Moral Relevance: YourMorals

Jennifer Lin

1/6/2020

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 Relevance Subscale.

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

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

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

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

# Puirty/Sanctity
```

```
morals$sanctity = rowMeans(morals[, c("decency", "disgusting",
    "god")], na.rm = TRUE)
```

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
```

Generate Graph

Here, I begin to generate the graph that averages the responses on Moal Relevance 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

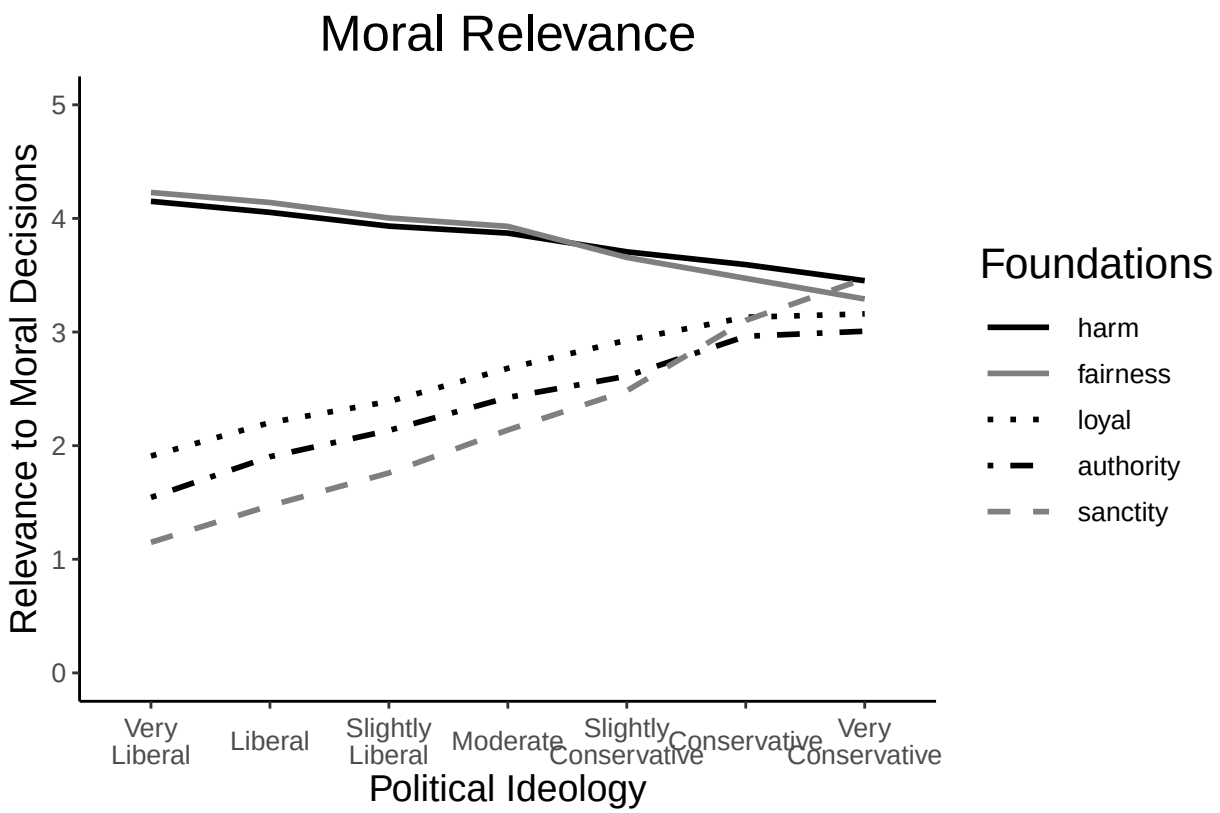
represents the aggregate scores as one frame.

```
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() + 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 Relevance") +
    xlab("Political Ideology") + ylab("Relevance to Moral Decisions") +
    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.

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

# Clear Attention Check
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("emotionally", "weak", "cruel"))
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
##       0.71      0.72    0.63      0.46 2.5 0.0056  3.9 0.91     0.44
##
##  lower alpha upper     95% confidence boundaries
## 0.7 0.71 0.72
##
##  Reliability if an item is dropped:
##             raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## emotionally      0.66      0.66    0.50      0.50 2.0   0.0075    NA  0.50
## weak             0.60      0.61    0.44      0.44 1.6   0.0088    NA  0.44
## cruel            0.61      0.61    0.44      0.44 1.6   0.0087    NA  0.44
##
##  Item statistics
##                n raw.r std.r r.cor r.drop mean  sd
## emotionally 7112  0.80  0.78  0.60   0.51  3.5 1.2
## weak        7082  0.82  0.81  0.66   0.55  3.8 1.2
## cruel       7100  0.78  0.81  0.65   0.55  4.3 1.0
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## emotionally 0.02 0.05 0.10 0.24 0.37 0.21  0.1
## weak        0.02 0.04 0.07 0.20 0.38 0.30  0.1
## cruel       0.01 0.01 0.03 0.10 0.32 0.52  0.1
```

```
# Fairness
Fairness <- morals %>% select(c("treated", "unfairly", "rights"))
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
##        0.6       0.6    0.51      0.34 1.5 0.0075    4 0.78     0.34
##
##  lower alpha upper     95% confidence boundaries
## 0.58 0.6 0.61
##
##  Reliability if an item is dropped:
##          raw_alpha std.alpha G6(smc) average_r  S/N alpha se var.r med.r
## treated       0.43      0.44    0.28      0.28 0.77   0.0126    NA  0.28
## unfairly      0.47      0.50    0.34      0.34 1.01   0.0108    NA  0.34
## rights        0.56      0.57    0.39      0.39 1.30   0.0097    NA  0.39
```

```
##
##  Item statistics
##             n raw.r std.r r.cor r.drop mean   sd
## treated  7098  0.82  0.77  0.59   0.46  3.6 1.24
## unfairly 7105  0.75  0.75  0.53   0.42  3.9 1.04
## rights   7101  0.66  0.72  0.47   0.37  4.4 0.83
##
## Non missing response frequency for each item
##             0    1    2    3    4    5 miss
## treated  0.03 0.05 0.09 0.23 0.36 0.25  0.1
## unfairly 0.01 0.02 0.06 0.18 0.44 0.30  0.1
## rights   0.00 0.01 0.02 0.08 0.34 0.54  0.1
```

```r
# Ingroup
Ingroup <- morals %>% select(c("lovecountry", "betray", "loyalty"))
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
##         0.7       0.7    0.63      0.44 2.4 0.0059  2.3 1.1     0.39
##
##  lower alpha upper     95% confidence boundaries
## 0.69 0.7 0.71
##
##  Reliability if an item is dropped:
##             raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## lovecountry      0.73      0.73    0.57      0.57 2.7   0.0061    NA  0.57
## betray           0.53      0.54    0.37      0.37 1.2   0.0104    NA  0.37
## loyalty          0.56      0.56    0.39      0.39 1.3   0.0099    NA  0.39
##
##  Item statistics
##                n raw.r std.r r.cor r.drop mean  sd
## lovecountry 7094  0.75  0.74  0.50   0.42  1.6 1.4
## betray      7089  0.82  0.83  0.70   0.58  2.7 1.4
## loyalty     7108  0.81  0.82  0.69   0.56  2.6 1.3
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## lovecountry 0.29 0.24 0.17 0.18 0.09 0.03  0.1
## betray      0.07 0.13 0.19 0.28 0.23 0.10  0.1
## loyalty     0.07 0.15 0.20 0.31 0.20 0.07  0.1
```

```r
# Authority
Authority <- morals %>% select(c("respect", "traditions", "chaos"))
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
##       0.69       0.7    0.62      0.43 2.3 0.006    2  1     0.41
##
##  lower alpha upper     95% confidence boundaries
## 0.68 0.69 0.71
##
##  Reliability if an item is dropped:
##            raw_alpha std.alpha G6(smc) average_r  S/N alpha se var.r med.r
## respect         0.50      0.50    0.33      0.33 0.99   0.0113    NA  0.33
## traditions      0.58      0.58    0.41      0.41 1.40   0.0094    NA  0.41
## chaos           0.71      0.71    0.55      0.55 2.47   0.0065    NA  0.55
##
##  Item statistics
##               n raw.r std.r r.cor r.drop mean  sd
## respect    7081  0.83  0.83  0.71   0.59  1.7 1.3
## traditions 7083  0.78  0.80  0.65   0.52  1.4 1.2
## chaos      7099  0.75  0.74  0.50   0.42  3.0 1.4
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## respect    0.22 0.27 0.22 0.19 0.09 0.02  0.1
## traditions 0.30 0.30 0.21 0.14 0.05 0.01  0.1
## chaos      0.05 0.11 0.17 0.28 0.26 0.13  0.1
```

```r
# Purity
Purity <- morals %>% select(c("decency", "disgusting", "god"))
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
##         0.7      0.71    0.64      0.45 2.4 0.0059  1.7 1.2     0.51
##
##  lower alpha upper     95% confidence boundaries
## 0.69 0.7 0.71
```

```
##
##  Reliability if an item is dropped:
##            raw_alpha std.alpha G6(smc) average_r  S/N alpha se var.r med.r
## decency         0.45      0.45    0.29      0.29 0.83   0.0122    NA  0.29
## disgusting      0.67      0.67    0.51      0.51 2.06   0.0074    NA  0.51
## god             0.70      0.70    0.54      0.54 2.31   0.0068    NA  0.54
##
##  Item statistics
##                n raw.r std.r r.cor r.drop mean  sd
## decency     7082  0.85  0.86  0.77   0.64  1.9 1.5
## disgusting 7095  0.74  0.77  0.59   0.47  2.0 1.4
## god         7096  0.79  0.76  0.56   0.46  1.2 1.7
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## decency     0.20 0.25 0.19 0.19 0.12 0.05  0.1
## disgusting 0.17 0.25 0.21 0.21 0.12 0.04  0.1
## god         0.60 0.10 0.06 0.08 0.07 0.09  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"), ]

############## MFQ 30 Relavance Items ##########################

# Harm/Care
morals$harm <- rowMeans(morals[, c("emotionally", "weak", "cruel")],
    na.rm = TRUE)

# Fairness/Justice
morals$fairness <- rowMeans(morals[, c("treated", "unfairly",
    "rights")], na.rm = TRUE)

# Ingroup/Loyality
morals$loyal <- rowMeans(morals[, c("lovecountry", "betray",
    "loyalty")], na.rm = TRUE)
```

```r
# Authority/Traditions
morals$authority <- rowMeans(morals[, c("respect", "traditions",
    "chaos")], na.rm = TRUE)

# Puirty/Sanctity
morals$sanctity <- rowMeans(morals[, c("decency", "disgusting",
    "god")], na.rm = TRUE)
```

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 Relevance questions.

```r
# Individualizing and Binding scores
morals$indiv <- rowMeans(morals[, c("emotionally", "weak", "cruel",
    "treated", "unfairly", "rights")], na.rm = TRUE)
morals$bind <- rowMeans(morals[, c("lovecountry", "betray", "loyalty",
    "respect", "traditions", "chaos", "decency", "disgusting",
    "god")], 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.

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

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

```
##
## Call:
## lm(formula = diffscore ~ politics, data = morals)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -3.9069 -0.5819 -0.0180  0.5782  2.8394
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  3.095907   0.023609  131.13   <2e-16 ***
## politics    -0.420396   0.007275  -57.79   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.8531 on 5770 degrees of freedom
##   (2114 observations deleted due to missingness)
## Multiple R-squared:  0.3666, Adjusted R-squared:  0.3665
```

```
## F-statistic:  3340 on 1 and 5770 DF,  p-value: < 2.2e-16
```

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

```
##             eta.sq eta.sq.part
## politics 0.3666096   0.3666096
```

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: $F(1, 5770) = 17195.08$, $p < .001$
- Moderation by Politics: $F(1, 5770) = 3340$, $p < .001$, $\eta^2 = .367$.

Moral Foundations Questionnaire – 20-item

Clean Data

```
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"), ]

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

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

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

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

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

```r
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
```

Generate Graph

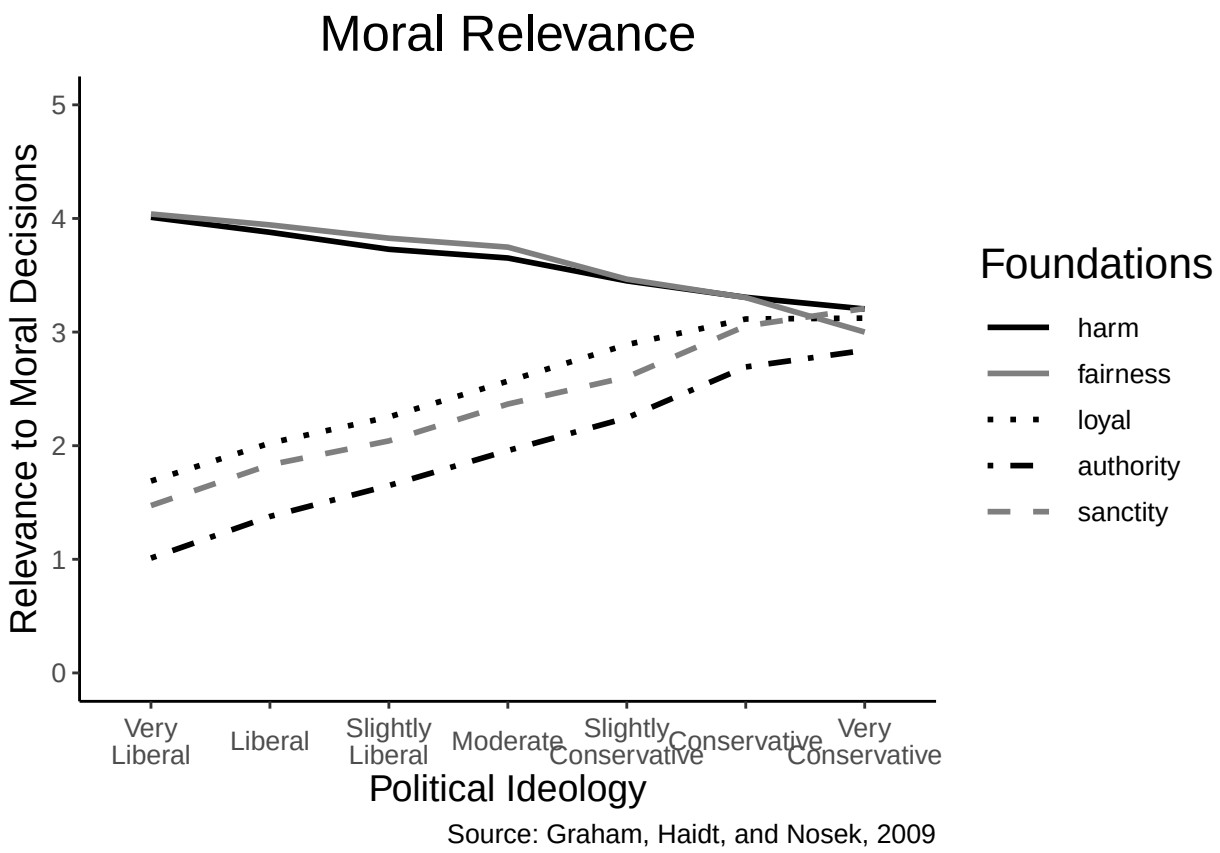
```r
Harm <- aggregate(harm ~ ideo, morals, mean, na.rm = TRUE)
Fair <- aggregate(fairness ~ ideo, morals, mean, na.rm = TRUE)
Loyal <- aggregate(loyal ~ ideo, morals, mean, na.rm = TRUE)
Authority <- aggregate(authority ~ ideo, morals, mean, na.rm = TRUE)
Purity <- aggregate(sanctity ~ ideo, morals,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

```
ggplot(mfq, aes(x = ideo, y = value, group = variable)) + geom_line(aes(linetype = varia
    color = variable), size = 1) + theme_classic() + 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 Relevance") +
    xlab("Political Ideology") + ylab("Relevance to Moral Decisions") +
    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))
```



Cronbach's Alpha

```
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"), ]

# Harm
Harm <- morals %>% select(c("emotionally", "weak"))
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
##       0.61      0.61    0.44      0.44 1.6 0.0087  3.6  1     0.44
##
##  lower alpha upper     95% confidence boundaries
## 0.6 0.61 0.63
##
##  Reliability if an item is dropped:
##             raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## emotionally      0.44      0.44     0.2      0.44  NA       NA  0.44  0.44
## weak             0.20      0.44      NA        NA  NA       NA  0.20  0.44
##
##  Item statistics
##                n raw.r std.r r.cor r.drop mean  sd
## emotionally 7112  0.85  0.85  0.57   0.44  3.5 1.2
## weak        7082  0.85  0.85  0.57   0.44  3.8 1.2
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## emotionally 0.02 0.05 0.10 0.24 0.37 0.21  0.1
## weak        0.02 0.04 0.07 0.20 0.38 0.30  0.1
```

```
# Fairness
Fairness <- morals %>% select(c("treated", "unfairly"))
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
##       0.56      0.57    0.39      0.39 1.3 0.0097  3.7 0.95     0.39
##
##  lower alpha upper     95% confidence boundaries
## 0.54 0.56 0.58
##
##  Reliability if an item is dropped:
##          raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## treated       0.39      0.39    0.16      0.39  NA       NA  0.39  0.39
## unfairly      0.16      0.39      NA        NA  NA       NA  0.16  0.39
##
##  Item statistics
##             n raw.r std.r r.cor r.drop mean  sd
## treated  7098  0.87  0.83  0.52   0.39  3.6 1.2
## unfairly 7105  0.80  0.83  0.52   0.39  3.9 1.0
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## treated  0.03 0.05 0.09 0.23 0.36 0.25  0.1
## unfairly 0.01 0.02 0.06 0.18 0.44 0.30  0.1
```

```r
# Ingroup
Ingroup <- morals %>% select(c("lovecountry", "betray"))
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
##       0.56      0.56    0.39      0.39 1.3 0.0099  2.2 1.2     0.39
##
##  lower alpha upper     95% confidence boundaries
## 0.54 0.56 0.58
##
##  Reliability if an item is dropped:
##             raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
```

```
## lovecountry      0.39      0.39    0.15      0.39  NA       NA  0.39  0.39
## betray           0.15      0.39      NA        NA  NA       NA  0.15  0.39
##
##  Item statistics
##                n raw.r std.r r.cor r.drop mean  sd
## lovecountry 7094  0.84  0.83  0.52   0.39  1.6 1.4
## betray      7089  0.83  0.83  0.52   0.39  2.7 1.4
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## lovecountry 0.29 0.24 0.17 0.18 0.09 0.03  0.1
## betray      0.07 0.13 0.19 0.28 0.23 0.10  0.1
```

```
# Authority
Authority <- morals %>% select(c("respect", "traditions"))
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
##       0.71      0.71    0.55      0.55 2.5 0.0065  1.5 1.1     0.55
##
##  lower alpha upper     95% confidence boundaries
## 0.7 0.71 0.72
##
##  Reliability if an item is dropped:
##            raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## respect         0.55      0.55    0.31      0.55  NA       NA  0.55  0.55
## traditions      0.31      0.55      NA        NA  NA       NA  0.31  0.55
##
##  Item statistics
##               n raw.r std.r r.cor r.drop mean  sd
## respect    7081  0.89  0.88  0.65   0.55  1.7 1.3
## traditions 7083  0.87  0.88  0.65   0.55  1.4 1.2
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## respect    0.22 0.27 0.22 0.19 0.09 0.02  0.1
## traditions 0.30 0.30 0.21 0.14 0.05 0.01  0.1
```

```r
# Purity
Purity <- morals %>% select(c("decency", "disgusting"))
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
##         0.7       0.7    0.54      0.54 2.3 0.0068    2 1.3     0.54
##
##  lower alpha upper     95% confidence boundaries
## 0.68 0.7 0.71
##
##  Reliability if an item is dropped:
##            raw_alpha std.alpha G6(smc) average_r S/N alpha se var.r med.r
## decency         0.54      0.54    0.29      0.54  NA       NA  0.54  0.54
## disgusting      0.29      0.54      NA        NA  NA       NA  0.29  0.54
##
##  Item statistics
##                n raw.r std.r r.cor r.drop mean  sd
## decency    7082  0.88  0.88  0.64   0.54  1.9 1.5
## disgusting 7095  0.87  0.88  0.64   0.54  2.0 1.4
##
## Non missing response frequency for each item
##                0    1    2    3    4    5 miss
## decency     0.20 0.25 0.19 0.19 0.12 0.05  0.1
## disgusting 0.17 0.25 0.21 0.21 0.12 0.04  0.1
```

Repeated Measures GLM

```r
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"), ]

############## MFQ 30 Relavance Items ##########################
```

```r
# Harm/Care
morals$harm <- rowMeans(morals[, c("emotionally", "weak", "cruel")],
    na.rm = TRUE)

# Fairness/Justice
morals$fairness <- rowMeans(morals[, c("treated", "unfairly",
    "rights")], na.rm = TRUE)

# Ingroup/Loyality
morals$loyal <- rowMeans(morals[, c("lovecountry", "betray",
    "loyalty")], na.rm = TRUE)

# Authority/Traditions
morals$authority <- rowMeans(morals[, c("respect", "traditions",
    "chaos")], na.rm = TRUE)

# Puirty/Sanctity
morals$sanctity <- rowMeans(morals[, c("decency", "disgusting",
    "god")], na.rm = TRUE)


# Individualizing and Binding scores -- 20-item version
morals$indiv2 <- rowMeans(morals[, c("emotionally", "weak", "treated",
    "unfairly")], na.rm = TRUE)
morals$bind2 <- rowMeans(morals[, c("lovecountry", "betray",
    "respect", "traditions", "decency", "disgusting")], na.rm = TRUE)
```

```r
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
## -3.7810 -0.6753 -0.0290  0.6377  3.7820
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  3.069670   0.026852  114.32   <2e-16 ***
```

```
## politics    -0.437002   0.008274  -52.82   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.9703 on 5770 degrees of freedom
##   (2114 observations deleted due to missingness)
## Multiple R-squared:  0.3259, Adjusted R-squared:  0.3258
## F-statistic:  2790 on 1 and 5770 DF,  p-value: < 2.2e-16
```

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

```
##             eta.sq eta.sq.part
## politics 0.3259145   0.3259145
```

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: $F(1, 5770) = 13069.06$, $p < .001$
- Moderation by Politics: $F(1, 5770) = 2790$, $p < .001$, $\eta^2 = .325$