toc140952600)

[Custom contrasts 70](#_Toc140952601)

[Hedonic values 80](#_Toc140952602)

[Storing low (-1SD) and high (+1SD) hedonic values 80](#_Toc140952603)

[Calculate EM Means at low and high hed 80](#_Toc140952604)

[Custom contrasts 82](#_Toc140952605)

[Ingroup Identification 93](#_Toc140952606)

[Storing low (-1SD) and high (+1SD) ingroup identification 93](#_Toc140952607)

[Calculate EM Means at low and high bio 93](#_Toc140952608)

[Custom contrasts 95](#_Toc140952609)

[Storing low (-1SD) and high (+1SD) ingroup identification 105](#_Toc140952610)

[Calculate EM Means at low and high bio 105](#_Toc140952611)

[Custom contrasts 106](#_Toc140952612)

[Exploratory Analyses 109](#_Toc140952613)

[Comparing Continuous Slopes across Conditions 109](#_Toc140952614)

[Biospheric Values 109](#_Toc140952615)

[Bio x Norm 109](#_Toc140952616)

[Bio x Framing 112](#_Toc140952617)

[Bio x Norm x Framing 114](#_Toc140952618)

[Altruistic Values 119](#_Toc140952619)

[Altruistic x Norm 119](#_Toc140952620)

[Altruistic x Framing 122](#_Toc140952621)

[Altruistic x Norm x Framing 124](#_Toc140952622)

[Egoistic Values 129](#_Toc140952623)

[Ego x Norm 129](#_Toc140952624)

[Ego x Framing 132](#_Toc140952625)

[Egoistic x Norm x Framing 134](#_Toc140952626)

[Hedonic Values 139](#_Toc140952627)

[Hedonic x Norm 139](#_Toc140952628)

[Hedonic x Framing 142](#_Toc140952629)

[Hedonic x Norm x Framing 144](#_Toc140952630)

[Ingroup Identification Interactions 149](#_Toc140952631)

[Ingroup x Norm 149](#_Toc140952632)

[Ingroup x Framing 152](#_Toc140952633)

[Ingroup x Norm x Framing 154](#_Toc140952634)

# 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

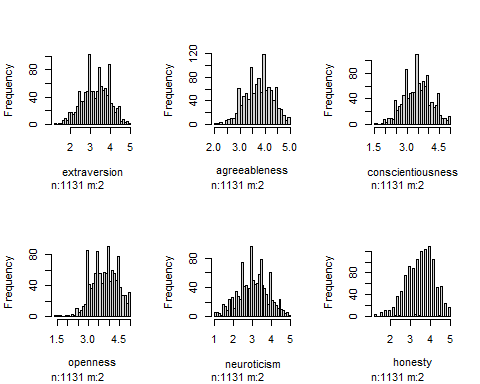
data\_R <- data %>%  
 mutate(across(c(big\_2\_11,  
 big\_2\_16,  
 big\_2\_26,  
 big\_2\_31,  
 big\_2\_36,  
 big\_2\_51,  
 big\_2\_12,  
 big\_2\_17,  
 big\_2\_22,  
 big\_2\_37,  
 big\_2\_42,  
 big\_2\_47,  
 big\_2\_3,  
 big\_2\_8,  
 big\_2\_23,  
 big\_2\_28,  
 big\_2\_48,  
 big\_2\_58,  
 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

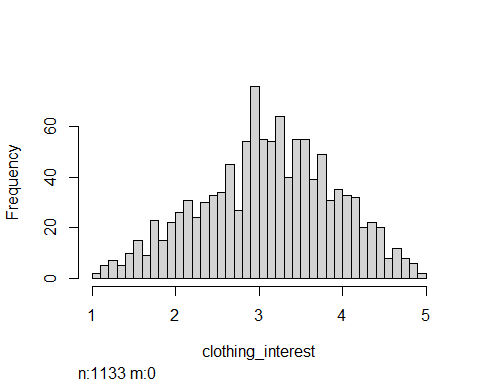
data\_R <- data\_R %>%  
 mutate(across(c(clothing\_interest\_3,  
 clothing\_interest\_5,  
 clothing\_interest\_7,  
 clothing\_interest\_9,  
 clothing\_interest\_12,  
 clothing\_interest\_14,  
 clothing\_interest\_15,  
 clothing\_interest\_16,  
 clothing\_interest\_18,  
 clothing\_interest\_20), ~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

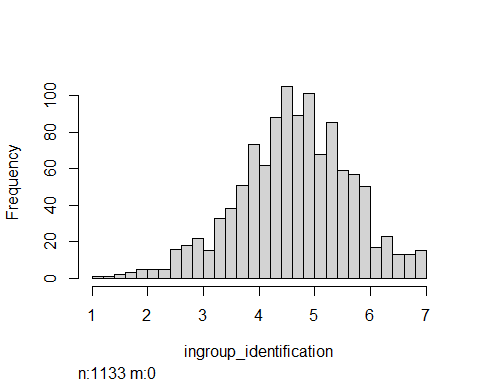
No items need to be reverse-coded.

### 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)

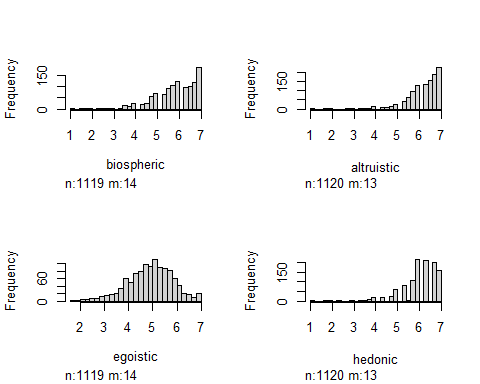
##   
## 1 2 3 4 5 6 7   
## 4 11 29 116 250 394 312

### 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)

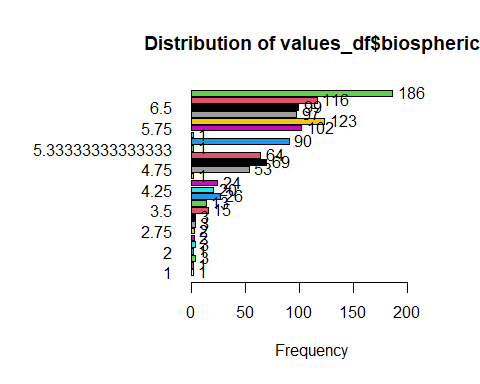
### Visually inspect

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



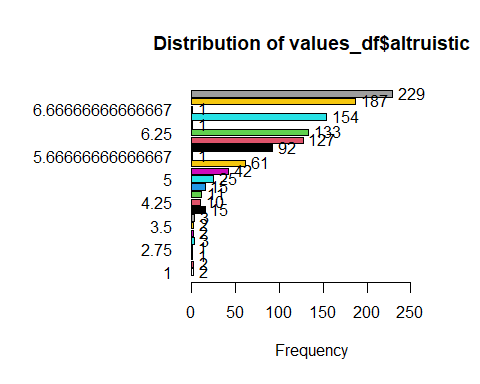
### Frequency tables

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



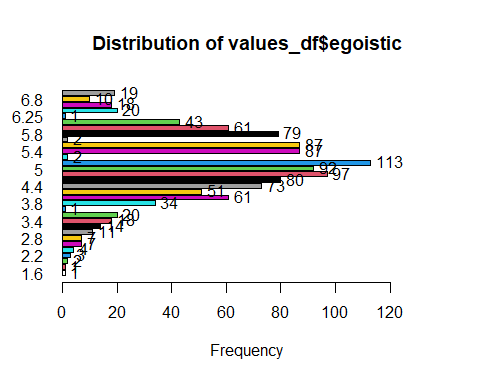
## values\_df$biospheric :   
## Frequency %(NA+) cum.%(NA+) %(NA-) cum.%(NA-)  
## 1 1 0.1 0.1 0.1 0.1  
## 1.5 1 0.1 0.2 0.1 0.2  
## 1.75 3 0.3 0.4 0.3 0.4  
## 2 1 0.1 0.5 0.1 0.5  
## 2.25 3 0.3 0.8 0.3 0.8  
## 2.5 2 0.2 1.0 0.2 1.0  
## 2.75 2 0.2 1.1 0.2 1.2  
## 3 3 0.3 1.4 0.3 1.4  
## 3.25 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)



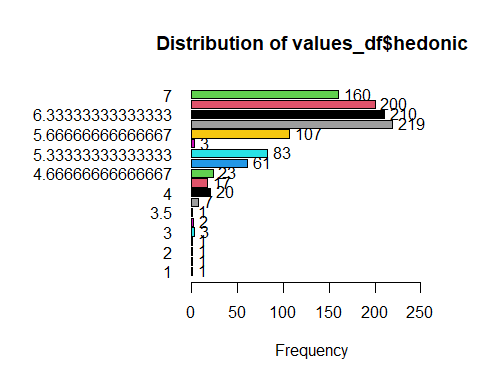
## values\_df$altruistic :   
## Frequency %(NA+) cum.%(NA+) %(NA-) cum.%(NA-)  
## 1 2 0.2 0.2 0.2 0.2  
## 1.75 2 0.2 0.4 0.2 0.4  
## 2 1 0.1 0.4 0.1 0.4  
## 2.75 1 0.1 0.5 0.1 0.5  
## 3 3 0.3 0.8 0.3 0.8  
## 3.25 2 0.2 1.0 0.2 1.0  
## 3.5 2 0.2 1.1 0.2 1.2  
## 3.75 3 0.3 1.4 0.3 1.4  
## 4 15 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

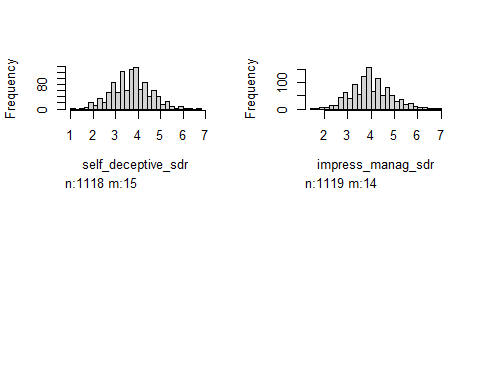
data\_R <- data\_R %>%  
 mutate(across(c(socially\_desirable\_1,  
 socially\_desirable\_3,  
 socially\_desirable\_5,  
 socially\_desirable\_8,  
 socially\_desirable\_9,  
 socially\_desirable\_11,  
 socially\_desirable\_12,  
 socially\_desirable\_13), ~8 - .)) # replace '#' with the max possible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

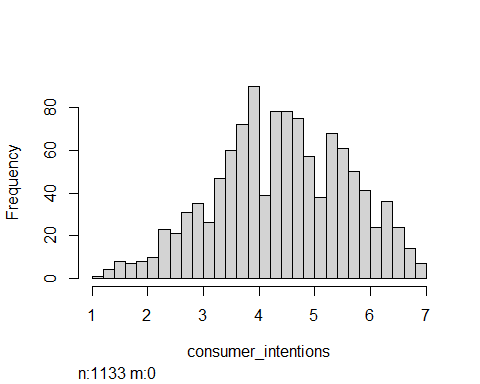
data\_R <- data\_R %>%  
 mutate(across(c(consumer\_intentions\_2,  
 consumer\_intentions\_4,  
 consumer\_intentions\_7,  
 consumer\_intentions\_9), ~8 - .)) # replace '#' with the max possible value plus 1 for any particular scale

### 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

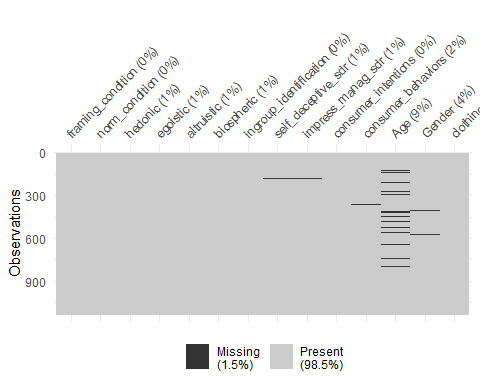
# Gender  
levels(data\_R\_alt$Gender) <- c("Woman", "Man", "Non-binary", "I prefer not to identify", "Other")  
  
data\_R\_alt$Gender[data\_R\_alt$Gender == "Non-binary"] <- NA  
data\_R\_alt$Gender[data\_R\_alt$Gender == "I prefer not to identify"] <- NA  
data\_R\_alt$Gender[data\_R\_alt$Gender ==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

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)

Labels to use with facet\_wrap

norm\_labs <- c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")  
names(norm\_labs) <- c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm")  
  
frame\_labs <- c("Control Framing", "Pro-environmental Framing", "Self-enhancing Framing")  
names(frame\_labs) <- c("control\_framing","pro\_env\_framing","self\_enh\_framing")

Text Settings

text\_settings <- theme(text = element\_text(size = 20)) +  
 theme(plot.title = element\_text(size = 20, face = 'bold')) +  
 theme(axis.title.x = element\_text(face = 'bold')) +  
 theme(axis.title.y = element\_text(face = 'bold')) +  
 theme(axis.text.x = element\_text(size = 20)) +  
 theme(axis.text.y = element\_text(size = 20)) +  
 theme(axis.ticks = element\_blank())

## Estimated Marginal Means

cell\_emmeans <- emmeans(mod\_mice, ~ norm\_condition\*framing\_condition)  
cell\_emmeans %>%  
 knitr::kable(digits = c(NA,NA,2,2,2,2,3))

| norm\_condition | framing\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm | control\_framing | 4.45 | 0.12 | 1038 | 4.21 | 4.692 |
| descriptive\_norm | control\_framing | 4.29 | 0.13 | 1038 | 4.03 | 4.553 |
| convention\_norm | control\_framing | 4.50 | 0.14 | 1038 | 4.23 | 4.769 |
| social\_norm | control\_framing | 4.16 | 0.12 | 1038 | 3.93 | 4.388 |
| moral\_norm | control\_framing | 4.23 | 0.14 | 1038 | 3.95 | 4.512 |
| control\_norm | pro\_env\_framing | 4.61 | 0.13 | 1038 | 4.36 | 4.863 |
| descriptive\_norm | pro\_env\_framing | 4.44 | 0.13 | 1038 | 4.19 | 4.693 |
| convention\_norm | pro\_env\_framing | 4.54 | 0.12 | 1038 | 4.30 | 4.770 |
| social\_norm | pro\_env\_framing | 4.42 | 0.13 | 1038 | 4.16 | 4.687 |
| moral\_norm | pro\_env\_framing | 4.38 | 0.12 | 1038 | 4.14 | 4.614 |
| control\_norm | self\_enh\_framing | 4.24 | 0.13 | 1038 | 3.99 | 4.485 |
| descriptive\_norm | self\_enh\_framing | 4.47 | 0.12 | 1038 | 4.24 | 4.713 |
| convention\_norm | self\_enh\_framing | 4.47 | 0.13 | 1038 | 4.21 | 4.724 |
| social\_norm | self\_enh\_framing | 4.24 | 0.14 | 1038 | 3.98 | 4.513 |
| moral\_norm | self\_enh\_framing | 4.38 | 0.13 | 1038 | 4.12 | 4.629 |

frame\_emmeans <- emmeans(mod\_mice, ~ framing\_condition)  
frame\_emmeans %>%  
 knitr::kable(digits = 2)

| framing\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_framing | 4.33 | 0.06 | 1038 | 4.21 | 4.44 |
| pro\_env\_framing | 4.48 | 0.06 | 1038 | 4.37 | 4.59 |
| self\_enh\_framing | 4.36 | 0.06 | 1038 | 4.25 | 4.47 |

norm\_emmeans <- emmeans(mod\_mice, ~ norm\_condition)  
norm\_emmeans %>%  
 knitr::kable(digits = 2)

| norm\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_norm | 4.43 | 0.07 | 1038 | 4.29 | 4.58 |
| descriptive\_norm | 4.40 | 0.07 | 1038 | 4.26 | 4.55 |
| convention\_norm | 4.50 | 0.07 | 1038 | 4.36 | 4.65 |
| social\_norm | 4.28 | 0.08 | 1038 | 4.13 | 4.42 |
| moral\_norm | 4.33 | 0.08 | 1038 | 4.18 | 4.48 |

## Simples Slopes for Values & Ingroup Id across Norm and Framing Conditions

# Biospheric slopes  
bio\_slopes <- emtrends(mod\_mice, ~norm\_condition\*framing\_condition, var = "biospheric\_center")  
  
bio\_slopes %>%  
 knitr::kable(digits = 2)

| norm\_condition | framing\_condition | biospheric\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm | control\_framing | 0.57 | 0.16 | 1038 | 0.26 | 0.88 |
| descriptive\_norm | control\_framing | 0.47 | 0.19 | 1038 | 0.08 | 0.85 |
| convention\_norm | control\_framing | 0.83 | 0.19 | 1038 | 0.46 | 1.20 |
| social\_norm | control\_framing | 0.04 | 0.16 | 1038 | -0.28 | 0.36 |
| moral\_norm | control\_framing | -0.08 | 0.24 | 1038 | -0.55 | 0.39 |
| control\_norm | pro\_env\_framing | 0.27 | 0.16 | 1038 | -0.04 | 0.58 |
| descriptive\_norm | pro\_env\_framing | 0.18 | 0.16 | 1038 | -0.14 | 0.49 |
| convention\_norm | pro\_env\_framing | 0.68 | 0.16 | 1038 | 0.36 | 1.00 |
| social\_norm | pro\_env\_framing | 0.35 | 0.14 | 1038 | 0.07 | 0.64 |
| moral\_norm | pro\_env\_framing | 0.54 | 0.15 | 1038 | 0.25 | 0.83 |
| control\_norm | self\_enh\_framing | 0.50 | 0.19 | 1038 | 0.13 | 0.87 |
| descriptive\_norm | self\_enh\_framing | 0.28 | 0.18 | 1038 | -0.08 | 0.63 |
| convention\_norm | self\_enh\_framing | 0.32 | 0.18 | 1038 | -0.04 | 0.68 |
| social\_norm | self\_enh\_framing | 0.38 | 0.21 | 1038 | -0.03 | 0.78 |
| moral\_norm | self\_enh\_framing | 0.11 | 0.20 | 1038 | -0.29 | 0.51 |

# Altruistic values  
alt\_slopes <- emtrends(mod\_mice, ~norm\_condition\*framing\_condition, var = "altruistic\_center")  
  
alt\_slopes %>%  
 knitr::kable(digits = 2)

| norm\_condition | framing\_condition | altruistic\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm | control\_framing | 0.18 | 0.20 | 1038 | -0.21 | 0.56 |
| descriptive\_norm | control\_framing | -0.13 | 0.24 | 1038 | -0.61 | 0.35 |
| convention\_norm | control\_framing | -0.40 | 0.23 | 1038 | -0.85 | 0.06 |
| social\_norm | control\_framing | 0.41 | 0.24 | 1038 | -0.05 | 0.87 |
| moral\_norm | control\_framing | 0.50 | 0.27 | 1038 | -0.02 | 1.03 |
| control\_norm | pro\_env\_framing | -0.01 | 0.25 | 1038 | -0.49 | 0.47 |
| descriptive\_norm | pro\_env\_framing | 0.02 | 0.23 | 1038 | -0.42 | 0.47 |
| convention\_norm | pro\_env\_framing | -0.04 | 0.21 | 1038 | -0.45 | 0.38 |
| social\_norm | pro\_env\_framing | -0.06 | 0.23 | 1038 | -0.51 | 0.39 |
| moral\_norm | pro\_env\_framing | 0.03 | 0.19 | 1038 | -0.33 | 0.40 |
| control\_norm | self\_enh\_framing | 0.20 | 0.34 | 1038 | -0.47 | 0.88 |
| descriptive\_norm | self\_enh\_framing | -0.28 | 0.21 | 1038 | -0.71 | 0.14 |
| convention\_norm | self\_enh\_framing | 0.28 | 0.24 | 1038 | -0.20 | 0.76 |
| social\_norm | self\_enh\_framing | -0.04 | 0.30 | 1038 | -0.62 | 0.54 |
| moral\_norm | self\_enh\_framing | 0.50 | 0.21 | 1038 | 0.09 | 0.91 |

# Egoistic values  
ego\_slopes <- emtrends(mod\_mice, ~norm\_condition\*framing\_condition, var = "egoistic\_center")  
  
ego\_slopes %>%  
 knitr::kable(digits = 2)

| norm\_condition | framing\_condition | egoistic\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm | control\_framing | -0.24 | 0.15 | 1038 | -0.53 | 0.05 |
| descriptive\_norm | control\_framing | -0.28 | 0.18 | 1038 | -0.62 | 0.07 |
| convention\_norm | control\_framing | -0.44 | 0.15 | 1038 | -0.73 | -0.16 |
| social\_norm | control\_framing | -0.45 | 0.14 | 1038 | -0.73 | -0.17 |
| moral\_norm | control\_framing | -0.06 | 0.19 | 1038 | -0.44 | 0.31 |
| control\_norm | pro\_env\_framing | -0.52 | 0.14 | 1038 | -0.79 | -0.24 |
| descriptive\_norm | pro\_env\_framing | -0.24 | 0.16 | 1038 | -0.56 | 0.07 |
| convention\_norm | pro\_env\_framing | -0.11 | 0.16 | 1038 | -0.42 | 0.21 |
| social\_norm | pro\_env\_framing | -0.15 | 0.16 | 1038 | -0.46 | 0.16 |
| moral\_norm | pro\_env\_framing | -0.31 | 0.15 | 1038 | -0.60 | -0.02 |
| control\_norm | self\_enh\_framing | -0.33 | 0.17 | 1038 | -0.67 | 0.01 |
| descriptive\_norm | self\_enh\_framing | -0.27 | 0.21 | 1038 | -0.67 | 0.14 |
| convention\_norm | self\_enh\_framing | -0.54 | 0.13 | 1038 | -0.80 | -0.27 |
| social\_norm | self\_enh\_framing | -0.18 | 0.16 | 1038 | -0.50 | 0.14 |
| moral\_norm | self\_enh\_framing | -0.33 | 0.15 | 1038 | -0.62 | -0.05 |

# Hedonic values  
hed\_slopes <- emtrends(mod\_mice, ~norm\_condition\*framing\_condition, var = "hedonic\_center")  
  
hed\_slopes %>%  
 knitr::kable(digits = 2)

| norm\_condition | framing\_condition | hedonic\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm | control\_framing | -0.34 | 0.18 | 1038 | -0.70 | 0.02 |
| descriptive\_norm | control\_framing | -0.14 | 0.22 | 1038 | -0.57 | 0.29 |
| convention\_norm | control\_framing | 0.15 | 0.21 | 1038 | -0.27 | 0.57 |
| social\_norm | control\_framing | -0.05 | 0.19 | 1038 | -0.42 | 0.32 |
| moral\_norm | control\_framing | -0.36 | 0.22 | 1038 | -0.79 | 0.06 |
| control\_norm | pro\_env\_framing | 0.15 | 0.21 | 1038 | -0.27 | 0.57 |
| descriptive\_norm | pro\_env\_framing | -0.12 | 0.22 | 1038 | -0.54 | 0.31 |
| convention\_norm | pro\_env\_framing | 0.20 | 0.20 | 1038 | -0.20 | 0.60 |
| social\_norm | pro\_env\_framing | -0.11 | 0.19 | 1038 | -0.49 | 0.27 |
| moral\_norm | pro\_env\_framing | -0.08 | 0.18 | 1038 | -0.44 | 0.28 |
| control\_norm | self\_enh\_framing | -0.06 | 0.25 | 1038 | -0.56 | 0.44 |
| descriptive\_norm | self\_enh\_framing | 0.12 | 0.24 | 1038 | -0.36 | 0.59 |
| convention\_norm | self\_enh\_framing | 0.02 | 0.17 | 1038 | -0.32 | 0.35 |
| social\_norm | self\_enh\_framing | -0.38 | 0.25 | 1038 | -0.87 | 0.10 |
| moral\_norm | self\_enh\_framing | -0.39 | 0.17 | 1038 | -0.72 | -0.06 |

# Ingroup identification  
ing\_slopes <- emtrends(mod\_mice, ~norm\_condition\*framing\_condition, var = "ingroup\_center")  
  
ing\_slopes %>%  
 knitr::kable(digits = 2)

| norm\_condition | framing\_condition | ingroup\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm | control\_framing | 0.18 | 0.12 | 1038 | -0.05 | 0.41 |
| descriptive\_norm | control\_framing | -0.01 | 0.15 | 1038 | -0.31 | 0.28 |
| convention\_norm | control\_framing | -0.10 | 0.13 | 1038 | -0.36 | 0.16 |
| social\_norm | control\_framing | 0.01 | 0.11 | 1038 | -0.21 | 0.22 |
| moral\_norm | control\_framing | 0.10 | 0.12 | 1038 | -0.13 | 0.33 |
| control\_norm | pro\_env\_framing | -0.01 | 0.13 | 1038 | -0.26 | 0.25 |
| descriptive\_norm | pro\_env\_framing | 0.06 | 0.13 | 1038 | -0.20 | 0.31 |
| convention\_norm | pro\_env\_framing | -0.07 | 0.12 | 1038 | -0.32 | 0.17 |
| social\_norm | pro\_env\_framing | -0.07 | 0.13 | 1038 | -0.33 | 0.19 |
| moral\_norm | pro\_env\_framing | 0.04 | 0.13 | 1038 | -0.22 | 0.29 |
| control\_norm | self\_enh\_framing | -0.05 | 0.13 | 1038 | -0.29 | 0.20 |
| descriptive\_norm | self\_enh\_framing | 0.13 | 0.12 | 1038 | -0.10 | 0.36 |
| convention\_norm | self\_enh\_framing | 0.22 | 0.14 | 1038 | -0.07 | 0.50 |
| social\_norm | self\_enh\_framing | 0.23 | 0.15 | 1038 | -0.06 | 0.51 |
| moral\_norm | self\_enh\_framing | -0.23 | 0.13 | 1038 | -0.49 | 0.03 |

H4: There will be a three-way interaction between values (biospheric, egoistic, altruistic, hedonic), framing condition, & norm condition such that when a pro-environmental or control framing is used, values will moderate the effect of each norm condition, but not when a self-enhancing framing is used.

## Biospheric values

Is the difference between Control Norm and Other Norm different for people low vs high on biospheric values? Does this vary across framing conditions?

### 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)

### Calculate EM Means at low and high bio

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

| norm\_condition | biospheric\_center | framing\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- | --- |
| control\_norm | -0.99 | control\_framing | 3.89 | 0.20 | 1038 | 3.50 | 4.28 |
| descriptive\_norm | -0.99 | control\_framing | 3.83 | 0.23 | 1038 | 3.37 | 4.29 |
| convention\_norm | -0.99 | control\_framing | 3.68 | 0.22 | 1038 | 3.25 | 4.10 |
| social\_norm | -0.99 | control\_framing | 4.12 | 0.20 | 1038 | 3.73 | 4.51 |
| moral\_norm | -0.99 | control\_framing | 4.31 | 0.32 | 1038 | 3.69 | 4.93 |
| control\_norm | 0.99 | control\_framing | 5.01 | 0.20 | 1038 | 4.62 | 5.40 |
| descriptive\_norm | 0.99 | control\_framing | 4.75 | 0.24 | 1038 | 4.29 | 5.22 |
| convention\_norm | 0.99 | control\_framing | 5.32 | 0.24 | 1038 | 4.85 | 5.80 |
| social\_norm | 0.99 | control\_framing | 4.20 | 0.20 | 1038 | 3.80 | 4.60 |
| moral\_norm | 0.99 | control\_framing | 4.15 | 0.23 | 1038 | 3.70 | 4.60 |
| control\_norm | -0.99 | pro\_env\_framing | 4.34 | 0.19 | 1038 | 3.97 | 4.72 |
| descriptive\_norm | -0.99 | pro\_env\_framing | 4.27 | 0.20 | 1038 | 3.88 | 4.66 |
| convention\_norm | -0.99 | pro\_env\_framing | 3.86 | 0.21 | 1038 | 3.46 | 4.26 |
| social\_norm | -0.99 | pro\_env\_framing | 4.07 | 0.18 | 1038 | 3.72 | 4.42 |
| moral\_norm | -0.99 | pro\_env\_framing | 3.85 | 0.19 | 1038 | 3.47 | 4.22 |
| control\_norm | 0.99 | pro\_env\_framing | 4.88 | 0.21 | 1038 | 4.46 | 5.30 |
| descriptive\_norm | 0.99 | pro\_env\_framing | 4.62 | 0.21 | 1038 | 4.21 | 5.02 |
| convention\_norm | 0.99 | pro\_env\_framing | 5.21 | 0.20 | 1038 | 4.83 | 5.60 |
| social\_norm | 0.99 | pro\_env\_framing | 4.77 | 0.21 | 1038 | 4.36 | 5.19 |
| moral\_norm | 0.99 | pro\_env\_framing | 4.91 | 0.19 | 1038 | 4.54 | 5.28 |
| control\_norm | -0.99 | self\_enh\_framing | 3.74 | 0.22 | 1038 | 3.31 | 4.17 |
| descriptive\_norm | -0.99 | self\_enh\_framing | 4.20 | 0.23 | 1038 | 3.75 | 4.64 |
| convention\_norm | -0.99 | self\_enh\_framing | 4.15 | 0.22 | 1038 | 3.72 | 4.58 |
| social\_norm | -0.99 | self\_enh\_framing | 3.87 | 0.24 | 1038 | 3.41 | 4.33 |
| moral\_norm | -0.99 | self\_enh\_framing | 4.26 | 0.26 | 1038 | 3.75 | 4.78 |
| control\_norm | 0.99 | self\_enh\_framing | 4.73 | 0.23 | 1038 | 4.28 | 5.18 |
| descriptive\_norm | 0.99 | self\_enh\_framing | 4.75 | 0.21 | 1038 | 4.34 | 5.16 |
| convention\_norm | 0.99 | self\_enh\_framing | 4.79 | 0.23 | 1038 | 4.34 | 5.23 |
| social\_norm | 0.99 | self\_enh\_framing | 4.62 | 0.26 | 1038 | 4.11 | 5.13 |
| moral\_norm | 0.99 | self\_enh\_framing | 4.49 | 0.21 | 1038 | 4.07 | 4.91 |

### Custom contrasts

cf\_cn\_low\_bio <- c(1, rep(0,29)) # control framing  
cf\_dn\_low\_bio <- c(0,1,rep(0,28))  
cf\_conv\_low\_bio <- c(0,0,1,rep(0,27))  
cf\_sn\_low\_bio <- c(0,0,0,1,rep(0,26))  
cf\_mn\_low\_bio <- c(rep(0,4),1,(rep(0,25)))  
  
cf\_cn\_hi\_bio <- c(rep(0,5),1,(rep(0,24)))   
cf\_dn\_hi\_bio <- c(rep(0,6),1,(rep(0,23)))  
cf\_conv\_hi\_bio <- c(rep(0,7),1,(rep(0,22)))  
cf\_sn\_hi\_bio <- c(rep(0,8),1,(rep(0,21)))  
cf\_mn\_hi\_bio <- c(rep(0,9),1,(rep(0,20)))  
  
  
pf\_cn\_low\_bio <- c(rep(0,10),1,(rep(0,19))) # pro-environmental framing  
pf\_dn\_low\_bio <- c(rep(0,11),1,(rep(0,18)))  
pf\_conv\_low\_bio <- c(rep(0,12),1,(rep(0,17)))  
pf\_sn\_low\_bio <- c(rep(0,13),1,(rep(0,16)))  
pf\_mn\_low\_bio <- c(rep(0,14),1,(rep(0,15)))  
  
pf\_cn\_hi\_bio <- c(rep(0,15),1,(rep(0,14)))   
pf\_dn\_hi\_bio <- c(rep(0,16),1,(rep(0,13)))  
pf\_conv\_hi\_bio <- c(rep(0,17),1,(rep(0,12)))  
pf\_sn\_hi\_bio <- c(rep(0,18),1,(rep(0,11)))  
pf\_mn\_hi\_bio <- c(rep(0,19),1,(rep(0,10)))  
  
  
sf\_cn\_low\_bio <- c(rep(0,20),1,(rep(0,9))) # self-enhancing framing  
sf\_dn\_low\_bio <- c(rep(0,21),1,(rep(0,8)))  
sf\_conv\_low\_bio <- c(rep(0,22),1,(rep(0,7)))  
sf\_sn\_low\_bio <- c(rep(0,23),1,(rep(0,6)))  
sf\_mn\_low\_bio <- c(rep(0,24),1,(rep(0,5)))  
  
sf\_cn\_hi\_bio <- c(rep(0,25),1,(rep(0,4)))   
sf\_dn\_hi\_bio <- c(rep(0,26),1,(rep(0,3)))  
sf\_conv\_hi\_bio <- c(rep(0,27),1,(rep(0,2)))  
sf\_sn\_hi\_bio <- c(rep(0,28),1,(rep(0,1)))  
sf\_mn\_hi\_bio <- c(rep(0,29),1)

Effect of norm for people low vs high on biospheric values across framing conditions

#### Control framing

controlframe\_lowvshi\_bio <- contrast(combinations,   
 method = list("CF/DN/LowBio - CF/CN/LowBio" = cf\_dn\_low\_bio - cf\_cn\_low\_bio,  
 "CF/Conv/LowBio - CF/CN/LowBio" = cf\_conv\_low\_bio - cf\_cn\_low\_bio,  
 "CF/SN/LowBio - CF/CN/LowBio" = cf\_sn\_low\_bio - cf\_cn\_low\_bio,  
 "CF/MN/LowBio - CF/CN/LowBio" = cf\_mn\_low\_bio - cf\_cn\_low\_bio,  
 "CF/DN/HiBio - CF/CN/HiBio" = cf\_dn\_hi\_bio - cf\_cn\_hi\_bio,  
 "CF/Conv/HiBio - CF/CN/HiBio" = cf\_conv\_hi\_bio - cf\_cn\_hi\_bio,  
 "CF/SN/HiBio - CF/CN/HiBio" = cf\_sn\_hi\_bio - cf\_cn\_hi\_bio,  
 "CF/MN/HiBio - CF/CN/HiBio" = cf\_mn\_hi\_bio - cf\_cn\_hi\_bio),   
 adjust = "none")  
  
controlframe\_lowvshi\_bio %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowBio - CF/CN/LowBio | -0.06 | 0.31 | 1038 | -0.19 | 0.853 |
| CF/Conv/LowBio - CF/CN/LowBio | -0.21 | 0.29 | 1038 | -0.71 | 0.475 |
| CF/SN/LowBio - CF/CN/LowBio | 0.23 | 0.28 | 1038 | 0.83 | 0.407 |
| CF/MN/LowBio - CF/CN/LowBio | 0.42 | 0.37 | 1038 | 1.13 | 0.258 |
| CF/DN/HiBio - CF/CN/HiBio | -0.26 | 0.31 | 1038 | -0.84 | 0.403 |
| CF/Conv/HiBio - CF/CN/HiBio | 0.31 | 0.31 | 1038 | 0.99 | 0.321 |
| CF/SN/HiBio - CF/CN/HiBio | -0.81 | 0.28 | 1038 | -2.86 | 0.004 |
| CF/MN/HiBio - CF/CN/HiBio | -0.86 | 0.30 | 1038 | -2.83 | 0.005 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowBio - CF/CN/LowBio | -0.06 | 0.31 | 1038 | -0.66 | 0.54 |
| CF/Conv/LowBio - CF/CN/LowBio | -0.21 | 0.29 | 1038 | -0.79 | 0.37 |
| CF/SN/LowBio - CF/CN/LowBio | 0.23 | 0.28 | 1038 | -0.32 | 0.78 |
| CF/MN/LowBio - CF/CN/LowBio | 0.42 | 0.37 | 1038 | -0.31 | 1.16 |
| CF/DN/HiBio - CF/CN/HiBio | -0.26 | 0.31 | 1038 | -0.87 | 0.35 |
| CF/Conv/HiBio - CF/CN/HiBio | 0.31 | 0.31 | 1038 | -0.30 | 0.93 |
| CF/SN/HiBio - CF/CN/HiBio | -0.81 | 0.28 | 1038 | -1.37 | -0.25 |
| CF/MN/HiBio - CF/CN/HiBio | -0.86 | 0.30 | 1038 | -1.46 | -0.26 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(combinations, method = list("CF/DN/LowBio - CF/CN/LowBio" = cf\_dn\_low\_bio - cf\_cn\_low\_bio,  
 "CF/Conv/LowBio - CF/CN/LowBio" = cf\_conv\_low\_bio - cf\_cn\_low\_bio,  
 "CF/SN/LowBio - CF/CN/LowBio" = cf\_sn\_low\_bio - cf\_cn\_low\_bio,  
 "CF/MN/LowBio - CF/CN/LowBio" = cf\_mn\_low\_bio - cf\_cn\_low\_bio,  
 "CF/DN/HiBio - CF/CN/HiBio" = cf\_dn\_hi\_bio - cf\_cn\_hi\_bio,  
 "CF/Conv/HiBio - CF/CN/HiBio" = cf\_conv\_hi\_bio - cf\_cn\_hi\_bio,  
 "CF/SN/HiBio - CF/CN/HiBio" = cf\_sn\_hi\_bio - cf\_cn\_hi\_bio,  
 "CF/MN/HiBio - CF/CN/HiBio" = cf\_mn\_hi\_bio - cf\_cn\_hi\_bio), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowBio - CF/CN/LowBio | -0.05 | 0.29 | 1038 | -0.61 | 0.51 |
| CF/Conv/LowBio - CF/CN/LowBio | -0.20 | 0.28 | 1038 | -0.74 | 0.34 |
| CF/SN/LowBio - CF/CN/LowBio | 0.22 | 0.26 | 1038 | -0.30 | 0.73 |
| CF/MN/LowBio - CF/CN/LowBio | 0.40 | 0.35 | 1038 | -0.29 | 1.08 |
| CF/DN/HiBio - CF/CN/HiBio | -0.24 | 0.29 | 1038 | -0.81 | 0.33 |
| CF/Conv/HiBio - CF/CN/HiBio | 0.29 | 0.29 | 1038 | -0.29 | 0.87 |
| CF/SN/HiBio - CF/CN/HiBio | -0.76 | 0.27 | 1038 | -1.28 | -0.24 |
| CF/MN/HiBio - CF/CN/HiBio | -0.81 | 0.29 | 1038 | -1.37 | -0.25 |

Pairwise comparisons

Custom contrasts

controlframe\_lowvshi\_bio

## contrast estimate SE df t.ratio p.value  
## CF/DN/LowBio - CF/CN/LowBio -0.0567 0.305 1038 -0.186 0.8527  
## CF/Conv/LowBio - CF/CN/LowBio -0.2105 0.295 1038 -0.714 0.4753  
## CF/SN/LowBio - CF/CN/LowBio 0.2323 0.280 1038 0.829 0.4074  
## CF/MN/LowBio - CF/CN/LowBio 0.4227 0.373 1038 1.133 0.2576  
## CF/DN/HiBio - CF/CN/HiBio -0.2585 0.309 1038 -0.836 0.4033  
## CF/Conv/HiBio - CF/CN/HiBio 0.3118 0.314 1038 0.993 0.3211  
## CF/SN/HiBio - CF/CN/HiBio -0.8111 0.284 1038 -2.859 0.0043  
## CF/MN/HiBio - CF/CN/HiBio -0.8618 0.305 1038 -2.828 0.0048  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_lowbio <- c(1,rep(0,7))  
conv\_vs\_c\_lowbio <- c(0,1,rep(0,6))  
sn\_vs\_c\_lowbio <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_lowbio <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_hibio <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_hibio <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_hibio <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_hibio <- c(rep(0,7),1)

compare\_bio <- contrast(controlframe\_lowvshi\_bio, method = list("Effect of DN (Low - High Bio)" = dn\_vs\_c\_lowbio - dn\_vs\_c\_hibio,   
 "Effect of Conv (Low - High Bio)" = conv\_vs\_c\_lowbio - conv\_vs\_c\_hibio,  
 "Effect of SN (Low - High Bio)" = sn\_vs\_c\_lowbio - sn\_vs\_c\_hibio,  
 "Effect of MN (Low - High Bio)" = mn\_vs\_c\_lowbio - mn\_vs\_c\_hibio), adjust = "none")  
  
compare\_bio %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High Bio) | 0.20 | 0.50 | 1038 | 0.41 | 0.684 |
| Effect of Conv (Low - High Bio) | -0.52 | 0.48 | 1038 | -1.08 | 0.282 |
| Effect of SN (Low - High Bio) | 1.04 | 0.45 | 1038 | 2.31 | 0.021 |
| Effect of MN (Low - High Bio) | 1.28 | 0.57 | 1038 | 2.27 | 0.024 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High Bio) | 0.20 | 0.50 | 1038 | -0.77 | 1.18 |
| Effect of Conv (Low - High Bio) | -0.52 | 0.48 | 1038 | -1.47 | 0.43 |
| Effect of SN (Low - High Bio) | 1.04 | 0.45 | 1038 | 0.16 | 1.93 |
| Effect of MN (Low - High Bio) | 1.28 | 0.57 | 1038 | 0.17 | 2.40 |

# effect sizes  
eff\_size(controlframe\_lowvshi\_bio, method = list("Effect of DN (Low - High Bio)" = dn\_vs\_c\_lowbio - dn\_vs\_c\_hibio,   
 "Effect of Conv (Low - High Bio)" = conv\_vs\_c\_lowbio - conv\_vs\_c\_hibio,  
 "Effect of SN (Low - High Bio)" = sn\_vs\_c\_lowbio - sn\_vs\_c\_hibio,  
 "Effect of MN (Low - High Bio)" = mn\_vs\_c\_lowbio - mn\_vs\_c\_hibio), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High Bio) | 0.19 | 0.46 | 1038 | -0.72 | 1.10 |
| Effect of Conv (Low - High Bio) | -0.49 | 0.45 | 1038 | -1.38 | 0.40 |
| Effect of SN (Low - High Bio) | 0.98 | 0.42 | 1038 | 0.15 | 1.80 |
| Effect of MN (Low - High Bio) | 1.20 | 0.53 | 1038 | 0.16 | 2.24 |

#### Pro-environmental framing

proenvframe\_lowvshi\_bio <- contrast(combinations,   
 method = list("PF/DN/LowBio - PF/CN/LowBio" = pf\_dn\_low\_bio - pf\_cn\_low\_bio,  
 "PF/Conv/LowBio - PF/CN/LowBio" = pf\_conv\_low\_bio - pf\_cn\_low\_bio,  
 "PF/SN/LowBio - PF/CN/LowBio" = pf\_sn\_low\_bio - pf\_cn\_low\_bio,  
 "PF/MN/LowBio - PF/CN/LowBio" = pf\_mn\_low\_bio - pf\_cn\_low\_bio,  
 "PF/DN/HiBio - PF/CN/HiBio" = pf\_dn\_hi\_bio - pf\_cn\_hi\_bio,  
 "PF/Conv/HiBio - PF/CN/HiBio" = pf\_conv\_hi\_bio - pf\_cn\_hi\_bio,  
 "PF/SN/HiBio - PF/CN/HiBio" = pf\_sn\_hi\_bio - pf\_cn\_hi\_bio,  
 "PF/MN/HiBio - PF/CN/HiBio" = pf\_mn\_hi\_bio - pf\_cn\_hi\_bio),   
 adjust = "none")  
  
proenvframe\_lowvshi\_bio %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowBio - PF/CN/LowBio | -0.08 | 0.28 | 1038 | -0.27 | 0.785 |
| PF/Conv/LowBio - PF/CN/LowBio | -0.48 | 0.28 | 1038 | -1.72 | 0.087 |
| PF/SN/LowBio - PF/CN/LowBio | -0.27 | 0.26 | 1038 | -1.04 | 0.299 |
| PF/MN/LowBio - PF/CN/LowBio | -0.50 | 0.27 | 1038 | -1.83 | 0.067 |
| PF/DN/HiBio - PF/CN/HiBio | -0.26 | 0.30 | 1038 | -0.89 | 0.375 |
| PF/Conv/HiBio - PF/CN/HiBio | 0.34 | 0.29 | 1038 | 1.16 | 0.248 |
| PF/SN/HiBio - PF/CN/HiBio | -0.10 | 0.30 | 1038 | -0.35 | 0.730 |
| PF/MN/HiBio - PF/CN/HiBio | 0.03 | 0.28 | 1038 | 0.10 | 0.917 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowBio - PF/CN/LowBio | -0.08 | 0.28 | 1038 | -0.62 | 0.47 |
| PF/Conv/LowBio - PF/CN/LowBio | -0.48 | 0.28 | 1038 | -1.04 | 0.07 |
| PF/SN/LowBio - PF/CN/LowBio | -0.27 | 0.26 | 1038 | -0.78 | 0.24 |
| PF/MN/LowBio - PF/CN/LowBio | -0.50 | 0.27 | 1038 | -1.03 | 0.04 |
| PF/DN/HiBio - PF/CN/HiBio | -0.26 | 0.30 | 1038 | -0.85 | 0.32 |
| PF/Conv/HiBio - PF/CN/HiBio | 0.34 | 0.29 | 1038 | -0.23 | 0.90 |
| PF/SN/HiBio - PF/CN/HiBio | -0.10 | 0.30 | 1038 | -0.69 | 0.49 |
| PF/MN/HiBio - PF/CN/HiBio | 0.03 | 0.28 | 1038 | -0.53 | 0.59 |

# effect sizes  
eff\_size(combinations, method = list("PF/DN/LowBio - PF/CN/LowBio" = pf\_dn\_low\_bio - pf\_cn\_low\_bio,  
 "PF/Conv/LowBio - PF/CN/LowBio" = pf\_conv\_low\_bio - pf\_cn\_low\_bio,  
 "PF/SN/LowBio - PF/CN/LowBio" = pf\_sn\_low\_bio - pf\_cn\_low\_bio,  
 "PF/MN/LowBio - PF/CN/LowBio" = pf\_mn\_low\_bio - pf\_cn\_low\_bio,  
 "PF/DN/HiBio - PF/CN/HiBio" = pf\_dn\_hi\_bio - pf\_cn\_hi\_bio,  
 "PF/Conv/HiBio - PF/CN/HiBio" = pf\_conv\_hi\_bio - pf\_cn\_hi\_bio,  
 "PF/SN/HiBio - PF/CN/HiBio" = pf\_sn\_hi\_bio - pf\_cn\_hi\_bio,  
 "PF/MN/HiBio - PF/CN/HiBio" = pf\_mn\_hi\_bio - pf\_cn\_hi\_bio), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowBio - PF/CN/LowBio | -0.07 | 0.26 | 1038 | -0.58 | 0.44 |
| PF/Conv/LowBio - PF/CN/LowBio | -0.45 | 0.26 | 1038 | -0.97 | 0.07 |
| PF/SN/LowBio - PF/CN/LowBio | -0.25 | 0.24 | 1038 | -0.73 | 0.23 |
| PF/MN/LowBio - PF/CN/LowBio | -0.47 | 0.25 | 1038 | -0.97 | 0.03 |
| PF/DN/HiBio - PF/CN/HiBio | -0.25 | 0.28 | 1038 | -0.79 | 0.30 |
| PF/Conv/HiBio - PF/CN/HiBio | 0.31 | 0.27 | 1038 | -0.22 | 0.85 |
| PF/SN/HiBio - PF/CN/HiBio | -0.10 | 0.28 | 1038 | -0.65 | 0.46 |
| PF/MN/HiBio - PF/CN/HiBio | 0.03 | 0.27 | 1038 | -0.49 | 0.55 |

Pairwise comparisons

Custom contrasts

proenvframe\_lowvshi\_bio

## contrast estimate SE df t.ratio p.value  
## PF/DN/LowBio - PF/CN/LowBio -0.0755 0.277 1038 -0.272 0.7854  
## PF/Conv/LowBio - PF/CN/LowBio -0.4834 0.282 1038 -1.715 0.0866  
## PF/SN/LowBio - PF/CN/LowBio -0.2718 0.261 1038 -1.040 0.2987  
## PF/MN/LowBio - PF/CN/LowBio -0.4982 0.272 1038 -1.833 0.0671  
## PF/DN/HiBio - PF/CN/HiBio -0.2635 0.297 1038 -0.888 0.3749  
## PF/Conv/HiBio - PF/CN/HiBio 0.3354 0.290 1038 1.156 0.2481  
## PF/SN/HiBio - PF/CN/HiBio -0.1039 0.301 1038 -0.345 0.7300  
## PF/MN/HiBio - PF/CN/HiBio 0.0296 0.284 1038 0.104 0.9171  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_lowbio <- c(1,rep(0,7))  
conv\_vs\_c\_lowbio <- c(0,1,rep(0,6))  
sn\_vs\_c\_lowbio <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_lowbio <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_hibio <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_hibio <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_hibio <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_hibio <- c(rep(0,7),1)

compare\_bio <- contrast(proenvframe\_lowvshi\_bio, method = list("Effect of DN (Low - High Bio)" = dn\_vs\_c\_lowbio - dn\_vs\_c\_hibio,   
 "Effect of Conv (Low - High Bio)" = conv\_vs\_c\_lowbio - conv\_vs\_c\_hibio,  
 "Effect of SN (Low - High Bio)" = sn\_vs\_c\_lowbio - sn\_vs\_c\_hibio,  
 "Effect of MN (Low - High Bio)" = mn\_vs\_c\_lowbio - mn\_vs\_c\_hibio), adjust = "none")  
  
compare\_bio %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High Bio) | 0.19 | 0.45 | 1038 | 0.42 | 0.674 |
| Effect of Conv (Low - High Bio) | -0.82 | 0.45 | 1038 | -1.80 | 0.071 |
| Effect of SN (Low - High Bio) | -0.17 | 0.43 | 1038 | -0.39 | 0.693 |
| Effect of MN (Low - High Bio) | -0.53 | 0.43 | 1038 | -1.23 | 0.221 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High Bio) | 0.19 | 0.45 | 1038 | -0.69 | 1.06 |
| Effect of Conv (Low - High Bio) | -0.82 | 0.45 | 1038 | -1.71 | 0.07 |
| Effect of SN (Low - High Bio) | -0.17 | 0.43 | 1038 | -1.00 | 0.67 |
| Effect of MN (Low - High Bio) | -0.53 | 0.43 | 1038 | -1.37 | 0.32 |

# effect sizes  
eff\_size(proenvframe\_lowvshi\_bio, method = list("Effect of DN (Low - High Bio)" = dn\_vs\_c\_lowbio - dn\_vs\_c\_hibio,   
 "Effect of Conv (Low - High Bio)" = conv\_vs\_c\_lowbio - conv\_vs\_c\_hibio,  
 "Effect of SN (Low - High Bio)" = sn\_vs\_c\_lowbio - sn\_vs\_c\_hibio,  
 "Effect of MN (Low - High Bio)" = mn\_vs\_c\_lowbio - mn\_vs\_c\_hibio), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High Bio) | 0.18 | 0.42 | 1038 | -0.64 | 0.99 |
| Effect of Conv (Low - High Bio) | -0.77 | 0.42 | 1038 | -1.60 | 0.07 |
| Effect of SN (Low - High Bio) | -0.16 | 0.40 | 1038 | -0.94 | 0.62 |
| Effect of MN (Low - High Bio) | -0.49 | 0.40 | 1038 | -1.29 | 0.30 |

#### Self-enhancing framing

selfenhframe\_lowvshi\_bio <- contrast(combinations,   
 method = list("SF/DN/LowBio - SF/CN/LowBio" = sf\_dn\_low\_bio - sf\_cn\_low\_bio,  
 "SF/Conv/LowBio - SF/CN/LowBio" = sf\_conv\_low\_bio - sf\_cn\_low\_bio,  
 "SF/SN/LowBio - SF/CN/LowBio" = sf\_sn\_low\_bio - sf\_cn\_low\_bio,  
 "SF/MN/LowBio - SF/CN/LowBio" = sf\_mn\_low\_bio - sf\_cn\_low\_bio,  
 "SF/DN/HiBio - SF/CN/HiBio" = sf\_dn\_hi\_bio - sf\_cn\_hi\_bio,  
 "SF/Conv/HiBio - SF/CN/HiBio" = sf\_conv\_hi\_bio - sf\_cn\_hi\_bio,  
 "SF/SN/HiBio - SF/CN/HiBio" = sf\_sn\_hi\_bio - sf\_cn\_hi\_bio,  
 "SF/MN/HiBio - SF/CN/HiBio" = sf\_mn\_hi\_bio - sf\_cn\_hi\_bio),   
 adjust = "none")  
  
selfenhframe\_lowvshi\_bio %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowBio - SF/CN/LowBio | 0.46 | 0.32 | 1038 | 1.44 | 0.150 |
| SF/Conv/LowBio - SF/CN/LowBio | 0.41 | 0.31 | 1038 | 1.33 | 0.183 |
| SF/SN/LowBio - SF/CN/LowBio | 0.13 | 0.32 | 1038 | 0.41 | 0.680 |
| SF/MN/LowBio - SF/CN/LowBio | 0.52 | 0.34 | 1038 | 1.53 | 0.125 |
| SF/DN/HiBio - SF/CN/HiBio | 0.02 | 0.31 | 1038 | 0.05 | 0.958 |
| SF/Conv/HiBio - SF/CN/HiBio | 0.05 | 0.32 | 1038 | 0.17 | 0.869 |
| SF/SN/HiBio - SF/CN/HiBio | -0.12 | 0.35 | 1038 | -0.33 | 0.739 |
| SF/MN/HiBio - SF/CN/HiBio | -0.24 | 0.31 | 1038 | -0.77 | 0.439 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowBio - SF/CN/LowBio | 0.46 | 0.32 | 1038 | -0.17 | 1.09 |
| SF/Conv/LowBio - SF/CN/LowBio | 0.41 | 0.31 | 1038 | -0.20 | 1.02 |
| SF/SN/LowBio - SF/CN/LowBio | 0.13 | 0.32 | 1038 | -0.50 | 0.77 |
| SF/MN/LowBio - SF/CN/LowBio | 0.52 | 0.34 | 1038 | -0.15 | 1.19 |
| SF/DN/HiBio - SF/CN/HiBio | 0.02 | 0.31 | 1038 | -0.60 | 0.63 |
| SF/Conv/HiBio - SF/CN/HiBio | 0.05 | 0.32 | 1038 | -0.58 | 0.68 |
| SF/SN/HiBio - SF/CN/HiBio | -0.12 | 0.35 | 1038 | -0.80 | 0.57 |
| SF/MN/HiBio - SF/CN/HiBio | -0.24 | 0.31 | 1038 | -0.86 | 0.37 |

# effect sizes  
eff\_size(combinations, method = list("SF/DN/LowBio - SF/CN/LowBio" = sf\_dn\_low\_bio - sf\_cn\_low\_bio,  
 "SF/Conv/LowBio - SF/CN/LowBio" = sf\_conv\_low\_bio - sf\_cn\_low\_bio,  
 "SF/SN/LowBio - SF/CN/LowBio" = sf\_sn\_low\_bio - sf\_cn\_low\_bio,  
 "SF/MN/LowBio - SF/CN/LowBio" = sf\_mn\_low\_bio - sf\_cn\_low\_bio,  
 "SF/DN/HiBio - SF/CN/HiBio" = sf\_dn\_hi\_bio - sf\_cn\_hi\_bio,  
 "SF/Conv/HiBio - SF/CN/HiBio" = sf\_conv\_hi\_bio - sf\_cn\_hi\_bio,  
 "SF/SN/HiBio - SF/CN/HiBio" = sf\_sn\_hi\_bio - sf\_cn\_hi\_bio,  
 "SF/MN/HiBio - SF/CN/HiBio" = sf\_mn\_hi\_bio - sf\_cn\_hi\_bio), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowBio - SF/CN/LowBio | 0.43 | 0.30 | 1038 | -0.16 | 1.02 |
| SF/Conv/LowBio - SF/CN/LowBio | 0.39 | 0.29 | 1038 | -0.18 | 0.96 |
| SF/SN/LowBio - SF/CN/LowBio | 0.12 | 0.30 | 1038 | -0.47 | 0.72 |
| SF/MN/LowBio - SF/CN/LowBio | 0.49 | 0.32 | 1038 | -0.14 | 1.12 |
| SF/DN/HiBio - SF/CN/HiBio | 0.02 | 0.29 | 1038 | -0.56 | 0.59 |
| SF/Conv/HiBio - SF/CN/HiBio | 0.05 | 0.30 | 1038 | -0.54 | 0.64 |
| SF/SN/HiBio - SF/CN/HiBio | -0.11 | 0.33 | 1038 | -0.75 | 0.53 |
| SF/MN/HiBio - SF/CN/HiBio | -0.23 | 0.29 | 1038 | -0.80 | 0.35 |

Pairwise comparisons

Custom contrasts

selfenhframe\_lowvshi\_bio

## contrast estimate SE df t.ratio p.value  
## SF/DN/LowBio - SF/CN/LowBio 0.4601 0.319 1038 1.442 0.1496  
## SF/Conv/LowBio - SF/CN/LowBio 0.4144 0.311 1038 1.333 0.1827  
## SF/SN/LowBio - SF/CN/LowBio 0.1335 0.324 1038 0.413 0.6800  
## SF/MN/LowBio - SF/CN/LowBio 0.5238 0.341 1038 1.535 0.1251  
## SF/DN/HiBio - SF/CN/HiBio 0.0164 0.312 1038 0.053 0.9581  
## SF/Conv/HiBio - SF/CN/HiBio 0.0532 0.322 1038 0.165 0.8689  
## SF/SN/HiBio - SF/CN/HiBio -0.1159 0.348 1038 -0.333 0.7391  
## SF/MN/HiBio - SF/CN/HiBio -0.2424 0.313 1038 -0.773 0.4394  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_lowbio <- c(1,rep(0,7))  
conv\_vs\_c\_lowbio <- c(0,1,rep(0,6))  
sn\_vs\_c\_lowbio <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_lowbio <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_hibio <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_hibio <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_hibio <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_hibio <- c(rep(0,7),1)

compare\_bio <- contrast(selfenhframe\_lowvshi\_bio, method = list("Effect of DN (Low - High Bio)" = dn\_vs\_c\_lowbio - dn\_vs\_c\_hibio,   
 "Effect of Conv (Low - High Bio)" = conv\_vs\_c\_lowbio - conv\_vs\_c\_hibio,  
 "Effect of SN (Low - High Bio)" = sn\_vs\_c\_lowbio - sn\_vs\_c\_hibio,  
 "Effect of MN (Low - High Bio)" = mn\_vs\_c\_lowbio - mn\_vs\_c\_hibio), adjust = "none")  
  
compare\_bio %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High Bio) | 0.44 | 0.52 | 1038 | 0.85 | 0.398 |
| Effect of Conv (Low - High Bio) | 0.36 | 0.52 | 1038 | 0.70 | 0.486 |
| Effect of SN (Low - High Bio) | 0.25 | 0.56 | 1038 | 0.45 | 0.655 |
| Effect of MN (Low - High Bio) | 0.77 | 0.55 | 1038 | 1.40 | 0.162 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High Bio) | 0.44 | 0.52 | 1038 | -0.59 | 1.47 |
| Effect of Conv (Low - High Bio) | 0.36 | 0.52 | 1038 | -0.66 | 1.38 |
| Effect of SN (Low - High Bio) | 0.25 | 0.56 | 1038 | -0.85 | 1.35 |
| Effect of MN (Low - High Bio) | 0.77 | 0.55 | 1038 | -0.31 | 1.84 |

# effect sizes  
eff\_size(selfenhframe\_lowvshi\_bio, method = list("Effect of DN (Low - High Bio)" = dn\_vs\_c\_lowbio - dn\_vs\_c\_hibio,   
 "Effect of Conv (Low - High Bio)" = conv\_vs\_c\_lowbio - conv\_vs\_c\_hibio,  
 "Effect of SN (Low - High Bio)" = sn\_vs\_c\_lowbio - sn\_vs\_c\_hibio,  
 "Effect of MN (Low - High Bio)" = mn\_vs\_c\_lowbio - mn\_vs\_c\_hibio), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High Bio) | 0.42 | 0.49 | 1038 | -0.55 | 1.38 |
| Effect of Conv (Low - High Bio) | 0.34 | 0.49 | 1038 | -0.61 | 1.29 |
| Effect of SN (Low - High Bio) | 0.23 | 0.52 | 1038 | -0.79 | 1.26 |
| Effect of MN (Low - High Bio) | 0.72 | 0.51 | 1038 | -0.29 | 1.72 |

## Altruistic values

Is the difference between Control Norm and Other Norm different for people low vs high on altruistic values? Does this vary across framing conditions?

### Storing low (-1SD) and high (+1SD) altspheric 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)

### Calculate EM Means at low and high alt

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

| norm\_condition | altruistic\_center | framing\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- | --- |
| control\_norm | -0.8 | control\_framing | 4.31 | 0.21 | 1038 | 3.90 | 4.71 |
| descriptive\_norm | -0.8 | control\_framing | 4.40 | 0.22 | 1038 | 3.96 | 4.83 |
| convention\_norm | -0.8 | control\_framing | 4.82 | 0.23 | 1038 | 4.37 | 5.27 |
| social\_norm | -0.8 | control\_framing | 3.83 | 0.24 | 1038 | 3.37 | 4.29 |
| moral\_norm | -0.8 | control\_framing | 3.82 | 0.21 | 1038 | 3.41 | 4.24 |
| control\_norm | 0.8 | control\_framing | 4.59 | 0.19 | 1038 | 4.21 | 4.97 |
| descriptive\_norm | 0.8 | control\_framing | 4.19 | 0.25 | 1038 | 3.70 | 4.67 |
| convention\_norm | 0.8 | control\_framing | 4.18 | 0.23 | 1038 | 3.73 | 4.63 |
| social\_norm | 0.8 | control\_framing | 4.49 | 0.21 | 1038 | 4.08 | 4.90 |
| moral\_norm | 0.8 | control\_framing | 4.64 | 0.30 | 1038 | 4.05 | 5.22 |
| control\_norm | -0.8 | pro\_env\_framing | 4.62 | 0.24 | 1038 | 4.15 | 5.09 |
| descriptive\_norm | -0.8 | pro\_env\_framing | 4.42 | 0.24 | 1038 | 3.94 | 4.90 |
| convention\_norm | -0.8 | pro\_env\_framing | 4.57 | 0.21 | 1038 | 4.16 | 4.98 |
| social\_norm | -0.8 | pro\_env\_framing | 4.47 | 0.23 | 1038 | 4.01 | 4.93 |
| moral\_norm | -0.8 | pro\_env\_framing | 4.35 | 0.19 | 1038 | 3.98 | 4.72 |
| control\_norm | 0.8 | pro\_env\_framing | 4.61 | 0.23 | 1038 | 4.15 | 5.06 |
| descriptive\_norm | 0.8 | pro\_env\_framing | 4.46 | 0.20 | 1038 | 4.07 | 4.85 |
| convention\_norm | 0.8 | pro\_env\_framing | 4.51 | 0.21 | 1038 | 4.10 | 4.91 |
| social\_norm | 0.8 | pro\_env\_framing | 4.38 | 0.22 | 1038 | 3.94 | 4.81 |
| moral\_norm | 0.8 | pro\_env\_framing | 4.40 | 0.20 | 1038 | 4.02 | 4.79 |
| control\_norm | -0.8 | self\_enh\_framing | 4.07 | 0.31 | 1038 | 3.47 | 4.68 |
| descriptive\_norm | -0.8 | self\_enh\_framing | 4.70 | 0.20 | 1038 | 4.30 | 5.10 |
| convention\_norm | -0.8 | self\_enh\_framing | 4.24 | 0.25 | 1038 | 3.75 | 4.73 |
| social\_norm | -0.8 | self\_enh\_framing | 4.28 | 0.29 | 1038 | 3.72 | 4.84 |
| moral\_norm | -0.8 | self\_enh\_framing | 3.98 | 0.20 | 1038 | 3.59 | 4.36 |
| control\_norm | 0.8 | self\_enh\_framing | 4.40 | 0.30 | 1038 | 3.81 | 4.98 |
| descriptive\_norm | 0.8 | self\_enh\_framing | 4.25 | 0.22 | 1038 | 3.82 | 4.67 |
| convention\_norm | 0.8 | self\_enh\_framing | 4.70 | 0.22 | 1038 | 4.26 | 5.13 |
| social\_norm | 0.8 | self\_enh\_framing | 4.21 | 0.26 | 1038 | 3.70 | 4.73 |
| moral\_norm | 0.8 | self\_enh\_framing | 4.78 | 0.23 | 1038 | 4.33 | 5.22 |

### Custom contrasts

cf\_cn\_low\_alt <- c(1, rep(0,29)) # control framing  
cf\_dn\_low\_alt <- c(0,1,rep(0,28))  
cf\_conv\_low\_alt <- c(0,0,1,rep(0,27))  
cf\_sn\_low\_alt <- c(0,0,0,1,rep(0,26))  
cf\_mn\_low\_alt <- c(rep(0,4),1,(rep(0,25)))  
  
cf\_cn\_hi\_alt <- c(rep(0,5),1,(rep(0,24)))   
cf\_dn\_hi\_alt <- c(rep(0,6),1,(rep(0,23)))  
cf\_conv\_hi\_alt <- c(rep(0,7),1,(rep(0,22)))  
cf\_sn\_hi\_alt <- c(rep(0,8),1,(rep(0,21)))  
cf\_mn\_hi\_alt <- c(rep(0,9),1,(rep(0,20)))  
  
  
pf\_cn\_low\_alt <- c(rep(0,10),1,(rep(0,19))) # pro-environmental framing  
pf\_dn\_low\_alt <- c(rep(0,11),1,(rep(0,18)))  
pf\_conv\_low\_alt <- c(rep(0,12),1,(rep(0,17)))  
pf\_sn\_low\_alt <- c(rep(0,13),1,(rep(0,16)))  
pf\_mn\_low\_alt <- c(rep(0,14),1,(rep(0,15)))  
  
pf\_cn\_hi\_alt <- c(rep(0,15),1,(rep(0,14)))   
pf\_dn\_hi\_alt <- c(rep(0,16),1,(rep(0,13)))  
pf\_conv\_hi\_alt <- c(rep(0,17),1,(rep(0,12)))  
pf\_sn\_hi\_alt <- c(rep(0,18),1,(rep(0,11)))  
pf\_mn\_hi\_alt <- c(rep(0,19),1,(rep(0,10)))  
  
  
sf\_cn\_low\_alt <- c(rep(0,20),1,(rep(0,9))) # self-enhancing framing  
sf\_dn\_low\_alt <- c(rep(0,21),1,(rep(0,8)))  
sf\_conv\_low\_alt <- c(rep(0,22),1,(rep(0,7)))  
sf\_sn\_low\_alt <- c(rep(0,23),1,(rep(0,6)))  
sf\_mn\_low\_alt <- c(rep(0,24),1,(rep(0,5)))  
  
sf\_cn\_hi\_alt <- c(rep(0,25),1,(rep(0,4)))   
sf\_dn\_hi\_alt <- c(rep(0,26),1,(rep(0,3)))  
sf\_conv\_hi\_alt <- c(rep(0,27),1,(rep(0,2)))  
sf\_sn\_hi\_alt <- c(rep(0,28),1,(rep(0,1)))  
sf\_mn\_hi\_alt <- c(rep(0,29),1)

Effect of norm for people low vs high on altruistic values across framing conditions

#### Control framing

controlframe\_lowvshi\_alt <- contrast(combinations,   
 method = list("CF/DN/LowAlt - CF/CN/LowAlt" = cf\_dn\_low\_alt - cf\_cn\_low\_alt,  
 "CF/Conv/LowAlt - CF/CN/LowAlt" = cf\_conv\_low\_alt - cf\_cn\_low\_alt,  
 "CF/SN/LowAlt - CF/CN/LowAlt" = cf\_sn\_low\_alt - cf\_cn\_low\_alt,  
 "CF/MN/LowAlt - CF/CN/LowAlt" = cf\_mn\_low\_alt - cf\_cn\_low\_alt,  
 "CF/DN/HiAlt - CF/CN/HiAlt" = cf\_dn\_hi\_alt - cf\_cn\_hi\_alt,  
 "CF/Conv/HiAlt - CF/CN/HiAlt" = cf\_conv\_hi\_alt - cf\_cn\_hi\_alt,  
 "CF/SN/HiAlt - CF/CN/HiAlt" = cf\_sn\_hi\_alt - cf\_cn\_hi\_alt,  
 "CF/MN/HiAlt - CF/CN/HiAlt" = cf\_mn\_hi\_alt - cf\_cn\_hi\_alt),   
 adjust = "none")  
  
controlframe\_lowvshi\_alt %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowAlt - CF/CN/LowAlt | 0.09 | 0.30 | 1038 | 0.29 | 0.772 |
| CF/Conv/LowAlt - CF/CN/LowAlt | 0.51 | 0.31 | 1038 | 1.66 | 0.097 |
| CF/SN/LowAlt - CF/CN/LowAlt | -0.48 | 0.31 | 1038 | -1.53 | 0.127 |
| CF/MN/LowAlt - CF/CN/LowAlt | -0.48 | 0.29 | 1038 | -1.64 | 0.101 |
| CF/DN/HiAlt - CF/CN/HiAlt | -0.40 | 0.31 | 1038 | -1.29 | 0.199 |
| CF/Conv/HiAlt - CF/CN/HiAlt | -0.41 | 0.30 | 1038 | -1.36 | 0.173 |
| CF/SN/HiAlt - CF/CN/HiAlt | -0.10 | 0.28 | 1038 | -0.36 | 0.719 |
| CF/MN/HiAlt - CF/CN/HiAlt | 0.04 | 0.35 | 1038 | 0.12 | 0.902 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowAlt - CF/CN/LowAlt | 0.09 | 0.30 | 1038 | -0.51 | 0.68 |
| CF/Conv/LowAlt - CF/CN/LowAlt | 0.51 | 0.31 | 1038 | -0.09 | 1.12 |
| CF/SN/LowAlt - CF/CN/LowAlt | -0.48 | 0.31 | 1038 | -1.09 | 0.14 |
| CF/MN/LowAlt - CF/CN/LowAlt | -0.48 | 0.29 | 1038 | -1.06 | 0.09 |
| CF/DN/HiAlt - CF/CN/HiAlt | -0.40 | 0.31 | 1038 | -1.02 | 0.21 |
| CF/Conv/HiAlt - CF/CN/HiAlt | -0.41 | 0.30 | 1038 | -1.00 | 0.18 |
| CF/SN/HiAlt - CF/CN/HiAlt | -0.10 | 0.28 | 1038 | -0.66 | 0.45 |
| CF/MN/HiAlt - CF/CN/HiAlt | 0.04 | 0.35 | 1038 | -0.65 | 0.74 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(combinations, method = list("CF/DN/LowAlt - CF/CN/LowAlt" = cf\_dn\_low\_alt - cf\_cn\_low\_alt,  
 "CF/Conv/LowAlt - CF/CN/LowAlt" = cf\_conv\_low\_alt - cf\_cn\_low\_alt,  
 "CF/SN/LowAlt - CF/CN/LowAlt" = cf\_sn\_low\_alt - cf\_cn\_low\_alt,  
 "CF/MN/LowAlt - CF/CN/LowAlt" = cf\_mn\_low\_alt - cf\_cn\_low\_alt,  
 "CF/DN/HiAlt - CF/CN/HiAlt" = cf\_dn\_hi\_alt - cf\_cn\_hi\_alt,  
 "CF/Conv/HiAlt - CF/CN/HiAlt" = cf\_conv\_hi\_alt - cf\_cn\_hi\_alt,  
 "CF/SN/HiAlt - CF/CN/HiAlt" = cf\_sn\_hi\_alt - cf\_cn\_hi\_alt,  
 "CF/MN/HiAlt - CF/CN/HiAlt" = cf\_mn\_hi\_alt - cf\_cn\_hi\_alt), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowAlt - CF/CN/LowAlt | 0.08 | 0.28 | 1038 | -0.48 | 0.64 |
| CF/Conv/LowAlt - CF/CN/LowAlt | 0.48 | 0.29 | 1038 | -0.09 | 1.05 |
| CF/SN/LowAlt - CF/CN/LowAlt | -0.45 | 0.29 | 1038 | -1.02 | 0.13 |
| CF/MN/LowAlt - CF/CN/LowAlt | -0.45 | 0.28 | 1038 | -0.99 | 0.09 |
| CF/DN/HiAlt - CF/CN/HiAlt | -0.38 | 0.29 | 1038 | -0.95 | 0.20 |
| CF/Conv/HiAlt - CF/CN/HiAlt | -0.38 | 0.28 | 1038 | -0.94 | 0.17 |
| CF/SN/HiAlt - CF/CN/HiAlt | -0.10 | 0.27 | 1038 | -0.62 | 0.43 |
| CF/MN/HiAlt - CF/CN/HiAlt | 0.04 | 0.33 | 1038 | -0.61 | 0.69 |

Pairwise comparisons

Custom contrasts

controlframe\_lowvshi\_alt

## contrast estimate SE df t.ratio p.value  
## CF/DN/LowAlt - CF/CN/LowAlt 0.0881 0.304 1038 0.290 0.7718  
## CF/Conv/LowAlt - CF/CN/LowAlt 0.5126 0.308 1038 1.663 0.0967  
## CF/SN/LowAlt - CF/CN/LowAlt -0.4767 0.312 1038 -1.526 0.1274  
## CF/MN/LowAlt - CF/CN/LowAlt -0.4829 0.294 1038 -1.641 0.1012  
## CF/DN/HiAlt - CF/CN/HiAlt -0.4033 0.314 1038 -1.285 0.1991  
## CF/Conv/HiAlt - CF/CN/HiAlt -0.4113 0.302 1038 -1.363 0.1730  
## CF/SN/HiAlt - CF/CN/HiAlt -0.1021 0.284 1038 -0.360 0.7192  
## CF/MN/HiAlt - CF/CN/HiAlt 0.0438 0.354 1038 0.124 0.9015  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_LowAlt <- c(1,rep(0,7))  
conv\_vs\_c\_LowAlt <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowAlt <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowAlt <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiAlt <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiAlt <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiAlt <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiAlt <- c(rep(0,7),1)

compare\_alt <- contrast(controlframe\_lowvshi\_alt, method = list("Effect of DN (Low - High alt)" = dn\_vs\_c\_LowAlt - dn\_vs\_c\_HiAlt,   
 "Effect of Conv (Low - High alt)" = conv\_vs\_c\_LowAlt - conv\_vs\_c\_HiAlt,  
 "Effect of SN (Low - High alt)" = sn\_vs\_c\_LowAlt - sn\_vs\_c\_HiAlt,  
 "Effect of MN (Low - High alt)" = mn\_vs\_c\_LowAlt - mn\_vs\_c\_HiAlt), adjust = "none")  
  
compare\_alt %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High alt) | 0.49 | 0.50 | 1038 | 0.98 | 0.326 |
| Effect of Conv (Low - High alt) | 0.92 | 0.49 | 1038 | 1.90 | 0.058 |
| Effect of SN (Low - High alt) | -0.37 | 0.49 | 1038 | -0.76 | 0.446 |
| Effect of MN (Low - High alt) | -0.53 | 0.53 | 1038 | -0.99 | 0.321 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High alt) | 0.49 | 0.50 | 1038 | -0.49 | 1.47 |
| Effect of Conv (Low - High alt) | 0.92 | 0.49 | 1038 | -0.03 | 1.88 |
| Effect of SN (Low - High alt) | -0.37 | 0.49 | 1038 | -1.34 | 0.59 |
| Effect of MN (Low - High alt) | -0.53 | 0.53 | 1038 | -1.57 | 0.51 |

# effect sizes  
eff\_size(controlframe\_lowvshi\_alt, method = list("Effect of DN (Low - High alt)" = dn\_vs\_c\_LowAlt - dn\_vs\_c\_HiAlt,   
 "Effect of Conv (Low - High alt)" = conv\_vs\_c\_LowAlt - conv\_vs\_c\_HiAlt,  
 "Effect of SN (Low - High alt)" = sn\_vs\_c\_LowAlt - sn\_vs\_c\_HiAlt,  
 "Effect of MN (Low - High alt)" = mn\_vs\_c\_LowAlt - mn\_vs\_c\_HiAlt), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High alt) | 0.46 | 0.47 | 1038 | -0.46 | 1.38 |
| Effect of Conv (Low - High alt) | 0.86 | 0.45 | 1038 | -0.03 | 1.76 |
| Effect of SN (Low - High alt) | -0.35 | 0.46 | 1038 | -1.25 | 0.55 |
| Effect of MN (Low - High alt) | -0.49 | 0.50 | 1038 | -1.47 | 0.48 |

#### Pro-environmental framing

proenvframe\_lowvshi\_alt <- contrast(combinations,   
 method = list("PF/DN/LowAlt - PF/CN/LowAlt" = pf\_dn\_low\_alt - pf\_cn\_low\_alt,  
 "PF/Conv/LowAlt - PF/CN/LowAlt" = pf\_conv\_low\_alt - pf\_cn\_low\_alt,  
 "PF/SN/LowAlt - PF/CN/LowAlt" = pf\_sn\_low\_alt - pf\_cn\_low\_alt,  
 "PF/MN/LowAlt - PF/CN/LowAlt" = pf\_mn\_low\_alt - pf\_cn\_low\_alt,  
 "PF/DN/HiAlt - PF/CN/HiAlt" = pf\_dn\_hi\_alt - pf\_cn\_hi\_alt,  
 "PF/Conv/HiAlt - PF/CN/HiAlt" = pf\_conv\_hi\_alt - pf\_cn\_hi\_alt,  
 "PF/SN/HiAlt - PF/CN/HiAlt" = pf\_sn\_hi\_alt - pf\_cn\_hi\_alt,  
 "PF/MN/HiAlt - PF/CN/HiAlt" = pf\_mn\_hi\_alt - pf\_cn\_hi\_alt),   
 adjust = "none")  
  
proenvframe\_lowvshi\_alt %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowAlt - PF/CN/LowAlt | -0.19 | 0.34 | 1038 | -0.57 | 0.570 |
| PF/Conv/LowAlt - PF/CN/LowAlt | -0.05 | 0.32 | 1038 | -0.16 | 0.877 |
| PF/SN/LowAlt - PF/CN/LowAlt | -0.15 | 0.33 | 1038 | -0.44 | 0.663 |
| PF/MN/LowAlt - PF/CN/LowAlt | -0.27 | 0.31 | 1038 | -0.87 | 0.385 |
| PF/DN/HiAlt - PF/CN/HiAlt | -0.14 | 0.30 | 1038 | -0.48 | 0.634 |
| PF/Conv/HiAlt - PF/CN/HiAlt | -0.10 | 0.31 | 1038 | -0.32 | 0.748 |
| PF/SN/HiAlt - PF/CN/HiAlt | -0.23 | 0.32 | 1038 | -0.72 | 0.471 |
| PF/MN/HiAlt - PF/CN/HiAlt | -0.20 | 0.30 | 1038 | -0.67 | 0.502 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowAlt - PF/CN/LowAlt | -0.19 | 0.34 | 1038 | -0.86 | 0.48 |
| PF/Conv/LowAlt - PF/CN/LowAlt | -0.05 | 0.32 | 1038 | -0.67 | 0.57 |
| PF/SN/LowAlt - PF/CN/LowAlt | -0.15 | 0.33 | 1038 | -0.80 | 0.51 |
| PF/MN/LowAlt - PF/CN/LowAlt | -0.27 | 0.31 | 1038 | -0.87 | 0.33 |
| PF/DN/HiAlt - PF/CN/HiAlt | -0.14 | 0.30 | 1038 | -0.74 | 0.45 |
| PF/Conv/HiAlt - PF/CN/HiAlt | -0.10 | 0.31 | 1038 | -0.70 | 0.50 |
| PF/SN/HiAlt - PF/CN/HiAlt | -0.23 | 0.32 | 1038 | -0.86 | 0.40 |
| PF/MN/HiAlt - PF/CN/HiAlt | -0.20 | 0.30 | 1038 | -0.79 | 0.39 |

# effect sizes  
eff\_size(combinations,   
 method = list("PF/DN/LowAlt - PF/CN/LowAlt" = pf\_dn\_low\_alt - pf\_cn\_low\_alt,  
 "PF/Conv/LowAlt - PF/CN/LowAlt" = pf\_conv\_low\_alt - pf\_cn\_low\_alt,  
 "PF/SN/LowAlt - PF/CN/LowAlt" = pf\_sn\_low\_alt - pf\_cn\_low\_alt,  
 "PF/MN/LowAlt - PF/CN/LowAlt" = pf\_mn\_low\_alt - pf\_cn\_low\_alt,  
 "PF/DN/HiAlt - PF/CN/HiAlt" = pf\_dn\_hi\_alt - pf\_cn\_hi\_alt,  
 "PF/Conv/HiAlt - PF/CN/HiAlt" = pf\_conv\_hi\_alt - pf\_cn\_hi\_alt,  
 "PF/SN/HiAlt - PF/CN/HiAlt" = pf\_sn\_hi\_alt - pf\_cn\_hi\_alt,  
 "PF/MN/HiAlt - PF/CN/HiAlt" = pf\_mn\_hi\_alt - pf\_cn\_hi\_alt), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowAlt - PF/CN/LowAlt | -0.18 | 0.32 | 1038 | -0.81 | 0.45 |
| PF/Conv/LowAlt - PF/CN/LowAlt | -0.05 | 0.30 | 1038 | -0.63 | 0.54 |
| PF/SN/LowAlt - PF/CN/LowAlt | -0.14 | 0.31 | 1038 | -0.75 | 0.48 |
| PF/MN/LowAlt - PF/CN/LowAlt | -0.25 | 0.29 | 1038 | -0.81 | 0.31 |
| PF/DN/HiAlt - PF/CN/HiAlt | -0.14 | 0.28 | 1038 | -0.69 | 0.42 |
| PF/Conv/HiAlt - PF/CN/HiAlt | -0.09 | 0.29 | 1038 | -0.66 | 0.47 |
| PF/SN/HiAlt - PF/CN/HiAlt | -0.22 | 0.30 | 1038 | -0.80 | 0.37 |
| PF/MN/HiAlt - PF/CN/HiAlt | -0.19 | 0.28 | 1038 | -0.74 | 0.36 |

Pairwise comparisons

Custom contrasts

proenvframe\_lowvshi\_alt

## contrast estimate SE df t.ratio p.value  
## PF/DN/LowAlt - PF/CN/LowAlt -0.1942 0.342 1038 -0.568 0.5700  
## PF/Conv/LowAlt - PF/CN/LowAlt -0.0493 0.318 1038 -0.155 0.8766  
## PF/SN/LowAlt - PF/CN/LowAlt -0.1455 0.334 1038 -0.436 0.6628  
## PF/MN/LowAlt - PF/CN/LowAlt -0.2664 0.306 1038 -0.870 0.3845  
## PF/DN/HiAlt - PF/CN/HiAlt -0.1448 0.304 1038 -0.476 0.6341  
## PF/Conv/HiAlt - PF/CN/HiAlt -0.0986 0.307 1038 -0.321 0.7482  
## PF/SN/HiAlt - PF/CN/HiAlt -0.2302 0.319 1038 -0.722 0.4706  
## PF/MN/HiAlt - PF/CN/HiAlt -0.2022 0.301 1038 -0.672 0.5020  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_LowAlt <- c(1,rep(0,7))  
conv\_vs\_c\_LowAlt <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowAlt <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowAlt <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiAlt <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiAlt <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiAlt <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiAlt <- c(rep(0,7),1)

compare\_alt <- contrast(proenvframe\_lowvshi\_alt, method = list("Effect of DN (Low - High alt)" = dn\_vs\_c\_LowAlt - dn\_vs\_c\_HiAlt,   
 "Effect of Conv (Low - High alt)" = conv\_vs\_c\_LowAlt - conv\_vs\_c\_HiAlt,  
 "Effect of SN (Low - High alt)" = sn\_vs\_c\_LowAlt - sn\_vs\_c\_HiAlt,  
 "Effect of MN (Low - High alt)" = mn\_vs\_c\_LowAlt - mn\_vs\_c\_HiAlt), adjust = "none")  
  
compare\_alt %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High alt) | -0.05 | 0.54 | 1038 | -0.09 | 0.927 |
| Effect of Conv (Low - High alt) | 0.05 | 0.52 | 1038 | 0.10 | 0.924 |
| Effect of SN (Low - High alt) | 0.08 | 0.54 | 1038 | 0.16 | 0.875 |
| Effect of MN (Low - High alt) | -0.06 | 0.50 | 1038 | -0.13 | 0.897 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High alt) | -0.05 | 0.54 | 1038 | -1.10 | 1.00 |
| Effect of Conv (Low - High alt) | 0.05 | 0.52 | 1038 | -0.97 | 1.07 |
| Effect of SN (Low - High alt) | 0.08 | 0.54 | 1038 | -0.97 | 1.14 |
| Effect of MN (Low - High alt) | -0.06 | 0.50 | 1038 | -1.04 | 0.91 |

# effect sizes  
eff\_size(proenvframe\_lowvshi\_alt, method = list("Effect of DN (Low - High alt)" = dn\_vs\_c\_LowAlt - dn\_vs\_c\_HiAlt,   
 "Effect of Conv (Low - High alt)" = conv\_vs\_c\_LowAlt - conv\_vs\_c\_HiAlt,  
 "Effect of SN (Low - High alt)" = sn\_vs\_c\_LowAlt - sn\_vs\_c\_HiAlt,  
 "Effect of MN (Low - High alt)" = mn\_vs\_c\_LowAlt - mn\_vs\_c\_HiAlt), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High alt) | -0.05 | 0.50 | 1038 | -1.03 | 0.94 |
| Effect of Conv (Low - High alt) | 0.05 | 0.49 | 1038 | -0.91 | 1.00 |
| Effect of SN (Low - High alt) | 0.08 | 0.50 | 1038 | -0.91 | 1.07 |
| Effect of MN (Low - High alt) | -0.06 | 0.46 | 1038 | -0.97 | 0.85 |

#### Self-enhancing framing

selfenhframe\_lowvshi\_alt <- contrast(combinations,   
 method = list("SF/DN/LowAlt - SF/CN/LowAlt" = sf\_dn\_low\_alt - sf\_cn\_low\_alt,  
 "SF/Conv/LowAlt - SF/CN/LowAlt" = sf\_conv\_low\_alt - sf\_cn\_low\_alt,  
 "SF/SN/LowAlt - SF/CN/LowAlt" = sf\_sn\_low\_alt - sf\_cn\_low\_alt,  
 "SF/MN/LowAlt - SF/CN/LowAlt" = sf\_mn\_low\_alt - sf\_cn\_low\_alt,  
 "SF/DN/HiAlt - SF/CN/HiAlt" = sf\_dn\_hi\_alt - sf\_cn\_hi\_alt,  
 "SF/Conv/HiAlt - SF/CN/HiAlt" = sf\_conv\_hi\_alt - sf\_cn\_hi\_alt,  
 "SF/SN/HiAlt - SF/CN/HiAlt" = sf\_sn\_hi\_alt - sf\_cn\_hi\_alt,  
 "SF/MN/HiAlt - SF/CN/HiAlt" = sf\_mn\_hi\_alt - sf\_cn\_hi\_alt),   
 adjust = "none")  
  
selfenhframe\_lowvshi\_alt %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowAlt - SF/CN/LowAlt | 0.63 | 0.37 | 1038 | 1.69 | 0.091 |
| SF/Conv/LowAlt - SF/CN/LowAlt | 0.17 | 0.39 | 1038 | 0.43 | 0.669 |
| SF/SN/LowAlt - SF/CN/LowAlt | 0.20 | 0.42 | 1038 | 0.49 | 0.628 |
| SF/MN/LowAlt - SF/CN/LowAlt | -0.10 | 0.37 | 1038 | -0.27 | 0.789 |
| SF/DN/HiAlt - SF/CN/HiAlt | -0.15 | 0.37 | 1038 | -0.42 | 0.677 |
| SF/Conv/HiAlt - SF/CN/HiAlt | 0.30 | 0.37 | 1038 | 0.80 | 0.424 |
| SF/SN/HiAlt - SF/CN/HiAlt | -0.19 | 0.40 | 1038 | -0.47 | 0.639 |
| SF/MN/HiAlt - SF/CN/HiAlt | 0.38 | 0.37 | 1038 | 1.04 | 0.301 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowAlt - SF/CN/LowAlt | 0.63 | 0.37 | 1038 | -0.10 | 1.36 |
| SF/Conv/LowAlt - SF/CN/LowAlt | 0.17 | 0.39 | 1038 | -0.60 | 0.94 |
| SF/SN/LowAlt - SF/CN/LowAlt | 0.20 | 0.42 | 1038 | -0.62 | 1.03 |
| SF/MN/LowAlt - SF/CN/LowAlt | -0.10 | 0.37 | 1038 | -0.81 | 0.62 |
| SF/DN/HiAlt - SF/CN/HiAlt | -0.15 | 0.37 | 1038 | -0.88 | 0.57 |
| SF/Conv/HiAlt - SF/CN/HiAlt | 0.30 | 0.37 | 1038 | -0.44 | 1.03 |
| SF/SN/HiAlt - SF/CN/HiAlt | -0.19 | 0.40 | 1038 | -0.97 | 0.59 |
| SF/MN/HiAlt - SF/CN/HiAlt | 0.38 | 0.37 | 1038 | -0.34 | 1.10 |

# effect sizes  
eff\_size(combinations,   
 method = list("SF/DN/LowAlt - SF/CN/LowAlt" = sf\_dn\_low\_alt - sf\_cn\_low\_alt,  
 "SF/Conv/LowAlt - SF/CN/LowAlt" = sf\_conv\_low\_alt - sf\_cn\_low\_alt,  
 "SF/SN/LowAlt - SF/CN/LowAlt" = sf\_sn\_low\_alt - sf\_cn\_low\_alt,  
 "SF/MN/LowAlt - SF/CN/LowAlt" = sf\_mn\_low\_alt - sf\_cn\_low\_alt,  
 "SF/DN/HiAlt - SF/CN/HiAlt" = sf\_dn\_hi\_alt - sf\_cn\_hi\_alt,  
 "SF/Conv/HiAlt - SF/CN/HiAlt" = sf\_conv\_hi\_alt - sf\_cn\_hi\_alt,  
 "SF/SN/HiAlt - SF/CN/HiAlt" = sf\_sn\_hi\_alt - sf\_cn\_hi\_alt,  
 "SF/MN/HiAlt - SF/CN/HiAlt" = sf\_mn\_hi\_alt - sf\_cn\_hi\_alt), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowAlt - SF/CN/LowAlt | 0.59 | 0.35 | 1038 | -0.10 | 1.27 |
| SF/Conv/LowAlt - SF/CN/LowAlt | 0.16 | 0.37 | 1038 | -0.57 | 0.88 |
| SF/SN/LowAlt - SF/CN/LowAlt | 0.19 | 0.39 | 1038 | -0.58 | 0.96 |
| SF/MN/LowAlt - SF/CN/LowAlt | -0.09 | 0.34 | 1038 | -0.76 | 0.58 |
| SF/DN/HiAlt - SF/CN/HiAlt | -0.14 | 0.35 | 1038 | -0.82 | 0.53 |
| SF/Conv/HiAlt - SF/CN/HiAlt | 0.28 | 0.35 | 1038 | -0.41 | 0.97 |
| SF/SN/HiAlt - SF/CN/HiAlt | -0.17 | 0.37 | 1038 | -0.90 | 0.55 |
| SF/MN/HiAlt - SF/CN/HiAlt | 0.36 | 0.34 | 1038 | -0.32 | 1.03 |

Pairwise comparisons

Custom contrasts

selfenhframe\_lowvshi\_alt

## contrast estimate SE df t.ratio p.value  
## SF/DN/LowAlt - SF/CN/LowAlt 0.630 0.373 1038 1.689 0.0915  
## SF/Conv/LowAlt - SF/CN/LowAlt 0.168 0.394 1038 0.427 0.6695  
## SF/SN/LowAlt - SF/CN/LowAlt 0.204 0.421 1038 0.485 0.6278  
## SF/MN/LowAlt - SF/CN/LowAlt -0.098 0.365 1038 -0.268 0.7885  
## SF/DN/HiAlt - SF/CN/HiAlt -0.153 0.369 1038 -0.416 0.6774  
## SF/Conv/HiAlt - SF/CN/HiAlt 0.299 0.374 1038 0.800 0.4242  
## SF/SN/HiAlt - SF/CN/HiAlt -0.186 0.397 1038 -0.470 0.6387  
## SF/MN/HiAlt - SF/CN/HiAlt 0.379 0.366 1038 1.036 0.3006  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_LowAlt <- c(1,rep(0,7))  
conv\_vs\_c\_LowAlt <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowAlt <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowAlt <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiAlt <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiAlt <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiAlt <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiAlt <- c(rep(0,7),1)

compare\_alt <- contrast(selfenhframe\_lowvshi\_alt, method = list("Effect of DN (Low - High alt)" = dn\_vs\_c\_LowAlt - dn\_vs\_c\_HiAlt,   
 "Effect of Conv (Low - High alt)" = conv\_vs\_c\_LowAlt - conv\_vs\_c\_HiAlt,  
 "Effect of SN (Low - High alt)" = sn\_vs\_c\_LowAlt - sn\_vs\_c\_HiAlt,  
 "Effect of MN (Low - High alt)" = mn\_vs\_c\_LowAlt - mn\_vs\_c\_HiAlt), adjust = "none")  
  
compare\_alt %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High alt) | 0.78 | 0.65 | 1038 | 1.20 | 0.231 |
| Effect of Conv (Low - High alt) | -0.13 | 0.68 | 1038 | -0.19 | 0.846 |
| Effect of SN (Low - High alt) | 0.39 | 0.73 | 1038 | 0.54 | 0.592 |
| Effect of MN (Low - High alt) | -0.48 | 0.64 | 1038 | -0.75 | 0.454 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High alt) | 0.78 | 0.65 | 1038 | -0.50 | 2.07 |
| Effect of Conv (Low - High alt) | -0.13 | 0.68 | 1038 | -1.46 | 1.20 |
| Effect of SN (Low - High alt) | 0.39 | 0.73 | 1038 | -1.04 | 1.82 |
| Effect of MN (Low - High alt) | -0.48 | 0.64 | 1038 | -1.73 | 0.77 |

# effect sizes  
eff\_size(selfenhframe\_lowvshi\_alt, method = list("Effect of DN (Low - High alt)" = dn\_vs\_c\_LowAlt - dn\_vs\_c\_HiAlt,   
 "Effect of Conv (Low - High alt)" = conv\_vs\_c\_LowAlt - conv\_vs\_c\_HiAlt,  
 "Effect of SN (Low - High alt)" = sn\_vs\_c\_LowAlt - sn\_vs\_c\_HiAlt,  
 "Effect of MN (Low - High alt)" = mn\_vs\_c\_LowAlt - mn\_vs\_c\_HiAlt), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High alt) | 0.73 | 0.61 | 1038 | -0.47 | 1.93 |
| Effect of Conv (Low - High alt) | -0.12 | 0.63 | 1038 | -1.37 | 1.12 |
| Effect of SN (Low - High alt) | 0.37 | 0.68 | 1038 | -0.97 | 1.70 |
| Effect of MN (Low - High alt) | -0.45 | 0.60 | 1038 | -1.62 | 0.72 |

## Egoistic values

Is the difference between Control Norm and Other Norm different for people low vs high on egoistic values? Does this vary across framing conditions?

### 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)

### Calculate EM Means at low and high ego

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

| norm\_condition | egoistic\_center | framing\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- | --- |
| control\_norm | -0.92 | control\_framing | 4.67 | 0.17 | 1038 | 4.34 | 5.00 |
| descriptive\_norm | -0.92 | control\_framing | 4.54 | 0.22 | 1038 | 4.12 | 4.97 |
| convention\_norm | -0.92 | control\_framing | 4.91 | 0.18 | 1038 | 4.55 | 5.26 |
| social\_norm | -0.92 | control\_framing | 4.57 | 0.17 | 1038 | 4.24 | 4.90 |
| moral\_norm | -0.92 | control\_framing | 4.29 | 0.24 | 1038 | 3.82 | 4.76 |
| control\_norm | 0.92 | control\_framing | 4.23 | 0.20 | 1038 | 3.84 | 4.62 |
| descriptive\_norm | 0.92 | control\_framing | 4.04 | 0.20 | 1038 | 3.64 | 4.44 |
| convention\_norm | 0.92 | control\_framing | 4.09 | 0.20 | 1038 | 3.70 | 4.49 |
| social\_norm | 0.92 | control\_framing | 3.75 | 0.18 | 1038 | 3.39 | 4.11 |
| moral\_norm | 0.92 | control\_framing | 4.17 | 0.21 | 1038 | 3.76 | 4.58 |
| control\_norm | -0.92 | pro\_env\_framing | 5.08 | 0.18 | 1038 | 4.74 | 5.43 |
| descriptive\_norm | -0.92 | pro\_env\_framing | 4.67 | 0.21 | 1038 | 4.25 | 5.08 |
| convention\_norm | -0.92 | pro\_env\_framing | 4.63 | 0.18 | 1038 | 4.27 | 4.99 |
| social\_norm | -0.92 | pro\_env\_framing | 4.56 | 0.19 | 1038 | 4.18 | 4.94 |
| moral\_norm | -0.92 | pro\_env\_framing | 4.66 | 0.19 | 1038 | 4.29 | 5.03 |
| control\_norm | 0.92 | pro\_env\_framing | 4.14 | 0.19 | 1038 | 3.77 | 4.50 |
| descriptive\_norm | 0.92 | pro\_env\_framing | 4.22 | 0.18 | 1038 | 3.87 | 4.57 |
| convention\_norm | 0.92 | pro\_env\_framing | 4.44 | 0.19 | 1038 | 4.06 | 4.82 |
| social\_norm | 0.92 | pro\_env\_framing | 4.28 | 0.20 | 1038 | 3.89 | 4.68 |
| moral\_norm | 0.92 | pro\_env\_framing | 4.09 | 0.18 | 1038 | 3.75 | 4.44 |
| control\_norm | -0.92 | self\_enh\_framing | 4.54 | 0.21 | 1038 | 4.13 | 4.95 |
| descriptive\_norm | -0.92 | self\_enh\_framing | 4.72 | 0.22 | 1038 | 4.29 | 5.15 |
| convention\_norm | -0.92 | self\_enh\_framing | 4.96 | 0.18 | 1038 | 4.61 | 5.31 |
| social\_norm | -0.92 | self\_enh\_framing | 4.41 | 0.21 | 1038 | 3.99 | 4.83 |
| moral\_norm | -0.92 | self\_enh\_framing | 4.68 | 0.18 | 1038 | 4.32 | 5.04 |
| control\_norm | 0.92 | self\_enh\_framing | 3.93 | 0.20 | 1038 | 3.55 | 4.32 |
| descriptive\_norm | 0.92 | self\_enh\_framing | 4.23 | 0.23 | 1038 | 3.78 | 4.68 |
| convention\_norm | 0.92 | self\_enh\_framing | 3.98 | 0.18 | 1038 | 3.62 | 4.33 |
| social\_norm | 0.92 | self\_enh\_framing | 4.08 | 0.19 | 1038 | 3.70 | 4.46 |
| moral\_norm | 0.92 | self\_enh\_framing | 4.07 | 0.19 | 1038 | 3.70 | 4.44 |

### Custom contrasts

cf\_cn\_low\_ego <- c(1, rep(0,29)) # control framing  
cf\_dn\_low\_ego <- c(0,1,rep(0,28))  
cf\_conv\_low\_ego <- c(0,0,1,rep(0,27))  
cf\_sn\_low\_ego <- c(0,0,0,1,rep(0,26))  
cf\_mn\_low\_ego <- c(rep(0,4),1,(rep(0,25)))  
  
cf\_cn\_hi\_ego <- c(rep(0,5),1,(rep(0,24)))   
cf\_dn\_hi\_ego <- c(rep(0,6),1,(rep(0,23)))  
cf\_conv\_hi\_ego <- c(rep(0,7),1,(rep(0,22)))  
cf\_sn\_hi\_ego <- c(rep(0,8),1,(rep(0,21)))  
cf\_mn\_hi\_ego <- c(rep(0,9),1,(rep(0,20)))  
  
  
pf\_cn\_low\_ego <- c(rep(0,10),1,(rep(0,19))) # pro-environmental framing  
pf\_dn\_low\_ego <- c(rep(0,11),1,(rep(0,18)))  
pf\_conv\_low\_ego <- c(rep(0,12),1,(rep(0,17)))  
pf\_sn\_low\_ego <- c(rep(0,13),1,(rep(0,16)))  
pf\_mn\_low\_ego <- c(rep(0,14),1,(rep(0,15)))  
  
pf\_cn\_hi\_ego <- c(rep(0,15),1,(rep(0,14)))   
pf\_dn\_hi\_ego <- c(rep(0,16),1,(rep(0,13)))  
pf\_conv\_hi\_ego <- c(rep(0,17),1,(rep(0,12)))  
pf\_sn\_hi\_ego <- c(rep(0,18),1,(rep(0,11)))  
pf\_mn\_hi\_ego <- c(rep(0,19),1,(rep(0,10)))  
  
  
sf\_cn\_low\_ego <- c(rep(0,20),1,(rep(0,9))) # self-enhancing framing  
sf\_dn\_low\_ego <- c(rep(0,21),1,(rep(0,8)))  
sf\_conv\_low\_ego <- c(rep(0,22),1,(rep(0,7)))  
sf\_sn\_low\_ego <- c(rep(0,23),1,(rep(0,6)))  
sf\_mn\_low\_ego <- c(rep(0,24),1,(rep(0,5)))  
  
sf\_cn\_hi\_ego <- c(rep(0,25),1,(rep(0,4)))   
sf\_dn\_hi\_ego <- c(rep(0,26),1,(rep(0,3)))  
sf\_conv\_hi\_ego <- c(rep(0,27),1,(rep(0,2)))  
sf\_sn\_hi\_ego <- c(rep(0,28),1,(rep(0,1)))  
sf\_mn\_hi\_ego <- c(rep(0,29),1)

Effect of norm for people low vs high on egoistic values across framing conditions

#### Control framing

controlframe\_lowvshi\_ego <- contrast(combinations,   
 method = list("CF/DN/LowEgo - CF/CN/LowEgo" = cf\_dn\_low\_ego - cf\_cn\_low\_ego,  
 "CF/Conv/LowEgo - CF/CN/LowEgo" = cf\_conv\_low\_ego - cf\_cn\_low\_ego,  
 "CF/SN/LowEgo - CF/CN/LowEgo" = cf\_sn\_low\_ego - cf\_cn\_low\_ego,  
 "CF/MN/LowEgo - CF/CN/LowEgo" = cf\_mn\_low\_ego - cf\_cn\_low\_ego,  
 "CF/DN/HiEgo - CF/CN/HiEgo" = cf\_dn\_hi\_ego - cf\_cn\_hi\_ego,  
 "CF/Conv/HiEgo - CF/CN/HiEgo" = cf\_conv\_hi\_ego - cf\_cn\_hi\_ego,  
 "CF/SN/HiEgo - CF/CN/HiEgo" = cf\_sn\_hi\_ego - cf\_cn\_hi\_ego,  
 "CF/MN/HiEgo - CF/CN/HiEgo" = cf\_mn\_hi\_ego - cf\_cn\_hi\_ego),   
 adjust = "none")  
  
controlframe\_lowvshi\_ego %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowEgo - CF/CN/LowEgo | -0.13 | 0.27 | 1038 | -0.47 | 0.640 |
| CF/Conv/LowEgo - CF/CN/LowEgo | 0.24 | 0.25 | 1038 | 0.96 | 0.336 |
| CF/SN/LowEgo - CF/CN/LowEgo | -0.10 | 0.24 | 1038 | -0.42 | 0.674 |
| CF/MN/LowEgo - CF/CN/LowEgo | -0.38 | 0.29 | 1038 | -1.31 | 0.192 |
| CF/DN/HiEgo - CF/CN/HiEgo | -0.19 | 0.28 | 1038 | -0.66 | 0.507 |
| CF/Conv/HiEgo - CF/CN/HiEgo | -0.13 | 0.28 | 1038 | -0.48 | 0.634 |
| CF/SN/HiEgo - CF/CN/HiEgo | -0.48 | 0.27 | 1038 | -1.77 | 0.076 |
| CF/MN/HiEgo - CF/CN/HiEgo | -0.06 | 0.29 | 1038 | -0.20 | 0.844 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowEgo - CF/CN/LowEgo | -0.13 | 0.27 | 1038 | -0.66 | 0.41 |
| CF/Conv/LowEgo - CF/CN/LowEgo | 0.24 | 0.25 | 1038 | -0.25 | 0.72 |
| CF/SN/LowEgo - CF/CN/LowEgo | -0.10 | 0.24 | 1038 | -0.56 | 0.36 |
| CF/MN/LowEgo - CF/CN/LowEgo | -0.38 | 0.29 | 1038 | -0.96 | 0.19 |
| CF/DN/HiEgo - CF/CN/HiEgo | -0.19 | 0.28 | 1038 | -0.75 | 0.37 |
| CF/Conv/HiEgo - CF/CN/HiEgo | -0.13 | 0.28 | 1038 | -0.69 | 0.42 |
| CF/SN/HiEgo - CF/CN/HiEgo | -0.48 | 0.27 | 1038 | -1.01 | 0.05 |
| CF/MN/HiEgo - CF/CN/HiEgo | -0.06 | 0.29 | 1038 | -0.62 | 0.51 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(combinations,   
 method = list("CF/DN/LowEgo - CF/CN/LowEgo" = cf\_dn\_low\_ego - cf\_cn\_low\_ego,  
 "CF/Conv/LowEgo - CF/CN/LowEgo" = cf\_conv\_low\_ego - cf\_cn\_low\_ego,  
 "CF/SN/LowEgo - CF/CN/LowEgo" = cf\_sn\_low\_ego - cf\_cn\_low\_ego,  
 "CF/MN/LowEgo - CF/CN/LowEgo" = cf\_mn\_low\_ego - cf\_cn\_low\_ego,  
 "CF/DN/HiEgo - CF/CN/HiEgo" = cf\_dn\_hi\_ego - cf\_cn\_hi\_ego,  
 "CF/Conv/HiEgo - CF/CN/HiEgo" = cf\_conv\_hi\_ego - cf\_cn\_hi\_ego,  
 "CF/SN/HiEgo - CF/CN/HiEgo" = cf\_sn\_hi\_ego - cf\_cn\_hi\_ego,  
 "CF/MN/HiEgo - CF/CN/HiEgo" = cf\_mn\_hi\_ego - cf\_cn\_hi\_ego), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowEgo - CF/CN/LowEgo | -0.12 | 0.25 | 1038 | -0.62 | 0.38 |
| CF/Conv/LowEgo - CF/CN/LowEgo | 0.22 | 0.23 | 1038 | -0.23 | 0.67 |
| CF/SN/LowEgo - CF/CN/LowEgo | -0.09 | 0.22 | 1038 | -0.52 | 0.34 |
| CF/MN/LowEgo - CF/CN/LowEgo | -0.36 | 0.27 | 1038 | -0.89 | 0.18 |
| CF/DN/HiEgo - CF/CN/HiEgo | -0.18 | 0.27 | 1038 | -0.70 | 0.34 |
| CF/Conv/HiEgo - CF/CN/HiEgo | -0.13 | 0.26 | 1038 | -0.65 | 0.39 |
| CF/SN/HiEgo - CF/CN/HiEgo | -0.45 | 0.25 | 1038 | -0.95 | 0.05 |
| CF/MN/HiEgo - CF/CN/HiEgo | -0.05 | 0.27 | 1038 | -0.58 | 0.48 |

Pairwise comparisons

Custom contrasts

controlframe\_lowvshi\_ego

## contrast estimate SE df t.ratio p.value  
## CF/DN/LowEgo - CF/CN/LowEgo -0.1268 0.271 1038 -0.468 0.6402  
## CF/Conv/LowEgo - CF/CN/LowEgo 0.2362 0.246 1038 0.962 0.3363  
## CF/SN/LowEgo - CF/CN/LowEgo -0.0988 0.235 1038 -0.420 0.6744  
## CF/MN/LowEgo - CF/CN/LowEgo -0.3821 0.292 1038 -1.307 0.1916  
## CF/DN/HiEgo - CF/CN/HiEgo -0.1884 0.284 1038 -0.664 0.5069  
## CF/Conv/HiEgo - CF/CN/HiEgo -0.1349 0.283 1038 -0.476 0.6338  
## CF/SN/HiEgo - CF/CN/HiEgo -0.4799 0.271 1038 -1.774 0.0764  
## CF/MN/HiEgo - CF/CN/HiEgo -0.0570 0.289 1038 -0.197 0.8436  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_LowEgo <- c(1,rep(0,7))  
conv\_vs\_c\_LowEgo <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowEgo <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowEgo <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiEgo <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiEgo <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiEgo <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiEgo <- c(rep(0,7),1)

compare\_ego <- contrast(controlframe\_lowvshi\_ego, method = list("Effect of DN (Low - High ego)" = dn\_vs\_c\_LowEgo - dn\_vs\_c\_HiEgo,   
 "Effect of Conv (Low - High ego)" = conv\_vs\_c\_LowEgo - conv\_vs\_c\_HiEgo,  
 "Effect of SN (Low - High ego)" = sn\_vs\_c\_LowEgo - sn\_vs\_c\_HiEgo,  
 "Effect of MN (Low - High ego)" = mn\_vs\_c\_LowEgo - mn\_vs\_c\_HiEgo), adjust = "none")  
  
compare\_ego %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ego) | 0.06 | 0.42 | 1038 | 0.15 | 0.884 |
| Effect of Conv (Low - High ego) | 0.37 | 0.38 | 1038 | 0.98 | 0.330 |
| Effect of SN (Low - High ego) | 0.38 | 0.38 | 1038 | 1.01 | 0.313 |
| Effect of MN (Low - High ego) | -0.33 | 0.44 | 1038 | -0.74 | 0.462 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ego) | 0.06 | 0.42 | 1038 | -0.76 | 0.89 |
| Effect of Conv (Low - High ego) | 0.37 | 0.38 | 1038 | -0.38 | 1.12 |
| Effect of SN (Low - High ego) | 0.38 | 0.38 | 1038 | -0.36 | 1.12 |
| Effect of MN (Low - High ego) | -0.33 | 0.44 | 1038 | -1.19 | 0.54 |

# effect sizes  
eff\_size(controlframe\_lowvshi\_ego, method = list("Effect of DN (Low - High ego)" = dn\_vs\_c\_LowEgo - dn\_vs\_c\_HiEgo,   
 "Effect of Conv (Low - High ego)" = conv\_vs\_c\_LowEgo - conv\_vs\_c\_HiEgo,  
 "Effect of SN (Low - High ego)" = sn\_vs\_c\_LowEgo - sn\_vs\_c\_HiEgo,  
 "Effect of MN (Low - High ego)" = mn\_vs\_c\_LowEgo - mn\_vs\_c\_HiEgo), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ego) | 0.06 | 0.39 | 1038 | -0.72 | 0.83 |
| Effect of Conv (Low - High ego) | 0.35 | 0.36 | 1038 | -0.35 | 1.05 |
| Effect of SN (Low - High ego) | 0.36 | 0.35 | 1038 | -0.34 | 1.05 |
| Effect of MN (Low - High ego) | -0.30 | 0.41 | 1038 | -1.12 | 0.51 |

#### Pro-environmental framing

proenvframe\_lowvshi\_ego <- contrast(combinations,   
 method = list("PF/DN/LowEgo - PF/CN/LowEgo" = pf\_dn\_low\_ego - pf\_cn\_low\_ego,  
 "PF/Conv/LowEgo - PF/CN/LowEgo" = pf\_conv\_low\_ego - pf\_cn\_low\_ego,  
 "PF/SN/LowEgo - PF/CN/LowEgo" = pf\_sn\_low\_ego - pf\_cn\_low\_ego,  
 "PF/MN/LowEgo - PF/CN/LowEgo" = pf\_mn\_low\_ego - pf\_cn\_low\_ego,  
 "PF/DN/HiEgo - PF/CN/HiEgo" = pf\_dn\_hi\_ego - pf\_cn\_hi\_ego,  
 "PF/Conv/HiEgo - PF/CN/HiEgo" = pf\_conv\_hi\_ego - pf\_cn\_hi\_ego,  
 "PF/SN/HiEgo - PF/CN/HiEgo" = pf\_sn\_hi\_ego - pf\_cn\_hi\_ego,  
 "PF/MN/HiEgo - PF/CN/HiEgo" = pf\_mn\_hi\_ego - pf\_cn\_hi\_ego),   
 adjust = "none")  
  
proenvframe\_lowvshi\_ego %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowEgo - PF/CN/LowEgo | -0.42 | 0.27 | 1038 | -1.53 | 0.126 |
| PF/Conv/LowEgo - PF/CN/LowEgo | -0.45 | 0.25 | 1038 | -1.78 | 0.076 |
| PF/SN/LowEgo - PF/CN/LowEgo | -0.52 | 0.26 | 1038 | -2.00 | 0.045 |
| PF/MN/LowEgo - PF/CN/LowEgo | -0.43 | 0.26 | 1038 | -1.66 | 0.097 |
| PF/DN/HiEgo - PF/CN/HiEgo | 0.08 | 0.26 | 1038 | 0.31 | 0.757 |
| PF/Conv/HiEgo - PF/CN/HiEgo | 0.30 | 0.27 | 1038 | 1.13 | 0.259 |
| PF/SN/HiEgo - PF/CN/HiEgo | 0.15 | 0.27 | 1038 | 0.53 | 0.595 |
| PF/MN/HiEgo - PF/CN/HiEgo | -0.04 | 0.26 | 1038 | -0.17 | 0.868 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowEgo - PF/CN/LowEgo | -0.42 | 0.27 | 1038 | -0.96 | 0.12 |
| PF/Conv/LowEgo - PF/CN/LowEgo | -0.45 | 0.25 | 1038 | -0.95 | 0.05 |
| PF/SN/LowEgo - PF/CN/LowEgo | -0.52 | 0.26 | 1038 | -1.03 | -0.01 |
| PF/MN/LowEgo - PF/CN/LowEgo | -0.43 | 0.26 | 1038 | -0.93 | 0.08 |
| PF/DN/HiEgo - PF/CN/HiEgo | 0.08 | 0.26 | 1038 | -0.43 | 0.59 |
| PF/Conv/HiEgo - PF/CN/HiEgo | 0.30 | 0.27 | 1038 | -0.22 | 0.83 |
| PF/SN/HiEgo - PF/CN/HiEgo | 0.15 | 0.27 | 1038 | -0.39 | 0.68 |
| PF/MN/HiEgo - PF/CN/HiEgo | -0.04 | 0.26 | 1038 | -0.55 | 0.46 |

# effect sizes  
eff\_size(combinations,   
 method = list("PF/DN/LowEgo - PF/CN/LowEgo" = pf\_dn\_low\_ego - pf\_cn\_low\_ego,  
 "PF/Conv/LowEgo - PF/CN/LowEgo" = pf\_conv\_low\_ego - pf\_cn\_low\_ego,  
 "PF/SN/LowEgo - PF/CN/LowEgo" = pf\_sn\_low\_ego - pf\_cn\_low\_ego,  
 "PF/MN/LowEgo - PF/CN/LowEgo" = pf\_mn\_low\_ego - pf\_cn\_low\_ego,  
 "PF/DN/HiEgo - PF/CN/HiEgo" = pf\_dn\_hi\_ego - pf\_cn\_hi\_ego,  
 "PF/Conv/HiEgo - PF/CN/HiEgo" = pf\_conv\_hi\_ego - pf\_cn\_hi\_ego,  
 "PF/SN/HiEgo - PF/CN/HiEgo" = pf\_sn\_hi\_ego - pf\_cn\_hi\_ego,  
 "PF/MN/HiEgo - PF/CN/HiEgo" = pf\_mn\_hi\_ego - pf\_cn\_hi\_ego), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowEgo - PF/CN/LowEgo | -0.39 | 0.26 | 1038 | -0.89 | 0.11 |
| PF/Conv/LowEgo - PF/CN/LowEgo | -0.42 | 0.24 | 1038 | -0.89 | 0.04 |
| PF/SN/LowEgo - PF/CN/LowEgo | -0.49 | 0.24 | 1038 | -0.97 | -0.01 |
| PF/MN/LowEgo - PF/CN/LowEgo | -0.40 | 0.24 | 1038 | -0.87 | 0.07 |
| PF/DN/HiEgo - PF/CN/HiEgo | 0.07 | 0.24 | 1038 | -0.40 | 0.55 |
| PF/Conv/HiEgo - PF/CN/HiEgo | 0.28 | 0.25 | 1038 | -0.21 | 0.78 |
| PF/SN/HiEgo - PF/CN/HiEgo | 0.14 | 0.26 | 1038 | -0.37 | 0.64 |
| PF/MN/HiEgo - PF/CN/HiEgo | -0.04 | 0.24 | 1038 | -0.51 | 0.43 |

Pairwise comparisons

Custom contrasts

proenvframe\_lowvshi\_ego

## contrast estimate SE df t.ratio p.value  
## PF/DN/LowEgo - PF/CN/LowEgo -0.4190 0.273 1038 -1.532 0.1258  
## PF/Conv/LowEgo - PF/CN/LowEgo -0.4508 0.254 1038 -1.776 0.0760  
## PF/SN/LowEgo - PF/CN/LowEgo -0.5216 0.260 1038 -2.003 0.0455  
## PF/MN/LowEgo - PF/CN/LowEgo -0.4258 0.257 1038 -1.660 0.0973  
## PF/DN/HiEgo - PF/CN/HiEgo 0.0800 0.258 1038 0.310 0.7568  
## PF/Conv/HiEgo - PF/CN/HiEgo 0.3029 0.268 1038 1.129 0.2594  
## PF/SN/HiEgo - PF/CN/HiEgo 0.1459 0.275 1038 0.531 0.5953  
## PF/MN/HiEgo - PF/CN/HiEgo -0.0428 0.257 1038 -0.167 0.8677  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_LowEgo <- c(1,rep(0,7))  
conv\_vs\_c\_LowEgo <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowEgo <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowEgo <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiEgo <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiEgo <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiEgo <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiEgo <- c(rep(0,7),1)

compare\_ego <- contrast(proenvframe\_lowvshi\_ego, method = list("Effect of DN (Low - High ego)" = dn\_vs\_c\_LowEgo - dn\_vs\_c\_HiEgo,   
 "Effect of Conv (Low - High ego)" = conv\_vs\_c\_LowEgo - conv\_vs\_c\_HiEgo,  
 "Effect of SN (Low - High ego)" = sn\_vs\_c\_LowEgo - sn\_vs\_c\_HiEgo,  
 "Effect of MN (Low - High ego)" = mn\_vs\_c\_LowEgo - mn\_vs\_c\_HiEgo), adjust = "none")  
  
compare\_ego %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ego) | -0.50 | 0.39 | 1038 | -1.28 | 0.201 |
| Effect of Conv (Low - High ego) | -0.75 | 0.39 | 1038 | -1.94 | 0.053 |
| Effect of SN (Low - High ego) | -0.67 | 0.39 | 1038 | -1.73 | 0.085 |
| Effect of MN (Low - High ego) | -0.38 | 0.37 | 1038 | -1.02 | 0.306 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ego) | -0.50 | 0.39 | 1038 | -1.26 | 0.27 |
| Effect of Conv (Low - High ego) | -0.75 | 0.39 | 1038 | -1.52 | 0.01 |
| Effect of SN (Low - High ego) | -0.67 | 0.39 | 1038 | -1.43 | 0.09 |
| Effect of MN (Low - High ego) | -0.38 | 0.37 | 1038 | -1.12 | 0.35 |

# effect sizes  
eff\_size(proenvframe\_lowvshi\_ego, method = list("Effect of DN (Low - High ego)" = dn\_vs\_c\_LowEgo - dn\_vs\_c\_HiEgo,   
 "Effect of Conv (Low - High ego)" = conv\_vs\_c\_LowEgo - conv\_vs\_c\_HiEgo,  
 "Effect of SN (Low - High ego)" = sn\_vs\_c\_LowEgo - sn\_vs\_c\_HiEgo,  
 "Effect of MN (Low - High ego)" = mn\_vs\_c\_LowEgo - mn\_vs\_c\_HiEgo), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ego) | -0.47 | 0.36 | 1038 | -1.18 | 0.25 |
| Effect of Conv (Low - High ego) | -0.71 | 0.36 | 1038 | -1.42 | 0.01 |
| Effect of SN (Low - High ego) | -0.62 | 0.36 | 1038 | -1.34 | 0.09 |
| Effect of MN (Low - High ego) | -0.36 | 0.35 | 1038 | -1.05 | 0.33 |

#### Self-enhancing framing

selfenhframe\_lowvshi\_ego <- contrast(combinations,   
 method = list("SF/DN/LowEgo - SF/CN/LowEgo" = sf\_dn\_low\_ego - sf\_cn\_low\_ego,  
 "SF/Conv/LowEgo - SF/CN/LowEgo" = sf\_conv\_low\_ego - sf\_cn\_low\_ego,  
 "SF/SN/LowEgo - SF/CN/LowEgo" = sf\_sn\_low\_ego - sf\_cn\_low\_ego,  
 "SF/MN/LowEgo - SF/CN/LowEgo" = sf\_mn\_low\_ego - sf\_cn\_low\_ego,  
 "SF/DN/HiEgo - SF/CN/HiEgo" = sf\_dn\_hi\_ego - sf\_cn\_hi\_ego,  
 "SF/Conv/HiEgo - SF/CN/HiEgo" = sf\_conv\_hi\_ego - sf\_cn\_hi\_ego,  
 "SF/SN/HiEgo - SF/CN/HiEgo" = sf\_sn\_hi\_ego - sf\_cn\_hi\_ego,  
 "SF/MN/HiEgo - SF/CN/HiEgo" = sf\_mn\_hi\_ego - sf\_cn\_hi\_ego),   
 adjust = "none")  
  
selfenhframe\_lowvshi\_ego %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowEgo - SF/CN/LowEgo | 0.18 | 0.31 | 1038 | 0.58 | 0.560 |
| SF/Conv/LowEgo - SF/CN/LowEgo | 0.42 | 0.28 | 1038 | 1.53 | 0.126 |
| SF/SN/LowEgo - SF/CN/LowEgo | -0.13 | 0.30 | 1038 | -0.43 | 0.670 |
| SF/MN/LowEgo - SF/CN/LowEgo | 0.14 | 0.28 | 1038 | 0.52 | 0.604 |
| SF/DN/HiEgo - SF/CN/HiEgo | 0.30 | 0.31 | 1038 | 0.97 | 0.331 |
| SF/Conv/HiEgo - SF/CN/HiEgo | 0.04 | 0.27 | 1038 | 0.17 | 0.867 |
| SF/SN/HiEgo - SF/CN/HiEgo | 0.15 | 0.28 | 1038 | 0.53 | 0.597 |
| SF/MN/HiEgo - SF/CN/HiEgo | 0.14 | 0.27 | 1038 | 0.50 | 0.617 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowEgo - SF/CN/LowEgo | 0.18 | 0.31 | 1038 | -0.42 | 0.78 |
| SF/Conv/LowEgo - SF/CN/LowEgo | 0.42 | 0.28 | 1038 | -0.12 | 0.96 |
| SF/SN/LowEgo - SF/CN/LowEgo | -0.13 | 0.30 | 1038 | -0.72 | 0.46 |
| SF/MN/LowEgo - SF/CN/LowEgo | 0.14 | 0.28 | 1038 | -0.40 | 0.69 |
| SF/DN/HiEgo - SF/CN/HiEgo | 0.30 | 0.31 | 1038 | -0.30 | 0.90 |
| SF/Conv/HiEgo - SF/CN/HiEgo | 0.04 | 0.27 | 1038 | -0.48 | 0.57 |
| SF/SN/HiEgo - SF/CN/HiEgo | 0.15 | 0.28 | 1038 | -0.39 | 0.69 |
| SF/MN/HiEgo - SF/CN/HiEgo | 0.14 | 0.27 | 1038 | -0.40 | 0.67 |

# effect sizes  
eff\_size(combinations,   
 method = list("SF/DN/LowEgo - SF/CN/LowEgo" = sf\_dn\_low\_ego - sf\_cn\_low\_ego,  
 "SF/Conv/LowEgo - SF/CN/LowEgo" = sf\_conv\_low\_ego - sf\_cn\_low\_ego,  
 "SF/SN/LowEgo - SF/CN/LowEgo" = sf\_sn\_low\_ego - sf\_cn\_low\_ego,  
 "SF/MN/LowEgo - SF/CN/LowEgo" = sf\_mn\_low\_ego - sf\_cn\_low\_ego,  
 "SF/DN/HiEgo - SF/CN/HiEgo" = sf\_dn\_hi\_ego - sf\_cn\_hi\_ego,  
 "SF/Conv/HiEgo - SF/CN/HiEgo" = sf\_conv\_hi\_ego - sf\_cn\_hi\_ego,  
 "SF/SN/HiEgo - SF/CN/HiEgo" = sf\_sn\_hi\_ego - sf\_cn\_hi\_ego,  
 "SF/MN/HiEgo - SF/CN/HiEgo" = sf\_mn\_hi\_ego - sf\_cn\_hi\_ego), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowEgo - SF/CN/LowEgo | 0.17 | 0.29 | 1038 | -0.40 | 0.73 |
| SF/Conv/LowEgo - SF/CN/LowEgo | 0.40 | 0.26 | 1038 | -0.11 | 0.90 |
| SF/SN/LowEgo - SF/CN/LowEgo | -0.12 | 0.28 | 1038 | -0.67 | 0.43 |
| SF/MN/LowEgo - SF/CN/LowEgo | 0.14 | 0.26 | 1038 | -0.38 | 0.65 |
| SF/DN/HiEgo - SF/CN/HiEgo | 0.28 | 0.29 | 1038 | -0.28 | 0.84 |
| SF/Conv/HiEgo - SF/CN/HiEgo | 0.04 | 0.25 | 1038 | -0.45 | 0.53 |
| SF/SN/HiEgo - SF/CN/HiEgo | 0.14 | 0.26 | 1038 | -0.37 | 0.64 |
| SF/MN/HiEgo - SF/CN/HiEgo | 0.13 | 0.26 | 1038 | -0.37 | 0.63 |

Pairwise comparisons

Custom contrasts

selfenhframe\_lowvshi\_ego

## contrast estimate SE df t.ratio p.value  
## SF/DN/LowEgo - SF/CN/LowEgo 0.1794 0.307 1038 0.584 0.5595  
## SF/Conv/LowEgo - SF/CN/LowEgo 0.4226 0.276 1038 1.533 0.1256  
## SF/SN/LowEgo - SF/CN/LowEgo -0.1278 0.300 1038 -0.427 0.6697  
## SF/MN/LowEgo - SF/CN/LowEgo 0.1444 0.278 1038 0.519 0.6038  
## SF/DN/HiEgo - SF/CN/HiEgo 0.2971 0.306 1038 0.972 0.3315  
## SF/Conv/HiEgo - SF/CN/HiEgo 0.0449 0.268 1038 0.168 0.8668  
## SF/SN/HiEgo - SF/CN/HiEgo 0.1455 0.275 1038 0.529 0.5971  
## SF/MN/HiEgo - SF/CN/HiEgo 0.1370 0.274 1038 0.501 0.6168  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_LowEgo <- c(1,rep(0,7))  
conv\_vs\_c\_LowEgo <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowEgo <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowEgo <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiEgo <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiEgo <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiEgo <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiEgo <- c(rep(0,7),1)

compare\_ego <- contrast(selfenhframe\_lowvshi\_ego, method = list("Effect of DN (Low - High ego)" = dn\_vs\_c\_LowEgo - dn\_vs\_c\_HiEgo,   
 "Effect of Conv (Low - High ego)" = conv\_vs\_c\_LowEgo - conv\_vs\_c\_HiEgo,  
 "Effect of SN (Low - High ego)" = sn\_vs\_c\_LowEgo - sn\_vs\_c\_HiEgo,  
 "Effect of MN (Low - High ego)" = mn\_vs\_c\_LowEgo - mn\_vs\_c\_HiEgo), adjust = "none")  
  
compare\_ego %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ego) | -0.12 | 0.50 | 1038 | -0.23 | 0.815 |
| Effect of Conv (Low - High ego) | 0.38 | 0.40 | 1038 | 0.93 | 0.351 |
| Effect of SN (Low - High ego) | -0.27 | 0.44 | 1038 | -0.62 | 0.533 |
| Effect of MN (Low - High ego) | 0.01 | 0.42 | 1038 | 0.02 | 0.986 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ego) | -0.12 | 0.50 | 1038 | -1.10 | 0.87 |
| Effect of Conv (Low - High ego) | 0.38 | 0.40 | 1038 | -0.42 | 1.17 |
| Effect of SN (Low - High ego) | -0.27 | 0.44 | 1038 | -1.13 | 0.59 |
| Effect of MN (Low - High ego) | 0.01 | 0.42 | 1038 | -0.81 | 0.83 |

# effect sizes  
eff\_size(selfenhframe\_lowvshi\_ego, method = list("Effect of DN (Low - High ego)" = dn\_vs\_c\_LowEgo - dn\_vs\_c\_HiEgo,   
 "Effect of Conv (Low - High ego)" = conv\_vs\_c\_LowEgo - conv\_vs\_c\_HiEgo,  
 "Effect of SN (Low - High ego)" = sn\_vs\_c\_LowEgo - sn\_vs\_c\_HiEgo,  
 "Effect of MN (Low - High ego)" = mn\_vs\_c\_LowEgo - mn\_vs\_c\_HiEgo), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ego) | -0.11 | 0.47 | 1038 | -1.03 | 0.81 |
| Effect of Conv (Low - High ego) | 0.35 | 0.38 | 1038 | -0.39 | 1.10 |
| Effect of SN (Low - High ego) | -0.26 | 0.41 | 1038 | -1.06 | 0.55 |
| Effect of MN (Low - High ego) | 0.01 | 0.39 | 1038 | -0.76 | 0.77 |

## Hedonic values

Is the difference between Control Norm and Other Norm different for people low vs high on hedonic values? Does this vary across framing conditions?

### 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)

### Calculate EM Means at low and high hed

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

| norm\_condition | hedonic\_center | framing\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- | --- |
| control\_norm | -0.79 | control\_framing | 4.72 | 0.20 | 1038 | 4.33 | 5.10 |
| descriptive\_norm | -0.79 | control\_framing | 4.41 | 0.21 | 1038 | 3.98 | 4.83 |
| convention\_norm | -0.79 | control\_framing | 4.38 | 0.24 | 1038 | 3.91 | 4.85 |
| social\_norm | -0.79 | control\_framing | 4.20 | 0.20 | 1038 | 3.81 | 4.58 |
| moral\_norm | -0.79 | control\_framing | 4.52 | 0.23 | 1038 | 4.07 | 4.97 |
| control\_norm | 0.79 | control\_framing | 4.18 | 0.18 | 1038 | 3.82 | 4.54 |
| descriptive\_norm | 0.79 | control\_framing | 4.18 | 0.22 | 1038 | 3.74 | 4.61 |
| convention\_norm | 0.79 | control\_framing | 4.62 | 0.20 | 1038 | 4.24 | 5.00 |
| social\_norm | 0.79 | control\_framing | 4.12 | 0.18 | 1038 | 3.77 | 4.48 |
| moral\_norm | 0.79 | control\_framing | 3.94 | 0.22 | 1038 | 3.52 | 4.37 |
| control\_norm | -0.79 | pro\_env\_framing | 4.49 | 0.23 | 1038 | 4.04 | 4.95 |
| descriptive\_norm | -0.79 | pro\_env\_framing | 4.53 | 0.20 | 1038 | 4.15 | 4.92 |
| convention\_norm | -0.79 | pro\_env\_framing | 4.38 | 0.21 | 1038 | 3.96 | 4.79 |
| social\_norm | -0.79 | pro\_env\_framing | 4.51 | 0.20 | 1038 | 4.11 | 4.90 |
| moral\_norm | -0.79 | pro\_env\_framing | 4.44 | 0.18 | 1038 | 4.08 | 4.80 |
| control\_norm | 0.79 | pro\_env\_framing | 4.73 | 0.19 | 1038 | 4.35 | 5.11 |
| descriptive\_norm | 0.79 | pro\_env\_framing | 4.35 | 0.23 | 1038 | 3.89 | 4.81 |
| convention\_norm | 0.79 | pro\_env\_framing | 4.70 | 0.19 | 1038 | 4.33 | 5.07 |
| social\_norm | 0.79 | pro\_env\_framing | 4.34 | 0.21 | 1038 | 3.93 | 4.75 |
| moral\_norm | 0.79 | pro\_env\_framing | 4.31 | 0.20 | 1038 | 3.93 | 4.70 |
| control\_norm | -0.79 | self\_enh\_framing | 4.28 | 0.26 | 1038 | 3.78 | 4.78 |
| descriptive\_norm | -0.79 | self\_enh\_framing | 4.38 | 0.23 | 1038 | 3.94 | 4.83 |
| convention\_norm | -0.79 | self\_enh\_framing | 4.46 | 0.16 | 1038 | 4.13 | 4.78 |
| social\_norm | -0.79 | self\_enh\_framing | 4.55 | 0.24 | 1038 | 4.08 | 5.02 |
| moral\_norm | -0.79 | self\_enh\_framing | 4.68 | 0.17 | 1038 | 4.35 | 5.02 |
| control\_norm | 0.79 | self\_enh\_framing | 4.19 | 0.22 | 1038 | 3.76 | 4.62 |
| descriptive\_norm | 0.79 | self\_enh\_framing | 4.57 | 0.23 | 1038 | 4.12 | 5.01 |
| convention\_norm | 0.79 | self\_enh\_framing | 4.48 | 0.21 | 1038 | 4.08 | 4.89 |
| social\_norm | 0.79 | self\_enh\_framing | 3.94 | 0.24 | 1038 | 3.48 | 4.41 |
| moral\_norm | 0.79 | self\_enh\_framing | 4.07 | 0.20 | 1038 | 3.68 | 4.46 |

### Custom contrasts

cf\_cn\_low\_hed <- c(1, rep(0,29)) # control framing  
cf\_dn\_low\_hed <- c(0,1,rep(0,28))  
cf\_conv\_low\_hed <- c(0,0,1,rep(0,27))  
cf\_sn\_low\_hed <- c(0,0,0,1,rep(0,26))  
cf\_mn\_low\_hed <- c(rep(0,4),1,(rep(0,25)))  
  
cf\_cn\_hi\_hed <- c(rep(0,5),1,(rep(0,24)))   
cf\_dn\_hi\_hed <- c(rep(0,6),1,(rep(0,23)))  
cf\_conv\_hi\_hed <- c(rep(0,7),1,(rep(0,22)))  
cf\_sn\_hi\_hed <- c(rep(0,8),1,(rep(0,21)))  
cf\_mn\_hi\_hed <- c(rep(0,9),1,(rep(0,20)))  
  
  
pf\_cn\_low\_hed <- c(rep(0,10),1,(rep(0,19))) # pro-environmental framing  
pf\_dn\_low\_hed <- c(rep(0,11),1,(rep(0,18)))  
pf\_conv\_low\_hed <- c(rep(0,12),1,(rep(0,17)))  
pf\_sn\_low\_hed <- c(rep(0,13),1,(rep(0,16)))  
pf\_mn\_low\_hed <- c(rep(0,14),1,(rep(0,15)))  
  
pf\_cn\_hi\_hed <- c(rep(0,15),1,(rep(0,14)))   
pf\_dn\_hi\_hed <- c(rep(0,16),1,(rep(0,13)))  
pf\_conv\_hi\_hed <- c(rep(0,17),1,(rep(0,12)))  
pf\_sn\_hi\_hed <- c(rep(0,18),1,(rep(0,11)))  
pf\_mn\_hi\_hed <- c(rep(0,19),1,(rep(0,10)))  
  
  
sf\_cn\_low\_hed <- c(rep(0,20),1,(rep(0,9))) # self-enhancing framing  
sf\_dn\_low\_hed <- c(rep(0,21),1,(rep(0,8)))  
sf\_conv\_low\_hed <- c(rep(0,22),1,(rep(0,7)))  
sf\_sn\_low\_hed <- c(rep(0,23),1,(rep(0,6)))  
sf\_mn\_low\_hed <- c(rep(0,24),1,(rep(0,5)))  
  
sf\_cn\_hi\_hed <- c(rep(0,25),1,(rep(0,4)))   
sf\_dn\_hi\_hed <- c(rep(0,26),1,(rep(0,3)))  
sf\_conv\_hi\_hed <- c(rep(0,27),1,(rep(0,2)))  
sf\_sn\_hi\_hed <- c(rep(0,28),1,(rep(0,1)))  
sf\_mn\_hi\_hed <- c(rep(0,29),1)

Effect of norm for people low vs high on hedonic values across framing conditions

#### Control framing

controlframe\_lowvshi\_hed <- contrast(combinations,   
 method = list("CF/DN/LowHed - CF/CN/LowHed" = cf\_dn\_low\_hed - cf\_cn\_low\_hed,  
 "CF/Conv/LowHed - CF/CN/LowHed" = cf\_conv\_low\_hed - cf\_cn\_low\_hed,  
 "CF/SN/LowHed - CF/CN/LowHed" = cf\_sn\_low\_hed - cf\_cn\_low\_hed,  
 "CF/MN/LowHed - CF/CN/LowHed" = cf\_mn\_low\_hed - cf\_cn\_low\_hed,  
 "CF/DN/HiHed - CF/CN/HiHed" = cf\_dn\_hi\_hed - cf\_cn\_hi\_hed,  
 "CF/Conv/HiHed - CF/CN/HiHed" = cf\_conv\_hi\_hed - cf\_cn\_hi\_hed,  
 "CF/SN/HiHed - CF/CN/HiHed" = cf\_sn\_hi\_hed - cf\_cn\_hi\_hed,  
 "CF/MN/HiHed - CF/CN/HiHed" = cf\_mn\_hi\_hed - cf\_cn\_hi\_hed),   
 adjust = "none")  
  
controlframe\_lowvshi\_hed %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowHed - CF/CN/LowHed | -0.31 | 0.29 | 1038 | -1.07 | 0.286 |
| CF/Conv/LowHed - CF/CN/LowHed | -0.34 | 0.31 | 1038 | -1.09 | 0.277 |
| CF/SN/LowHed - CF/CN/LowHed | -0.52 | 0.28 | 1038 | -1.86 | 0.063 |
| CF/MN/LowHed - CF/CN/LowHed | -0.20 | 0.30 | 1038 | -0.66 | 0.511 |
| CF/DN/HiHed - CF/CN/HiHed | 0.00 | 0.29 | 1038 | -0.01 | 0.989 |
| CF/Conv/HiHed - CF/CN/HiHed | 0.44 | 0.27 | 1038 | 1.64 | 0.101 |
| CF/SN/HiHed - CF/CN/HiHed | -0.06 | 0.26 | 1038 | -0.23 | 0.818 |
| CF/MN/HiHed - CF/CN/HiHed | -0.24 | 0.28 | 1038 | -0.85 | 0.395 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowHed - CF/CN/LowHed | -0.31 | 0.29 | 1038 | -0.88 | 0.26 |
| CF/Conv/LowHed - CF/CN/LowHed | -0.34 | 0.31 | 1038 | -0.94 | 0.27 |
| CF/SN/LowHed - CF/CN/LowHed | -0.52 | 0.28 | 1038 | -1.07 | 0.03 |
| CF/MN/LowHed - CF/CN/LowHed | -0.20 | 0.30 | 1038 | -0.79 | 0.40 |
| CF/DN/HiHed - CF/CN/HiHed | 0.00 | 0.29 | 1038 | -0.57 | 0.56 |
| CF/Conv/HiHed - CF/CN/HiHed | 0.44 | 0.27 | 1038 | -0.09 | 0.96 |
| CF/SN/HiHed - CF/CN/HiHed | -0.06 | 0.26 | 1038 | -0.56 | 0.45 |
| CF/MN/HiHed - CF/CN/HiHed | -0.24 | 0.28 | 1038 | -0.79 | 0.31 |

# effect sizes  
  
eff\_size(combinations,   
 method = list("CF/DN/LowHed - CF/CN/LowHed" = cf\_dn\_low\_hed - cf\_cn\_low\_hed,  
 "CF/Conv/LowHed - CF/CN/LowHed" = cf\_conv\_low\_hed - cf\_cn\_low\_hed,  
 "CF/SN/LowHed - CF/CN/LowHed" = cf\_sn\_low\_hed - cf\_cn\_low\_hed,  
 "CF/MN/LowHed - CF/CN/LowHed" = cf\_mn\_low\_hed - cf\_cn\_low\_hed,  
 "CF/DN/HiHed - CF/CN/HiHed" = cf\_dn\_hi\_hed - cf\_cn\_hi\_hed,  
 "CF/Conv/HiHed - CF/CN/HiHed" = cf\_conv\_hi\_hed - cf\_cn\_hi\_hed,  
 "CF/SN/HiHed - CF/CN/HiHed" = cf\_sn\_hi\_hed - cf\_cn\_hi\_hed,  
 "CF/MN/HiHed - CF/CN/HiHed" = cf\_mn\_hi\_hed - cf\_cn\_hi\_hed), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowHed - CF/CN/LowHed | -0.29 | 0.27 | 1038 | -0.83 | 0.24 |
| CF/Conv/LowHed - CF/CN/LowHed | -0.32 | 0.29 | 1038 | -0.88 | 0.25 |
| CF/SN/LowHed - CF/CN/LowHed | -0.49 | 0.26 | 1038 | -1.00 | 0.03 |
| CF/MN/LowHed - CF/CN/LowHed | -0.19 | 0.28 | 1038 | -0.74 | 0.37 |
| CF/DN/HiHed - CF/CN/HiHed | 0.00 | 0.27 | 1038 | -0.53 | 0.52 |
| CF/Conv/HiHed - CF/CN/HiHed | 0.41 | 0.25 | 1038 | -0.08 | 0.90 |
| CF/SN/HiHed - CF/CN/HiHed | -0.06 | 0.24 | 1038 | -0.53 | 0.42 |
| CF/MN/HiHed - CF/CN/HiHed | -0.22 | 0.26 | 1038 | -0.74 | 0.29 |

Pairwise comparisons

Custom contrasts

controlframe\_lowvshi\_hed

## contrast estimate SE df t.ratio p.value  
## CF/DN/LowHed - CF/CN/LowHed -0.31133 0.292 1038 -1.068 0.2858  
## CF/Conv/LowHed - CF/CN/LowHed -0.33656 0.309 1038 -1.088 0.2770  
## CF/SN/LowHed - CF/CN/LowHed -0.51964 0.279 1038 -1.861 0.0630  
## CF/MN/LowHed - CF/CN/LowHed -0.19898 0.303 1038 -0.657 0.5112  
## CF/DN/HiHed - CF/CN/HiHed -0.00388 0.287 1038 -0.014 0.9892  
## CF/Conv/HiHed - CF/CN/HiHed 0.43794 0.267 1038 1.639 0.1014  
## CF/SN/HiHed - CF/CN/HiHed -0.05915 0.257 1038 -0.230 0.8182  
## CF/MN/HiHed - CF/CN/HiHed -0.24012 0.282 1038 -0.850 0.3954  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_LowHed <- c(1,rep(0,7))  
conv\_vs\_c\_LowHed <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowHed <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowHed <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiHed <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiHed <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiHed <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiHed <- c(rep(0,7),1)

compare\_hed <- contrast(controlframe\_lowvshi\_hed, method = list("Effect of DN (Low - High hed)" = dn\_vs\_c\_LowHed - dn\_vs\_c\_HiHed,   
 "Effect of Conv (Low - High hed)" = conv\_vs\_c\_LowHed - conv\_vs\_c\_HiHed,  
 "Effect of SN (Low - High hed)" = sn\_vs\_c\_LowHed - sn\_vs\_c\_HiHed,  
 "Effect of MN (Low - High hed)" = mn\_vs\_c\_LowHed - mn\_vs\_c\_HiHed), adjust = "none")  
  
compare\_hed %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High hed) | -0.31 | 0.45 | 1038 | -0.68 | 0.495 |
| Effect of Conv (Low - High hed) | -0.77 | 0.45 | 1038 | -1.74 | 0.082 |
| Effect of SN (Low - High hed) | -0.46 | 0.42 | 1038 | -1.11 | 0.269 |
| Effect of MN (Low - High hed) | 0.04 | 0.45 | 1038 | 0.09 | 0.927 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High hed) | -0.31 | 0.45 | 1038 | -1.19 | 0.58 |
| Effect of Conv (Low - High hed) | -0.77 | 0.45 | 1038 | -1.65 | 0.10 |
| Effect of SN (Low - High hed) | -0.46 | 0.42 | 1038 | -1.28 | 0.36 |
| Effect of MN (Low - High hed) | 0.04 | 0.45 | 1038 | -0.84 | 0.92 |

# effect sizes  
eff\_size(controlframe\_lowvshi\_hed, method = list("Effect of DN (Low - High hed)" = dn\_vs\_c\_LowHed - dn\_vs\_c\_HiHed,   
 "Effect of Conv (Low - High hed)" = conv\_vs\_c\_LowHed - conv\_vs\_c\_HiHed,  
 "Effect of SN (Low - High hed)" = sn\_vs\_c\_LowHed - sn\_vs\_c\_HiHed,  
 "Effect of MN (Low - High hed)" = mn\_vs\_c\_LowHed - mn\_vs\_c\_HiHed), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High hed) | -0.29 | 0.42 | 1038 | -1.12 | 0.54 |
| Effect of Conv (Low - High hed) | -0.72 | 0.42 | 1038 | -1.54 | 0.09 |
| Effect of SN (Low - High hed) | -0.43 | 0.39 | 1038 | -1.20 | 0.33 |
| Effect of MN (Low - High hed) | 0.04 | 0.42 | 1038 | -0.78 | 0.86 |

#### Pro-environmental framing

proenvframe\_lowvshi\_hed <- contrast(combinations,   
 method = list("PF/DN/LowHed - PF/CN/LowHed" = pf\_dn\_low\_hed - pf\_cn\_low\_hed,  
 "PF/Conv/LowHed - PF/CN/LowHed" = pf\_conv\_low\_hed - pf\_cn\_low\_hed,  
 "PF/SN/LowHed - PF/CN/LowHed" = pf\_sn\_low\_hed - pf\_cn\_low\_hed,  
 "PF/MN/LowHed - PF/CN/LowHed" = pf\_mn\_low\_hed - pf\_cn\_low\_hed,  
 "PF/DN/HiHed - PF/CN/HiHed" = pf\_dn\_hi\_hed - pf\_cn\_hi\_hed,  
 "PF/Conv/HiHed - PF/CN/HiHed" = pf\_conv\_hi\_hed - pf\_cn\_hi\_hed,  
 "PF/SN/HiHed - PF/CN/HiHed" = pf\_sn\_hi\_hed - pf\_cn\_hi\_hed,  
 "PF/MN/HiHed - PF/CN/HiHed" = pf\_mn\_hi\_hed - pf\_cn\_hi\_hed),   
 adjust = "none")  
  
proenvframe\_lowvshi\_hed %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowHed - PF/CN/LowHed | 0.04 | 0.30 | 1038 | 0.13 | 0.899 |
| PF/Conv/LowHed - PF/CN/LowHed | -0.12 | 0.31 | 1038 | -0.38 | 0.707 |
| PF/SN/LowHed - PF/CN/LowHed | 0.01 | 0.31 | 1038 | 0.04 | 0.966 |
| PF/MN/LowHed - PF/CN/LowHed | -0.05 | 0.29 | 1038 | -0.18 | 0.857 |
| PF/DN/HiHed - PF/CN/HiHed | -0.38 | 0.30 | 1038 | -1.25 | 0.210 |
| PF/Conv/HiHed - PF/CN/HiHed | -0.03 | 0.27 | 1038 | -0.11 | 0.910 |
| PF/SN/HiHed - PF/CN/HiHed | -0.39 | 0.28 | 1038 | -1.38 | 0.168 |
| PF/MN/HiHed - PF/CN/HiHed | -0.42 | 0.27 | 1038 | -1.52 | 0.128 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowHed - PF/CN/LowHed | 0.04 | 0.30 | 1038 | -0.56 | 0.63 |
| PF/Conv/LowHed - PF/CN/LowHed | -0.12 | 0.31 | 1038 | -0.73 | 0.50 |
| PF/SN/LowHed - PF/CN/LowHed | 0.01 | 0.31 | 1038 | -0.59 | 0.61 |
| PF/MN/LowHed - PF/CN/LowHed | -0.05 | 0.29 | 1038 | -0.63 | 0.52 |
| PF/DN/HiHed - PF/CN/HiHed | -0.38 | 0.30 | 1038 | -0.97 | 0.21 |
| PF/Conv/HiHed - PF/CN/HiHed | -0.03 | 0.27 | 1038 | -0.56 | 0.50 |
| PF/SN/HiHed - PF/CN/HiHed | -0.39 | 0.28 | 1038 | -0.94 | 0.16 |
| PF/MN/HiHed - PF/CN/HiHed | -0.42 | 0.27 | 1038 | -0.95 | 0.12 |

# effect sizes  
eff\_size(combinations,   
 method = list("PF/DN/LowHed - PF/CN/LowHed" = pf\_dn\_low\_hed - pf\_cn\_low\_hed,  
 "PF/Conv/LowHed - PF/CN/LowHed" = pf\_conv\_low\_hed - pf\_cn\_low\_hed,  
 "PF/SN/LowHed - PF/CN/LowHed" = pf\_sn\_low\_hed - pf\_cn\_low\_hed,  
 "PF/MN/LowHed - PF/CN/LowHed" = pf\_mn\_low\_hed - pf\_cn\_low\_hed,  
 "PF/DN/HiHed - PF/CN/HiHed" = pf\_dn\_hi\_hed - pf\_cn\_hi\_hed,  
 "PF/Conv/HiHed - PF/CN/HiHed" = pf\_conv\_hi\_hed - pf\_cn\_hi\_hed,  
 "PF/SN/HiHed - PF/CN/HiHed" = pf\_sn\_hi\_hed - pf\_cn\_hi\_hed,  
 "PF/MN/HiHed - PF/CN/HiHed" = pf\_mn\_hi\_hed - pf\_cn\_hi\_hed), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2) # need to fix

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowHed - PF/CN/LowHed | 0.04 | 0.28 | 1038 | -0.52 | 0.59 |
| PF/Conv/LowHed - PF/CN/LowHed | -0.11 | 0.29 | 1038 | -0.69 | 0.46 |
| PF/SN/LowHed - PF/CN/LowHed | 0.01 | 0.29 | 1038 | -0.55 | 0.57 |
| PF/MN/LowHed - PF/CN/LowHed | -0.05 | 0.28 | 1038 | -0.59 | 0.49 |
| PF/DN/HiHed - PF/CN/HiHed | -0.35 | 0.28 | 1038 | -0.91 | 0.20 |
| PF/Conv/HiHed - PF/CN/HiHed | -0.03 | 0.25 | 1038 | -0.52 | 0.46 |
| PF/SN/HiHed - PF/CN/HiHed | -0.36 | 0.26 | 1038 | -0.88 | 0.15 |
| PF/MN/HiHed - PF/CN/HiHed | -0.39 | 0.26 | 1038 | -0.89 | 0.11 |

Pairwise comparisons

Custom contrasts

proenvframe\_lowvshi\_hed

## contrast estimate SE df t.ratio p.value  
## PF/DN/LowHed - PF/CN/LowHed 0.0383 0.303 1038 0.126 0.8994  
## PF/Conv/LowHed - PF/CN/LowHed -0.1177 0.313 1038 -0.376 0.7069  
## PF/SN/LowHed - PF/CN/LowHed 0.0130 0.306 1038 0.042 0.9661  
## PF/MN/LowHed - PF/CN/LowHed -0.0531 0.294 1038 -0.181 0.8566  
## PF/DN/HiHed - PF/CN/HiHed -0.3773 0.301 1038 -1.254 0.2103  
## PF/Conv/HiHed - PF/CN/HiHed -0.0302 0.268 1038 -0.112 0.9105  
## PF/SN/HiHed - PF/CN/HiHed -0.3887 0.282 1038 -1.380 0.1680  
## PF/MN/HiHed - PF/CN/HiHed -0.4155 0.273 1038 -1.523 0.1281  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_LowHed <- c(1,rep(0,7))  
conv\_vs\_c\_LowHed <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowHed <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowHed <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiHed <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiHed <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiHed <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiHed <- c(rep(0,7),1)

compare\_hed <- contrast(proenvframe\_lowvshi\_hed, method = list("Effect of DN (Low - High hed)" = dn\_vs\_c\_LowHed - dn\_vs\_c\_HiHed,   
 "Effect of Conv (Low - High hed)" = conv\_vs\_c\_LowHed - conv\_vs\_c\_HiHed,  
 "Effect of SN (Low - High hed)" = sn\_vs\_c\_LowHed - sn\_vs\_c\_HiHed,  
 "Effect of MN (Low - High hed)" = mn\_vs\_c\_LowHed - mn\_vs\_c\_HiHed), adjust = "none")  
  
compare\_hed %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High hed) | 0.42 | 0.48 | 1038 | 0.86 | 0.390 |
| Effect of Conv (Low - High hed) | -0.09 | 0.47 | 1038 | -0.19 | 0.851 |
| Effect of SN (Low - High hed) | 0.40 | 0.46 | 1038 | 0.88 | 0.380 |
| Effect of MN (Low - High hed) | 0.36 | 0.44 | 1038 | 0.81 | 0.416 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High hed) | 0.42 | 0.48 | 1038 | -0.53 | 1.36 |
| Effect of Conv (Low - High hed) | -0.09 | 0.47 | 1038 | -1.00 | 0.83 |
| Effect of SN (Low - High hed) | 0.40 | 0.46 | 1038 | -0.50 | 1.30 |
| Effect of MN (Low - High hed) | 0.36 | 0.44 | 1038 | -0.51 | 1.24 |

# effect sizes  
eff\_size(proenvframe\_lowvshi\_hed, method = list("Effect of DN (Low - High hed)" = dn\_vs\_c\_LowHed - dn\_vs\_c\_HiHed,   
 "Effect of Conv (Low - High hed)" = conv\_vs\_c\_LowHed - conv\_vs\_c\_HiHed,  
 "Effect of SN (Low - High hed)" = sn\_vs\_c\_LowHed - sn\_vs\_c\_HiHed,  
 "Effect of MN (Low - High hed)" = mn\_vs\_c\_LowHed - mn\_vs\_c\_HiHed), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High hed) | 0.39 | 0.45 | 1038 | -0.50 | 1.28 |
| Effect of Conv (Low - High hed) | -0.08 | 0.44 | 1038 | -0.94 | 0.78 |
| Effect of SN (Low - High hed) | 0.38 | 0.43 | 1038 | -0.46 | 1.22 |
| Effect of MN (Low - High hed) | 0.34 | 0.42 | 1038 | -0.48 | 1.16 |

#### Self-enhancing framing

selfenhframe\_lowvshi\_hed <- contrast(combinations,   
 method = list("SF/DN/LowHed - SF/CN/LowHed" = sf\_dn\_low\_hed - sf\_cn\_low\_hed,  
 "SF/Conv/LowHed - SF/CN/LowHed" = sf\_conv\_low\_hed - sf\_cn\_low\_hed,  
 "SF/SN/LowHed - SF/CN/LowHed" = sf\_sn\_low\_hed - sf\_cn\_low\_hed,  
 "SF/MN/LowHed - SF/CN/LowHed" = sf\_mn\_low\_hed - sf\_cn\_low\_hed,  
 "SF/DN/HiHed - SF/CN/HiHed" = sf\_dn\_hi\_hed - sf\_cn\_hi\_hed,  
 "SF/Conv/HiHed - SF/CN/HiHed" = sf\_conv\_hi\_hed - sf\_cn\_hi\_hed,  
 "SF/SN/HiHed - SF/CN/HiHed" = sf\_sn\_hi\_hed - sf\_cn\_hi\_hed,  
 "SF/MN/HiHed - SF/CN/HiHed" = sf\_mn\_hi\_hed - sf\_cn\_hi\_hed),   
 adjust = "none")  
  
selfenhframe\_lowvshi\_hed %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowHed - SF/CN/LowHed | 0.10 | 0.34 | 1038 | 0.29 | 0.770 |
| SF/Conv/LowHed - SF/CN/LowHed | 0.17 | 0.31 | 1038 | 0.57 | 0.570 |
| SF/SN/LowHed - SF/CN/LowHed | 0.27 | 0.35 | 1038 | 0.76 | 0.448 |
| SF/MN/LowHed - SF/CN/LowHed | 0.40 | 0.30 | 1038 | 1.33 | 0.182 |
| SF/DN/HiHed - SF/CN/HiHed | 0.38 | 0.31 | 1038 | 1.20 | 0.229 |
| SF/Conv/HiHed - SF/CN/HiHed | 0.29 | 0.30 | 1038 | 0.98 | 0.327 |
| SF/SN/HiHed - SF/CN/HiHed | -0.25 | 0.32 | 1038 | -0.77 | 0.443 |
| SF/MN/HiHed - SF/CN/HiHed | -0.12 | 0.30 | 1038 | -0.40 | 0.688 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowHed - SF/CN/LowHed | 0.10 | 0.34 | 1038 | -0.57 | 0.77 |
| SF/Conv/LowHed - SF/CN/LowHed | 0.17 | 0.31 | 1038 | -0.43 | 0.77 |
| SF/SN/LowHed - SF/CN/LowHed | 0.27 | 0.35 | 1038 | -0.42 | 0.95 |
| SF/MN/LowHed - SF/CN/LowHed | 0.40 | 0.30 | 1038 | -0.19 | 0.99 |
| SF/DN/HiHed - SF/CN/HiHed | 0.38 | 0.31 | 1038 | -0.24 | 0.99 |
| SF/Conv/HiHed - SF/CN/HiHed | 0.29 | 0.30 | 1038 | -0.29 | 0.88 |
| SF/SN/HiHed - SF/CN/HiHed | -0.25 | 0.32 | 1038 | -0.88 | 0.39 |
| SF/MN/HiHed - SF/CN/HiHed | -0.12 | 0.30 | 1038 | -0.70 | 0.47 |

# effect sizes  
eff\_size(combinations,   
 method = list("SF/DN/LowHed - SF/CN/LowHed" = sf\_dn\_low\_hed - sf\_cn\_low\_hed,  
 "SF/Conv/LowHed - SF/CN/LowHed" = sf\_conv\_low\_hed - sf\_cn\_low\_hed,  
 "SF/SN/LowHed - SF/CN/LowHed" = sf\_sn\_low\_hed - sf\_cn\_low\_hed,  
 "SF/MN/LowHed - SF/CN/LowHed" = sf\_mn\_low\_hed - sf\_cn\_low\_hed,  
 "SF/DN/HiHed - SF/CN/HiHed" = sf\_dn\_hi\_hed - sf\_cn\_hi\_hed,  
 "SF/Conv/HiHed - SF/CN/HiHed" = sf\_conv\_hi\_hed - sf\_cn\_hi\_hed,  
 "SF/SN/HiHed - SF/CN/HiHed" = sf\_sn\_hi\_hed - sf\_cn\_hi\_hed,  
 "SF/MN/HiHed - SF/CN/HiHed" = sf\_mn\_hi\_hed - sf\_cn\_hi\_hed), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowHed - SF/CN/LowHed | 0.09 | 0.32 | 1038 | -0.53 | 0.72 |
| SF/Conv/LowHed - SF/CN/LowHed | 0.16 | 0.29 | 1038 | -0.40 | 0.72 |
| SF/SN/LowHed - SF/CN/LowHed | 0.25 | 0.33 | 1038 | -0.39 | 0.89 |
| SF/MN/LowHed - SF/CN/LowHed | 0.38 | 0.28 | 1038 | -0.18 | 0.93 |
| SF/DN/HiHed - SF/CN/HiHed | 0.35 | 0.29 | 1038 | -0.22 | 0.93 |
| SF/Conv/HiHed - SF/CN/HiHed | 0.27 | 0.28 | 1038 | -0.28 | 0.83 |
| SF/SN/HiHed - SF/CN/HiHed | -0.23 | 0.30 | 1038 | -0.83 | 0.36 |
| SF/MN/HiHed - SF/CN/HiHed | -0.11 | 0.28 | 1038 | -0.66 | 0.44 |

Pairwise comparisons

Custom contrasts

selfenhframe\_lowvshi\_hed

## contrast estimate SE df t.ratio p.value  
## SF/DN/LowHed - SF/CN/LowHed 0.0998 0.341 1038 0.293 0.7698  
## SF/Conv/LowHed - SF/CN/LowHed 0.1737 0.306 1038 0.568 0.5699  
## SF/SN/LowHed - SF/CN/LowHed 0.2655 0.350 1038 0.759 0.4480  
## SF/MN/LowHed - SF/CN/LowHed 0.4012 0.301 1038 1.334 0.1824  
## SF/DN/HiHed - SF/CN/HiHed 0.3767 0.313 1038 1.202 0.2295  
## SF/Conv/HiHed - SF/CN/HiHed 0.2938 0.300 1038 0.980 0.3272  
## SF/SN/HiHed - SF/CN/HiHed -0.2479 0.323 1038 -0.767 0.4435  
## SF/MN/HiHed - SF/CN/HiHed -0.1198 0.298 1038 -0.402 0.6879  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_LowHed <- c(1,rep(0,7))  
conv\_vs\_c\_LowHed <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowHed <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowHed <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiHed <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiHed <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiHed <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiHed <- c(rep(0,7),1)

compare\_hed <- contrast(selfenhframe\_lowvshi\_hed, method = list("Effect of DN (Low - High hed)" = dn\_vs\_c\_LowHed - dn\_vs\_c\_HiHed,   
 "Effect of Conv (Low - High hed)" = conv\_vs\_c\_LowHed - conv\_vs\_c\_HiHed,  
 "Effect of SN (Low - High hed)" = sn\_vs\_c\_LowHed - sn\_vs\_c\_HiHed,  
 "Effect of MN (Low - High hed)" = mn\_vs\_c\_LowHed - mn\_vs\_c\_HiHed), adjust = "none")  
  
compare\_hed %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High hed) | -0.28 | 0.55 | 1038 | -0.50 | 0.617 |
| Effect of Conv (Low - High hed) | -0.12 | 0.48 | 1038 | -0.25 | 0.804 |
| Effect of SN (Low - High hed) | 0.51 | 0.56 | 1038 | 0.92 | 0.360 |
| Effect of MN (Low - High hed) | 0.52 | 0.48 | 1038 | 1.09 | 0.276 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High hed) | -0.28 | 0.55 | 1038 | -1.36 | 0.81 |
| Effect of Conv (Low - High hed) | -0.12 | 0.48 | 1038 | -1.07 | 0.83 |
| Effect of SN (Low - High hed) | 0.51 | 0.56 | 1038 | -0.59 | 1.61 |
| Effect of MN (Low - High hed) | 0.52 | 0.48 | 1038 | -0.42 | 1.46 |

# effect sizes  
eff\_size(selfenhframe\_lowvshi\_hed, method = list("Effect of DN (Low - High hed)" = dn\_vs\_c\_LowHed - dn\_vs\_c\_HiHed,   
 "Effect of Conv (Low - High hed)" = conv\_vs\_c\_LowHed - conv\_vs\_c\_HiHed,  
 "Effect of SN (Low - High hed)" = sn\_vs\_c\_LowHed - sn\_vs\_c\_HiHed,  
 "Effect of MN (Low - High hed)" = mn\_vs\_c\_LowHed - mn\_vs\_c\_HiHed), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High hed) | -0.26 | 0.52 | 1038 | -1.28 | 0.76 |
| Effect of Conv (Low - High hed) | -0.11 | 0.45 | 1038 | -1.00 | 0.78 |
| Effect of SN (Low - High hed) | 0.48 | 0.52 | 1038 | -0.55 | 1.51 |
| Effect of MN (Low - High hed) | 0.49 | 0.45 | 1038 | -0.39 | 1.37 |

## Ingroup Identification

Exploratory Research Question 1: Is there a three-way interaction between in-group identification, framing condition, and norm-intervention condition?

Is the difference between Control Norm and Other Norm different for people low vs high on ingroup identification? Does this vary across framing conditions?

### 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 at low and high bio

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

| norm\_condition | ingroup\_center | framing\_condition | emmean | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- | --- |
| control\_norm | -1.01 | control\_framing | 4.26 | 0.16 | 1038 | 3.95 | 4.58 |
| descriptive\_norm | -1.01 | control\_framing | 4.31 | 0.22 | 1038 | 3.87 | 4.74 |
| convention\_norm | -1.01 | control\_framing | 4.60 | 0.20 | 1038 | 4.22 | 4.98 |
| social\_norm | -1.01 | control\_framing | 4.15 | 0.15 | 1038 | 3.86 | 4.45 |
| moral\_norm | -1.01 | control\_framing | 4.13 | 0.20 | 1038 | 3.74 | 4.51 |
| control\_norm | 1.01 | control\_framing | 4.63 | 0.18 | 1038 | 4.28 | 4.99 |
| descriptive\_norm | 1.01 | control\_framing | 4.28 | 0.18 | 1038 | 3.92 | 4.64 |
| convention\_norm | 1.01 | control\_framing | 4.40 | 0.19 | 1038 | 4.03 | 4.77 |
| social\_norm | 1.01 | control\_framing | 4.17 | 0.17 | 1038 | 3.83 | 4.50 |
| moral\_norm | 1.01 | control\_framing | 4.33 | 0.18 | 1038 | 3.99 | 4.68 |
| control\_norm | -1.01 | pro\_env\_framing | 4.62 | 0.18 | 1038 | 4.27 | 4.96 |
| descriptive\_norm | -1.01 | pro\_env\_framing | 4.38 | 0.19 | 1038 | 4.01 | 4.75 |
| convention\_norm | -1.01 | pro\_env\_framing | 4.61 | 0.17 | 1038 | 4.28 | 4.94 |
| social\_norm | -1.01 | pro\_env\_framing | 4.50 | 0.19 | 1038 | 4.12 | 4.87 |
| moral\_norm | -1.01 | pro\_env\_framing | 4.34 | 0.18 | 1038 | 3.98 | 4.70 |
| control\_norm | 1.01 | pro\_env\_framing | 4.61 | 0.19 | 1038 | 4.23 | 4.99 |
| descriptive\_norm | 1.01 | pro\_env\_framing | 4.50 | 0.18 | 1038 | 4.15 | 4.85 |
| convention\_norm | 1.01 | pro\_env\_framing | 4.46 | 0.18 | 1038 | 4.11 | 4.81 |
| social\_norm | 1.01 | pro\_env\_framing | 4.35 | 0.19 | 1038 | 3.98 | 4.72 |
| moral\_norm | 1.01 | pro\_env\_framing | 4.41 | 0.18 | 1038 | 4.07 | 4.76 |
| control\_norm | -1.01 | self\_enh\_framing | 4.28 | 0.17 | 1038 | 3.94 | 4.62 |
| descriptive\_norm | -1.01 | self\_enh\_framing | 4.34 | 0.18 | 1038 | 3.99 | 4.69 |
| convention\_norm | -1.01 | self\_enh\_framing | 4.25 | 0.18 | 1038 | 3.89 | 4.61 |
| social\_norm | -1.01 | self\_enh\_framing | 4.01 | 0.21 | 1038 | 3.60 | 4.43 |
| moral\_norm | -1.01 | self\_enh\_framing | 4.61 | 0.18 | 1038 | 4.25 | 4.96 |
| control\_norm | 1.01 | self\_enh\_framing | 4.19 | 0.19 | 1038 | 3.82 | 4.55 |
| descriptive\_norm | 1.01 | self\_enh\_framing | 4.60 | 0.16 | 1038 | 4.29 | 4.92 |
| convention\_norm | 1.01 | self\_enh\_framing | 4.69 | 0.21 | 1038 | 4.29 | 5.09 |
| social\_norm | 1.01 | self\_enh\_framing | 4.48 | 0.19 | 1038 | 4.10 | 4.85 |
| moral\_norm | 1.01 | self\_enh\_framing | 4.15 | 0.19 | 1038 | 3.78 | 4.52 |

### Custom contrasts

cf\_cn\_low\_ing <- c(1, rep(0,29)) # control framing  
cf\_dn\_low\_ing <- c(0,1,rep(0,28))  
cf\_conv\_low\_ing <- c(0,0,1,rep(0,27))  
cf\_sn\_low\_ing <- c(0,0,0,1,rep(0,26))  
cf\_mn\_low\_ing <- c(rep(0,4),1,(rep(0,25)))  
  
cf\_cn\_hi\_ing <- c(rep(0,5),1,(rep(0,24)))   
cf\_dn\_hi\_ing <- c(rep(0,6),1,(rep(0,23)))  
cf\_conv\_hi\_ing <- c(rep(0,7),1,(rep(0,22)))  
cf\_sn\_hi\_ing <- c(rep(0,8),1,(rep(0,21)))  
cf\_mn\_hi\_ing <- c(rep(0,9),1,(rep(0,20)))  
  
  
pf\_cn\_low\_ing <- c(rep(0,10),1,(rep(0,19))) # pro-environmental framing  
pf\_dn\_low\_ing <- c(rep(0,11),1,(rep(0,18)))  
pf\_conv\_low\_ing <- c(rep(0,12),1,(rep(0,17)))  
pf\_sn\_low\_ing <- c(rep(0,13),1,(rep(0,16)))  
pf\_mn\_low\_ing <- c(rep(0,14),1,(rep(0,15)))  
  
pf\_cn\_hi\_ing <- c(rep(0,15),1,(rep(0,14)))   
pf\_dn\_hi\_ing <- c(rep(0,16),1,(rep(0,13)))  
pf\_conv\_hi\_ing <- c(rep(0,17),1,(rep(0,12)))  
pf\_sn\_hi\_ing <- c(rep(0,18),1,(rep(0,11)))  
pf\_mn\_hi\_ing <- c(rep(0,19),1,(rep(0,10)))  
  
  
sf\_cn\_low\_ing <- c(rep(0,20),1,(rep(0,9))) # self-enhancing framing  
sf\_dn\_low\_ing <- c(rep(0,21),1,(rep(0,8)))  
sf\_conv\_low\_ing <- c(rep(0,22),1,(rep(0,7)))  
sf\_sn\_low\_ing <- c(rep(0,23),1,(rep(0,6)))  
sf\_mn\_low\_ing <- c(rep(0,24),1,(rep(0,5)))  
  
sf\_cn\_hi\_ing <- c(rep(0,25),1,(rep(0,4)))   
sf\_dn\_hi\_ing <- c(rep(0,26),1,(rep(0,3)))  
sf\_conv\_hi\_ing <- c(rep(0,27),1,(rep(0,2)))  
sf\_sn\_hi\_ing <- c(rep(0,28),1,(rep(0,1)))  
sf\_mn\_hi\_ing <- c(rep(0,29),1)

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

#### Control framing

controlframe\_lowvshi\_ing <- contrast(combinations,   
 method = list("CF/DN/LowIng - CF/CN/LowIng" = cf\_dn\_low\_ing - cf\_cn\_low\_ing,  
 "CF/Conv/LowIng - CF/CN/LowIng" = cf\_conv\_low\_ing - cf\_cn\_low\_ing,  
 "CF/SN/LowIng - CF/CN/LowIng" = cf\_sn\_low\_ing - cf\_cn\_low\_ing,  
 "CF/MN/LowIng - CF/CN/LowIng" = cf\_mn\_low\_ing - cf\_cn\_low\_ing,  
 "CF/DN/HiIng - CF/CN/HiIng" = cf\_dn\_hi\_ing - cf\_cn\_hi\_ing,  
 "CF/Conv/HiIng - CF/CN/HiIng" = cf\_conv\_hi\_ing - cf\_cn\_hi\_ing,  
 "CF/SN/HiIng - CF/CN/HiIng" = cf\_sn\_hi\_ing - cf\_cn\_hi\_ing,  
 "CF/MN/HiIng - CF/CN/HiIng" = cf\_mn\_hi\_ing - cf\_cn\_hi\_ing),   
 adjust = "none")  
  
controlframe\_lowvshi\_ing %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowIng - CF/CN/LowIng | 0.04 | 0.27 | 1038 | 0.15 | 0.881 |
| CF/Conv/LowIng - CF/CN/LowIng | 0.33 | 0.25 | 1038 | 1.32 | 0.188 |
| CF/SN/LowIng - CF/CN/LowIng | -0.11 | 0.22 | 1038 | -0.50 | 0.617 |
| CF/MN/LowIng - CF/CN/LowIng | -0.14 | 0.26 | 1038 | -0.54 | 0.587 |
| CF/DN/HiIng - CF/CN/HiIng | -0.36 | 0.26 | 1038 | -1.39 | 0.163 |
| CF/Conv/HiIng - CF/CN/HiIng | -0.23 | 0.26 | 1038 | -0.90 | 0.370 |
| CF/SN/HiIng - CF/CN/HiIng | -0.47 | 0.25 | 1038 | -1.88 | 0.060 |
| CF/MN/HiIng - CF/CN/HiIng | -0.30 | 0.25 | 1038 | -1.20 | 0.230 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowIng - CF/CN/LowIng | 0.04 | 0.27 | 1038 | -0.49 | 0.58 |
| CF/Conv/LowIng - CF/CN/LowIng | 0.33 | 0.25 | 1038 | -0.16 | 0.83 |
| CF/SN/LowIng - CF/CN/LowIng | -0.11 | 0.22 | 1038 | -0.54 | 0.32 |
| CF/MN/LowIng - CF/CN/LowIng | -0.14 | 0.26 | 1038 | -0.64 | 0.36 |
| CF/DN/HiIng - CF/CN/HiIng | -0.36 | 0.26 | 1038 | -0.86 | 0.14 |
| CF/Conv/HiIng - CF/CN/HiIng | -0.23 | 0.26 | 1038 | -0.74 | 0.28 |
| CF/SN/HiIng - CF/CN/HiIng | -0.47 | 0.25 | 1038 | -0.96 | 0.02 |
| CF/MN/HiIng - CF/CN/HiIng | -0.30 | 0.25 | 1038 | -0.79 | 0.19 |

# effect sizes  
sigma\_pool <- mean(pool\_obj$glanced$sigma)  
df\_resid\_pool <- mean(pool\_obj$glanced$df.residual)  
  
eff\_size(combinations,   
 method = list("CF/DN/LowIng - CF/CN/LowIng" = cf\_dn\_low\_ing - cf\_cn\_low\_ing,  
 "CF/Conv/LowIng - CF/CN/LowIng" = cf\_conv\_low\_ing - cf\_cn\_low\_ing,  
 "CF/SN/LowIng - CF/CN/LowIng" = cf\_sn\_low\_ing - cf\_cn\_low\_ing,  
 "CF/MN/LowIng - CF/CN/LowIng" = cf\_mn\_low\_ing - cf\_cn\_low\_ing,  
 "CF/DN/HiIng - CF/CN/HiIng" = cf\_dn\_hi\_ing - cf\_cn\_hi\_ing,  
 "CF/Conv/HiIng - CF/CN/HiIng" = cf\_conv\_hi\_ing - cf\_cn\_hi\_ing,  
 "CF/SN/HiIng - CF/CN/HiIng" = cf\_sn\_hi\_ing - cf\_cn\_hi\_ing,  
 "CF/MN/HiIng - CF/CN/HiIng" = cf\_mn\_hi\_ing - cf\_cn\_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 |
| --- | --- | --- | --- | --- | --- |
| CF/DN/LowIng - CF/CN/LowIng | 0.04 | 0.26 | 1038 | -0.46 | 0.54 |
| CF/Conv/LowIng - CF/CN/LowIng | 0.31 | 0.24 | 1038 | -0.15 | 0.78 |
| CF/SN/LowIng - CF/CN/LowIng | -0.10 | 0.21 | 1038 | -0.51 | 0.30 |
| CF/MN/LowIng - CF/CN/LowIng | -0.13 | 0.24 | 1038 | -0.60 | 0.34 |
| CF/DN/HiIng - CF/CN/HiIng | -0.33 | 0.24 | 1038 | -0.80 | 0.14 |
| CF/Conv/HiIng - CF/CN/HiIng | -0.22 | 0.24 | 1038 | -0.69 | 0.26 |
| CF/SN/HiIng - CF/CN/HiIng | -0.44 | 0.23 | 1038 | -0.90 | 0.02 |
| CF/MN/HiIng - CF/CN/HiIng | -0.28 | 0.23 | 1038 | -0.74 | 0.18 |

Pairwise comparisons

Custom contrasts

controlframe\_lowvshi\_ing

## contrast estimate SE df t.ratio p.value  
## CF/DN/LowIng - CF/CN/LowIng 0.0409 0.273 1038 0.150 0.8810  
## CF/Conv/LowIng - CF/CN/LowIng 0.3342 0.254 1038 1.317 0.1881  
## CF/SN/LowIng - CF/CN/LowIng -0.1101 0.220 1038 -0.500 0.6168  
## CF/MN/LowIng - CF/CN/LowIng -0.1388 0.256 1038 -0.543 0.5873  
## CF/DN/HiIng - CF/CN/HiIng -0.3561 0.255 1038 -1.395 0.1634  
## CF/Conv/HiIng - CF/CN/HiIng -0.2328 0.259 1038 -0.897 0.3697  
## CF/SN/HiIng - CF/CN/HiIng -0.4687 0.249 1038 -1.885 0.0597  
## CF/MN/HiIng - CF/CN/HiIng -0.3003 0.250 1038 -1.200 0.2303  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_LowIng <- c(1,rep(0,7))  
conv\_vs\_c\_LowIng <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowIng <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowIng <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiIng <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiIng <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiIng <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiIng <- c(rep(0,7),1)

compare\_ing <- contrast(controlframe\_lowvshi\_ing, method = list("Effect of DN (Low - High ing)" = dn\_vs\_c\_LowIng - dn\_vs\_c\_HiIng,   
 "Effect of Conv (Low - High ing)" = conv\_vs\_c\_LowIng - conv\_vs\_c\_HiIng,  
 "Effect of SN (Low - High ing)" = sn\_vs\_c\_LowIng - sn\_vs\_c\_HiIng,  
 "Effect of MN (Low - High ing)" = mn\_vs\_c\_LowIng - mn\_vs\_c\_HiIng), adjust = "none")  
  
compare\_ing %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ing) | 0.40 | 0.39 | 1038 | 1.03 | 0.303 |
| Effect of Conv (Low - High ing) | 0.57 | 0.36 | 1038 | 1.59 | 0.112 |
| Effect of SN (Low - High ing) | 0.36 | 0.32 | 1038 | 1.10 | 0.270 |
| Effect of MN (Low - High ing) | 0.16 | 0.34 | 1038 | 0.48 | 0.631 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ing) | 0.40 | 0.39 | 1038 | -0.36 | 1.15 |
| Effect of Conv (Low - High ing) | 0.57 | 0.36 | 1038 | -0.13 | 1.27 |
| Effect of SN (Low - High ing) | 0.36 | 0.32 | 1038 | -0.28 | 1.00 |
| Effect of MN (Low - High ing) | 0.16 | 0.34 | 1038 | -0.50 | 0.82 |

# effect sizes  
eff\_size(controlframe\_lowvshi\_ing, method = list("Effect of DN (Low - High ing)" = dn\_vs\_c\_LowIng - dn\_vs\_c\_HiIng,   
 "Effect of Conv (Low - High ing)" = conv\_vs\_c\_LowIng - conv\_vs\_c\_HiIng,  
 "Effect of SN (Low - High ing)" = sn\_vs\_c\_LowIng - sn\_vs\_c\_HiIng,  
 "Effect of MN (Low - High ing)" = mn\_vs\_c\_LowIng - mn\_vs\_c\_HiIng), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ing) | 0.37 | 0.36 | 1038 | -0.34 | 1.08 |
| Effect of Conv (Low - High ing) | 0.53 | 0.33 | 1038 | -0.12 | 1.19 |
| Effect of SN (Low - High ing) | 0.34 | 0.30 | 1038 | -0.26 | 0.93 |
| Effect of MN (Low - High ing) | 0.15 | 0.31 | 1038 | -0.47 | 0.77 |

#### Pro-environmental framing

proenvframe\_lowvshi\_ing <- contrast(combinations,   
 method = list("PF/DN/LowIng - PF/CN/LowIng" = pf\_dn\_low\_ing - pf\_cn\_low\_ing,  
 "PF/Conv/LowIng - PF/CN/LowIng" = pf\_conv\_low\_ing - pf\_cn\_low\_ing,  
 "PF/SN/LowIng - PF/CN/LowIng" = pf\_sn\_low\_ing - pf\_cn\_low\_ing,  
 "PF/MN/LowIng - PF/CN/LowIng" = pf\_mn\_low\_ing - pf\_cn\_low\_ing,  
 "PF/DN/HiIng - PF/CN/HiIng" = pf\_dn\_hi\_ing - pf\_cn\_hi\_ing,  
 "PF/Conv/HiIng - PF/CN/HiIng" = pf\_conv\_hi\_ing - pf\_cn\_hi\_ing,  
 "PF/SN/HiIng - PF/CN/HiIng" = pf\_sn\_hi\_ing - pf\_cn\_hi\_ing,  
 "PF/MN/HiIng - PF/CN/HiIng" = pf\_mn\_hi\_ing - pf\_cn\_hi\_ing),   
 adjust = "none")  
  
proenvframe\_lowvshi\_ing %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowIng - PF/CN/LowIng | -0.23 | 0.26 | 1038 | -0.91 | 0.364 |
| PF/Conv/LowIng - PF/CN/LowIng | 0.00 | 0.24 | 1038 | -0.02 | 0.986 |
| PF/SN/LowIng - PF/CN/LowIng | -0.12 | 0.26 | 1038 | -0.47 | 0.641 |
| PF/MN/LowIng - PF/CN/LowIng | -0.28 | 0.25 | 1038 | -1.09 | 0.274 |
| PF/DN/HiIng - PF/CN/HiIng | -0.11 | 0.26 | 1038 | -0.40 | 0.689 |
| PF/Conv/HiIng - PF/CN/HiIng | -0.14 | 0.26 | 1038 | -0.55 | 0.585 |
| PF/SN/HiIng - PF/CN/HiIng | -0.25 | 0.27 | 1038 | -0.94 | 0.346 |
| PF/MN/HiIng - PF/CN/HiIng | -0.19 | 0.26 | 1038 | -0.73 | 0.463 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowIng - PF/CN/LowIng | -0.23 | 0.26 | 1038 | -0.74 | 0.27 |
| PF/Conv/LowIng - PF/CN/LowIng | 0.00 | 0.24 | 1038 | -0.48 | 0.47 |
| PF/SN/LowIng - PF/CN/LowIng | -0.12 | 0.26 | 1038 | -0.63 | 0.39 |
| PF/MN/LowIng - PF/CN/LowIng | -0.28 | 0.25 | 1038 | -0.77 | 0.22 |
| PF/DN/HiIng - PF/CN/HiIng | -0.11 | 0.26 | 1038 | -0.62 | 0.41 |
| PF/Conv/HiIng - PF/CN/HiIng | -0.14 | 0.26 | 1038 | -0.66 | 0.37 |
| PF/SN/HiIng - PF/CN/HiIng | -0.25 | 0.27 | 1038 | -0.78 | 0.28 |
| PF/MN/HiIng - PF/CN/HiIng | -0.19 | 0.26 | 1038 | -0.70 | 0.32 |

# effect sizes  
eff\_size(combinations,   
 method = list("PF/DN/LowIng - PF/CN/LowIng" = pf\_dn\_low\_ing - pf\_cn\_low\_ing,  
 "PF/Conv/LowIng - PF/CN/LowIng" = pf\_conv\_low\_ing - pf\_cn\_low\_ing,  
 "PF/SN/LowIng - PF/CN/LowIng" = pf\_sn\_low\_ing - pf\_cn\_low\_ing,  
 "PF/MN/LowIng - PF/CN/LowIng" = pf\_mn\_low\_ing - pf\_cn\_low\_ing,  
 "PF/DN/HiIng - PF/CN/HiIng" = pf\_dn\_hi\_ing - pf\_cn\_hi\_ing,  
 "PF/Conv/HiIng - PF/CN/HiIng" = pf\_conv\_hi\_ing - pf\_cn\_hi\_ing,  
 "PF/SN/HiIng - PF/CN/HiIng" = pf\_sn\_hi\_ing - pf\_cn\_hi\_ing,  
 "PF/MN/HiIng - PF/CN/HiIng" = pf\_mn\_hi\_ing - pf\_cn\_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 |
| --- | --- | --- | --- | --- | --- |
| PF/DN/LowIng - PF/CN/LowIng | -0.22 | 0.24 | 1038 | -0.69 | 0.25 |
| PF/Conv/LowIng - PF/CN/LowIng | 0.00 | 0.23 | 1038 | -0.45 | 0.44 |
| PF/SN/LowIng - PF/CN/LowIng | -0.11 | 0.24 | 1038 | -0.59 | 0.36 |
| PF/MN/LowIng - PF/CN/LowIng | -0.26 | 0.24 | 1038 | -0.72 | 0.21 |
| PF/DN/HiIng - PF/CN/HiIng | -0.10 | 0.25 | 1038 | -0.58 | 0.39 |
| PF/Conv/HiIng - PF/CN/HiIng | -0.13 | 0.25 | 1038 | -0.62 | 0.35 |
| PF/SN/HiIng - PF/CN/HiIng | -0.24 | 0.25 | 1038 | -0.73 | 0.26 |
| PF/MN/HiIng - PF/CN/HiIng | -0.18 | 0.24 | 1038 | -0.66 | 0.30 |

Pairwise comparisons

Custom contrasts

proenvframe\_lowvshi\_ing

## contrast estimate SE df t.ratio p.value  
## PF/DN/LowIng - PF/CN/LowIng -0.23357 0.257 1038 -0.907 0.3644  
## PF/Conv/LowIng - PF/CN/LowIng -0.00432 0.243 1038 -0.018 0.9858  
## PF/SN/LowIng - PF/CN/LowIng -0.12095 0.259 1038 -0.467 0.6407  
## PF/MN/LowIng - PF/CN/LowIng -0.27698 0.253 1038 -1.094 0.2742  
## PF/DN/HiIng - PF/CN/HiIng -0.10543 0.264 1038 -0.400 0.6894  
## PF/Conv/HiIng - PF/CN/HiIng -0.14359 0.263 1038 -0.546 0.5852  
## PF/SN/HiIng - PF/CN/HiIng -0.25475 0.270 1038 -0.943 0.3460  
## PF/MN/HiIng - PF/CN/HiIng -0.19162 0.261 1038 -0.734 0.4631  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_LowIng <- c(1,rep(0,7))  
conv\_vs\_c\_LowIng <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowIng <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowIng <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiIng <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiIng <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiIng <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiIng <- c(rep(0,7),1)

compare\_ing <- contrast(proenvframe\_lowvshi\_ing, method = list("Effect of DN (Low - High ing)" = dn\_vs\_c\_LowIng - dn\_vs\_c\_HiIng,   
 "Effect of Conv (Low - High ing)" = conv\_vs\_c\_LowIng - conv\_vs\_c\_HiIng,  
 "Effect of SN (Low - High ing)" = sn\_vs\_c\_LowIng - sn\_vs\_c\_HiIng,  
 "Effect of MN (Low - High ing)" = mn\_vs\_c\_LowIng - mn\_vs\_c\_HiIng), adjust = "none")  
  
compare\_ing %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ing) | -0.13 | 0.37 | 1038 | -0.34 | 0.733 |
| Effect of Conv (Low - High ing) | 0.14 | 0.37 | 1038 | 0.38 | 0.704 |
| Effect of SN (Low - High ing) | 0.13 | 0.38 | 1038 | 0.35 | 0.724 |
| Effect of MN (Low - High ing) | -0.09 | 0.38 | 1038 | -0.23 | 0.820 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ing) | -0.13 | 0.37 | 1038 | -0.86 | 0.61 |
| Effect of Conv (Low - High ing) | 0.14 | 0.37 | 1038 | -0.58 | 0.86 |
| Effect of SN (Low - High ing) | 0.13 | 0.38 | 1038 | -0.61 | 0.88 |
| Effect of MN (Low - High ing) | -0.09 | 0.38 | 1038 | -0.82 | 0.65 |

# effect sizes  
eff\_size(proenvframe\_lowvshi\_ing, method = list("Effect of DN (Low - High ing)" = dn\_vs\_c\_LowIng - dn\_vs\_c\_HiIng,   
 "Effect of Conv (Low - High ing)" = conv\_vs\_c\_LowIng - conv\_vs\_c\_HiIng,  
 "Effect of SN (Low - High ing)" = sn\_vs\_c\_LowIng - sn\_vs\_c\_HiIng,  
 "Effect of MN (Low - High ing)" = mn\_vs\_c\_LowIng - mn\_vs\_c\_HiIng), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ing) | -0.12 | 0.35 | 1038 | -0.81 | 0.57 |
| Effect of Conv (Low - High ing) | 0.13 | 0.34 | 1038 | -0.54 | 0.80 |
| Effect of SN (Low - High ing) | 0.13 | 0.35 | 1038 | -0.57 | 0.82 |
| Effect of MN (Low - High ing) | -0.08 | 0.35 | 1038 | -0.77 | 0.61 |

#### Self-enhancing framing

selfenhframe\_lowvshi\_ing <- contrast(combinations,   
 method = list("SF/DN/LowIng - SF/CN/LowIng" = sf\_dn\_low\_ing - sf\_cn\_low\_ing,  
 "SF/Conv/LowIng - SF/CN/LowIng" = sf\_conv\_low\_ing - sf\_cn\_low\_ing,  
 "SF/SN/LowIng - SF/CN/LowIng" = sf\_sn\_low\_ing - sf\_cn\_low\_ing,  
 "SF/MN/LowIng - SF/CN/LowIng" = sf\_mn\_low\_ing - sf\_cn\_low\_ing,  
 "SF/DN/HiIng - SF/CN/HiIng" = sf\_dn\_hi\_ing - sf\_cn\_hi\_ing,  
 "SF/Conv/HiIng - SF/CN/HiIng" = sf\_conv\_hi\_ing - sf\_cn\_hi\_ing,  
 "SF/SN/HiIng - SF/CN/HiIng" = sf\_sn\_hi\_ing - sf\_cn\_hi\_ing,  
 "SF/MN/HiIng - SF/CN/HiIng" = sf\_mn\_hi\_ing - sf\_cn\_hi\_ing),   
 adjust = "none")  
  
selfenhframe\_lowvshi\_ing %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowIng - SF/CN/LowIng | 0.06 | 0.25 | 1038 | 0.24 | 0.810 |
| SF/Conv/LowIng - SF/CN/LowIng | -0.03 | 0.25 | 1038 | -0.14 | 0.891 |
| SF/SN/LowIng - SF/CN/LowIng | -0.27 | 0.27 | 1038 | -0.99 | 0.322 |
| SF/MN/LowIng - SF/CN/LowIng | 0.32 | 0.25 | 1038 | 1.29 | 0.198 |
| SF/DN/HiIng - SF/CN/HiIng | 0.42 | 0.25 | 1038 | 1.69 | 0.091 |
| SF/Conv/HiIng - SF/CN/HiIng | 0.50 | 0.28 | 1038 | 1.82 | 0.069 |
| SF/SN/HiIng - SF/CN/HiIng | 0.29 | 0.27 | 1038 | 1.09 | 0.278 |
| SF/MN/HiIng - SF/CN/HiIng | -0.04 | 0.26 | 1038 | -0.15 | 0.878 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowIng - SF/CN/LowIng | 0.06 | 0.25 | 1038 | -0.43 | 0.55 |
| SF/Conv/LowIng - SF/CN/LowIng | -0.03 | 0.25 | 1038 | -0.53 | 0.46 |
| SF/SN/LowIng - SF/CN/LowIng | -0.27 | 0.27 | 1038 | -0.81 | 0.27 |
| SF/MN/LowIng - SF/CN/LowIng | 0.32 | 0.25 | 1038 | -0.17 | 0.81 |
| SF/DN/HiIng - SF/CN/HiIng | 0.42 | 0.25 | 1038 | -0.07 | 0.90 |
| SF/Conv/HiIng - SF/CN/HiIng | 0.50 | 0.28 | 1038 | -0.04 | 1.04 |
| SF/SN/HiIng - SF/CN/HiIng | 0.29 | 0.27 | 1038 | -0.23 | 0.81 |
| SF/MN/HiIng - SF/CN/HiIng | -0.04 | 0.26 | 1038 | -0.56 | 0.48 |

# effect sizes  
eff\_size(combinations,   
 method = list("SF/DN/LowIng - SF/CN/LowIng" = sf\_dn\_low\_ing - sf\_cn\_low\_ing,  
 "SF/Conv/LowIng - SF/CN/LowIng" = sf\_conv\_low\_ing - sf\_cn\_low\_ing,  
 "SF/SN/LowIng - SF/CN/LowIng" = sf\_sn\_low\_ing - sf\_cn\_low\_ing,  
 "SF/MN/LowIng - SF/CN/LowIng" = sf\_mn\_low\_ing - sf\_cn\_low\_ing,  
 "SF/DN/HiIng - SF/CN/HiIng" = sf\_dn\_hi\_ing - sf\_cn\_hi\_ing,  
 "SF/Conv/HiIng - SF/CN/HiIng" = sf\_conv\_hi\_ing - sf\_cn\_hi\_ing,  
 "SF/SN/HiIng - SF/CN/HiIng" = sf\_sn\_hi\_ing - sf\_cn\_hi\_ing,  
 "SF/MN/HiIng - SF/CN/HiIng" = sf\_mn\_hi\_ing - sf\_cn\_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 |
| --- | --- | --- | --- | --- | --- |
| SF/DN/LowIng - SF/CN/LowIng | 0.06 | 0.23 | 1038 | -0.40 | 0.51 |
| SF/Conv/LowIng - SF/CN/LowIng | -0.03 | 0.24 | 1038 | -0.50 | 0.43 |
| SF/SN/LowIng - SF/CN/LowIng | -0.25 | 0.26 | 1038 | -0.76 | 0.25 |
| SF/MN/LowIng - SF/CN/LowIng | 0.30 | 0.23 | 1038 | -0.16 | 0.76 |
| SF/DN/HiIng - SF/CN/HiIng | 0.39 | 0.23 | 1038 | -0.06 | 0.84 |
| SF/Conv/HiIng - SF/CN/HiIng | 0.47 | 0.26 | 1038 | -0.04 | 0.98 |
| SF/SN/HiIng - SF/CN/HiIng | 0.27 | 0.25 | 1038 | -0.22 | 0.76 |
| SF/MN/HiIng - SF/CN/HiIng | -0.04 | 0.25 | 1038 | -0.52 | 0.45 |

Pairwise comparisons

Custom contrasts

selfenhframe\_lowvshi\_ing

## contrast estimate SE df t.ratio p.value  
## SF/DN/LowIng - SF/CN/LowIng 0.0597 0.248 1038 0.241 0.8098  
## SF/Conv/LowIng - SF/CN/LowIng -0.0348 0.253 1038 -0.138 0.8906  
## SF/SN/LowIng - SF/CN/LowIng -0.2708 0.273 1038 -0.992 0.3216  
## SF/MN/LowIng - SF/CN/LowIng 0.3218 0.250 1038 1.287 0.1984  
## SF/DN/HiIng - SF/CN/HiIng 0.4168 0.246 1038 1.694 0.0906  
## SF/Conv/HiIng - SF/CN/HiIng 0.5024 0.276 1038 1.822 0.0687  
## SF/SN/HiIng - SF/CN/HiIng 0.2885 0.266 1038 1.086 0.2779  
## SF/MN/HiIng - SF/CN/HiIng -0.0405 0.264 1038 -0.153 0.8784  
##   
## Results are averaged over the levels of: Gender

dn\_vs\_c\_LowIng <- c(1,rep(0,7))  
conv\_vs\_c\_LowIng <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowIng <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowIng <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiIng <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiIng <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiIng <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiIng <- c(rep(0,7),1)

compare\_ing <- contrast(selfenhframe\_lowvshi\_ing, method = list("Effect of DN (Low - High ing)" = dn\_vs\_c\_LowIng - dn\_vs\_c\_HiIng,   
 "Effect of Conv (Low - High ing)" = conv\_vs\_c\_LowIng - conv\_vs\_c\_HiIng,  
 "Effect of SN (Low - High ing)" = sn\_vs\_c\_LowIng - sn\_vs\_c\_HiIng,  
 "Effect of MN (Low - High ing)" = mn\_vs\_c\_LowIng - mn\_vs\_c\_HiIng), adjust = "none")  
  
compare\_ing %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ing) | -0.36 | 0.35 | 1038 | -1.03 | 0.305 |
| Effect of Conv (Low - High ing) | -0.54 | 0.39 | 1038 | -1.39 | 0.164 |
| Effect of SN (Low - High ing) | -0.56 | 0.39 | 1038 | -1.44 | 0.150 |
| Effect of MN (Low - High ing) | 0.36 | 0.37 | 1038 | 0.99 | 0.324 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ing) | -0.36 | 0.35 | 1038 | -1.04 | 0.33 |
| Effect of Conv (Low - High ing) | -0.54 | 0.39 | 1038 | -1.29 | 0.22 |
| Effect of SN (Low - High ing) | -0.56 | 0.39 | 1038 | -1.32 | 0.20 |
| Effect of MN (Low - High ing) | 0.36 | 0.37 | 1038 | -0.36 | 1.08 |

# effect sizes  
eff\_size(selfenhframe\_lowvshi\_ing, method = list("Effect of DN (Low - High ing)" = dn\_vs\_c\_LowIng - dn\_vs\_c\_HiIng,   
 "Effect of Conv (Low - High ing)" = conv\_vs\_c\_LowIng - conv\_vs\_c\_HiIng,  
 "Effect of SN (Low - High ing)" = sn\_vs\_c\_LowIng - sn\_vs\_c\_HiIng,  
 "Effect of MN (Low - High ing)" = mn\_vs\_c\_LowIng - mn\_vs\_c\_HiIng), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ing) | -0.33 | 0.33 | 1038 | -0.97 | 0.31 |
| Effect of Conv (Low - High ing) | -0.50 | 0.36 | 1038 | -1.21 | 0.21 |
| Effect of SN (Low - High ing) | -0.52 | 0.36 | 1038 | -1.24 | 0.19 |
| Effect of MN (Low - High ing) | 0.34 | 0.34 | 1038 | -0.34 | 1.01 |

H5: In-group identification will moderate the effect of norm-intervention condition on people’s clothing consumption intentions and behaviors such that the effect of each norm-intervention condition will be stronger when people are high, versus low, on in-group 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)

### Calculate EM Means at low and high bio

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

cn\_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(rep(0,3),1,rep(0,6))  
mn\_low\_ing <- c(rep(0,4),1,rep(0,5))  
  
cn\_hi\_ing <- c(rep(0,5),1,rep(0,4))  
dn\_hi\_ing <- c(rep(0,6),1,rep(0,3))  
conv\_hi\_ing <- c(rep(0,7),1,rep(0,2))  
sn\_hi\_ing <- c(rep(0,8),1,rep(0,1))  
mn\_hi\_ing <- c(rep(0,9),1)

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

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

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

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

# effect sizes  
eff\_size(combinations,   
 method = list("DN Low Ing - Control Low Ing" = dn\_low\_ing - cn\_low\_ing,  
 "Conv Low Ing - Control Low Ing" = conv\_low\_ing - cn\_low\_ing,  
 "SN Low Ing - Control Low Ing" = sn\_low\_ing - cn\_low\_ing,  
 "MN Low Ing - Control Low Ing" = mn\_low\_ing - cn\_low\_ing,  
 "DN Hi Ing - Control Hi Ing" = dn\_hi\_ing - cn\_hi\_ing,  
 "Conv Hi Ing - Control Hi Ing" = conv\_hi\_ing - cn\_hi\_ing,  
 "SN Hi Ing - Control Hi Ing" = sn\_hi\_ing - cn\_hi\_ing,  
 "MN Hi Ing - Control Hi Ing" = mn\_hi\_ing - cn\_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 |
| --- | --- | --- | --- | --- | --- |
| DN Low Ing - Control Low Ing | -0.04 | 0.14 | 1038 | -0.32 | 0.23 |
| Conv Low Ing - Control Low Ing | 0.09 | 0.13 | 1038 | -0.17 | 0.36 |
| SN Low Ing - Control Low Ing | -0.16 | 0.14 | 1038 | -0.42 | 0.11 |
| MN Low Ing - Control Low Ing | -0.03 | 0.14 | 1038 | -0.30 | 0.24 |
| DN Hi Ing - Control Hi Ing | -0.01 | 0.14 | 1038 | -0.28 | 0.26 |
| Conv Hi Ing - Control Hi Ing | 0.04 | 0.14 | 1038 | -0.24 | 0.32 |
| SN Hi Ing - Control Hi Ing | -0.14 | 0.14 | 1038 | -0.41 | 0.14 |
| MN Hi Ing - Control Hi Ing | -0.17 | 0.14 | 1038 | -0.44 | 0.11 |

Pairwise comparisons

Custom contrasts

norm\_effect\_ing

## contrast estimate SE df t.ratio p.value  
## DN Low Ing - Control Low Ing -0.0443 0.150 1038 -0.296 0.7672  
## Conv Low Ing - Control Low Ing 0.0984 0.144 1038 0.683 0.4949  
## SN Low Ing - Control Low Ing -0.1673 0.145 1038 -1.155 0.2486  
## MN Low Ing - Control Low Ing -0.0313 0.146 1038 -0.214 0.8306  
## DN Hi Ing - Control Hi Ing -0.0149 0.147 1038 -0.101 0.9194  
## Conv Hi Ing - Control Hi Ing 0.0420 0.154 1038 0.273 0.7845  
## SN Hi Ing - Control Hi Ing -0.1450 0.151 1038 -0.961 0.3366  
## MN Hi Ing - Control Hi Ing -0.1774 0.149 1038 -1.188 0.2351  
##   
## Results are averaged over the levels of: framing\_condition, Gender

dn\_vs\_c\_LowIng <- c(1,rep(0,7))  
conv\_vs\_c\_LowIng <- c(0,1,rep(0,6))  
sn\_vs\_c\_LowIng <- c(0,0,1,rep(0,5))  
mn\_vs\_c\_LowIng <- c(0,0,0,1,rep(0,4))  
  
dn\_vs\_c\_HiIng <- c(rep(0,4),1,rep(0,3))  
conv\_vs\_c\_HiIng <- c(rep(0,5),1,rep(0,2))  
sn\_vs\_c\_HiIng <- c(rep(0,6),1,rep(0,1))  
mn\_vs\_c\_HiIng <- c(rep(0,7),1)

norm\_compare\_ing <- contrast(norm\_effect\_ing, method = list("Effect of DN (Low - High ing)" = dn\_vs\_c\_LowIng - dn\_vs\_c\_HiIng,   
 "Effect of Conv (Low - High ing)" = conv\_vs\_c\_LowIng - conv\_vs\_c\_HiIng,  
 "Effect of SN (Low - High ing)" = sn\_vs\_c\_LowIng - sn\_vs\_c\_HiIng,  
 "Effect of MN (Low - High ing)" = mn\_vs\_c\_LowIng - mn\_vs\_c\_HiIng), adjust = "none")  
  
norm\_compare\_ing %>% knitr::kable(digits = c(NA,2,2,2,2,3))

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ing) | -0.03 | 0.21 | 1038 | -0.14 | 0.890 |
| Effect of Conv (Low - High ing) | 0.06 | 0.21 | 1038 | 0.26 | 0.792 |
| Effect of SN (Low - High ing) | -0.02 | 0.21 | 1038 | -0.11 | 0.916 |
| Effect of MN (Low - High ing) | 0.15 | 0.21 | 1038 | 0.70 | 0.484 |

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

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ing) | -0.03 | 0.21 | 1038 | -0.45 | 0.39 |
| Effect of Conv (Low - High ing) | 0.06 | 0.21 | 1038 | -0.36 | 0.48 |
| Effect of SN (Low - High ing) | -0.02 | 0.21 | 1038 | -0.43 | 0.39 |
| Effect of MN (Low - High ing) | 0.15 | 0.21 | 1038 | -0.26 | 0.56 |

# effect sizes  
eff\_size(norm\_effect\_ing, method = list("Effect of DN (Low - High ing)" = dn\_vs\_c\_LowIng - dn\_vs\_c\_HiIng,   
 "Effect of Conv (Low - High ing)" = conv\_vs\_c\_LowIng - conv\_vs\_c\_HiIng,  
 "Effect of SN (Low - High ing)" = sn\_vs\_c\_LowIng - sn\_vs\_c\_HiIng,  
 "Effect of MN (Low - High ing)" = mn\_vs\_c\_LowIng - mn\_vs\_c\_HiIng), sigma = sigma\_pool, edf = df\_resid\_pool) %>% knitr::kable(digits = 2)

| contrast | effect.size | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| Effect of DN (Low - High ing) | -0.03 | 0.2 | 1038 | -0.42 | 0.36 |
| Effect of Conv (Low - High ing) | 0.05 | 0.2 | 1038 | -0.34 | 0.44 |
| Effect of SN (Low - High ing) | -0.02 | 0.2 | 1038 | -0.41 | 0.37 |
| Effect of MN (Low - High ing) | 0.14 | 0.2 | 1038 | -0.25 | 0.52 |

# Exploratory Analyses

## Comparing Continuous Slopes across Conditions

## Biospheric Values

### Bio x Norm

Is the slope of the relationship between biospheric values & consumer intentions stronger in any one of the norm conditions compared to the others?

bio\_norm\_slopes <- emtrends(mod\_mice, pairwise~norm\_condition, var = "biospheric\_center", adjust = "none")  
  
bio\_norm\_slopes$emtrends %>%  
 knitr::kable(digits = 2)

| norm\_condition | biospheric\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_norm | 0.45 | 0.10 | 1038 | 0.26 | 0.64 |
| descriptive\_norm | 0.31 | 0.10 | 1038 | 0.10 | 0.51 |
| convention\_norm | 0.61 | 0.10 | 1038 | 0.41 | 0.81 |
| social\_norm | 0.26 | 0.10 | 1038 | 0.06 | 0.45 |
| moral\_norm | 0.19 | 0.11 | 1038 | -0.04 | 0.42 |

bio\_norm\_slopes$contrasts %>%  
 knitr::kable(digits = c(NA,2,2,2,2,3)) # correct p-values

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | 0.14 | 0.14 | 1038 | 0.99 | 0.324 |
| control\_norm - convention\_norm | -0.16 | 0.14 | 1038 | -1.16 | 0.245 |
| control\_norm - social\_norm | 0.19 | 0.14 | 1038 | 1.34 | 0.180 |
| control\_norm - moral\_norm | 0.26 | 0.15 | 1038 | 1.70 | 0.089 |
| descriptive\_norm - convention\_norm | -0.30 | 0.15 | 1038 | -2.10 | 0.036 |
| descriptive\_norm - social\_norm | 0.05 | 0.14 | 1038 | 0.34 | 0.734 |
| descriptive\_norm - moral\_norm | 0.12 | 0.15 | 1038 | 0.75 | 0.452 |
| convention\_norm - social\_norm | 0.35 | 0.14 | 1038 | 2.46 | 0.014 |
| convention\_norm - moral\_norm | 0.42 | 0.15 | 1038 | 2.73 | 0.006 |
| social\_norm - moral\_norm | 0.07 | 0.15 | 1038 | 0.44 | 0.663 |

Confidence interval

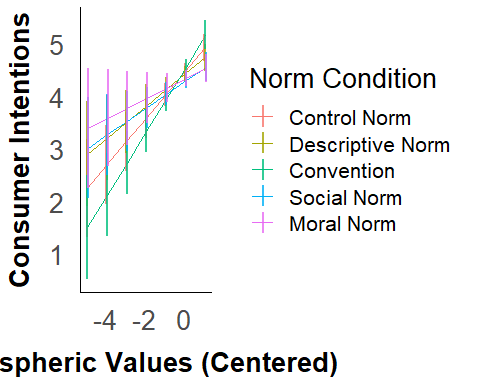
confint(bio\_norm\_slopes$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | 0.14 | 0.14 | 1038 | -0.14 | 0.42 |
| control\_norm - convention\_norm | -0.16 | 0.14 | 1038 | -0.44 | 0.11 |
| control\_norm - social\_norm | 0.19 | 0.14 | 1038 | -0.09 | 0.47 |
| control\_norm - moral\_norm | 0.26 | 0.15 | 1038 | -0.04 | 0.55 |
| descriptive\_norm - convention\_norm | -0.30 | 0.15 | 1038 | -0.59 | -0.02 |
| descriptive\_norm - social\_norm | 0.05 | 0.14 | 1038 | -0.23 | 0.33 |
| descriptive\_norm - moral\_norm | 0.12 | 0.15 | 1038 | -0.19 | 0.42 |
| convention\_norm - social\_norm | 0.35 | 0.14 | 1038 | 0.07 | 0.64 |
| convention\_norm - moral\_norm | 0.42 | 0.15 | 1038 | 0.12 | 0.72 |
| social\_norm - moral\_norm | 0.07 | 0.15 | 1038 | -0.23 | 0.37 |

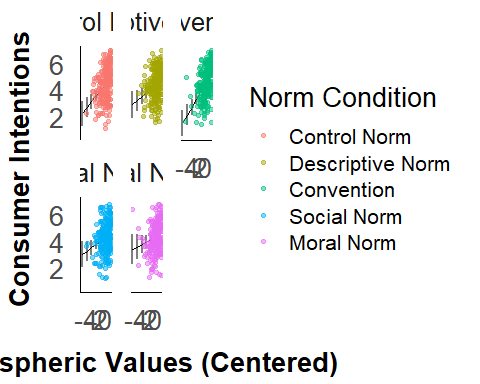
# On a single graph  
describe(average\_df$biospheric\_center)

## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 0 0.99 0.15 0.12 1.11 -4.85 1.15 6 -1.1 1.59 0.03

at\_list <- list(biospheric\_center = seq(-4.9, 1.2, by = 1)) # add .05 to the bounds set by min and max  
  
# without data overlaid  
emmip(mod\_mice, norm\_condition ~ biospheric\_center, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1, alpha = 0.8), xlab = "Biospheric Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"),  
 labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) + theme\_apa() + text\_settings



# with data overlaid  
emmip(mod\_mice, ~ biospheric\_center | norm\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 0.8, alpha = 0.5), xlab = "Biospheric Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) + geom\_point(data = average\_df, aes(x = biospheric\_center, y = consumer\_intentions, color = norm\_condition), alpha = 0.5) + facet\_wrap(~norm\_condition, labeller = labeller(norm\_condition = norm\_labs)) + theme\_apa() + text\_settings



### Bio x Framing

Is the slope of the relationship between biospheric values & consumer intentions stronger in any one of the framing conditions compared to the others?

bio\_frame\_trends <- emtrends(mod\_mice, pairwise~framing\_condition, var = "biospheric\_center", adjust = "none")  
  
bio\_frame\_trends$emtrends %>%  
 knitr::kable(digits = 2)

| framing\_condition | biospheric\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_framing | 0.37 | 0.09 | 1038 | 0.20 | 0.53 |
| pro\_env\_framing | 0.40 | 0.07 | 1038 | 0.27 | 0.54 |
| self\_enh\_framing | 0.32 | 0.09 | 1038 | 0.15 | 0.49 |

bio\_frame\_trends$contrasts %>%  
 knitr::kable(digits = c(NA,2,2,2,2,3))

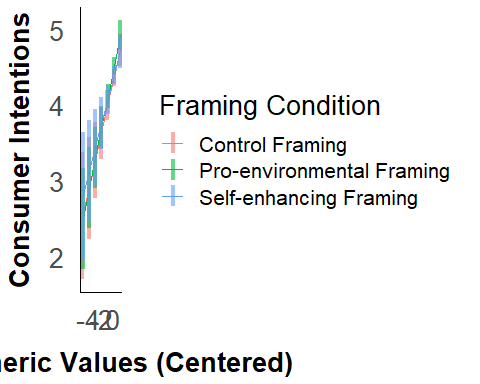
| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| control\_framing - pro\_env\_framing | -0.04 | 0.11 | 1038 | -0.35 | 0.727 |
| control\_framing - self\_enh\_framing | 0.05 | 0.12 | 1038 | 0.39 | 0.695 |
| pro\_env\_framing - self\_enh\_framing | 0.09 | 0.11 | 1038 | 0.78 | 0.438 |

Confidence interval

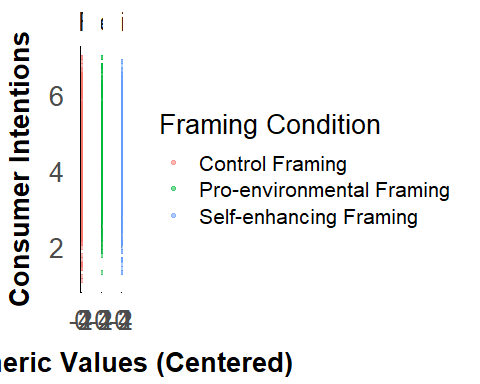
confint(bio\_frame\_trends$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_framing - pro\_env\_framing | -0.04 | 0.11 | 1038 | -0.25 | 0.18 |
| control\_framing - self\_enh\_framing | 0.05 | 0.12 | 1038 | -0.19 | 0.29 |
| pro\_env\_framing - self\_enh\_framing | 0.09 | 0.11 | 1038 | -0.13 | 0.30 |

# without data overlaid  
emmip(mod\_mice, framing\_condition ~ biospheric\_center, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.5, alpha = 0.6), xlab = "Biospheric Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Framing Condition", breaks=c("control\_framing","pro\_env\_framing","self\_enh\_framing"),  
 labels=c("Control Framing", "Pro-environmental Framing", "Self-enhancing Framing")) + theme\_apa() + text\_settings



# with data overlaid  
emmip(mod\_mice, ~ biospheric\_center | framing\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 0.8, alpha = 0.5), xlab = "Biospheric Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Framing Condition", breaks=c("control\_framing","pro\_env\_framing","self\_enh\_framing"), labels=c("Control Framing", "Pro-environmental Framing", "Self-enhancing Framing")) + geom\_point(data = average\_df, aes(x = biospheric\_center, y = consumer\_intentions, color = framing\_condition), alpha = 0.5) + facet\_wrap(~framing\_condition, labeller = labeller(framing\_condition = frame\_labs)) + theme\_apa() + text\_settings



### Bio x Norm x Framing

H4: There will be a three-way interaction between values (biospheric, egoistic, altruistic, hedonic), framing condition, & norm condition such that when a pro-environmental or control framing is used, values will moderate the effect of each norm condition, but not when a self-enhancing framing is used.

AKA, is there a two-way interaction between values & norm condition across the three different framing conditions?

bio\_frame\_norm\_trends <- emtrends(mod\_mice, pairwise~norm\_condition | framing\_condition, var = "biospheric\_center", adjust = "none")  
  
bio\_frame\_norm\_trends$emtrends %>%  
 knitr::kable(digits = 2)

| norm\_condition | framing\_condition | biospheric\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm | control\_framing | 0.57 | 0.16 | 1038 | 0.26 | 0.88 |
| descriptive\_norm | control\_framing | 0.47 | 0.19 | 1038 | 0.08 | 0.85 |
| convention\_norm | control\_framing | 0.83 | 0.19 | 1038 | 0.46 | 1.20 |
| social\_norm | control\_framing | 0.04 | 0.16 | 1038 | -0.28 | 0.36 |
| moral\_norm | control\_framing | -0.08 | 0.24 | 1038 | -0.55 | 0.39 |
| control\_norm | pro\_env\_framing | 0.27 | 0.16 | 1038 | -0.04 | 0.58 |
| descriptive\_norm | pro\_env\_framing | 0.18 | 0.16 | 1038 | -0.14 | 0.49 |
| convention\_norm | pro\_env\_framing | 0.68 | 0.16 | 1038 | 0.36 | 1.00 |
| social\_norm | pro\_env\_framing | 0.35 | 0.14 | 1038 | 0.07 | 0.64 |
| moral\_norm | pro\_env\_framing | 0.54 | 0.15 | 1038 | 0.25 | 0.83 |
| control\_norm | self\_enh\_framing | 0.50 | 0.19 | 1038 | 0.13 | 0.87 |
| descriptive\_norm | self\_enh\_framing | 0.28 | 0.18 | 1038 | -0.08 | 0.63 |
| convention\_norm | self\_enh\_framing | 0.32 | 0.18 | 1038 | -0.04 | 0.68 |
| social\_norm | self\_enh\_framing | 0.38 | 0.21 | 1038 | -0.03 | 0.78 |
| moral\_norm | self\_enh\_framing | 0.11 | 0.20 | 1038 | -0.29 | 0.51 |

bio\_frame\_norm\_trends$contrasts %>%  
 knitr::kable(digits = c(NA,NA,2,2,2,2,3))

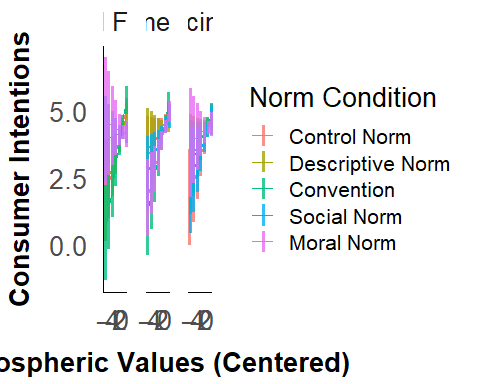
| contrast | framing\_condition | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | control\_framing | 0.10 | 0.25 | 1038 | 0.41 | 0.684 |
| control\_norm - convention\_norm | control\_framing | -0.26 | 0.24 | 1038 | -1.08 | 0.282 |
| control\_norm - social\_norm | control\_framing | 0.53 | 0.23 | 1038 | 2.31 | 0.021 |
| control\_norm - moral\_norm | control\_framing | 0.65 | 0.29 | 1038 | 2.27 | 0.024 |
| descriptive\_norm - convention\_norm | control\_framing | -0.36 | 0.27 | 1038 | -1.35 | 0.176 |
| descriptive\_norm - social\_norm | control\_framing | 0.42 | 0.26 | 1038 | 1.66 | 0.098 |
| descriptive\_norm - moral\_norm | control\_framing | 0.55 | 0.31 | 1038 | 1.77 | 0.076 |
| convention\_norm - social\_norm | control\_framing | 0.79 | 0.25 | 1038 | 3.17 | 0.002 |
| convention\_norm - moral\_norm | control\_framing | 0.91 | 0.30 | 1038 | 3.01 | 0.003 |
| social\_norm - moral\_norm | control\_framing | 0.12 | 0.29 | 1038 | 0.42 | 0.674 |
| control\_norm - descriptive\_norm | pro\_env\_framing | 0.09 | 0.22 | 1038 | 0.42 | 0.674 |
| control\_norm - convention\_norm | pro\_env\_framing | -0.41 | 0.23 | 1038 | -1.80 | 0.071 |
| control\_norm - social\_norm | pro\_env\_framing | -0.08 | 0.21 | 1038 | -0.39 | 0.693 |
| control\_norm - moral\_norm | pro\_env\_framing | -0.27 | 0.22 | 1038 | -1.23 | 0.221 |
| descriptive\_norm - convention\_norm | pro\_env\_framing | -0.51 | 0.23 | 1038 | -2.22 | 0.027 |
| descriptive\_norm - social\_norm | pro\_env\_framing | -0.18 | 0.21 | 1038 | -0.84 | 0.402 |
| descriptive\_norm - moral\_norm | pro\_env\_framing | -0.36 | 0.22 | 1038 | -1.67 | 0.096 |
| convention\_norm - social\_norm | pro\_env\_framing | 0.33 | 0.22 | 1038 | 1.50 | 0.133 |
| convention\_norm - moral\_norm | pro\_env\_framing | 0.15 | 0.22 | 1038 | 0.66 | 0.507 |
| social\_norm - moral\_norm | pro\_env\_framing | -0.18 | 0.21 | 1038 | -0.88 | 0.379 |
| control\_norm - descriptive\_norm | self\_enh\_framing | 0.22 | 0.26 | 1038 | 0.85 | 0.398 |
| control\_norm - convention\_norm | self\_enh\_framing | 0.18 | 0.26 | 1038 | 0.70 | 0.486 |
| control\_norm - social\_norm | self\_enh\_framing | 0.13 | 0.28 | 1038 | 0.45 | 0.655 |
| control\_norm - moral\_norm | self\_enh\_framing | 0.39 | 0.28 | 1038 | 1.40 | 0.162 |
| descriptive\_norm - convention\_norm | self\_enh\_framing | -0.04 | 0.26 | 1038 | -0.16 | 0.871 |
| descriptive\_norm - social\_norm | self\_enh\_framing | -0.10 | 0.28 | 1038 | -0.36 | 0.722 |
| descriptive\_norm - moral\_norm | self\_enh\_framing | 0.16 | 0.27 | 1038 | 0.60 | 0.549 |
| convention\_norm - social\_norm | self\_enh\_framing | -0.06 | 0.28 | 1038 | -0.20 | 0.838 |
| convention\_norm - moral\_norm | self\_enh\_framing | 0.20 | 0.27 | 1038 | 0.75 | 0.453 |
| social\_norm - moral\_norm | self\_enh\_framing | 0.26 | 0.29 | 1038 | 0.89 | 0.372 |

Confidence interval

confint(bio\_frame\_norm\_trends$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | framing\_condition | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | control\_framing | 0.10 | 0.25 | 1038 | -0.39 | 0.59 |
| control\_norm - convention\_norm | control\_framing | -0.26 | 0.24 | 1038 | -0.74 | 0.22 |
| control\_norm - social\_norm | control\_framing | 0.53 | 0.23 | 1038 | 0.08 | 0.97 |
| control\_norm - moral\_norm | control\_framing | 0.65 | 0.29 | 1038 | 0.09 | 1.21 |
| descriptive\_norm - convention\_norm | control\_framing | -0.36 | 0.27 | 1038 | -0.89 | 0.16 |
| descriptive\_norm - social\_norm | control\_framing | 0.42 | 0.26 | 1038 | -0.08 | 0.93 |
| descriptive\_norm - moral\_norm | control\_framing | 0.55 | 0.31 | 1038 | -0.06 | 1.15 |
| convention\_norm - social\_norm | control\_framing | 0.79 | 0.25 | 1038 | 0.30 | 1.28 |
| convention\_norm - moral\_norm | control\_framing | 0.91 | 0.30 | 1038 | 0.32 | 1.50 |
| social\_norm - moral\_norm | control\_framing | 0.12 | 0.29 | 1038 | -0.45 | 0.69 |
| control\_norm - descriptive\_norm | pro\_env\_framing | 0.09 | 0.22 | 1038 | -0.35 | 0.54 |
| control\_norm - convention\_norm | pro\_env\_framing | -0.41 | 0.23 | 1038 | -0.86 | 0.04 |
| control\_norm - social\_norm | pro\_env\_framing | -0.08 | 0.21 | 1038 | -0.51 | 0.34 |
| control\_norm - moral\_norm | pro\_env\_framing | -0.27 | 0.22 | 1038 | -0.69 | 0.16 |
| descriptive\_norm - convention\_norm | pro\_env\_framing | -0.51 | 0.23 | 1038 | -0.96 | -0.06 |
| descriptive\_norm - social\_norm | pro\_env\_framing | -0.18 | 0.21 | 1038 | -0.60 | 0.24 |
| descriptive\_norm - moral\_norm | pro\_env\_framing | -0.36 | 0.22 | 1038 | -0.79 | 0.06 |
| convention\_norm - social\_norm | pro\_env\_framing | 0.33 | 0.22 | 1038 | -0.10 | 0.76 |
| convention\_norm - moral\_norm | pro\_env\_framing | 0.15 | 0.22 | 1038 | -0.29 | 0.58 |
| social\_norm - moral\_norm | pro\_env\_framing | -0.18 | 0.21 | 1038 | -0.59 | 0.22 |
| control\_norm - descriptive\_norm | self\_enh\_framing | 0.22 | 0.26 | 1038 | -0.30 | 0.74 |
| control\_norm - convention\_norm | self\_enh\_framing | 0.18 | 0.26 | 1038 | -0.33 | 0.69 |
| control\_norm - social\_norm | self\_enh\_framing | 0.13 | 0.28 | 1038 | -0.43 | 0.68 |
| control\_norm - moral\_norm | self\_enh\_framing | 0.39 | 0.28 | 1038 | -0.15 | 0.93 |
| descriptive\_norm - convention\_norm | self\_enh\_framing | -0.04 | 0.26 | 1038 | -0.54 | 0.46 |
| descriptive\_norm - social\_norm | self\_enh\_framing | -0.10 | 0.28 | 1038 | -0.64 | 0.44 |
| descriptive\_norm - moral\_norm | self\_enh\_framing | 0.16 | 0.27 | 1038 | -0.37 | 0.69 |
| convention\_norm - social\_norm | self\_enh\_framing | -0.06 | 0.28 | 1038 | -0.60 | 0.48 |
| convention\_norm - moral\_norm | self\_enh\_framing | 0.20 | 0.27 | 1038 | -0.33 | 0.74 |
| social\_norm - moral\_norm | self\_enh\_framing | 0.26 | 0.29 | 1038 | -0.31 | 0.83 |

# without data overlaid  
emmip(mod\_mice, norm\_condition ~ biospheric\_center | framing\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Biospheric Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) + facet\_wrap(~framing\_condition, labeller = labeller(framing\_condition = frame\_labs)) + theme\_apa() + text\_settings



# with data overlaid - doesn't work

## Altruistic Values

### Altruistic x Norm

Is the slope of the relationship between altruistic values & consumer intentions stronger in any one of the norm conditions compared to the others?

alt\_norm\_slopes <- emtrends(mod\_mice, pairwise~norm\_condition, var = "altruistic\_center", adjust = "none")  
  
alt\_norm\_slopes$emtrends %>%  
 knitr::kable(digits = 2)

| norm\_condition | altruistic\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_norm | 0.12 | 0.16 | 1038 | -0.18 | 0.43 |
| descriptive\_norm | -0.13 | 0.13 | 1038 | -0.39 | 0.13 |
| convention\_norm | -0.05 | 0.13 | 1038 | -0.31 | 0.21 |
| social\_norm | 0.10 | 0.15 | 1038 | -0.19 | 0.39 |
| moral\_norm | 0.35 | 0.13 | 1038 | 0.09 | 0.60 |

alt\_norm\_slopes$contrasts %>%  
 knitr::kable(digits = c(NA,2,2,2,2,3)) # correct p-values

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | 0.25 | 0.20 | 1038 | 1.26 | 0.210 |
| control\_norm - convention\_norm | 0.17 | 0.20 | 1038 | 0.85 | 0.393 |
| control\_norm - social\_norm | 0.02 | 0.21 | 1038 | 0.10 | 0.922 |
| control\_norm - moral\_norm | -0.22 | 0.20 | 1038 | -1.10 | 0.271 |
| descriptive\_norm - convention\_norm | -0.08 | 0.19 | 1038 | -0.43 | 0.670 |
| descriptive\_norm - social\_norm | -0.23 | 0.20 | 1038 | -1.18 | 0.238 |
| descriptive\_norm - moral\_norm | -0.48 | 0.18 | 1038 | -2.58 | 0.010 |
| convention\_norm - social\_norm | -0.15 | 0.20 | 1038 | -0.78 | 0.438 |
| convention\_norm - moral\_norm | -0.40 | 0.18 | 1038 | -2.14 | 0.032 |
| social\_norm - moral\_norm | -0.24 | 0.20 | 1038 | -1.24 | 0.216 |

Confidence interval

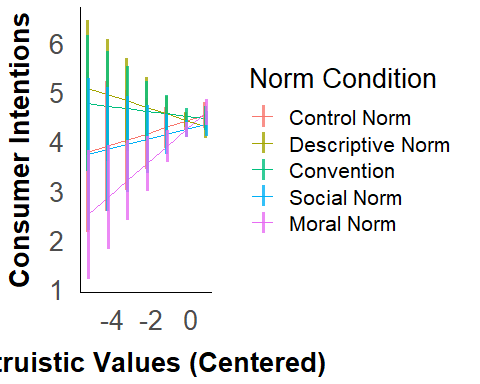
confint(alt\_norm\_slopes$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | 0.25 | 0.20 | 1038 | -0.14 | 0.65 |
| control\_norm - convention\_norm | 0.17 | 0.20 | 1038 | -0.23 | 0.58 |
| control\_norm - social\_norm | 0.02 | 0.21 | 1038 | -0.40 | 0.44 |
| control\_norm - moral\_norm | -0.22 | 0.20 | 1038 | -0.62 | 0.17 |
| descriptive\_norm - convention\_norm | -0.08 | 0.19 | 1038 | -0.45 | 0.29 |
| descriptive\_norm - social\_norm | -0.23 | 0.20 | 1038 | -0.62 | 0.15 |
| descriptive\_norm - moral\_norm | -0.48 | 0.18 | 1038 | -0.84 | -0.11 |
| convention\_norm - social\_norm | -0.15 | 0.20 | 1038 | -0.54 | 0.23 |
| convention\_norm - moral\_norm | -0.40 | 0.18 | 1038 | -0.76 | -0.03 |
| social\_norm - moral\_norm | -0.24 | 0.20 | 1038 | -0.63 | 0.14 |

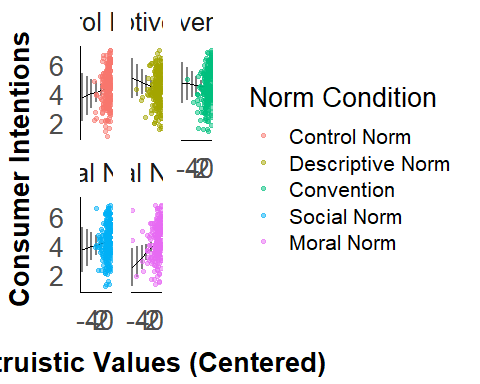
# On a single graph  
describe(average\_df$altruistic\_center)

## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 0 0.8 0.29 0.12 0.74 -5.21 0.79 6 -1.91 6.11 0.02

at\_list <- list(altruistic\_center = seq(-5.26, 0.84, by = 1))  
  
# without data overlaid  
emmip(mod\_mice, norm\_condition ~ altruistic\_center, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Altruistic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) +theme\_apa() + text\_settings



# with data overlaid  
emmip(mod\_mice, ~ altruistic\_center | norm\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 0.8, alpha = 0.5), xlab = "Altruistic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) + geom\_point(data = average\_df, aes(x = altruistic\_center, y = consumer\_intentions, color = norm\_condition), alpha = 0.5) + facet\_wrap(~norm\_condition, labeller = labeller(norm\_condition = norm\_labs)) +theme\_apa() + text\_settings



### Altruistic x Framing

Is the slope of the relationship between altruistic values & consumer intentions stronger in any one of the framing conditions compared to the others?

alt\_frame\_trends <- emtrends(mod\_mice, pairwise~framing\_condition, var = "altruistic\_center", adjust = "none")  
  
alt\_frame\_trends$emtrends %>%  
 knitr::kable(digits = 2)

| framing\_condition | altruistic\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_framing | 0.11 | 0.11 | 1038 | -0.09 | 0.32 |
| pro\_env\_framing | -0.01 | 0.10 | 1038 | -0.20 | 0.19 |
| self\_enh\_framing | 0.13 | 0.12 | 1038 | -0.10 | 0.37 |

alt\_frame\_trends$contrasts %>%  
 knitr::kable(digits = c(NA,2,2,2,2,3))

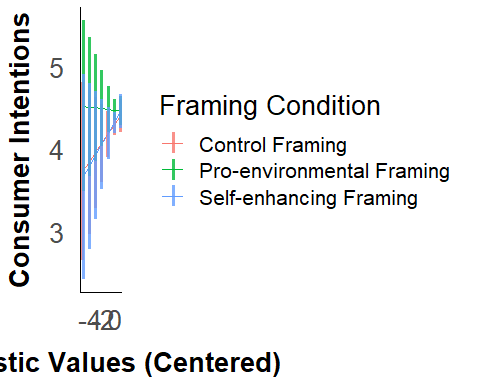
| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| control\_framing - pro\_env\_framing | 0.12 | 0.14 | 1038 | 0.85 | 0.396 |
| control\_framing - self\_enh\_framing | -0.02 | 0.16 | 1038 | -0.12 | 0.903 |
| pro\_env\_framing - self\_enh\_framing | -0.14 | 0.15 | 1038 | -0.91 | 0.361 |

Confidence interval

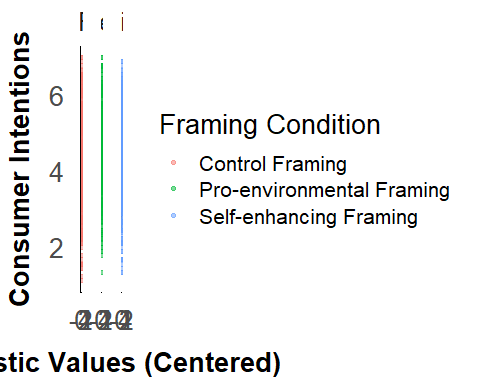
confint(alt\_frame\_trends$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_framing - pro\_env\_framing | 0.12 | 0.14 | 1038 | -0.16 | 0.40 |
| control\_framing - self\_enh\_framing | -0.02 | 0.16 | 1038 | -0.33 | 0.29 |
| pro\_env\_framing - self\_enh\_framing | -0.14 | 0.15 | 1038 | -0.44 | 0.16 |

# without data overlaid  
emmip(mod\_mice, framing\_condition ~ altruistic\_center, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Altruistic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Framing Condition", breaks=c("control\_framing","pro\_env\_framing","self\_enh\_framing"), labels=c("Control Framing", "Pro-environmental Framing", "Self-enhancing Framing")) +theme\_apa() + text\_settings



# with data overlaid  
emmip(mod\_mice, ~ altruistic\_center | framing\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 0.8, alpha = 0.5), xlab = "Altruistic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Framing Condition", breaks=c("control\_framing","pro\_env\_framing","self\_enh\_framing"), labels=c("Control Framing", "Pro-environmental Framing", "Self-enhancing Framing")) + geom\_point(data = average\_df, aes(x = altruistic\_center, y = consumer\_intentions, color = framing\_condition), alpha = 0.5) + facet\_wrap(~framing\_condition, labeller = labeller(framing\_condition = frame\_labs)) +theme\_apa() + text\_settings



### Altruistic x Norm x Framing

alt\_frame\_norm\_trends <- emtrends(mod\_mice, pairwise~norm\_condition | framing\_condition, var = "altruistic\_center", adjust = "none")  
  
alt\_frame\_norm\_trends$emtrends %>%  
 knitr::kable(digits = 2)

| norm\_condition | framing\_condition | altruistic\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm | control\_framing | 0.18 | 0.20 | 1038 | -0.21 | 0.56 |
| descriptive\_norm | control\_framing | -0.13 | 0.24 | 1038 | -0.61 | 0.35 |
| convention\_norm | control\_framing | -0.40 | 0.23 | 1038 | -0.85 | 0.06 |
| social\_norm | control\_framing | 0.41 | 0.24 | 1038 | -0.05 | 0.87 |
| moral\_norm | control\_framing | 0.50 | 0.27 | 1038 | -0.02 | 1.03 |
| control\_norm | pro\_env\_framing | -0.01 | 0.25 | 1038 | -0.49 | 0.47 |
| descriptive\_norm | pro\_env\_framing | 0.02 | 0.23 | 1038 | -0.42 | 0.47 |
| convention\_norm | pro\_env\_framing | -0.04 | 0.21 | 1038 | -0.45 | 0.38 |
| social\_norm | pro\_env\_framing | -0.06 | 0.23 | 1038 | -0.51 | 0.39 |
| moral\_norm | pro\_env\_framing | 0.03 | 0.19 | 1038 | -0.33 | 0.40 |
| control\_norm | self\_enh\_framing | 0.20 | 0.34 | 1038 | -0.47 | 0.88 |
| descriptive\_norm | self\_enh\_framing | -0.28 | 0.21 | 1038 | -0.71 | 0.14 |
| convention\_norm | self\_enh\_framing | 0.28 | 0.24 | 1038 | -0.20 | 0.76 |
| social\_norm | self\_enh\_framing | -0.04 | 0.30 | 1038 | -0.62 | 0.54 |
| moral\_norm | self\_enh\_framing | 0.50 | 0.21 | 1038 | 0.09 | 0.91 |

alt\_frame\_norm\_trends$contrasts %>%  
 knitr::kable(digits = c(NA,NA,2,2,2,2,3))

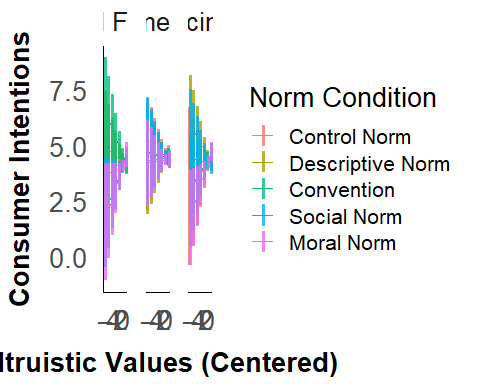
| contrast | framing\_condition | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | control\_framing | 0.31 | 0.31 | 1038 | 0.98 | 0.326 |
| control\_norm - convention\_norm | control\_framing | 0.57 | 0.30 | 1038 | 1.90 | 0.058 |
| control\_norm - social\_norm | control\_framing | -0.23 | 0.31 | 1038 | -0.76 | 0.446 |
| control\_norm - moral\_norm | control\_framing | -0.33 | 0.33 | 1038 | -0.99 | 0.321 |
| descriptive\_norm - convention\_norm | control\_framing | 0.27 | 0.34 | 1038 | 0.80 | 0.423 |
| descriptive\_norm - social\_norm | control\_framing | -0.54 | 0.34 | 1038 | -1.59 | 0.113 |
| descriptive\_norm - moral\_norm | control\_framing | -0.63 | 0.36 | 1038 | -1.76 | 0.079 |
| convention\_norm - social\_norm | control\_framing | -0.81 | 0.33 | 1038 | -2.45 | 0.014 |
| convention\_norm - moral\_norm | control\_framing | -0.90 | 0.35 | 1038 | -2.57 | 0.010 |
| social\_norm - moral\_norm | control\_framing | -0.09 | 0.36 | 1038 | -0.27 | 0.790 |
| control\_norm - descriptive\_norm | pro\_env\_framing | -0.03 | 0.33 | 1038 | -0.09 | 0.927 |
| control\_norm - convention\_norm | pro\_env\_framing | 0.03 | 0.32 | 1038 | 0.10 | 0.924 |
| control\_norm - social\_norm | pro\_env\_framing | 0.05 | 0.33 | 1038 | 0.16 | 0.875 |
| control\_norm - moral\_norm | pro\_env\_framing | -0.04 | 0.31 | 1038 | -0.13 | 0.897 |
| descriptive\_norm - convention\_norm | pro\_env\_framing | 0.06 | 0.31 | 1038 | 0.20 | 0.843 |
| descriptive\_norm - social\_norm | pro\_env\_framing | 0.08 | 0.32 | 1038 | 0.26 | 0.796 |
| descriptive\_norm - moral\_norm | pro\_env\_framing | -0.01 | 0.29 | 1038 | -0.03 | 0.975 |
| convention\_norm - social\_norm | pro\_env\_framing | 0.02 | 0.31 | 1038 | 0.07 | 0.944 |
| convention\_norm - moral\_norm | pro\_env\_framing | -0.07 | 0.28 | 1038 | -0.25 | 0.803 |
| social\_norm - moral\_norm | pro\_env\_framing | -0.09 | 0.30 | 1038 | -0.31 | 0.754 |
| control\_norm - descriptive\_norm | self\_enh\_framing | 0.49 | 0.41 | 1038 | 1.20 | 0.231 |
| control\_norm - convention\_norm | self\_enh\_framing | -0.08 | 0.42 | 1038 | -0.19 | 0.846 |
| control\_norm - social\_norm | self\_enh\_framing | 0.24 | 0.45 | 1038 | 0.54 | 0.592 |
| control\_norm - moral\_norm | self\_enh\_framing | -0.30 | 0.40 | 1038 | -0.75 | 0.454 |
| descriptive\_norm - convention\_norm | self\_enh\_framing | -0.57 | 0.32 | 1038 | -1.75 | 0.080 |
| descriptive\_norm - social\_norm | self\_enh\_framing | -0.24 | 0.36 | 1038 | -0.67 | 0.502 |
| descriptive\_norm - moral\_norm | self\_enh\_framing | -0.78 | 0.30 | 1038 | -2.60 | 0.009 |
| convention\_norm - social\_norm | self\_enh\_framing | 0.32 | 0.38 | 1038 | 0.85 | 0.397 |
| convention\_norm - moral\_norm | self\_enh\_framing | -0.22 | 0.32 | 1038 | -0.67 | 0.506 |
| social\_norm - moral\_norm | self\_enh\_framing | -0.54 | 0.36 | 1038 | -1.49 | 0.137 |

Confidence interval

confint(alt\_frame\_norm\_trends$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | framing\_condition | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | control\_framing | 0.31 | 0.31 | 1038 | -0.31 | 0.92 |
| control\_norm - convention\_norm | control\_framing | 0.57 | 0.30 | 1038 | -0.02 | 1.17 |
| control\_norm - social\_norm | control\_framing | -0.23 | 0.31 | 1038 | -0.83 | 0.37 |
| control\_norm - moral\_norm | control\_framing | -0.33 | 0.33 | 1038 | -0.97 | 0.32 |
| descriptive\_norm - convention\_norm | control\_framing | 0.27 | 0.34 | 1038 | -0.39 | 0.93 |
| descriptive\_norm - social\_norm | control\_framing | -0.54 | 0.34 | 1038 | -1.20 | 0.13 |
| descriptive\_norm - moral\_norm | control\_framing | -0.63 | 0.36 | 1038 | -1.34 | 0.07 |
| convention\_norm - social\_norm | control\_framing | -0.81 | 0.33 | 1038 | -1.45 | -0.16 |
| convention\_norm - moral\_norm | control\_framing | -0.90 | 0.35 | 1038 | -1.59 | -0.21 |
| social\_norm - moral\_norm | control\_framing | -0.09 | 0.36 | 1038 | -0.79 | 0.60 |
| control\_norm - descriptive\_norm | pro\_env\_framing | -0.03 | 0.33 | 1038 | -0.69 | 0.62 |
| control\_norm - convention\_norm | pro\_env\_framing | 0.03 | 0.32 | 1038 | -0.60 | 0.66 |
| control\_norm - social\_norm | pro\_env\_framing | 0.05 | 0.33 | 1038 | -0.60 | 0.71 |
| control\_norm - moral\_norm | pro\_env\_framing | -0.04 | 0.31 | 1038 | -0.64 | 0.56 |
| descriptive\_norm - convention\_norm | pro\_env\_framing | 0.06 | 0.31 | 1038 | -0.55 | 0.67 |
| descriptive\_norm - social\_norm | pro\_env\_framing | 0.08 | 0.32 | 1038 | -0.55 | 0.72 |
| descriptive\_norm - moral\_norm | pro\_env\_framing | -0.01 | 0.29 | 1038 | -0.59 | 0.57 |
| convention\_norm - social\_norm | pro\_env\_framing | 0.02 | 0.31 | 1038 | -0.59 | 0.63 |
| convention\_norm - moral\_norm | pro\_env\_framing | -0.07 | 0.28 | 1038 | -0.63 | 0.48 |
| social\_norm - moral\_norm | pro\_env\_framing | -0.09 | 0.30 | 1038 | -0.67 | 0.49 |
| control\_norm - descriptive\_norm | self\_enh\_framing | 0.49 | 0.41 | 1038 | -0.31 | 1.29 |
| control\_norm - convention\_norm | self\_enh\_framing | -0.08 | 0.42 | 1038 | -0.91 | 0.75 |
| control\_norm - social\_norm | self\_enh\_framing | 0.24 | 0.45 | 1038 | -0.65 | 1.13 |
| control\_norm - moral\_norm | self\_enh\_framing | -0.30 | 0.40 | 1038 | -1.07 | 0.48 |
| descriptive\_norm - convention\_norm | self\_enh\_framing | -0.57 | 0.32 | 1038 | -1.21 | 0.07 |
| descriptive\_norm - social\_norm | self\_enh\_framing | -0.24 | 0.36 | 1038 | -0.96 | 0.47 |
| descriptive\_norm - moral\_norm | self\_enh\_framing | -0.78 | 0.30 | 1038 | -1.38 | -0.19 |
| convention\_norm - social\_norm | self\_enh\_framing | 0.32 | 0.38 | 1038 | -0.43 | 1.08 |
| convention\_norm - moral\_norm | self\_enh\_framing | -0.22 | 0.32 | 1038 | -0.85 | 0.42 |
| social\_norm - moral\_norm | self\_enh\_framing | -0.54 | 0.36 | 1038 | -1.25 | 0.17 |

# without data overlaid  
emmip(mod\_mice, norm\_condition ~ altruistic\_center | framing\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Altruistic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) + facet\_wrap(~framing\_condition, labeller = labeller(framing\_condition = frame\_labs)) +theme\_apa() + text\_settings



## Egoistic Values

### Ego x Norm

Is the slope of the relationship between egoistic values & consumer intentions stronger in any one of the norm conditions compared to the others?

ego\_norm\_slopes <- emtrends(mod\_mice, pairwise~norm\_condition, var = "egoistic\_center", adjust = "none")  
  
ego\_norm\_slopes$emtrends %>%  
 knitr::kable(digits = 2)

| norm\_condition | egoistic\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_norm | -0.36 | 0.09 | 1038 | -0.54 | -0.19 |
| descriptive\_norm | -0.26 | 0.11 | 1038 | -0.47 | -0.06 |
| convention\_norm | -0.36 | 0.09 | 1038 | -0.53 | -0.19 |
| social\_norm | -0.26 | 0.09 | 1038 | -0.44 | -0.08 |
| moral\_norm | -0.24 | 0.09 | 1038 | -0.42 | -0.05 |

ego\_norm\_slopes$contrasts %>%  
 knitr::kable(digits = c(NA,2,2,2,2,3)) # correct p-values

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | -0.10 | 0.14 | 1038 | -0.73 | 0.467 |
| control\_norm - convention\_norm | 0.00 | 0.12 | 1038 | -0.01 | 0.994 |
| control\_norm - social\_norm | -0.10 | 0.13 | 1038 | -0.80 | 0.422 |
| control\_norm - moral\_norm | -0.13 | 0.13 | 1038 | -0.98 | 0.327 |
| descriptive\_norm - convention\_norm | 0.10 | 0.13 | 1038 | 0.74 | 0.457 |
| descriptive\_norm - social\_norm | 0.00 | 0.14 | 1038 | -0.01 | 0.995 |
| descriptive\_norm - moral\_norm | -0.03 | 0.14 | 1038 | -0.19 | 0.850 |
| convention\_norm - social\_norm | -0.10 | 0.12 | 1038 | -0.82 | 0.414 |
| convention\_norm - moral\_norm | -0.13 | 0.13 | 1038 | -1.00 | 0.316 |
| social\_norm - moral\_norm | -0.03 | 0.13 | 1038 | -0.20 | 0.843 |

Confidence interval

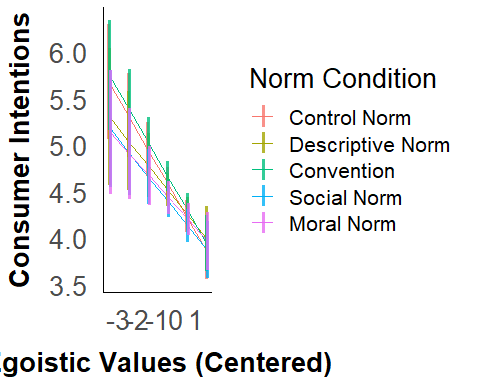
confint(ego\_norm\_slopes$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | -0.10 | 0.14 | 1038 | -0.37 | 0.17 |
| control\_norm - convention\_norm | 0.00 | 0.12 | 1038 | -0.24 | 0.24 |
| control\_norm - social\_norm | -0.10 | 0.13 | 1038 | -0.35 | 0.15 |
| control\_norm - moral\_norm | -0.13 | 0.13 | 1038 | -0.38 | 0.13 |
| descriptive\_norm - convention\_norm | 0.10 | 0.13 | 1038 | -0.16 | 0.36 |
| descriptive\_norm - social\_norm | 0.00 | 0.14 | 1038 | -0.27 | 0.27 |
| descriptive\_norm - moral\_norm | -0.03 | 0.14 | 1038 | -0.30 | 0.25 |
| convention\_norm - social\_norm | -0.10 | 0.12 | 1038 | -0.34 | 0.14 |
| convention\_norm - moral\_norm | -0.13 | 0.13 | 1038 | -0.37 | 0.12 |
| social\_norm - moral\_norm | -0.03 | 0.13 | 1038 | -0.28 | 0.23 |

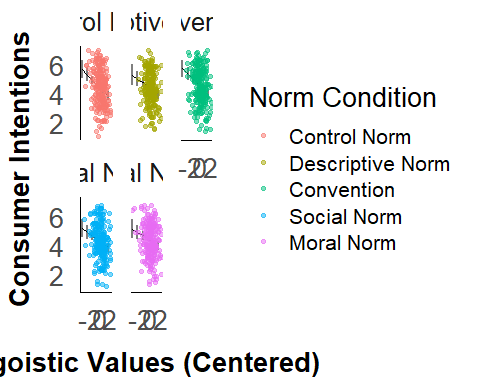
# On a single graph  
describe(average\_df$egoistic\_center)

## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 0 0.92 0 0.03 0.89 -3.4 2 5.4 -0.4 0.31 0.03

at\_list <- list(egoistic\_center = seq(-3.45, 2.05, by = 1))  
  
# without data overlaid  
emmip(mod\_mice, norm\_condition ~ egoistic\_center, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Egoistic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) +theme\_apa() + text\_settings



# with data overlaid  
emmip(mod\_mice, ~ egoistic\_center | norm\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 0.8, alpha = 0.5), xlab = "Egoistic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) + geom\_point(data = average\_df, aes(x = egoistic\_center, y = consumer\_intentions, color = norm\_condition), alpha = 0.5) + facet\_wrap(~norm\_condition, labeller = labeller(norm\_condition = norm\_labs)) +theme\_apa() + text\_settings



### Ego x Framing

Is the slope of the relationship between egoistic values & consumer intentions stronger in any one of the framing conditions compared to the others?

ego\_frame\_trends <- emtrends(mod\_mice, pairwise~framing\_condition, var = "egoistic\_center", adjust = "none")  
  
ego\_frame\_trends$emtrends %>%  
 knitr::kable(digits = 2)

| framing\_condition | egoistic\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_framing | -0.30 | 0.07 | 1038 | -0.44 | -0.15 |
| pro\_env\_framing | -0.27 | 0.07 | 1038 | -0.40 | -0.13 |
| self\_enh\_framing | -0.33 | 0.07 | 1038 | -0.47 | -0.18 |

ego\_frame\_trends$contrasts %>%  
 knitr::kable(digits = c(NA,2,2,2,2,3))

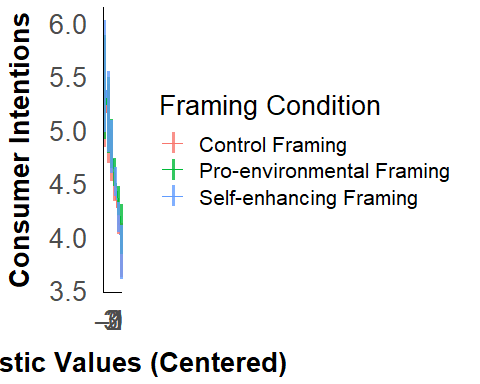
| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| control\_framing - pro\_env\_framing | -0.03 | 0.1 | 1038 | -0.30 | 0.763 |
| control\_framing - self\_enh\_framing | 0.03 | 0.1 | 1038 | 0.33 | 0.745 |
| pro\_env\_framing - self\_enh\_framing | 0.06 | 0.1 | 1038 | 0.63 | 0.528 |

Confidence interval

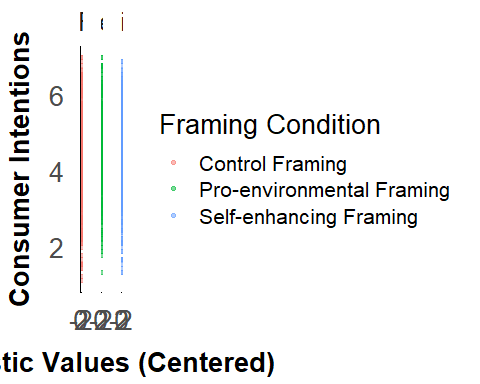
confint(ego\_frame\_trends$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_framing - pro\_env\_framing | -0.03 | 0.1 | 1038 | -0.23 | 0.17 |
| control\_framing - self\_enh\_framing | 0.03 | 0.1 | 1038 | -0.17 | 0.24 |
| pro\_env\_framing - self\_enh\_framing | 0.06 | 0.1 | 1038 | -0.13 | 0.26 |

# without data overlaid  
emmip(mod\_mice, framing\_condition ~ egoistic\_center, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Egoistic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Framing Condition", breaks=c("control\_framing","pro\_env\_framing","self\_enh\_framing"), labels=c("Control Framing", "Pro-environmental Framing", "Self-enhancing Framing")) +theme\_apa() + text\_settings



# with data overlaid  
emmip(mod\_mice, ~ egoistic\_center | framing\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 0.8, alpha = 0.5), xlab = "Egoistic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Framing Condition", breaks=c("control\_framing","pro\_env\_framing","self\_enh\_framing"), labels=c("Control Framing", "Pro-environmental Framing", "Self-enhancing Framing")) + geom\_point(data = average\_df, aes(x = egoistic\_center, y = consumer\_intentions, color = framing\_condition), alpha = 0.5) + facet\_wrap(~framing\_condition, labeller = labeller(framing\_condition = frame\_labs)) +theme\_apa() + text\_settings



### Egoistic x Norm x Framing

ego\_frame\_norm\_trends <- emtrends(mod\_mice, pairwise~norm\_condition | framing\_condition, var = "egoistic\_center", adjust = "none")  
  
ego\_frame\_norm\_trends$emtrends %>%  
 knitr::kable(digits = 2)

| norm\_condition | framing\_condition | egoistic\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm | control\_framing | -0.24 | 0.15 | 1038 | -0.53 | 0.05 |
| descriptive\_norm | control\_framing | -0.28 | 0.18 | 1038 | -0.62 | 0.07 |
| convention\_norm | control\_framing | -0.44 | 0.15 | 1038 | -0.73 | -0.16 |
| social\_norm | control\_framing | -0.45 | 0.14 | 1038 | -0.73 | -0.17 |
| moral\_norm | control\_framing | -0.06 | 0.19 | 1038 | -0.44 | 0.31 |
| control\_norm | pro\_env\_framing | -0.52 | 0.14 | 1038 | -0.79 | -0.24 |
| descriptive\_norm | pro\_env\_framing | -0.24 | 0.16 | 1038 | -0.56 | 0.07 |
| convention\_norm | pro\_env\_framing | -0.11 | 0.16 | 1038 | -0.42 | 0.21 |
| social\_norm | pro\_env\_framing | -0.15 | 0.16 | 1038 | -0.46 | 0.16 |
| moral\_norm | pro\_env\_framing | -0.31 | 0.15 | 1038 | -0.60 | -0.02 |
| control\_norm | self\_enh\_framing | -0.33 | 0.17 | 1038 | -0.67 | 0.01 |
| descriptive\_norm | self\_enh\_framing | -0.27 | 0.21 | 1038 | -0.67 | 0.14 |
| convention\_norm | self\_enh\_framing | -0.54 | 0.13 | 1038 | -0.80 | -0.27 |
| social\_norm | self\_enh\_framing | -0.18 | 0.16 | 1038 | -0.50 | 0.14 |
| moral\_norm | self\_enh\_framing | -0.33 | 0.15 | 1038 | -0.62 | -0.05 |

ego\_frame\_norm\_trends$contrasts %>%  
 knitr::kable(digits = c(NA,NA,2,2,2,2,3))

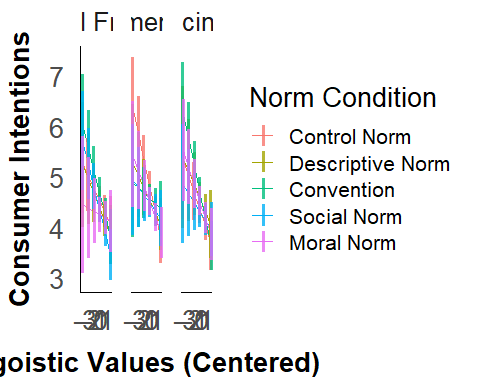
| contrast | framing\_condition | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | control\_framing | 0.03 | 0.23 | 1038 | 0.15 | 0.884 |
| control\_norm - convention\_norm | control\_framing | 0.20 | 0.21 | 1038 | 0.98 | 0.330 |
| control\_norm - social\_norm | control\_framing | 0.21 | 0.21 | 1038 | 1.01 | 0.313 |
| control\_norm - moral\_norm | control\_framing | -0.18 | 0.24 | 1038 | -0.74 | 0.462 |
| descriptive\_norm - convention\_norm | control\_framing | 0.17 | 0.23 | 1038 | 0.74 | 0.460 |
| descriptive\_norm - social\_norm | control\_framing | 0.17 | 0.23 | 1038 | 0.77 | 0.443 |
| descriptive\_norm - moral\_norm | control\_framing | -0.21 | 0.26 | 1038 | -0.82 | 0.415 |
| convention\_norm - social\_norm | control\_framing | 0.01 | 0.20 | 1038 | 0.03 | 0.979 |
| convention\_norm - moral\_norm | control\_framing | -0.38 | 0.24 | 1038 | -1.58 | 0.114 |
| social\_norm - moral\_norm | control\_framing | -0.39 | 0.24 | 1038 | -1.62 | 0.106 |
| control\_norm - descriptive\_norm | pro\_env\_framing | -0.27 | 0.21 | 1038 | -1.28 | 0.201 |
| control\_norm - convention\_norm | pro\_env\_framing | -0.41 | 0.21 | 1038 | -1.94 | 0.053 |
| control\_norm - social\_norm | pro\_env\_framing | -0.36 | 0.21 | 1038 | -1.73 | 0.085 |
| control\_norm - moral\_norm | pro\_env\_framing | -0.21 | 0.20 | 1038 | -1.02 | 0.306 |
| descriptive\_norm - convention\_norm | pro\_env\_framing | -0.14 | 0.23 | 1038 | -0.61 | 0.539 |
| descriptive\_norm - social\_norm | pro\_env\_framing | -0.09 | 0.22 | 1038 | -0.41 | 0.682 |
| descriptive\_norm - moral\_norm | pro\_env\_framing | 0.06 | 0.22 | 1038 | 0.29 | 0.771 |
| convention\_norm - social\_norm | pro\_env\_framing | 0.05 | 0.22 | 1038 | 0.21 | 0.834 |
| convention\_norm - moral\_norm | pro\_env\_framing | 0.20 | 0.22 | 1038 | 0.93 | 0.354 |
| social\_norm - moral\_norm | pro\_env\_framing | 0.16 | 0.22 | 1038 | 0.72 | 0.473 |
| control\_norm - descriptive\_norm | self\_enh\_framing | -0.06 | 0.27 | 1038 | -0.23 | 0.815 |
| control\_norm - convention\_norm | self\_enh\_framing | 0.21 | 0.22 | 1038 | 0.93 | 0.351 |
| control\_norm - social\_norm | self\_enh\_framing | -0.15 | 0.24 | 1038 | -0.62 | 0.533 |
| control\_norm - moral\_norm | self\_enh\_framing | 0.00 | 0.23 | 1038 | 0.02 | 0.986 |
| descriptive\_norm - convention\_norm | self\_enh\_framing | 0.27 | 0.24 | 1038 | 1.11 | 0.267 |
| descriptive\_norm - social\_norm | self\_enh\_framing | -0.08 | 0.26 | 1038 | -0.32 | 0.747 |
| descriptive\_norm - moral\_norm | self\_enh\_framing | 0.07 | 0.25 | 1038 | 0.27 | 0.784 |
| convention\_norm - social\_norm | self\_enh\_framing | -0.35 | 0.21 | 1038 | -1.68 | 0.094 |
| convention\_norm - moral\_norm | self\_enh\_framing | -0.20 | 0.19 | 1038 | -1.04 | 0.301 |
| social\_norm - moral\_norm | self\_enh\_framing | 0.15 | 0.22 | 1038 | 0.70 | 0.482 |

Confidence interval

confint(ego\_frame\_norm\_trends$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | framing\_condition | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | control\_framing | 0.03 | 0.23 | 1038 | -0.42 | 0.48 |
| control\_norm - convention\_norm | control\_framing | 0.20 | 0.21 | 1038 | -0.20 | 0.61 |
| control\_norm - social\_norm | control\_framing | 0.21 | 0.21 | 1038 | -0.20 | 0.61 |
| control\_norm - moral\_norm | control\_framing | -0.18 | 0.24 | 1038 | -0.65 | 0.30 |
| descriptive\_norm - convention\_norm | control\_framing | 0.17 | 0.23 | 1038 | -0.28 | 0.62 |
| descriptive\_norm - social\_norm | control\_framing | 0.17 | 0.23 | 1038 | -0.27 | 0.62 |
| descriptive\_norm - moral\_norm | control\_framing | -0.21 | 0.26 | 1038 | -0.72 | 0.30 |
| convention\_norm - social\_norm | control\_framing | 0.01 | 0.20 | 1038 | -0.40 | 0.41 |
| convention\_norm - moral\_norm | control\_framing | -0.38 | 0.24 | 1038 | -0.85 | 0.09 |
| social\_norm - moral\_norm | control\_framing | -0.39 | 0.24 | 1038 | -0.85 | 0.08 |
| control\_norm - descriptive\_norm | pro\_env\_framing | -0.27 | 0.21 | 1038 | -0.69 | 0.14 |
| control\_norm - convention\_norm | pro\_env\_framing | -0.41 | 0.21 | 1038 | -0.83 | 0.01 |
| control\_norm - social\_norm | pro\_env\_framing | -0.36 | 0.21 | 1038 | -0.78 | 0.05 |
| control\_norm - moral\_norm | pro\_env\_framing | -0.21 | 0.20 | 1038 | -0.61 | 0.19 |
| descriptive\_norm - convention\_norm | pro\_env\_framing | -0.14 | 0.23 | 1038 | -0.58 | 0.30 |
| descriptive\_norm - social\_norm | pro\_env\_framing | -0.09 | 0.22 | 1038 | -0.53 | 0.35 |
| descriptive\_norm - moral\_norm | pro\_env\_framing | 0.06 | 0.22 | 1038 | -0.36 | 0.49 |
| convention\_norm - social\_norm | pro\_env\_framing | 0.05 | 0.22 | 1038 | -0.39 | 0.49 |
| convention\_norm - moral\_norm | pro\_env\_framing | 0.20 | 0.22 | 1038 | -0.23 | 0.63 |
| social\_norm - moral\_norm | pro\_env\_framing | 0.16 | 0.22 | 1038 | -0.27 | 0.58 |
| control\_norm - descriptive\_norm | self\_enh\_framing | -0.06 | 0.27 | 1038 | -0.60 | 0.47 |
| control\_norm - convention\_norm | self\_enh\_framing | 0.21 | 0.22 | 1038 | -0.23 | 0.64 |
| control\_norm - social\_norm | self\_enh\_framing | -0.15 | 0.24 | 1038 | -0.62 | 0.32 |
| control\_norm - moral\_norm | self\_enh\_framing | 0.00 | 0.23 | 1038 | -0.44 | 0.45 |
| descriptive\_norm - convention\_norm | self\_enh\_framing | 0.27 | 0.24 | 1038 | -0.21 | 0.75 |
| descriptive\_norm - social\_norm | self\_enh\_framing | -0.08 | 0.26 | 1038 | -0.60 | 0.43 |
| descriptive\_norm - moral\_norm | self\_enh\_framing | 0.07 | 0.25 | 1038 | -0.42 | 0.56 |
| convention\_norm - social\_norm | self\_enh\_framing | -0.35 | 0.21 | 1038 | -0.77 | 0.06 |
| convention\_norm - moral\_norm | self\_enh\_framing | -0.20 | 0.19 | 1038 | -0.58 | 0.18 |
| social\_norm - moral\_norm | self\_enh\_framing | 0.15 | 0.22 | 1038 | -0.27 | 0.58 |

# without data overlaid  
emmip(mod\_mice, norm\_condition ~ egoistic\_center | framing\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Egoistic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) + facet\_wrap(~framing\_condition, labeller = labeller(framing\_condition = frame\_labs)) +theme\_apa() + text\_settings



## Hedonic Values

### Hedonic x Norm

Is the slope of the relationship between hedonic values & consumer intentions stronger in any one of the norm conditions compared to the others?

hed\_norm\_slopes <- emtrends(mod\_mice, pairwise~norm\_condition, var = "hedonic\_center", adjust = "none")  
  
hed\_norm\_slopes$emtrends %>%  
 knitr::kable(digits = 2)

| norm\_condition | hedonic\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_norm | -0.08 | 0.13 | 1038 | -0.33 | 0.17 |
| descriptive\_norm | -0.05 | 0.13 | 1038 | -0.30 | 0.21 |
| convention\_norm | 0.12 | 0.11 | 1038 | -0.10 | 0.35 |
| social\_norm | -0.18 | 0.12 | 1038 | -0.42 | 0.06 |
| moral\_norm | -0.28 | 0.11 | 1038 | -0.49 | -0.06 |

hed\_norm\_slopes$contrasts %>%  
 knitr::kable(digits = c(NA,2,2,2,2,3)) # correct p-values

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | -0.04 | 0.18 | 1038 | -0.20 | 0.844 |
| control\_norm - convention\_norm | -0.21 | 0.17 | 1038 | -1.22 | 0.224 |
| control\_norm - social\_norm | 0.10 | 0.18 | 1038 | 0.54 | 0.587 |
| control\_norm - moral\_norm | 0.19 | 0.17 | 1038 | 1.17 | 0.243 |
| descriptive\_norm - convention\_norm | -0.17 | 0.17 | 1038 | -0.99 | 0.321 |
| descriptive\_norm - social\_norm | 0.13 | 0.18 | 1038 | 0.73 | 0.463 |
| descriptive\_norm - moral\_norm | 0.23 | 0.17 | 1038 | 1.35 | 0.176 |
| convention\_norm - social\_norm | 0.30 | 0.17 | 1038 | 1.81 | 0.070 |
| convention\_norm - moral\_norm | 0.40 | 0.16 | 1038 | 2.54 | 0.011 |
| social\_norm - moral\_norm | 0.10 | 0.16 | 1038 | 0.60 | 0.546 |

Confidence interval

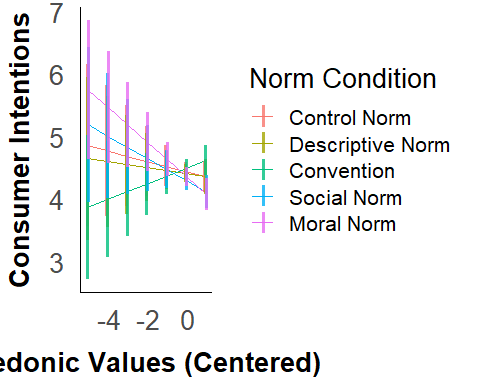
confint(hed\_norm\_slopes$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | -0.04 | 0.18 | 1038 | -0.39 | 0.32 |
| control\_norm - convention\_norm | -0.21 | 0.17 | 1038 | -0.54 | 0.13 |
| control\_norm - social\_norm | 0.10 | 0.18 | 1038 | -0.25 | 0.44 |
| control\_norm - moral\_norm | 0.19 | 0.17 | 1038 | -0.13 | 0.52 |
| descriptive\_norm - convention\_norm | -0.17 | 0.17 | 1038 | -0.51 | 0.17 |
| descriptive\_norm - social\_norm | 0.13 | 0.18 | 1038 | -0.22 | 0.48 |
| descriptive\_norm - moral\_norm | 0.23 | 0.17 | 1038 | -0.10 | 0.56 |
| convention\_norm - social\_norm | 0.30 | 0.17 | 1038 | -0.03 | 0.63 |
| convention\_norm - moral\_norm | 0.40 | 0.16 | 1038 | 0.09 | 0.71 |
| social\_norm - moral\_norm | 0.10 | 0.16 | 1038 | -0.22 | 0.42 |

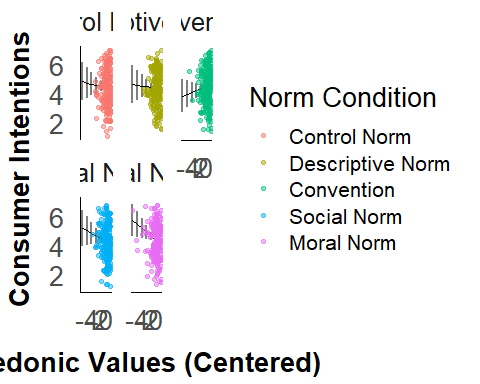
# On a single graph  
describe(average\_df$hedonic\_center)

## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 0 0.79 0.28 0.09 0.49 -5.05 0.95 6 -1.45 3.69 0.02

at\_list <- list(hedonic\_center = seq(-5.1, 1, by = 1))  
  
# without data overlaid  
emmip(mod\_mice, norm\_condition ~ hedonic\_center, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Hedonic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) +theme\_apa() + text\_settings



# with data overlaid  
emmip(mod\_mice, ~ hedonic\_center | norm\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 0.8, alpha = 0.5), xlab = "Hedonic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) + geom\_point(data = average\_df, aes(x = hedonic\_center, y = consumer\_intentions, color = norm\_condition), alpha = 0.5) + facet\_wrap(~norm\_condition, labeller = labeller(norm\_condition = norm\_labs)) +theme\_apa() + text\_settings



### Hedonic x Framing

Is the slope of the relationship between hedonic values & consumer intentions stronger in any one of the framing conditions compared to the others?

hed\_frame\_trends <- emtrends(mod\_mice, pairwise~framing\_condition, var = "hedonic\_center", adjust = "none")  
  
hed\_frame\_trends$emtrends %>%  
 knitr::kable(digits = 2)

| framing\_condition | hedonic\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_framing | -0.15 | 0.09 | 1038 | -0.33 | 0.03 |
| pro\_env\_framing | 0.01 | 0.09 | 1038 | -0.17 | 0.19 |
| self\_enh\_framing | -0.14 | 0.10 | 1038 | -0.33 | 0.05 |

hed\_frame\_trends$contrasts %>%  
 knitr::kable(digits = c(NA,2,2,2,2,3))

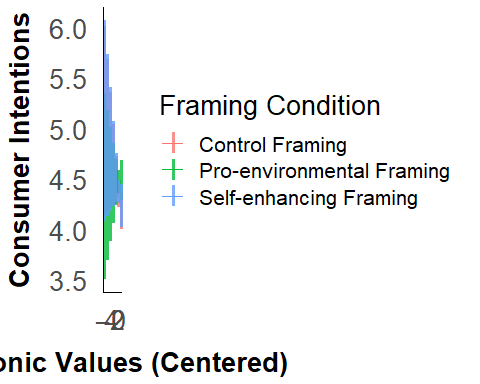
| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| control\_framing - pro\_env\_framing | -0.16 | 0.13 | 1038 | -1.22 | 0.223 |
| control\_framing - self\_enh\_framing | -0.01 | 0.13 | 1038 | -0.06 | 0.955 |
| pro\_env\_framing - self\_enh\_framing | 0.15 | 0.13 | 1038 | 1.12 | 0.264 |

Confidence interval

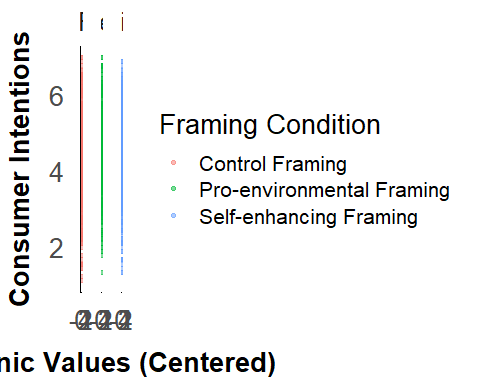
confint(hed\_frame\_trends$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_framing - pro\_env\_framing | -0.16 | 0.13 | 1038 | -0.41 | 0.10 |
| control\_framing - self\_enh\_framing | -0.01 | 0.13 | 1038 | -0.27 | 0.26 |
| pro\_env\_framing - self\_enh\_framing | 0.15 | 0.13 | 1038 | -0.11 | 0.41 |

# without data overlaid  
emmip(mod\_mice, framing\_condition ~ hedonic\_center, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Hedonic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Framing Condition", breaks=c("control\_framing","pro\_env\_framing","self\_enh\_framing"), labels=c("Control Framing", "Pro-environmental Framing", "Self-enhancing Framing")) +theme\_apa() + text\_settings



# with data overlaid  
emmip(mod\_mice, ~ hedonic\_center | framing\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 0.8, alpha = 0.5), xlab = "Hedonic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Framing Condition", breaks=c("control\_framing","pro\_env\_framing","self\_enh\_framing"), labels=c("Control Framing", "Pro-environmental Framing", "Self-enhancing Framing")) + geom\_point(data = average\_df, aes(x = hedonic\_center, y = consumer\_intentions, color = framing\_condition), alpha = 0.5) + facet\_wrap(~framing\_condition, labeller = labeller(framing\_condition = frame\_labs)) +theme\_apa() + text\_settings



### Hedonic x Norm x Framing

hed\_frame\_norm\_trends <- emtrends(mod\_mice, pairwise~norm\_condition | framing\_condition, var = "hedonic\_center", adjust = "none")  
  
hed\_frame\_norm\_trends$emtrends %>%  
 knitr::kable(digits = 2)

| norm\_condition | framing\_condition | hedonic\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm | control\_framing | -0.34 | 0.18 | 1038 | -0.70 | 0.02 |
| descriptive\_norm | control\_framing | -0.14 | 0.22 | 1038 | -0.57 | 0.29 |
| convention\_norm | control\_framing | 0.15 | 0.21 | 1038 | -0.27 | 0.57 |
| social\_norm | control\_framing | -0.05 | 0.19 | 1038 | -0.42 | 0.32 |
| moral\_norm | control\_framing | -0.36 | 0.22 | 1038 | -0.79 | 0.06 |
| control\_norm | pro\_env\_framing | 0.15 | 0.21 | 1038 | -0.27 | 0.57 |
| descriptive\_norm | pro\_env\_framing | -0.12 | 0.22 | 1038 | -0.54 | 0.31 |
| convention\_norm | pro\_env\_framing | 0.20 | 0.20 | 1038 | -0.20 | 0.60 |
| social\_norm | pro\_env\_framing | -0.11 | 0.19 | 1038 | -0.49 | 0.27 |
| moral\_norm | pro\_env\_framing | -0.08 | 0.18 | 1038 | -0.44 | 0.28 |
| control\_norm | self\_enh\_framing | -0.06 | 0.25 | 1038 | -0.56 | 0.44 |
| descriptive\_norm | self\_enh\_framing | 0.12 | 0.24 | 1038 | -0.36 | 0.59 |
| convention\_norm | self\_enh\_framing | 0.02 | 0.17 | 1038 | -0.32 | 0.35 |
| social\_norm | self\_enh\_framing | -0.38 | 0.25 | 1038 | -0.87 | 0.10 |
| moral\_norm | self\_enh\_framing | -0.39 | 0.17 | 1038 | -0.72 | -0.06 |

hed\_frame\_norm\_trends$contrasts %>%  
 knitr::kable(digits = c(NA,NA,2,2,2,2,3))

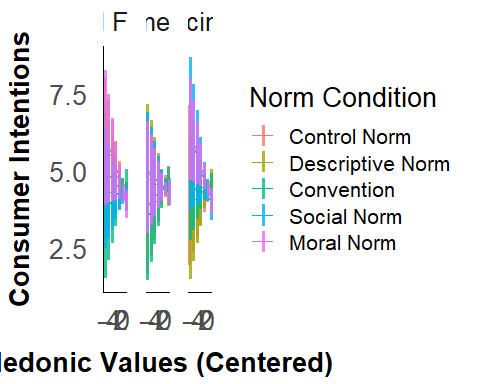
| contrast | framing\_condition | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | control\_framing | -0.19 | 0.28 | 1038 | -0.68 | 0.495 |
| control\_norm - convention\_norm | control\_framing | -0.49 | 0.28 | 1038 | -1.74 | 0.082 |
| control\_norm - social\_norm | control\_framing | -0.29 | 0.26 | 1038 | -1.11 | 0.269 |
| control\_norm - moral\_norm | control\_framing | 0.03 | 0.28 | 1038 | 0.09 | 0.927 |
| descriptive\_norm - convention\_norm | control\_framing | -0.30 | 0.31 | 1038 | -0.97 | 0.335 |
| descriptive\_norm - social\_norm | control\_framing | -0.10 | 0.29 | 1038 | -0.34 | 0.738 |
| descriptive\_norm - moral\_norm | control\_framing | 0.22 | 0.31 | 1038 | 0.72 | 0.473 |
| convention\_norm - social\_norm | control\_framing | 0.20 | 0.29 | 1038 | 0.69 | 0.488 |
| convention\_norm - moral\_norm | control\_framing | 0.52 | 0.30 | 1038 | 1.70 | 0.090 |
| social\_norm - moral\_norm | control\_framing | 0.32 | 0.29 | 1038 | 1.11 | 0.267 |
| control\_norm - descriptive\_norm | pro\_env\_framing | 0.26 | 0.31 | 1038 | 0.86 | 0.390 |
| control\_norm - convention\_norm | pro\_env\_framing | -0.06 | 0.30 | 1038 | -0.19 | 0.851 |
| control\_norm - social\_norm | pro\_env\_framing | 0.25 | 0.29 | 1038 | 0.88 | 0.380 |
| control\_norm - moral\_norm | pro\_env\_framing | 0.23 | 0.28 | 1038 | 0.81 | 0.416 |
| descriptive\_norm - convention\_norm | pro\_env\_framing | -0.32 | 0.30 | 1038 | -1.07 | 0.286 |
| descriptive\_norm - social\_norm | pro\_env\_framing | -0.01 | 0.29 | 1038 | -0.03 | 0.976 |
| descriptive\_norm - moral\_norm | pro\_env\_framing | -0.03 | 0.28 | 1038 | -0.12 | 0.906 |
| convention\_norm - social\_norm | pro\_env\_framing | 0.31 | 0.28 | 1038 | 1.10 | 0.271 |
| convention\_norm - moral\_norm | pro\_env\_framing | 0.28 | 0.27 | 1038 | 1.04 | 0.298 |
| social\_norm - moral\_norm | pro\_env\_framing | -0.02 | 0.27 | 1038 | -0.09 | 0.925 |
| control\_norm - descriptive\_norm | self\_enh\_framing | -0.18 | 0.35 | 1038 | -0.50 | 0.617 |
| control\_norm - convention\_norm | self\_enh\_framing | -0.08 | 0.31 | 1038 | -0.25 | 0.804 |
| control\_norm - social\_norm | self\_enh\_framing | 0.32 | 0.35 | 1038 | 0.92 | 0.360 |
| control\_norm - moral\_norm | self\_enh\_framing | 0.33 | 0.30 | 1038 | 1.09 | 0.276 |
| descriptive\_norm - convention\_norm | self\_enh\_framing | 0.10 | 0.29 | 1038 | 0.34 | 0.736 |
| descriptive\_norm - social\_norm | self\_enh\_framing | 0.50 | 0.35 | 1038 | 1.45 | 0.148 |
| descriptive\_norm - moral\_norm | self\_enh\_framing | 0.50 | 0.29 | 1038 | 1.72 | 0.085 |
| convention\_norm - social\_norm | self\_enh\_framing | 0.40 | 0.30 | 1038 | 1.34 | 0.182 |
| convention\_norm - moral\_norm | self\_enh\_framing | 0.41 | 0.24 | 1038 | 1.69 | 0.092 |
| social\_norm - moral\_norm | self\_enh\_framing | 0.00 | 0.30 | 1038 | 0.02 | 0.987 |

Confidence interval

confint(hed\_frame\_norm\_trends$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | framing\_condition | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | control\_framing | -0.19 | 0.28 | 1038 | -0.75 | 0.36 |
| control\_norm - convention\_norm | control\_framing | -0.49 | 0.28 | 1038 | -1.04 | 0.06 |
| control\_norm - social\_norm | control\_framing | -0.29 | 0.26 | 1038 | -0.81 | 0.23 |
| control\_norm - moral\_norm | control\_framing | 0.03 | 0.28 | 1038 | -0.53 | 0.58 |
| descriptive\_norm - convention\_norm | control\_framing | -0.30 | 0.31 | 1038 | -0.90 | 0.30 |
| descriptive\_norm - social\_norm | control\_framing | -0.10 | 0.29 | 1038 | -0.66 | 0.47 |
| descriptive\_norm - moral\_norm | control\_framing | 0.22 | 0.31 | 1038 | -0.38 | 0.82 |
| convention\_norm - social\_norm | control\_framing | 0.20 | 0.29 | 1038 | -0.36 | 0.76 |
| convention\_norm - moral\_norm | control\_framing | 0.52 | 0.30 | 1038 | -0.08 | 1.11 |
| social\_norm - moral\_norm | control\_framing | 0.32 | 0.29 | 1038 | -0.24 | 0.88 |
| control\_norm - descriptive\_norm | pro\_env\_framing | 0.26 | 0.31 | 1038 | -0.34 | 0.86 |
| control\_norm - convention\_norm | pro\_env\_framing | -0.06 | 0.30 | 1038 | -0.63 | 0.52 |
| control\_norm - social\_norm | pro\_env\_framing | 0.25 | 0.29 | 1038 | -0.31 | 0.82 |
| control\_norm - moral\_norm | pro\_env\_framing | 0.23 | 0.28 | 1038 | -0.32 | 0.78 |
| descriptive\_norm - convention\_norm | pro\_env\_framing | -0.32 | 0.30 | 1038 | -0.90 | 0.27 |
| descriptive\_norm - social\_norm | pro\_env\_framing | -0.01 | 0.29 | 1038 | -0.58 | 0.56 |
| descriptive\_norm - moral\_norm | pro\_env\_framing | -0.03 | 0.28 | 1038 | -0.59 | 0.52 |
| convention\_norm - social\_norm | pro\_env\_framing | 0.31 | 0.28 | 1038 | -0.24 | 0.86 |
| convention\_norm - moral\_norm | pro\_env\_framing | 0.28 | 0.27 | 1038 | -0.25 | 0.82 |
| social\_norm - moral\_norm | pro\_env\_framing | -0.02 | 0.27 | 1038 | -0.55 | 0.50 |
| control\_norm - descriptive\_norm | self\_enh\_framing | -0.18 | 0.35 | 1038 | -0.86 | 0.51 |
| control\_norm - convention\_norm | self\_enh\_framing | -0.08 | 0.31 | 1038 | -0.68 | 0.53 |
| control\_norm - social\_norm | self\_enh\_framing | 0.32 | 0.35 | 1038 | -0.37 | 1.02 |
| control\_norm - moral\_norm | self\_enh\_framing | 0.33 | 0.30 | 1038 | -0.26 | 0.92 |
| descriptive\_norm - convention\_norm | self\_enh\_framing | 0.10 | 0.29 | 1038 | -0.48 | 0.68 |
| descriptive\_norm - social\_norm | self\_enh\_framing | 0.50 | 0.35 | 1038 | -0.18 | 1.18 |
| descriptive\_norm - moral\_norm | self\_enh\_framing | 0.50 | 0.29 | 1038 | -0.07 | 1.08 |
| convention\_norm - social\_norm | self\_enh\_framing | 0.40 | 0.30 | 1038 | -0.19 | 0.99 |
| convention\_norm - moral\_norm | self\_enh\_framing | 0.41 | 0.24 | 1038 | -0.07 | 0.88 |
| social\_norm - moral\_norm | self\_enh\_framing | 0.00 | 0.30 | 1038 | -0.58 | 0.59 |

# without data overlaid  
emmip(mod\_mice, norm\_condition ~ hedonic\_center | framing\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Hedonic Values (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) + facet\_wrap(~framing\_condition, labeller = labeller(framing\_condition = frame\_labs)) +theme\_apa() + text\_settings



## Ingroup Identification Interactions

### Ingroup x Norm

Is the slope of the relationship between ingroup identification & consumer intentions stronger in any one of the norm conditions compared to the others?

ing\_norm\_slopes <- emtrends(mod\_mice, pairwise~norm\_condition, var = "ingroup\_center", adjust = "none")  
  
ing\_norm\_slopes$emtrends %>%  
 knitr::kable(digits = 2)

| norm\_condition | ingroup\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_norm | 0.04 | 0.07 | 1038 | -0.10 | 0.18 |
| descriptive\_norm | 0.06 | 0.08 | 1038 | -0.09 | 0.21 |
| convention\_norm | 0.02 | 0.08 | 1038 | -0.14 | 0.17 |
| social\_norm | 0.05 | 0.08 | 1038 | -0.09 | 0.20 |
| moral\_norm | -0.03 | 0.07 | 1038 | -0.17 | 0.11 |

ing\_norm\_slopes$contrasts %>%  
 knitr::kable(digits = c(NA,2,2,2,2,3)) # correct p-values

| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | -0.01 | 0.11 | 1038 | -0.14 | 0.890 |
| control\_norm - convention\_norm | 0.03 | 0.11 | 1038 | 0.26 | 0.792 |
| control\_norm - social\_norm | -0.01 | 0.10 | 1038 | -0.11 | 0.916 |
| control\_norm - moral\_norm | 0.07 | 0.10 | 1038 | 0.70 | 0.484 |
| descriptive\_norm - convention\_norm | 0.04 | 0.11 | 1038 | 0.39 | 0.698 |
| descriptive\_norm - social\_norm | 0.00 | 0.11 | 1038 | 0.03 | 0.974 |
| descriptive\_norm - moral\_norm | 0.09 | 0.11 | 1038 | 0.81 | 0.416 |
| convention\_norm - social\_norm | -0.04 | 0.11 | 1038 | -0.36 | 0.719 |
| convention\_norm - moral\_norm | 0.04 | 0.11 | 1038 | 0.42 | 0.677 |
| social\_norm - moral\_norm | 0.08 | 0.11 | 1038 | 0.79 | 0.429 |

Confidence interval

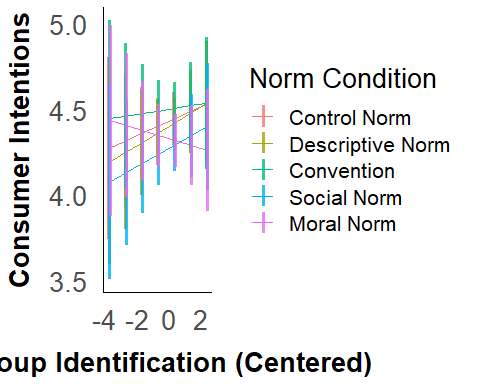
confint(ing\_norm\_slopes$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | -0.01 | 0.11 | 1038 | -0.22 | 0.19 |
| control\_norm - convention\_norm | 0.03 | 0.11 | 1038 | -0.18 | 0.23 |
| control\_norm - social\_norm | -0.01 | 0.10 | 1038 | -0.21 | 0.19 |
| control\_norm - moral\_norm | 0.07 | 0.10 | 1038 | -0.13 | 0.27 |
| descriptive\_norm - convention\_norm | 0.04 | 0.11 | 1038 | -0.17 | 0.26 |
| descriptive\_norm - social\_norm | 0.00 | 0.11 | 1038 | -0.21 | 0.21 |
| descriptive\_norm - moral\_norm | 0.09 | 0.11 | 1038 | -0.12 | 0.30 |
| convention\_norm - social\_norm | -0.04 | 0.11 | 1038 | -0.25 | 0.17 |
| convention\_norm - moral\_norm | 0.04 | 0.11 | 1038 | -0.16 | 0.25 |
| social\_norm - moral\_norm | 0.08 | 0.11 | 1038 | -0.12 | 0.29 |

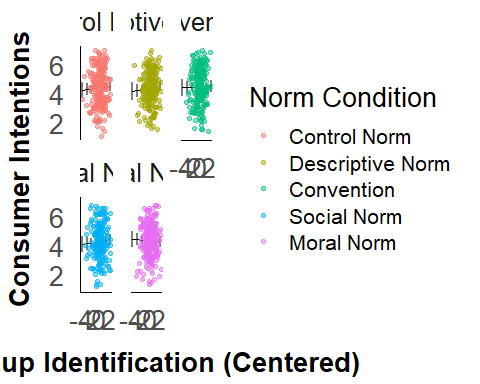
# On a single graph  
describe(average\_df$ingroup\_center)

## vars n mean sd median trimmed mad min max range skew kurtosis se  
## X1 1 1133 0 1.01 0.01 0.03 0.95 -3.64 2.36 6 -0.27 0.17 0.03

at\_list <- list(ingroup\_center = seq(-3.69, 2.41, by = 1))  
  
# without data overlaid  
emmip(mod\_mice, norm\_condition ~ ingroup\_center, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Ingroup Identification (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) +theme\_apa() + text\_settings



# with data overlaid  
emmip(mod\_mice, ~ ingroup\_center | norm\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 0.8, alpha = 0.5), xlab = "Ingroup Identification (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) + geom\_point(data = average\_df, aes(x = ingroup\_center, y = consumer\_intentions, color = norm\_condition), alpha = 0.5) + facet\_wrap(~norm\_condition, labeller = labeller(norm\_condition = norm\_labs)) +theme\_apa() + text\_settings



### Ingroup x Framing

Is the slope of the relationship between ingroup identification & consumer intentions stronger in any one of the framing conditions compared to the others?

ing\_frame\_trends <- emtrends(mod\_mice, pairwise~framing\_condition, var = "ingroup\_center", adjust = "none")  
  
ing\_frame\_trends$emtrends %>%  
 knitr::kable(digits = 2)

| framing\_condition | ingroup\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_framing | 0.04 | 0.06 | 1038 | -0.08 | 0.15 |
| pro\_env\_framing | -0.01 | 0.06 | 1038 | -0.13 | 0.10 |
| self\_enh\_framing | 0.06 | 0.06 | 1038 | -0.06 | 0.18 |

ing\_frame\_trends$contrasts %>%  
 knitr::kable(digits = c(NA,2,2,2,2,3))

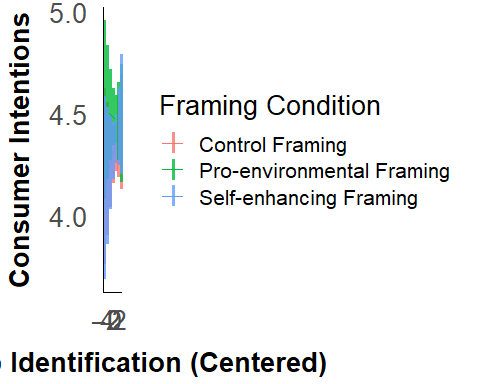
| contrast | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- |
| control\_framing - pro\_env\_framing | 0.05 | 0.08 | 1038 | 0.58 | 0.563 |
| control\_framing - self\_enh\_framing | -0.02 | 0.08 | 1038 | -0.30 | 0.768 |
| pro\_env\_framing - self\_enh\_framing | -0.07 | 0.08 | 1038 | -0.86 | 0.392 |

Confidence interval

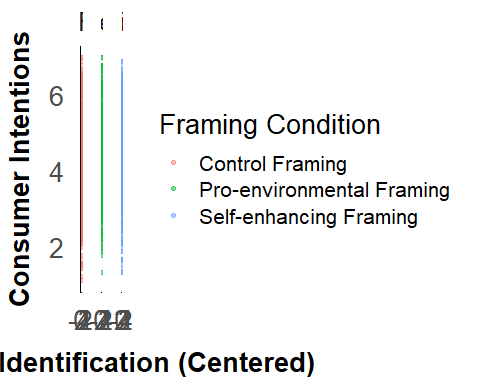
confint(ing\_frame\_trends$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- |
| control\_framing - pro\_env\_framing | 0.05 | 0.08 | 1038 | -0.11 | 0.21 |
| control\_framing - self\_enh\_framing | -0.02 | 0.08 | 1038 | -0.19 | 0.14 |
| pro\_env\_framing - self\_enh\_framing | -0.07 | 0.08 | 1038 | -0.23 | 0.09 |

# without data overlaid  
emmip(mod\_mice, framing\_condition ~ ingroup\_center, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Ingroup Identification (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Framing Condition", breaks=c("control\_framing","pro\_env\_framing","self\_enh\_framing"), labels=c("Control Framing", "Pro-environmental Framing", "Self-enhancing Framing")) +theme\_apa() + text\_settings



# with data overlaid  
emmip(mod\_mice, ~ ingroup\_center | framing\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 0.8, alpha = 0.5), xlab = "Ingroup Identification (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Framing Condition", breaks=c("control\_framing","pro\_env\_framing","self\_enh\_framing"), labels=c("Control Framing", "Pro-environmental Framing", "Self-enhancing Framing")) + geom\_point(data = average\_df, aes(x = ingroup\_center, y = consumer\_intentions, color = framing\_condition), alpha = 0.5) + facet\_wrap(~framing\_condition, labeller = labeller(framing\_condition = frame\_labs)) +theme\_apa() + text\_settings



### Ingroup x Norm x Framing

Exploratory RQ1: Is there a three-way interaction between ingroup identification, framing, and norm condition?

ing\_frame\_norm\_trends <- emtrends(mod\_mice, pairwise~norm\_condition | framing\_condition, var = "ingroup\_center", adjust = "none")  
  
ing\_frame\_norm\_trends$emtrends %>%  
 knitr::kable(digits = 2)

| norm\_condition | framing\_condition | ingroup\_center.trend | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm | control\_framing | 0.18 | 0.12 | 1038 | -0.05 | 0.41 |
| descriptive\_norm | control\_framing | -0.01 | 0.15 | 1038 | -0.31 | 0.28 |
| convention\_norm | control\_framing | -0.10 | 0.13 | 1038 | -0.36 | 0.16 |
| social\_norm | control\_framing | 0.01 | 0.11 | 1038 | -0.21 | 0.22 |
| moral\_norm | control\_framing | 0.10 | 0.12 | 1038 | -0.13 | 0.33 |
| control\_norm | pro\_env\_framing | -0.01 | 0.13 | 1038 | -0.26 | 0.25 |
| descriptive\_norm | pro\_env\_framing | 0.06 | 0.13 | 1038 | -0.20 | 0.31 |
| convention\_norm | pro\_env\_framing | -0.07 | 0.12 | 1038 | -0.32 | 0.17 |
| social\_norm | pro\_env\_framing | -0.07 | 0.13 | 1038 | -0.33 | 0.19 |
| moral\_norm | pro\_env\_framing | 0.04 | 0.13 | 1038 | -0.22 | 0.29 |
| control\_norm | self\_enh\_framing | -0.05 | 0.13 | 1038 | -0.29 | 0.20 |
| descriptive\_norm | self\_enh\_framing | 0.13 | 0.12 | 1038 | -0.10 | 0.36 |
| convention\_norm | self\_enh\_framing | 0.22 | 0.14 | 1038 | -0.07 | 0.50 |
| social\_norm | self\_enh\_framing | 0.23 | 0.15 | 1038 | -0.06 | 0.51 |
| moral\_norm | self\_enh\_framing | -0.23 | 0.13 | 1038 | -0.49 | 0.03 |

ing\_frame\_norm\_trends$contrasts %>%  
 knitr::kable(digits = c(NA,NA,2,2,2,2,3))

| contrast | framing\_condition | estimate | SE | df | t.ratio | p.value |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | control\_framing | 0.20 | 0.19 | 1038 | 1.03 | 0.303 |
| control\_norm - convention\_norm | control\_framing | 0.28 | 0.18 | 1038 | 1.59 | 0.112 |
| control\_norm - social\_norm | control\_framing | 0.18 | 0.16 | 1038 | 1.10 | 0.270 |
| control\_norm - moral\_norm | control\_framing | 0.08 | 0.17 | 1038 | 0.48 | 0.631 |
| descriptive\_norm - convention\_norm | control\_framing | 0.08 | 0.20 | 1038 | 0.42 | 0.675 |
| descriptive\_norm - social\_norm | control\_framing | -0.02 | 0.19 | 1038 | -0.10 | 0.919 |
| descriptive\_norm - moral\_norm | control\_framing | -0.12 | 0.19 | 1038 | -0.61 | 0.544 |
| convention\_norm - social\_norm | control\_framing | -0.10 | 0.17 | 1038 | -0.60 | 0.550 |
| convention\_norm - moral\_norm | control\_framing | -0.20 | 0.18 | 1038 | -1.13 | 0.259 |
| social\_norm - moral\_norm | control\_framing | -0.10 | 0.16 | 1038 | -0.60 | 0.546 |
| control\_norm - descriptive\_norm | pro\_env\_framing | -0.06 | 0.19 | 1038 | -0.34 | 0.733 |
| control\_norm - convention\_norm | pro\_env\_framing | 0.07 | 0.18 | 1038 | 0.38 | 0.704 |
| control\_norm - social\_norm | pro\_env\_framing | 0.07 | 0.19 | 1038 | 0.35 | 0.724 |
| control\_norm - moral\_norm | pro\_env\_framing | -0.04 | 0.19 | 1038 | -0.23 | 0.820 |
| descriptive\_norm - convention\_norm | pro\_env\_framing | 0.13 | 0.18 | 1038 | 0.73 | 0.465 |
| descriptive\_norm - social\_norm | pro\_env\_framing | 0.13 | 0.19 | 1038 | 0.70 | 0.486 |
| descriptive\_norm - moral\_norm | pro\_env\_framing | 0.02 | 0.18 | 1038 | 0.11 | 0.909 |
| convention\_norm - social\_norm | pro\_env\_framing | 0.00 | 0.18 | 1038 | -0.01 | 0.988 |
| convention\_norm - moral\_norm | pro\_env\_framing | -0.11 | 0.18 | 1038 | -0.61 | 0.539 |
| social\_norm - moral\_norm | pro\_env\_framing | -0.11 | 0.19 | 1038 | -0.58 | 0.562 |
| control\_norm - descriptive\_norm | self\_enh\_framing | -0.18 | 0.17 | 1038 | -1.03 | 0.305 |
| control\_norm - convention\_norm | self\_enh\_framing | -0.27 | 0.19 | 1038 | -1.39 | 0.164 |
| control\_norm - social\_norm | self\_enh\_framing | -0.28 | 0.19 | 1038 | -1.44 | 0.150 |
| control\_norm - moral\_norm | self\_enh\_framing | 0.18 | 0.18 | 1038 | 0.99 | 0.324 |
| descriptive\_norm - convention\_norm | self\_enh\_framing | -0.09 | 0.19 | 1038 | -0.48 | 0.632 |
| descriptive\_norm - social\_norm | self\_enh\_framing | -0.10 | 0.19 | 1038 | -0.53 | 0.595 |
| descriptive\_norm - moral\_norm | self\_enh\_framing | 0.36 | 0.18 | 1038 | 2.01 | 0.045 |
| convention\_norm - social\_norm | self\_enh\_framing | -0.01 | 0.21 | 1038 | -0.05 | 0.958 |
| convention\_norm - moral\_norm | self\_enh\_framing | 0.44 | 0.20 | 1038 | 2.28 | 0.023 |
| social\_norm - moral\_norm | self\_enh\_framing | 0.46 | 0.20 | 1038 | 2.31 | 0.021 |

Confidence interval

confint(ing\_frame\_norm\_trends$contrasts) %>%  
 knitr::kable(digits = 2)

| contrast | framing\_condition | estimate | SE | df | lower.CL | upper.CL |
| --- | --- | --- | --- | --- | --- | --- |
| control\_norm - descriptive\_norm | control\_framing | 0.20 | 0.19 | 1038 | -0.18 | 0.57 |
| control\_norm - convention\_norm | control\_framing | 0.28 | 0.18 | 1038 | -0.07 | 0.63 |
| control\_norm - social\_norm | control\_framing | 0.18 | 0.16 | 1038 | -0.14 | 0.49 |
| control\_norm - moral\_norm | control\_framing | 0.08 | 0.17 | 1038 | -0.25 | 0.41 |
| descriptive\_norm - convention\_norm | control\_framing | 0.08 | 0.20 | 1038 | -0.31 | 0.48 |
| descriptive\_norm - social\_norm | control\_framing | -0.02 | 0.19 | 1038 | -0.38 | 0.35 |
| descriptive\_norm - moral\_norm | control\_framing | -0.12 | 0.19 | 1038 | -0.49 | 0.26 |
| convention\_norm - social\_norm | control\_framing | -0.10 | 0.17 | 1038 | -0.44 | 0.23 |
| convention\_norm - moral\_norm | control\_framing | -0.20 | 0.18 | 1038 | -0.55 | 0.15 |
| social\_norm - moral\_norm | control\_framing | -0.10 | 0.16 | 1038 | -0.41 | 0.22 |
| control\_norm - descriptive\_norm | pro\_env\_framing | -0.06 | 0.19 | 1038 | -0.43 | 0.30 |
| control\_norm - convention\_norm | pro\_env\_framing | 0.07 | 0.18 | 1038 | -0.29 | 0.42 |
| control\_norm - social\_norm | pro\_env\_framing | 0.07 | 0.19 | 1038 | -0.30 | 0.43 |
| control\_norm - moral\_norm | pro\_env\_framing | -0.04 | 0.19 | 1038 | -0.41 | 0.32 |
| descriptive\_norm - convention\_norm | pro\_env\_framing | 0.13 | 0.18 | 1038 | -0.22 | 0.49 |
| descriptive\_norm - social\_norm | pro\_env\_framing | 0.13 | 0.19 | 1038 | -0.23 | 0.49 |
| descriptive\_norm - moral\_norm | pro\_env\_framing | 0.02 | 0.18 | 1038 | -0.34 | 0.38 |
| convention\_norm - social\_norm | pro\_env\_framing | 0.00 | 0.18 | 1038 | -0.36 | 0.36 |
| convention\_norm - moral\_norm | pro\_env\_framing | -0.11 | 0.18 | 1038 | -0.47 | 0.24 |
| social\_norm - moral\_norm | pro\_env\_framing | -0.11 | 0.19 | 1038 | -0.47 | 0.26 |
| control\_norm - descriptive\_norm | self\_enh\_framing | -0.18 | 0.17 | 1038 | -0.51 | 0.16 |
| control\_norm - convention\_norm | self\_enh\_framing | -0.27 | 0.19 | 1038 | -0.64 | 0.11 |
| control\_norm - social\_norm | self\_enh\_framing | -0.28 | 0.19 | 1038 | -0.65 | 0.10 |
| control\_norm - moral\_norm | self\_enh\_framing | 0.18 | 0.18 | 1038 | -0.18 | 0.53 |
| descriptive\_norm - convention\_norm | self\_enh\_framing | -0.09 | 0.19 | 1038 | -0.45 | 0.28 |
| descriptive\_norm - social\_norm | self\_enh\_framing | -0.10 | 0.19 | 1038 | -0.47 | 0.27 |
| descriptive\_norm - moral\_norm | self\_enh\_framing | 0.36 | 0.18 | 1038 | 0.01 | 0.70 |
| convention\_norm - social\_norm | self\_enh\_framing | -0.01 | 0.21 | 1038 | -0.41 | 0.39 |
| convention\_norm - moral\_norm | self\_enh\_framing | 0.44 | 0.20 | 1038 | 0.06 | 0.83 |
| social\_norm - moral\_norm | self\_enh\_framing | 0.46 | 0.20 | 1038 | 0.07 | 0.84 |

# without data overlaid  
emmip(mod\_mice, norm\_condition ~ ingroup\_center | framing\_condition, at = at\_list, CIs = TRUE, CIarg = list(lwd = 1.2, alpha = 0.8), xlab = "Ingroup Identification (Centered)", ylab = "Consumer Intentions") + scale\_colour\_discrete(name = "Norm Condition", breaks=c("control\_norm","descriptive\_norm", "convention\_norm", "social\_norm", "moral\_norm"), labels=c("Control Norm", "Descriptive Norm", "Convention", "Social Norm", "Moral Norm")) + facet\_wrap(~framing\_condition, labeller = labeller(framing\_condition = frame\_labs)) +theme\_apa() + text\_settings

