Moral Judgment: YourMorals Data

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Contents

Introduction

YourMorals.org is a research website conducted by a team of researchers who focus in morality. This website works to collect data through social media shares and self-selected participation to a variety of surveys available on the website.

The data was made available as part of the replication files in Graham, Haidt and Nosek (2009) in the Harveard Dataverse. For this analysis, I take the Moral Foundations Questionnaire for analysis.

Before I begin, I load the packages that will be used throughout the analyses in this section.

```
# Load packages
library(tidyverse)
library(psych)
library(ggplot2)
library(GGally)
library("ggpubr")
library("reshape2")
library(scales)
library(lsr)
```

For each of the sections in this commented code document, I reload the data for each section. The cleaned data file can be accessed here.

Moral Foundations Questionnaire – 30-item

Clean Data

For each of the analyses in this section, I load and clean the data in the same way. I describe the process in more detail for the first load and will simply run this code again the future sections.

I load in the data available here.

```
morals <- read.csv("~/Desktop/Working/Moral-Psychology/YourMorals/YM-MFQ.csv",
    header = TRUE, na.strings = c("", " ", "NA"))
```

The attention check question in this version of the Moral Foundations Questionnaire is "Whether or not someone likes astrology". Passing the attetnion check means that the respondent answered on the lower end of the scale (0, 1 or 2). As a result, I get rid of the responses on the upper end of the scale.

```
morals <- morals[!(morals$astrology == "3"), ]
morals <- morals[!(morals$astrology == "4"), ]
morals <- morals[!(morals$astrology == "5"), ]
```

Next, I create a score for each of the five foundations that reflects the aggregate score on each of the questions in the Moral Judgment Subscale.

```
# Harm/Care
morals$harm <- rowMeans(morals[, c("compassion", "animal", "kill")],
    na.rm = TRUE)

# Fairness/Justice
morals$fairness = rowMeans(morals[, c("fairly", "justice", "rich")],
    na.rm = TRUE)

# Ingroup/Loyality
morals$loyal = rowMeans(morals[, c("history", "family", "team")],
    na.rm = TRUE)

# Authority/Traditions
morals$authority = rowMeans(morals[, c("kidrespect", "sexroles",
    "soldier")], na.rm = TRUE)

# Puirty/Sanctity
```

```
morals$sanctity = rowMeans(morals[, c("harmlessdg", "unnatural",
    "chastity")], na.rm = TRUE)
```

Descriptive Statistics Plot

For the descriptive statistics graph, I convert the ideology variable to a factor variable and ordered from most liberal to most conservative for the x-axis labels.

```
morals$ideo <- as.character(as.factor(morals$politics_new))
morals$ideo <- recode(morals$ideo, ` Moderate/middle-of-the-road` = "Moderate")

morals <- morals[!(morals$ideo == " Don't know/not political"),
    ]
morals <- morals[!(morals$ideo == " Libertarian"), ]
morals <- morals[!(morals$ideo == " Other"), ]

morals$ideo <- as.factor(as.character(morals$ideo))

# Rid implicit NAs for the ideology variable
library(forcats)
morals$ideo <- fct_explicit_na(morals$ideo, na_level = "NA")


morals$ideo <- factor(morals$ideo, levels = c(" Very Liberal",
    " Liberal", " Slightly Liberal", "Moderate", " Slightly Conservative",
    " Conservative", " Very Conservative"))
table(morals$ideo)
```

```
##
##           Very Liberal                Liberal       Slightly Liberal
##                    906                   2240                    974
##               Moderate  Slightly Conservative           Conservative
##                    711                    376                    430
##      Very Conservative
##                    119
```

Here, I begin to generate the graph that averages the responses on Moal Judgment items on each foundation by every level of political ideology.

```
Harm <- aggregate(harm ~ ideo, morals, mean, na.rm = TRUE)
Fair <- aggregate(fairness ~ ideo, morals, mean, na.rm = TRUE)
Loyal <- aggregate(loyal ~ ideo, morals, mean, na.rm = TRUE)
Authority <- aggregate(authority ~ ideo, morals, mean, na.rm = TRUE)
Purity <- aggregate(sanctity ~ ideo, morals, mean, na.rm = TRUE)
```

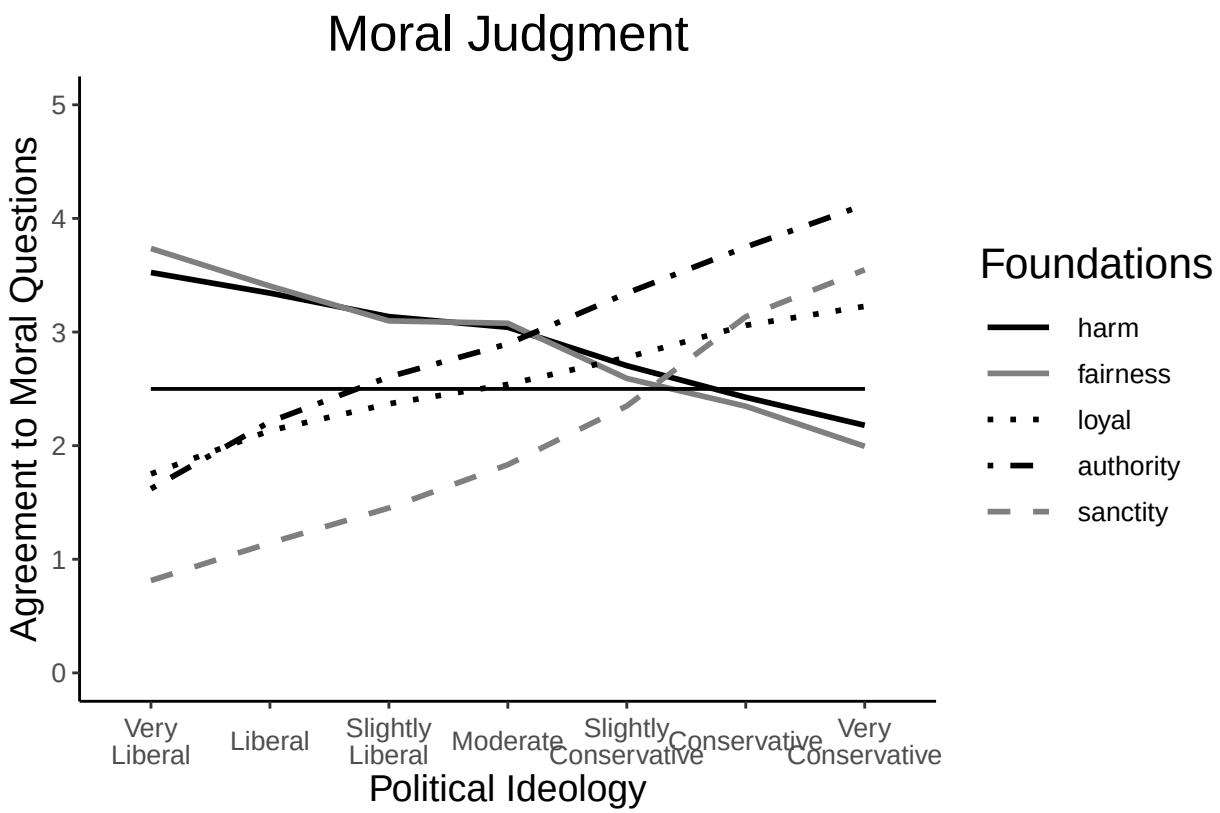
To generate a data frame that is usable with ggplot, I generate a merged data set that represents the aggregate scores as one frame.

```
moral <- merge(Harm, Fair, by.x = "ideo", by.y = "ideo", all.x = TRUE,
    all.y = TRUE)
moral <- merge(moral, Loyal, by.x = "ideo", by.y = "ideo", all.x = TRUE,
    all.y = TRUE)
moral <- merge(moral, Authority, by.x = "ideo", by.y = "ideo",
    all.x = TRUE, all.y = TRUE)
moral <- merge(moral, Purity, by.x = "ideo", by.y = "ideo", all.x = TRUE,
    all.y = TRUE)

mfq <- reshape2::melt(moral, id.var = "ideo")
```

Finally, I create the plot

```
ggplot(mfq, aes(x = ideo, y = value, group = variable)) + geom_line(aes(linetype = varia
    color = variable), size = 1) + theme_classic() + geom_line(aes(y = 2.5)) +
    scale_linetype_manual("Foundations", breaks = c("harm", "fairness",
        "loyal", "authority", "sanctity"), values = c(harm = "solid",
        fairness = "solid", loyal = "dotted", authority = "dotdash",
        sanctity = "dashed")) + scale_color_manual("Foundations",
    breaks = c("harm", "fairness", "loyal", "authority", "sanctity"),
    values = c(harm = "black", fairness = "grey50", loyal = "black",
        authority = "black", sanctity = "grey50")) + ggtitle("Moral Judgment") +
    xlab("Political Ideology") + ylab("Agreement to Moral Questions") +
    ylim(0, 5) + labs(caption = "Source: Graham, Haidt, and Nosek, 2009") +
    theme(text = element_text(size = 12, colour = "black"), axis.title = element_text(s
        colour = "black"), title = element_text(size = 16, colour = "black"),
        plot.caption = element_text(size = 10, color = "black"),
        axis.text.x = element_text(angle = 0, hjust = 0.5, vjust = 0.5),
        plot.title = element_text(hjust = 0.5), legend.key.width = unit(2,
            "line")) + scale_x_discrete(labels = wrap_format(10))
```



Source: Graham, Haidt, and Nosek, 2009

Cronbach's Alpha

Before calculating Cronbach's Alpha statistics, I load and clean the data in the same way that was used with the graph.

```
morals <- read.csv("~/Desktop/Working/Moral-Psychology/YourMorals/YM-MFQ.csv",
    header = TRUE, na.strings = c("", " ", "NA"))

morals <- morals[!(morals$astrology == "3"), ]
morals <- morals[!(morals$astrology == "4"), ]
morals <- morals[!(morals$astrology == "5"), ]
```

Below, I use the `psych` package to calculate the Cronbach's Alpha

```
# Harm
Harm <- morals %>% select(c("compassion", "animal", "kill"))
psych::alpha(Harm)
```

```
##
## Reliability analysis
## Call: psych::alpha(x = Harm)
##
```

```
##   raw_alpha std.alpha G6(smc) average_r S/N    ase mean  sd median_r
##       0.51      0.53    0.45      0.28 1.1 0.0095    3 1.1     0.33
##
##  lower alpha upper     95% confidence boundaries
## 0.49 0.51 0.53
##
##  Reliability if an item is dropped:
##             raw_alpha std.alpha G6(smc) average_r  S/N alpha se var.r med.r
## compassion      0.27      0.28    0.16      0.16 0.38    0.016    NA  0.16
## animal          0.48      0.51    0.34      0.34 1.02    0.011    NA  0.34
## kill            0.49      0.50    0.33      0.33 0.99    0.011    NA  0.33
##
##  Item statistics
##                n raw.r std.r r.cor r.drop mean  sd
## compassion 7102  0.72  0.77  0.60   0.44  3.4 1.3
## animal     7113  0.68  0.69  0.42   0.28  3.4 1.6
## kill       7112  0.75  0.69  0.43   0.30  2.3 1.8
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## compassion 0.03 0.06 0.10 0.25 0.35 0.21  0.1
## animal     0.07 0.09 0.09 0.20 0.25 0.30  0.1
## kill       0.24 0.16 0.13 0.11 0.21 0.15  0.1
```

```r
# Fairness
Fairness <- morals %>% select(c("fairly", "justice", "rich"))
psych::alpha(Fairness)
```

```
##
## Reliability analysis
## Call: psych::alpha(x = Fairness)
##
##   raw_alpha std.alpha G6(smc) average_r S/N    ase mean   sd median_r
##       0.54      0.57     0.5      0.31 1.3 0.0092  3.1 0.98     0.21
##
##  lower alpha upper     95% confidence boundaries
## 0.52 0.54 0.55
##
##  Reliability if an item is dropped:
##         raw_alpha std.alpha G6(smc) average_r  S/N alpha se var.r med.r
## fairly       0.33      0.34    0.21      0.21 0.52   0.0143    NA  0.21
## justice      0.33      0.34    0.21      0.21 0.52   0.0146    NA  0.21
## rich         0.67      0.67    0.50      0.50 2.02   0.0074    NA  0.50
##
##  Item statistics
```

```
##            n raw.r std.r r.cor r.drop mean  sd
## fairly  7112  0.74  0.78  0.63   0.42  3.6 1.3
## justice 7102  0.73  0.78  0.63   0.43  3.9 1.2
## rich    7097  0.72  0.64  0.30   0.24  1.8 1.6
##
## Non missing response frequency for each item
##              0    1    2    3    4    5 miss
## fairly  0.02 0.05 0.09 0.21 0.35 0.27  0.1
## justice 0.02 0.04 0.06 0.18 0.36 0.34  0.1
## rich    0.30 0.20 0.16 0.16 0.11 0.07  0.1
```

```r
# Ingroup
Ingroup <- morals %>% select(c("history", "family", "team"))
psych::alpha(Ingroup)
```

```
##
## Reliability analysis
## Call: psych::alpha(x = Ingroup)
##
##   raw_alpha std.alpha G6(smc) average_r  S/N   ase mean   sd median_r
##       0.42      0.42    0.33       0.2 0.73 0.011  2.3 0.93     0.19
##
##  lower alpha upper     95% confidence boundaries
## 0.4 0.42 0.44
##
##  Reliability if an item is dropped:
##         raw_alpha std.alpha G6(smc) average_r  S/N alpha se var.r med.r
## history      0.35      0.35    0.21      0.21 0.54    0.014    NA  0.21
## family       0.32      0.32    0.19      0.19 0.47    0.015    NA  0.19
## team         0.31      0.31    0.18      0.18 0.44    0.016    NA  0.18
##
##  Item statistics
##            n raw.r std.r r.cor r.drop mean  sd
## history 7111  0.69  0.67  0.37   0.24  2.8 1.4
## family  7113  0.71  0.68  0.40   0.25  2.5 1.4
## team    7103  0.65  0.69  0.40   0.26  1.6 1.2
##
## Non missing response frequency for each item
##              0    1    2    3    4    5 miss
## history 0.08 0.14 0.16 0.28 0.24 0.10  0.1
## family  0.11 0.18 0.19 0.25 0.19 0.07  0.1
## team    0.22 0.30 0.24 0.17 0.05 0.01  0.1
```

```r
# Authority
Authority <- morals %>% select(c("kidrespect", "sexroles", "soldier"))
psych::alpha(Authority)
```

```
##
## Reliability analysis
## Call: psych::alpha(x = Authority)
##
##   raw_alpha std.alpha G6(smc) average_r S/N   ase mean  sd median_r
##       0.59       0.6     0.5      0.33 1.5 0.008  2.5 1.1     0.34
##
##  lower alpha upper     95% confidence boundaries
## 0.58 0.59 0.61
##
##  Reliability if an item is dropped:
##            raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## kidrespect      0.41      0.41    0.26      0.26 0.7   0.0132    NA  0.26
## sexroles        0.56      0.56    0.39      0.39 1.3   0.0099    NA  0.39
## soldier         0.51      0.51    0.34      0.34 1.0   0.0110    NA  0.34
##
##  Item statistics
##               n raw.r std.r r.cor r.drop mean  sd
## kidrespect 7108  0.76  0.78  0.60   0.46  3.0 1.4
## sexroles   7111  0.73  0.72  0.47   0.36  2.1 1.6
## soldier    7091  0.74  0.74  0.52   0.39  2.3 1.5
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## kidrespect 0.06 0.11 0.14 0.31 0.25 0.13  0.1
## sexroles   0.20 0.20 0.14 0.23 0.15 0.07  0.1
## soldier    0.16 0.18 0.17 0.22 0.20 0.06  0.1
```

```
# Purity
Purity <- morals %>% select(c("harmlessdg", "unnatural", "chastity"))
psych::alpha(Purity)
```

```
##
## Reliability analysis
## Call: psych::alpha(x = Purity)
##
##   raw_alpha std.alpha G6(smc) average_r S/N    ase mean  sd median_r
##       0.75      0.75    0.68       0.5   3 0.0049  1.5 1.2      0.5
##
##  lower alpha upper     95% confidence boundaries
## 0.74 0.75 0.76
##
##  Reliability if an item is dropped:
##            raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## harmlessdg      0.67      0.67    0.50      0.50 2.0   0.0074    NA  0.50
```

```
## unnatural       0.61      0.61    0.44      0.44 1.6   0.0087    NA  0.44
## chastity        0.72      0.72    0.57      0.57 2.6   0.0062    NA  0.57
##
##  Item statistics
##                n raw.r std.r r.cor r.drop mean  sd
## harmlessdg 7102  0.81  0.82  0.68   0.58  1.4 1.4
## unnatural  7108  0.84  0.84  0.73   0.63  1.3 1.5
## chastity   7101  0.81  0.79  0.61   0.53  1.7 1.6
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## harmlessdg 0.37 0.26 0.14 0.13 0.07 0.03  0.1
## unnatural  0.43 0.24 0.11 0.11 0.07 0.04  0.1
## chastity   0.32 0.23 0.12 0.15 0.10 0.07  0.1
```

Repeated Measures GLM

Before running the Repeated Measures GLM scores, I load and clean the data as I did with the Descriptive statistics graph.

```
morals <- read.csv("~/Desktop/Working/Moral-Psychology/YourMorals/YM-MFQ.csv",
    header = TRUE, na.strings = c("", " ", "NA"))

morals <- morals[!(morals$astrology == "3"), ]
morals <- morals[!(morals$astrology == "4"), ]
morals <- morals[!(morals$astrology == "5"), ]
```

I create an aggregate individual foundation score and binding foundation score. This reflects the average from all questions related to the individualizing and binding Moral Judgment questions.

```
# 30-item Individualizing and Binding scores
morals$indiv <- rowMeans(morals[, c("compassion", "animal", "kill",
    "fairly", "justice", "rich")], na.rm = TRUE)
morals$bind <- rowMeans(morals[, c("history", "family", "team",
    "kidrespect", "sexroles", "soldier", "harmlessdg", "unnatural",
    "chastity")], na.rm = TRUE)
```

To calculate the difference between the individual and binding foundation score, I generate a difference score that subtracts responses from the latter to the former.

```
morals$diffscore <- morals$indiv - morals$bind

# The results here generate the same mediation model score
# F(1, 1207) = 224.34 as Study 1
```

```r
diff.model <- lm(diffscore ~ politics, data = morals)
summary(diff.model)
```

```
##
## Call:
## lm(formula = diffscore ~ politics, data = morals)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -4.0975 -0.6444  0.0136  0.6685  3.5778
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  2.796304   0.027629  101.21   <2e-16 ***
## politics    -0.599391   0.008513  -70.41   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.9983 on 5766 degrees of freedom
##   (2118 observations deleted due to missingness)
## Multiple R-squared:  0.4623, Adjusted R-squared:  0.4622
## F-statistic:  4957 on 1 and 5766 DF,  p-value: < 2.2e-16
```

```r
etaSquared(diff.model)
```

```
##             eta.sq eta.sq.part
## politics 0.4622822   0.4622822
```

The model reflects a comparison between the aggregate individualizing and binding foundations. The reported results are as follows:

- Aggregate difference between Indivdualizing and binding foundation: $F(1, 5766) = 10243.46$, p $< .001$
- Moderation by Politics: $F(1, 5766) = 4957$, p $< .001$, $\eta^2 = .462$

Moral Foundations Questionnaire – 20-item

Clean Data

```r
morals <- read.csv("~/Desktop/Working/Moral-Psychology/YourMorals/YM-MFQ.csv",
    header = TRUE, na.strings = c("", " ", "NA"))

table(morals$astrology)
```

```
##
##    0    1    2    3    4    5
## 6217  726  187  178   81   48
```

```
morals <- morals[!(morals$astrology == "3"), ]
morals <- morals[!(morals$astrology == "4"), ]
morals <- morals[!(morals$astrology == "5"), ]
```

```
# Harm/Care
morals$harm <- rowMeans(morals[, c("compassion", "animal")],
    na.rm = TRUE)

# Fairness/Justice
morals$fairness = rowMeans(morals[, c("fairly", "justice")],
    na.rm = TRUE)

# Ingroup/Loyality
morals$loyal = rowMeans(morals[, c("history", "family")], na.rm = TRUE)

# Authority/Traditions
morals$authority = rowMeans(morals[, c("kidrespect", "sexroles")],
    na.rm = TRUE)

# Puirty/Sanctity
morals$sanctity = rowMeans(morals[, c("harmlessdg", "unnatural")],
    na.rm = TRUE)
```

```
table(morals$politics_new)
```

```
##
##                 Conservative     Don't know/not political
##                          430                          175
##                      Liberal                  Libertarian
##                         2240                          929
##  Moderate/middle-of-the-road                        Other
##                          711                          251
##        Slightly Conservative             Slightly Liberal
##                          376                          974
##            Very Conservative                 Very Liberal
##                          119                          906
```

```
str(morals$politics_new)
```

```
##  Factor w/ 10 levels " Conservative",..: NA 9 NA NA NA NA NA NA NA NA ...
```

```
morals$ideo <- as.character(as.factor(morals$politics_new))
morals$ideo <- recode(morals$ideo, ` Moderate/middle-of-the-road` = "Moderate")
```

```
table(morals$ideo)
```

```
##
##              Conservative  Don't know/not political
##                       430                       175
##                   Liberal                Libertarian
##                      2240                       929
##                     Other     Slightly Conservative
##                       251                       376
##           Slightly Liberal          Very Conservative
##                       974                       119
##              Very Liberal                  Moderate
##                       906                       711
```

```
str(morals$ideo)
```

```
##  chr [1:7886] NA " Very Conservative" NA NA NA NA NA NA NA NA NA NA NA ...
```

```
morals <- morals[!(morals$ideo == " Don't know/not political"),
    ]
morals <- morals[!(morals$ideo == " Libertarian"), ]
morals <- morals[!(morals$ideo == " Other"), ]
table(morals$ideo)
```

```
##
##           Conservative                Liberal  Slightly Conservative
##                    430                   2240                    376
##       Slightly Liberal      Very Conservative           Very Liberal
##                    974                    119                    906
##               Moderate
##                    711
```

```
morals$ideo <- as.factor(as.character(morals$ideo))

# Rid implicit NAs for the ideology variable
library(forcats)
morals$ideo <- fct_explicit_na(morals$ideo, na_level = "NA")
table(morals$ideo)
```

```
##
##           Conservative                Liberal  Slightly Conservative
##                    430                   2240                    376
##       Slightly Liberal      Very Conservative           Very Liberal
##                    974                    119                    906
##               Moderate                     NA
##                    711                    775
```

```r
morals$ideo <- factor(morals$ideo, levels = c(" Very Liberal",
    " Liberal", " Slightly Liberal", "Moderate", " Slightly Conservative",
    " Conservative", " Very Conservative"))
```

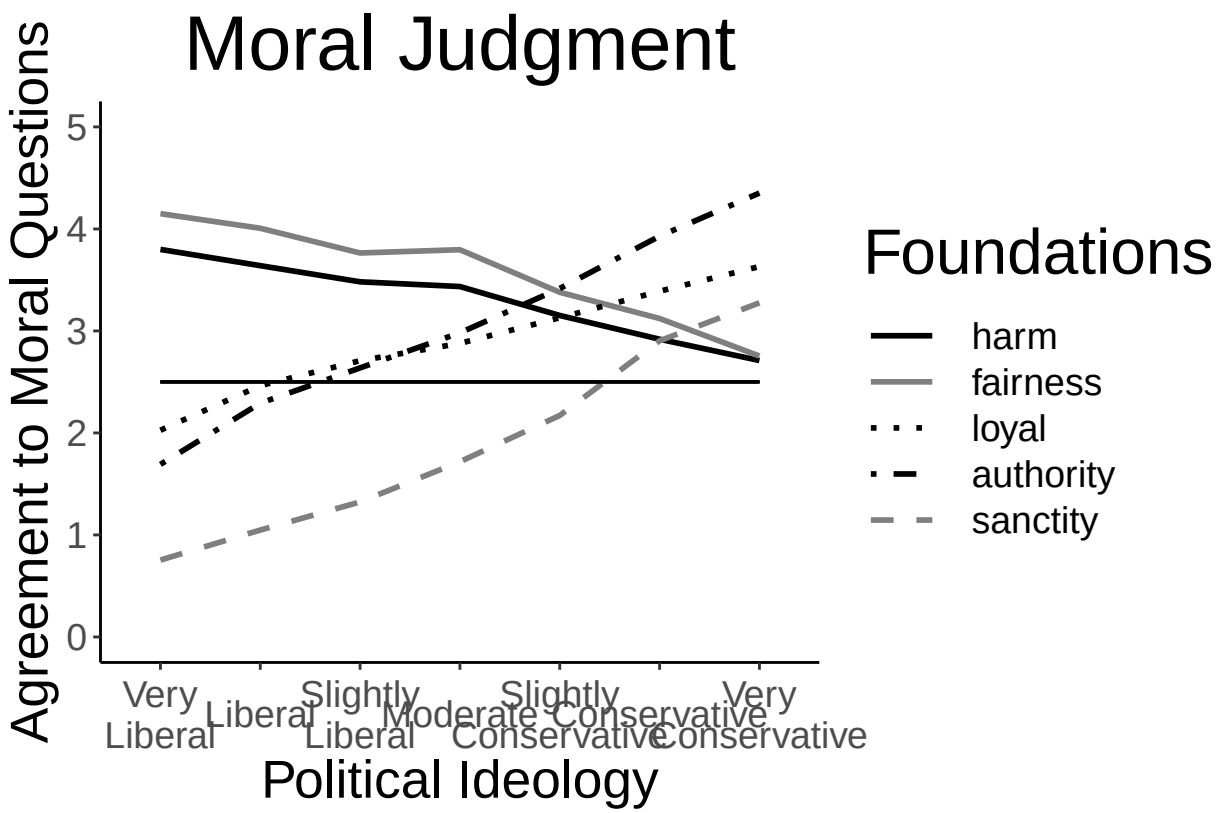
Descriptive Statistics Plot

```r
Harm <- aggregate(harm ~ ideo, morals, mean, na.rm = TRUE)
Fair <- aggregate(fairness ~ ideo, morals, mean, na.rm = TRUE)
Loyal <- aggregate(loyal ~ ideo, morals, mean, na.rm = TRUE)
Authority <- aggregate(authority ~ ideo, morals, mean, na.rm = TRUE)
Purity <- aggregate(sanctity ~ ideo, morals, mean, na.rm = TRUE)
```

```r
moral <- merge(Harm, Fair, by.x = "ideo", by.y = "ideo", all.x = TRUE,
    all.y = TRUE)
moral <- merge(moral, Loyal, by.x = "ideo", by.y = "ideo", all.x = TRUE,
    all.y = TRUE)
moral <- merge(moral, Authority, by.x = "ideo", by.y = "ideo",
    all.x = TRUE, all.y = TRUE)
moral <- merge(moral, Purity, by.x = "ideo", by.y = "ideo", all.x = TRUE,
    all.y = TRUE)

mfq <- reshape2::melt(moral, id.var = "ideo")
```

```r
ggplot(mfq, aes(x = ideo, y = value, group = variable)) + geom_line(aes(linetype = varia
    color = variable), size = 1) + theme_classic() + geom_line(aes(y = 2.5)) +
    scale_linetype_manual("Foundations", breaks = c("harm", "fairness",
        "loyal", "authority", "sanctity"), values = c(harm = "solid",
        fairness = "solid", loyal = "dotted", authority = "dotdash",
        sanctity = "dashed")) + scale_color_manual("Foundations",
    breaks = c("harm", "fairness", "loyal", "authority", "sanctity"),
    values = c(harm = "black", fairness = "grey50", loyal = "black",
        authority = "black", sanctity = "grey50")) + ggtitle("Moral Judgment") +
    xlab("Political Ideology") + ylab("Agreement to Moral Questions") +
    ylim(0, 5) + labs(caption = "Source: Graham, Haidt, and Nosek, 2009") +
    theme(text = element_text(size = 18, colour = "black"), axis.title = element_text(s
        colour = "black"), title = element_text(size = 24, colour = "black"),
        plot.caption = element_text(size = 10, color = "black"),
        axis.text.x = element_text(angle = 0, hjust = 0.5, vjust = 0.5),
        plot.title = element_text(hjust = 0.5), legend.key.width = unit(2,
            "line")) + scale_x_discrete(labels = wrap_format(10))
```



Source: Graham, Haidt, and Nosek, 2009

Cronbach's Alpha

```
morals <- read.csv("~/Desktop/Working/Moral-Psychology/YourMorals/YM-MFQ.csv",
    header = TRUE, na.strings = c("", " ", "NA"))

table(morals$astrology)
```

```
##
##    0    1    2    3    4    5
## 6217  726  187  178   81   48
```

```
morals <- morals[!(morals$astrology == "3"), ]
morals <- morals[!(morals$astrology == "4"), ]
morals <- morals[!(morals$astrology == "5"), ]
```

```
# Harm
Harm <- morals %>% select(c("compassion", "animal"))
psych::alpha(Harm)
```

```
## Warning in matrix(unlist(drop.item), ncol = 10, byrow = TRUE): data length
## [16] is not a sub-multiple or multiple of the number of columns [10]
```

```
##
## Reliability analysis
## Call: psych::alpha(x = Harm)
##
##   raw_alpha std.alpha G6(smc) average_r  S/N   ase mean  sd median_r
##       0.49       0.5    0.33      0.33 0.99 0.011  3.4 1.2     0.33
##
##  lower alpha upper     95% confidence boundaries
## 0.47 0.49 0.51
##
##  Reliability if an item is dropped:
##            raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## compassion      0.33      0.33    0.11      0.33  NA       NA  0.33  0.33
## animal          0.11      0.33      NA        NA  NA       NA  0.11  0.33
##
##  Item statistics
##                n raw.r std.r r.cor r.drop mean  sd
## compassion 7102  0.78  0.82  0.47   0.33  3.4 1.3
## animal     7113  0.85  0.82  0.47   0.33  3.4 1.6
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## compassion 0.03 0.06 0.10 0.25 0.35 0.21  0.1
## animal     0.07 0.09 0.09 0.20 0.25 0.30  0.1
```

```
# Fairness
Fairness <- morals %>% select(c("fairly", "justice"))
psych::alpha(Fairness)
```

```
## Warning in matrix(unlist(drop.item), ncol = 10, byrow = TRUE): data length
## [16] is not a sub-multiple or multiple of the number of columns [10]
```

```
##
## Reliability analysis
## Call: psych::alpha(x = Fairness)
##
##   raw_alpha std.alpha G6(smc) average_r S/N    ase mean  sd median_r
##       0.67      0.67     0.5       0.5   2 0.0074  3.7 1.1      0.5
##
##  lower alpha upper     95% confidence boundaries
## 0.65 0.67 0.68
##
##  Reliability if an item is dropped:
##         raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## fairly       0.50       0.5    0.25       0.5  NA       NA  0.50   0.5
## justice      0.25       0.5      NA        NA  NA       NA  0.25   0.5
```

```
##
##  Item statistics
##            n raw.r std.r r.cor r.drop mean  sd
## fairly  7112  0.88  0.87  0.61    0.5  3.6 1.3
## justice 7102  0.86  0.87  0.61    0.5  3.9 1.2
##
## Non missing response frequency for each item
##              0    1    2    3    4    5 miss
## fairly  0.02 0.05 0.09 0.21 0.35 0.27  0.1
## justice 0.02 0.04 0.06 0.18 0.36 0.34  0.1
```

```
# Ingroup
Ingroup <- morals %>% select(c("history", "family"))
psych::alpha(Ingroup)
```

```
## Warning in matrix(unlist(drop.item), ncol = 10, byrow = TRUE): data length
## [16] is not a sub-multiple or multiple of the number of columns [10]
```

```
##
## Reliability analysis
## Call: psych::alpha(x = Ingroup)
##
##   raw_alpha std.alpha G6(smc) average_r  S/N   ase mean  sd median_r
##       0.31      0.31    0.18      0.18 0.44 0.016  2.6 1.1     0.18
##
##  lower alpha upper     95% confidence boundaries
## 0.28 0.31 0.34
##
##  Reliability if an item is dropped:
##         raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## history     0.182      0.18   0.033      0.18  NA       NA 0.182  0.18
## family      0.033      0.18      NA        NA  NA       NA 0.033  0.18
##
##  Item statistics
##            n raw.r std.r r.cor r.drop mean  sd
## history 7111  0.76  0.77  0.33   0.18  2.8 1.4
## family  7113  0.78  0.77  0.33   0.18  2.5 1.4
##
## Non missing response frequency for each item
##              0    1    2    3    4    5 miss
## history 0.08 0.14 0.16 0.28 0.24 0.10  0.1
## family  0.11 0.18 0.19 0.25 0.19 0.07  0.1
```

```
# Authority
Authority <- morals %>% select(c("kidrespect", "sexroles"))
psych::alpha(Authority)
```

```
## Warning in matrix(unlist(drop.item), ncol = 10, byrow = TRUE): data length
## [16] is not a sub-multiple or multiple of the number of columns [10]
```

```
##
## Reliability analysis
## Call: psych::alpha(x = Authority)
##
##   raw_alpha std.alpha G6(smc) average_r S/N   ase mean  sd median_r
##       0.51      0.51    0.34      0.34   1 0.011  2.6 1.2     0.34
##
##  lower alpha upper     95% confidence boundaries
## 0.49 0.51 0.53
##
##  Reliability if an item is dropped:
##            raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## kidrespect      0.34      0.34    0.12      0.34  NA       NA  0.34  0.34
## sexroles        0.12      0.34      NA        NA  NA       NA  0.12  0.34
##
##  Item statistics
##               n raw.r std.r r.cor r.drop mean  sd
## kidrespect 7108  0.79  0.82  0.48   0.34  3.0 1.4
## sexroles   7111  0.84  0.82  0.48   0.34  2.1 1.6
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## kidrespect 0.06 0.11 0.14 0.31 0.25 0.13  0.1
## sexroles   0.20 0.20 0.14 0.23 0.15 0.07  0.1
```

```
# Purity
Purity <- morals %>% select(c("harmlessdg", "unnatural"))
psych::alpha(Purity)
```

```
## Warning in matrix(unlist(drop.item), ncol = 10, byrow = TRUE): data length
## [16] is not a sub-multiple or multiple of the number of columns [10]
```

```
##
## Reliability analysis
## Call: psych::alpha(x = Purity)
##
##   raw_alpha std.alpha G6(smc) average_r S/N    ase mean  sd median_r
##       0.72      0.72    0.57      0.57 2.6 0.0062  1.3 1.3     0.57
##
##  lower alpha upper     95% confidence boundaries
## 0.71 0.72 0.74
##
##  Reliability if an item is dropped:
```

```
##            raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## harmlessdg      0.57      0.57    0.32      0.57  NA       NA  0.57  0.57
## unnatural       0.32      0.57      NA        NA  NA       NA  0.32  0.57
##
##  Item statistics
##                n raw.r std.r r.cor r.drop mean  sd
## harmlessdg 7102  0.88  0.89  0.67   0.57  1.4 1.4
## unnatural  7108  0.89  0.89  0.67   0.57  1.3 1.5
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## harmlessdg 0.37 0.26 0.14 0.13 0.07 0.03  0.1
## unnatural  0.43 0.24 0.11 0.11 0.07 0.04  0.1
```

Repeated Measures GLM

```
morals <- read.csv("~/Desktop/Working/Moral-Psychology/YourMorals/YM-MFQ.csv",
    header = TRUE, na.strings = c("", " ", "NA"))

table(morals$astrology)
```

```
##
##    0    1    2    3    4    5
## 6217  726  187  178   81   48
```

```
morals <- morals[!(morals$astrology == "3"), ]
morals <- morals[!(morals$astrology == "4"), ]
morals <- morals[!(morals$astrology == "5"), ]
```

```
# 20-item Individualizing and Binding scores
morals$indiv2 <- rowMeans(morals[, c("compassion", "animal",
    "fairly", "justice")], na.rm = TRUE)
morals$bind2 <- rowMeans(morals[, c("history", "family", "kidrespect",
    "sexroles", "harmlessdg", "unnatural")], na.rm = TRUE)
```

```
morals$diffscore2 <- morals$indiv2 - morals$bind2

# The results here generate the same mediation model score
# F(1, 1207) = 224.34 as Study 1
diff.model2 <- lm(diffscore2 ~ politics, data = morals)
summary(diff.model2)
```

```
##
## Call:
## lm(formula = diffscore2 ~ politics, data = morals)
```

```
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -4.1871 -0.6825  0.0629  0.7295  3.5720
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  3.025051   0.029619   102.1   <2e-16 ***
## politics    -0.543961   0.009127   -59.6   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.07 on 5766 degrees of freedom
##   (2118 observations deleted due to missingness)
## Multiple R-squared:  0.3812, Adjusted R-squared:  0.3811
## F-statistic:  3552 on 1 and 5766 DF,  p-value: < 2.2e-16
```

```
etaSquared(diff.model2)
```

```
##             eta.sq eta.sq.part
## politics 0.3812183   0.3812183
```

The procedures here are largely the same as the 30-item version. Reported results for this section are as follows:

- Aggregate difference between Indivdualizing and binding foundation: $F(1, 5766) = 10424.41$, $p < .001$
- Moderation by Politics: $F(1, 5766) = 3552$, $p < .001$, $\eta^2 = .381$