

Data Analysis__HB__04052016

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Descriptive Statistics

Following are relevant aggregated statistics and statistics by each of the 11 treatments for each of three relevant dependent variables. These relevant dependent variables are 1. Donation, which is the amount the subject donated in order to retire emission rights 2. Donated, which is equal to 1 if the subject donated a positive amount, and 0 otherwise 3. Belief, which is the amount the subject thinks other participants in this experiment donated on average (not incentivized)

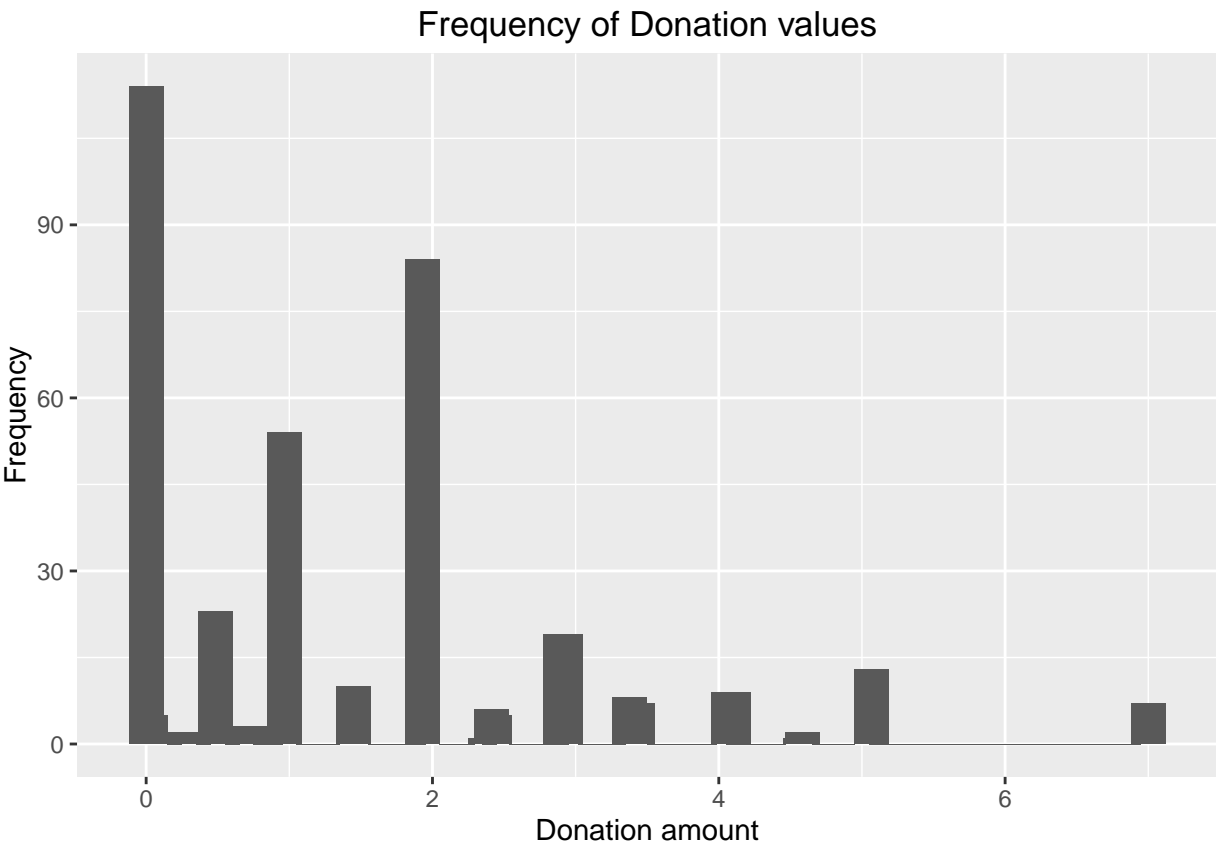
1. Variable: Donation to retire carbon licenses

Aggregated descriptive statistics

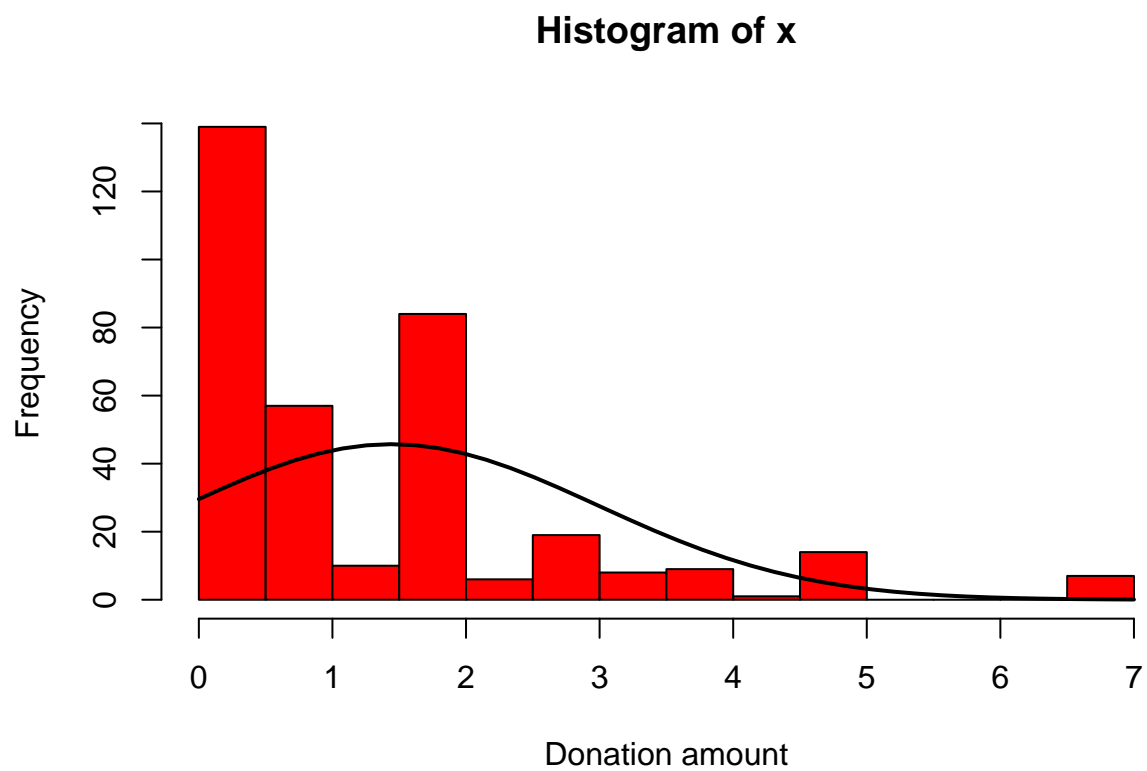
##	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
##	0.000	0.000	1.000	1.442	2.000	7.000

[1] 1.544451

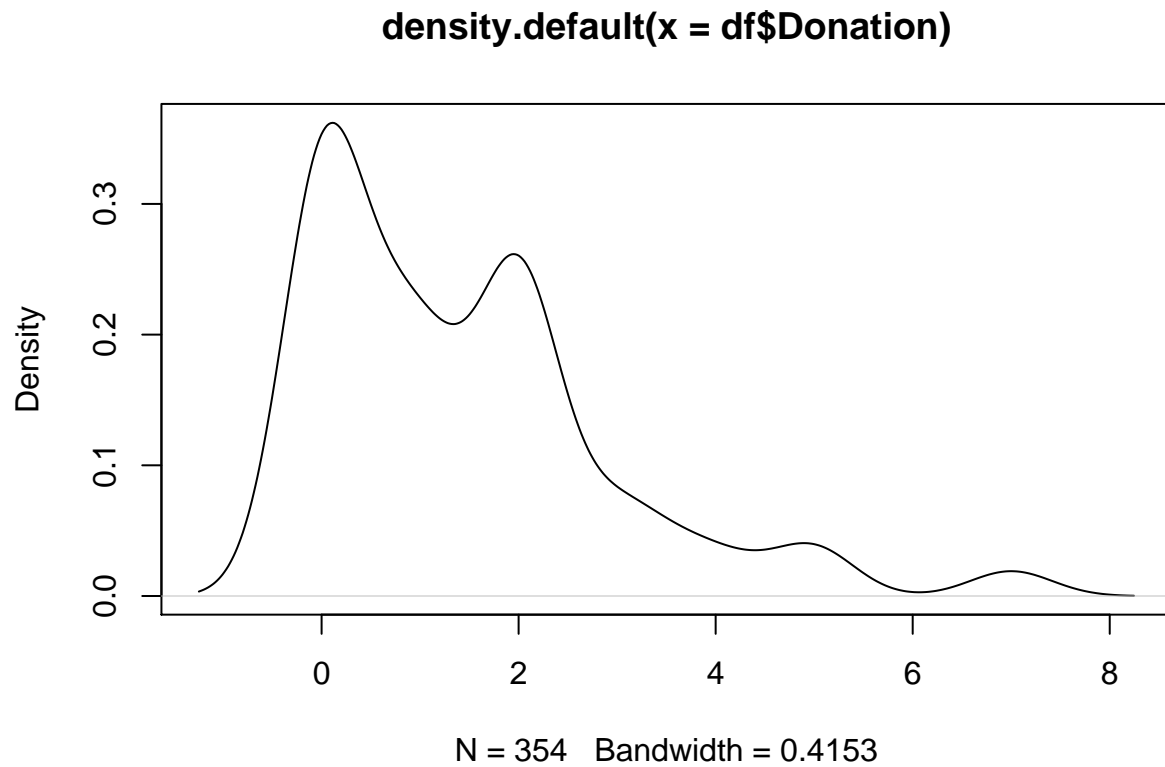
Distribution of aggregated donations



Distribution of aggregated donations with normal curve



Kernel density plot of aggregated donations

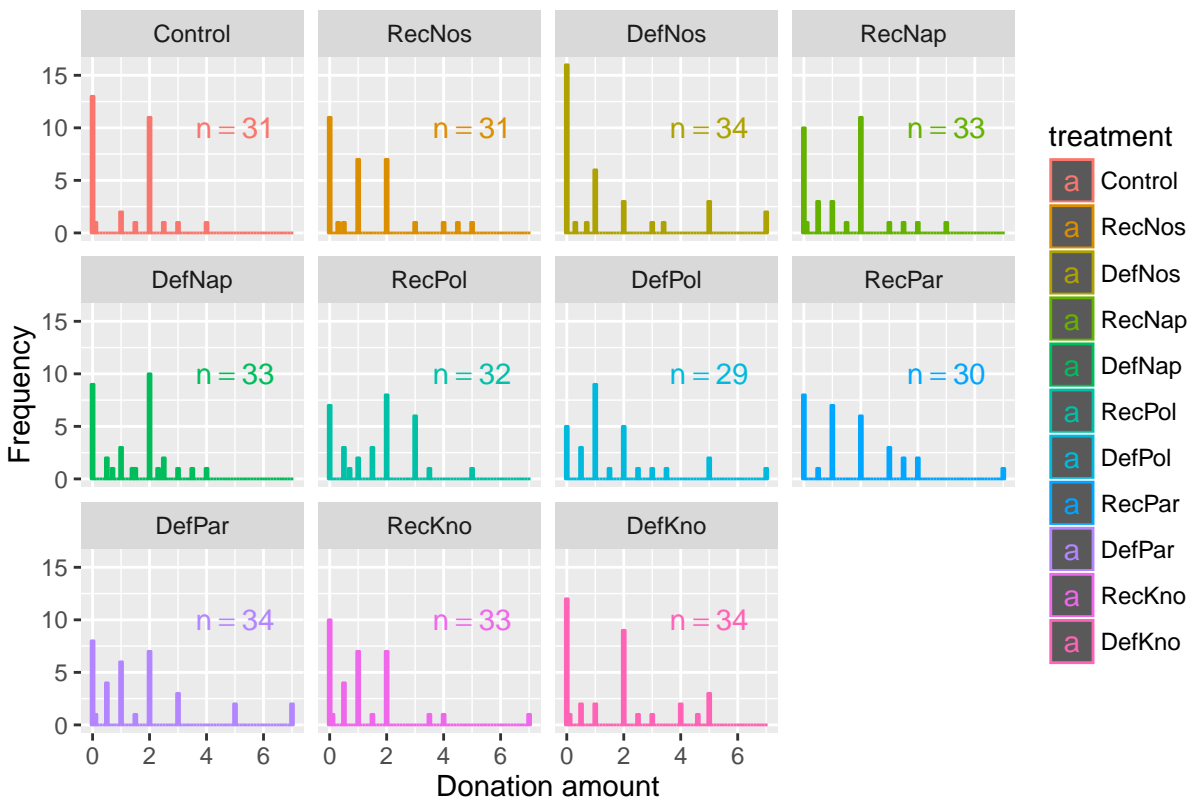


Distribution of donations by treatment

```
## group: Control
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 31 1.13 1.15     1    1.02 1.48   0  4    4 0.42   -0.94 0.21
## -----
## group: RecNos
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 31 1.24 1.39     1    0.99 1.48   0  5    5 1.14    0.52 0.25
## -----
## group: DefNos
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 34 1.42 2.08    0.5    1.05 0.74   0  7    7 1.46    0.93 0.36
## -----
## group: RecNap
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 33 1.32 1.31     1    1.15 1.48   0  5    5 0.83    0.13 0.23
## -----
## group: DefNap
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 33 1.38 1.13    1.5    1.29 1.19   0  4    4 0.27   -0.88 0.2
## -----
## group: RecPol
```

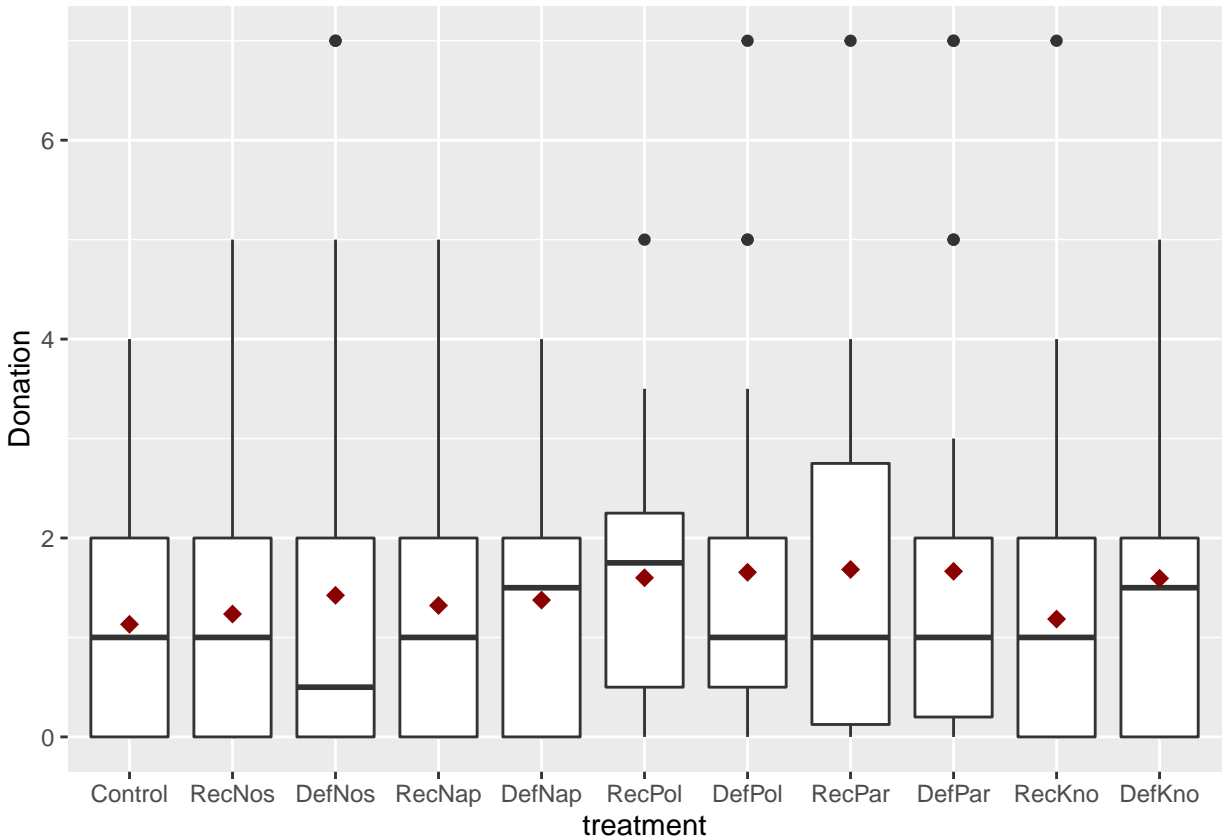
```
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 32 1.6 1.29 1.75 1.53 1.85 0 5 5 0.43 -0.48 0.23
## -----
## group: DefPol
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 29 1.66 1.68 1 1.44 1.48 0 7 7 1.51 1.87 0.31
## -----
## group: RecPar
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 30 1.68 1.65 1 1.48 1.48 0 7 7 1.13 1.32 0.3
## -----
## group: DefPar
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 34 1.66 1.89 1 1.34 1.48 0 7 7 1.46 1.49 0.32
## -----
## group: RecKno
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 33 1.18 1.47 1 0.91 1.48 0 7 7 2.06 5.17 0.26
## -----
## group: DefKno
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 34 1.59 1.7 1.5 1.4 2.22 0 5 5 0.73 -0.74 0.29
```

Frequency of Donation values by treatment



Donations by treatment (Boxplot)

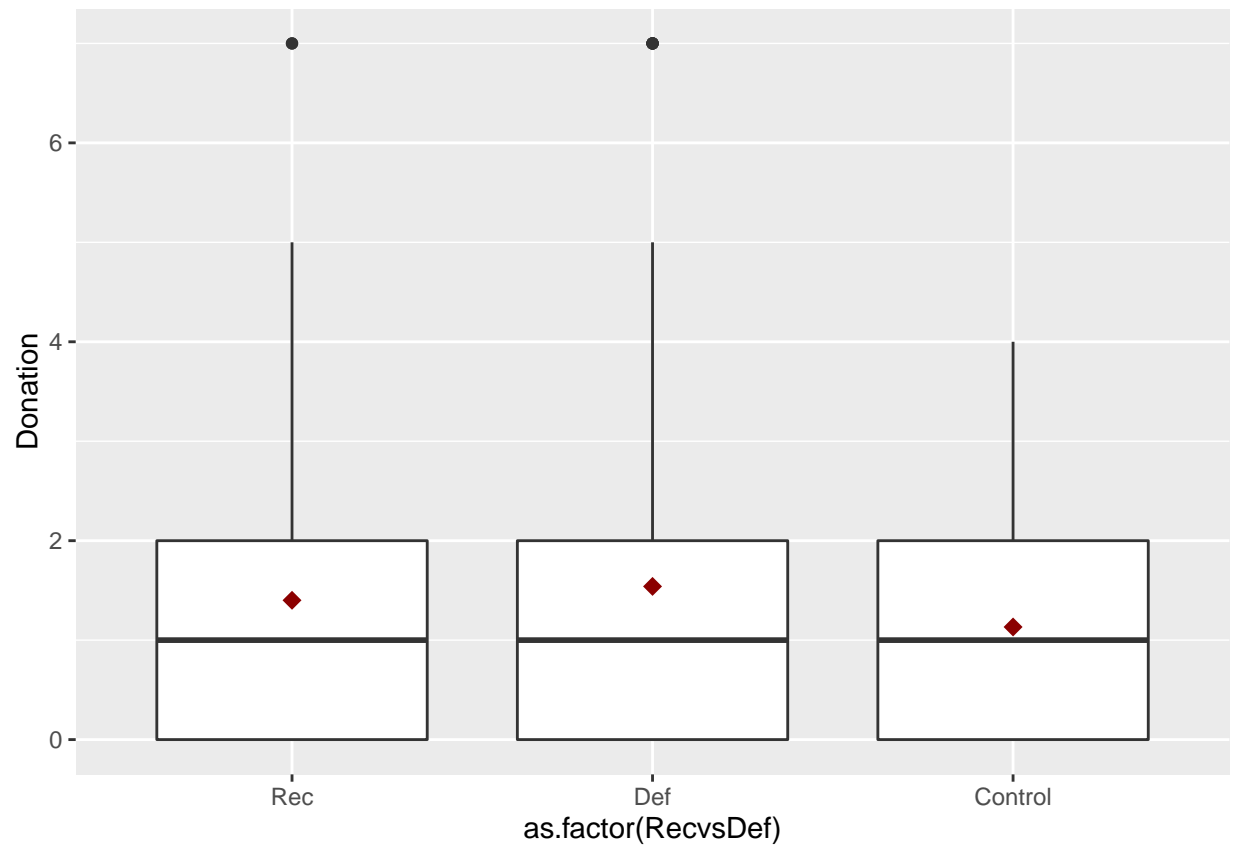
Red diamonds in boxplots represent the respective means



Donations by aggregated treatment (Boxplot), i.e. Def vs. Rec vs. Control

```
describeBy(df$Donation, df$RecvsDef)
```

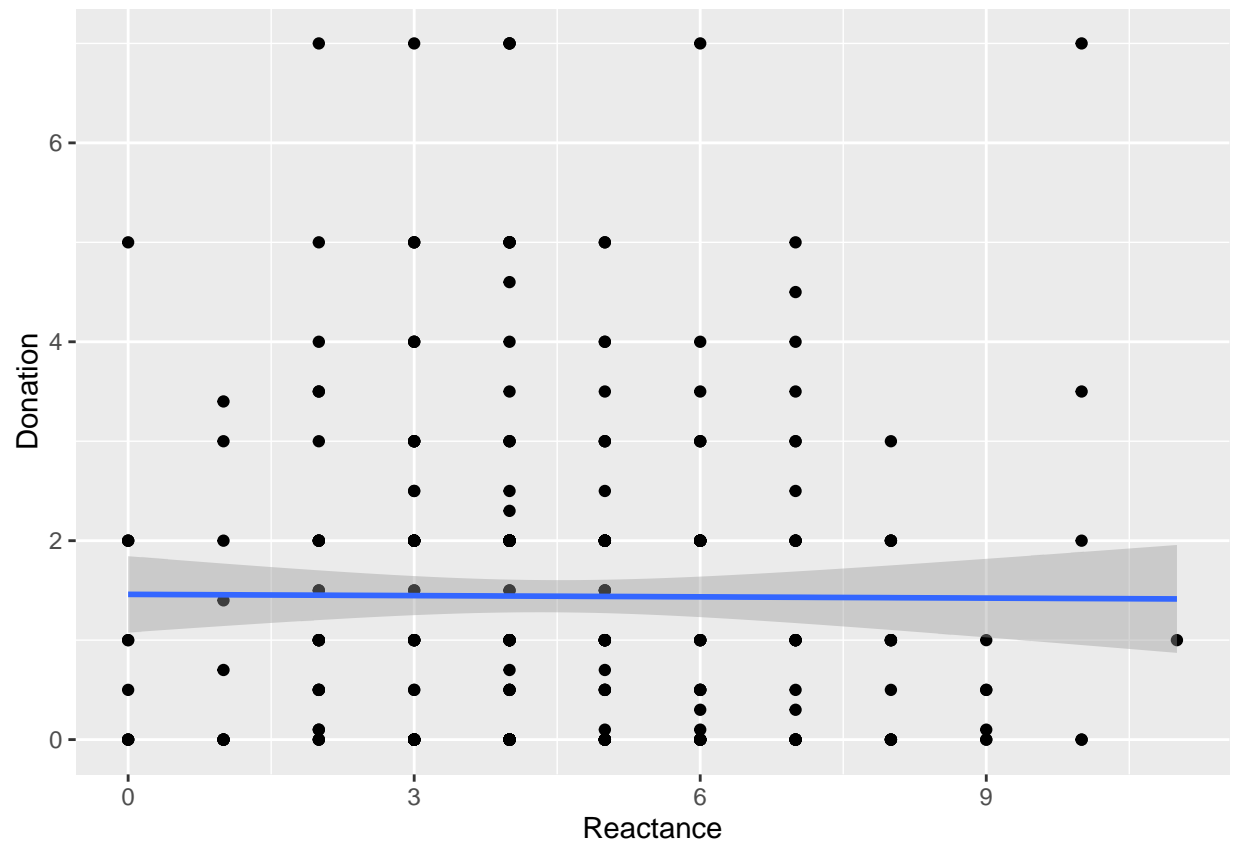
```
## group: Rec
##  vars   n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 159  1.4 1.42     1    1.2 1.48   0  7    7 1.24    1.89 0.11
## -----
## group: Def
##  vars   n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 164  1.54 1.71     1    1.23 1.48   0  7    7 1.38    1.56 0.13
## -----
## group: Control
##  vars   n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1  31  1.13 1.15     1    1.02 1.48   0  4    4 0.42   -0.94 0.21
```



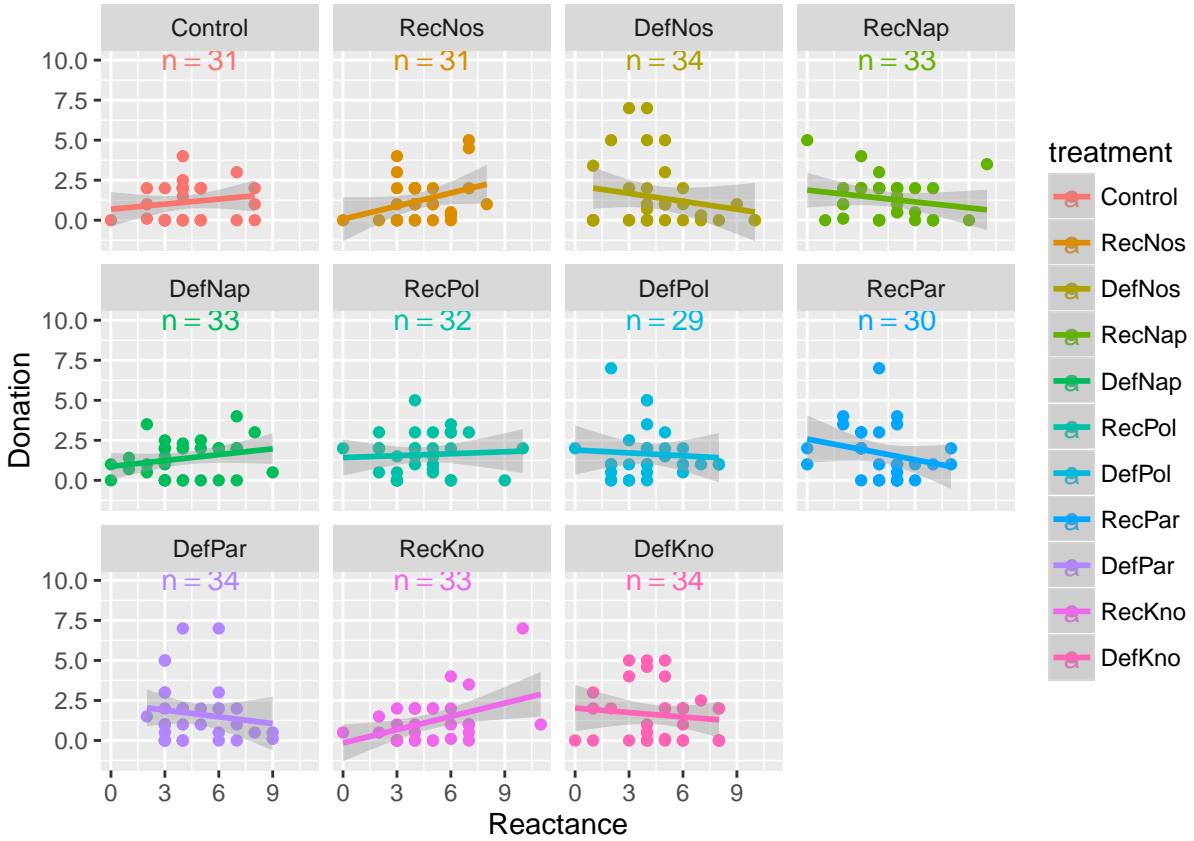
Donations by Reactance score

The reactance score was constructed by changing each of the 11 reactance-items to a dummy variable equal to 1 if the subject chose 3 or 4 on the respective item, and 0 otherwise. Afterwards, all 11 dummies were added to construct an ordinal Reactance score.

Shows a point plot (not jittered) with Donation amount and the respective Reactance score of each participant. Includes a linear regression line, including the 95% confidence region, of the Reactance score as a predictor for the Donation amount.



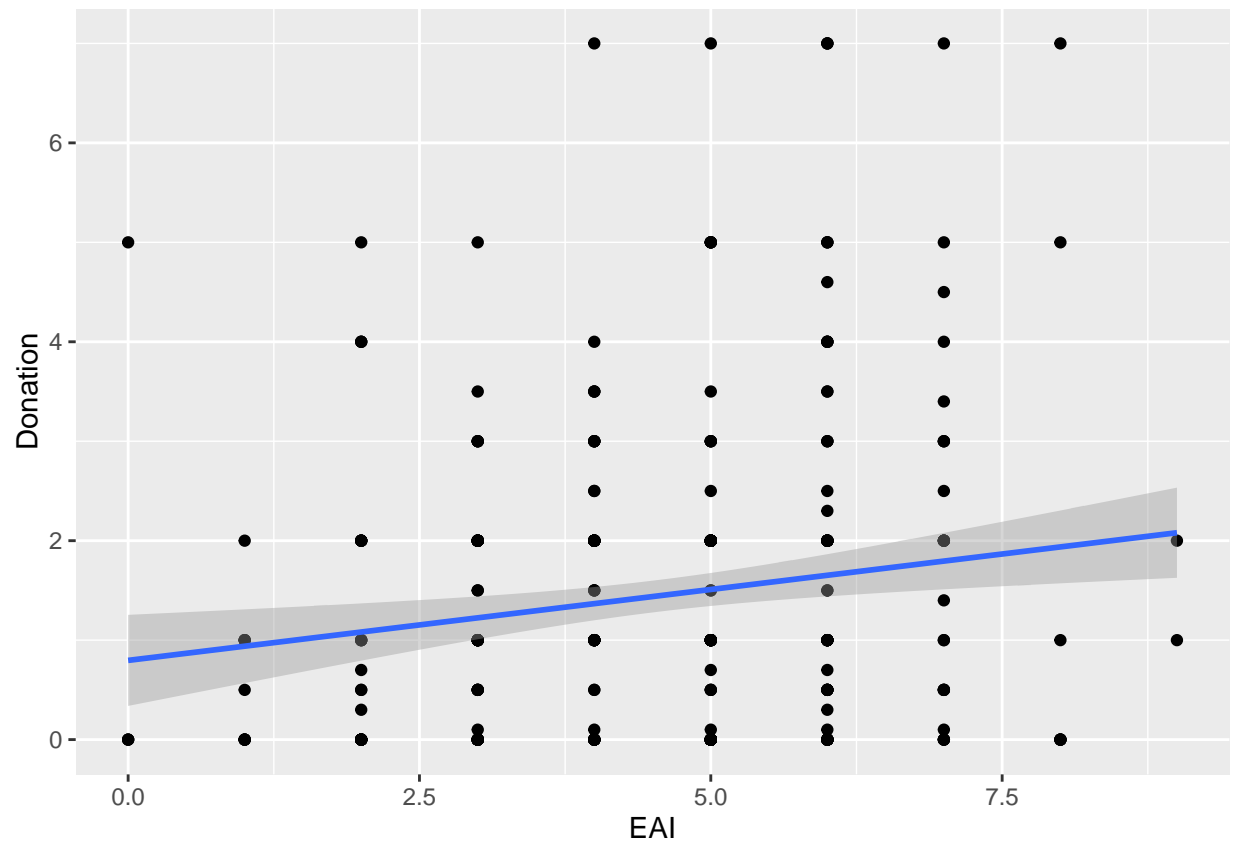
To see how often combinations of Reactance and Donation scores appeared



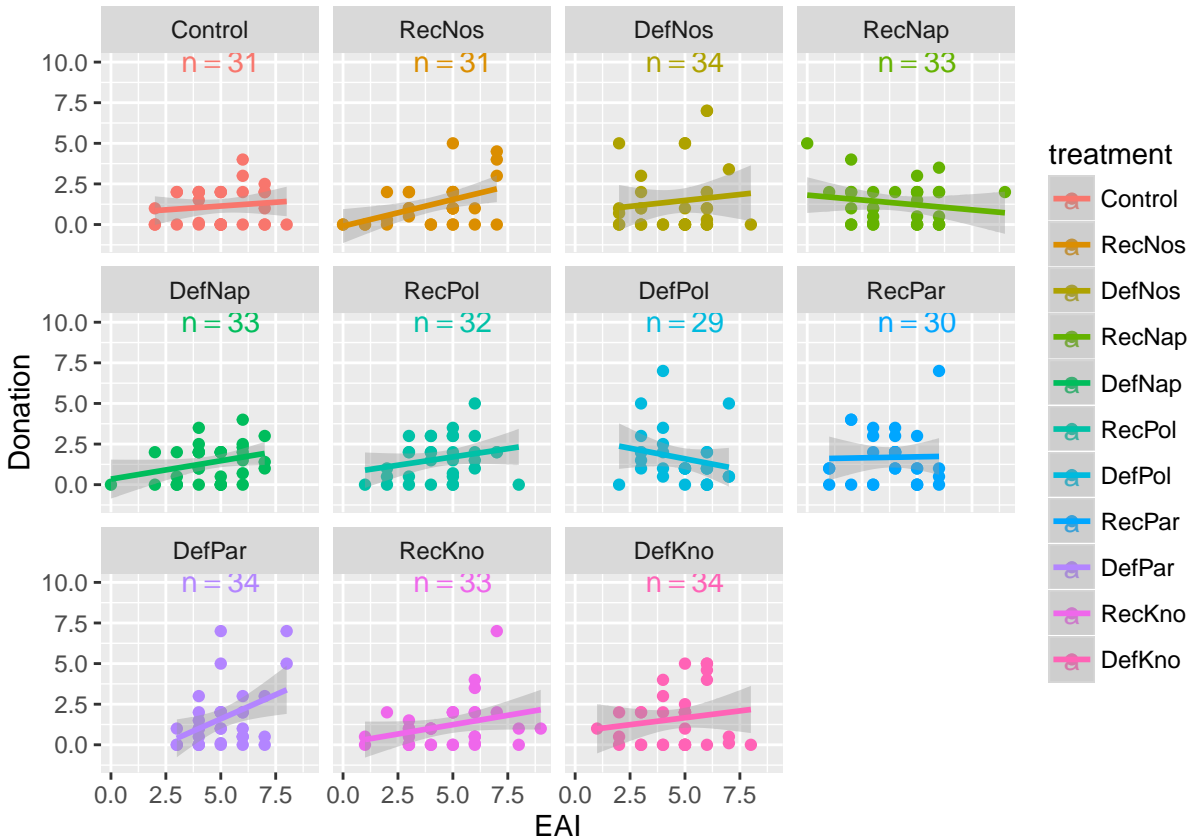
Donations by EAI score

The EAI score was constructed by changing each of the 12 EAI-items to a dummy variable equal to 1 if the subject chose 3 or 4 on the respective item, and 0 otherwise. Afterwards, all 12 dummies were added to construct an ordinal EAI score.

Shows a point plot (not jittered) with Donation amount and the respective EAI score of each participant. Includes a linear regression line, including the 95% confidence region, of the EAI score as a predictor for the Donation amount.



Donations by EAI score per treatment Shows a point plot (not jittered) with Donation amount and the respective EAI score of each participant, for each treatment. Includes a linear regression line, including the 95% confidence region, of the EAI score as a predictor for the Donation amount, for each treatment.



2. Variable: Donation dummy (1 if donated, 0 otherwise)

Aggregated descriptive statistics

```
summary(df$Donated)
```

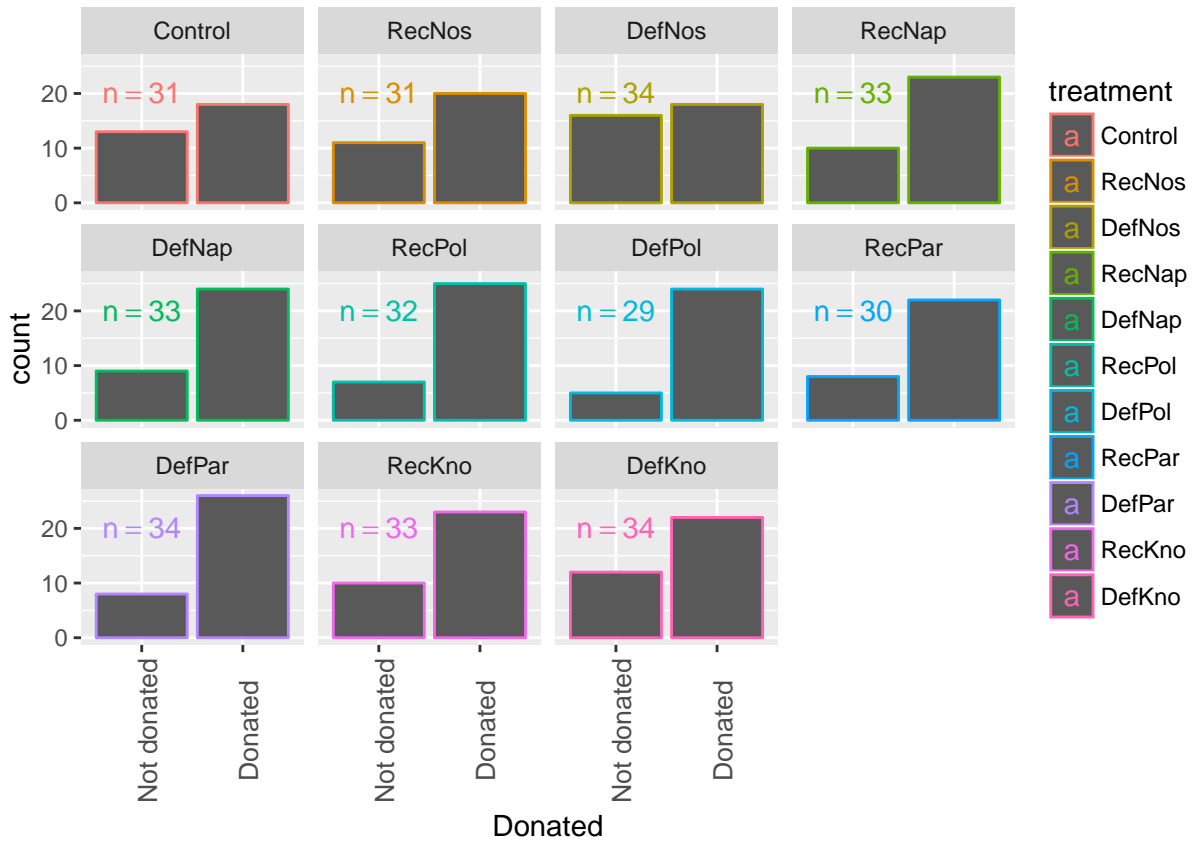
```
## Not donated    Donated
##           109       245
```

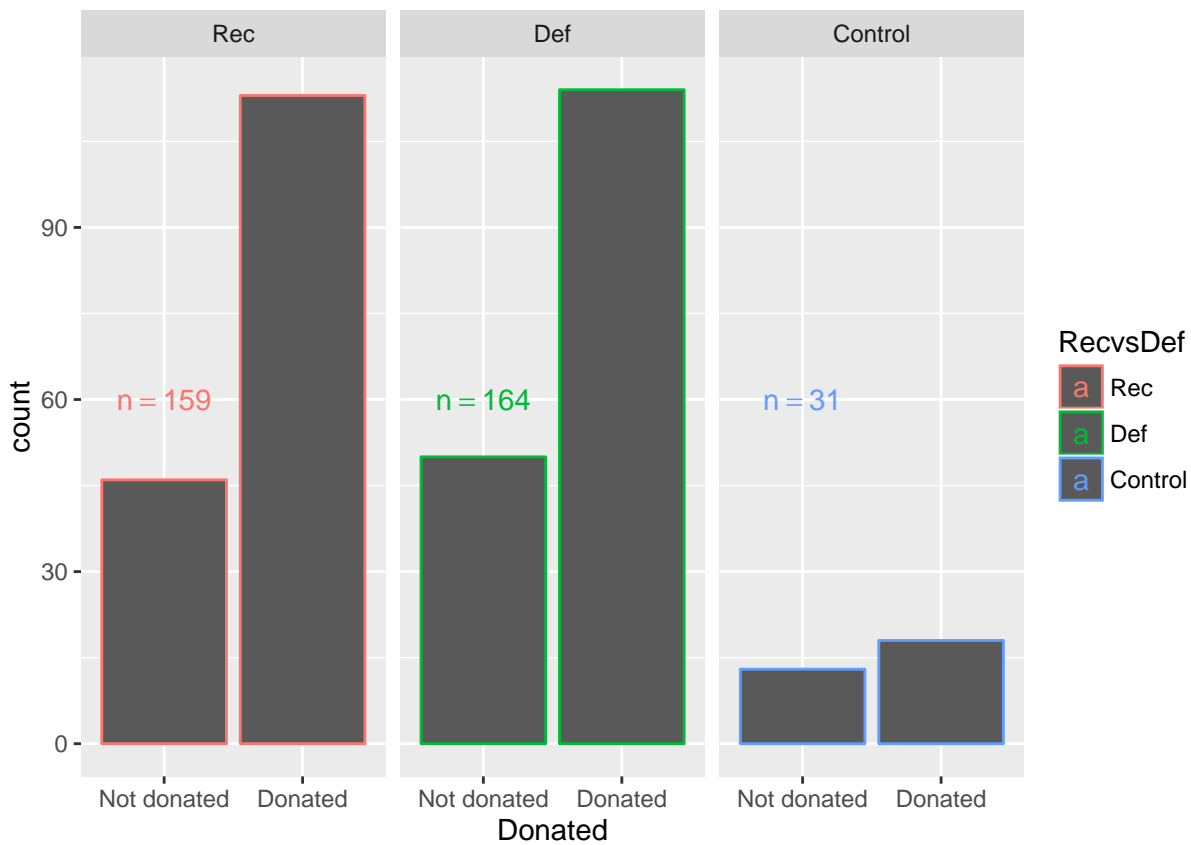
Distribution of donation dummy by treatment

```
table(df$Donated, df$treatment)
```

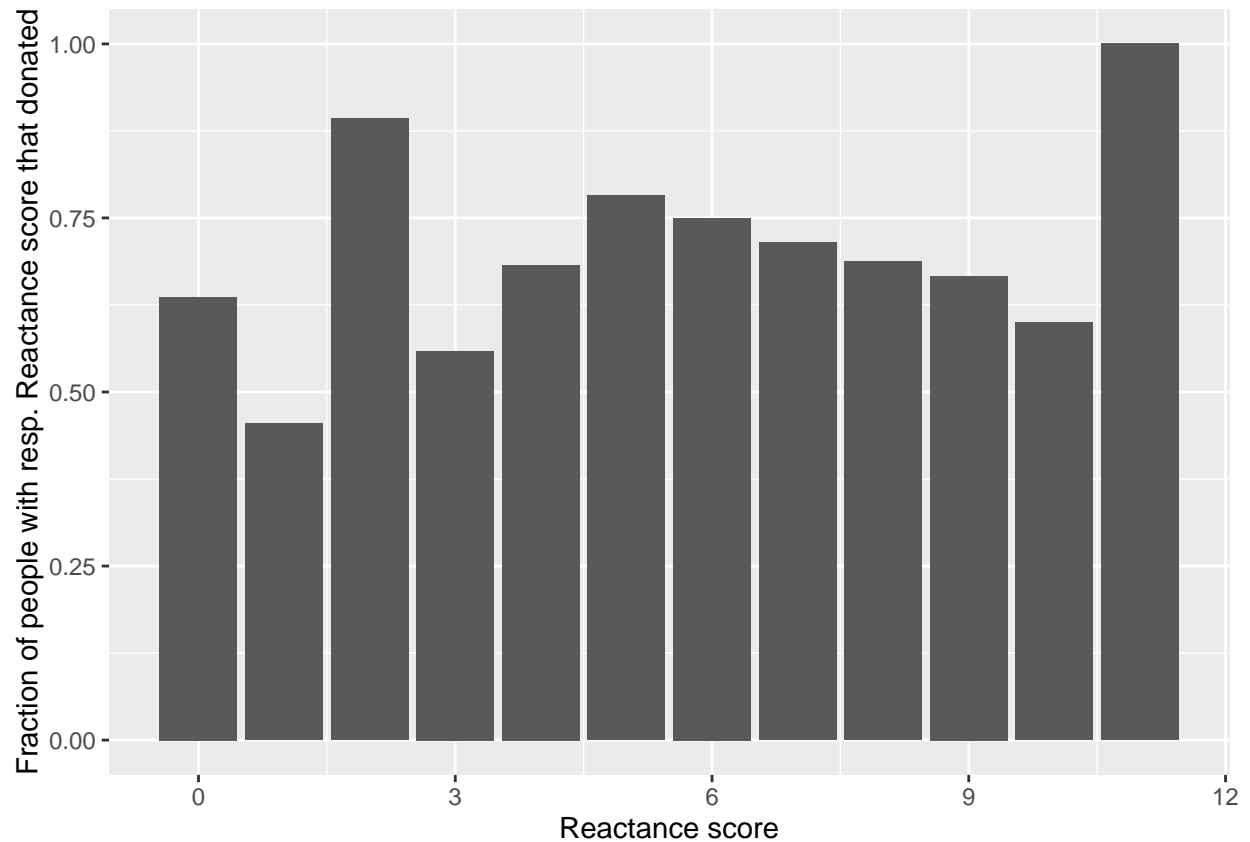
```
##
##           Control RecNos DefNos RecNap DefNap RecPol DefPol RecPar
## Not donated      13     11     16     10      9      7      5      8
## Donated          18     20     18     23     24     25     24     22
##
##           DefPar RecKno DefKno
## Not donated      8     10     12
## Donated          26     23     22
```

Decision to donate by treatment graph





Decision to donate by Reactance score



```
chisq.test(table(df$Donated, df$Reactance), simulate.p.value = TRUE)
```

```
##  
## Pearson's Chi-squared test with simulated p-value (based on 2000  
## replicates)  
##  
## data: table(df$Donated, df$Reactance)  
## X-squared = 17.51, df = NA, p-value = 0.08746
```

```
summary(glm(Donated ~ Reactance, df, family = "binomial"))
```

```
##  
## Call:  
## glm(formula = Donated ~ Reactance, family = "binomial", data = df)  
##  
## Deviance Residuals:  
##      Min       1Q   Median       3Q      Max   
## -1.6789  -1.4997   0.8253   0.8656   0.9500   
##  
## Coefficients:  
##              Estimate Std. Error z value Pr(>|z|)      
## (Intercept)  0.56154    0.27135   2.069  0.0385 *  
```

```
## Reactance      0.05678      0.05676      1.000      0.3171
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##      Null deviance: 437.13  on 353  degrees of freedom
## Residual deviance: 436.12  on 352  degrees of freedom
## AIC: 440.12
##
## Number of Fisher Scoring iterations: 4
```

The decision of whether or not to donate depends on Reactance (based on the Chi² Test. However the test is only slightly significant ($p < .1$). The logistic regression model is not significant

```
##
## Call:
## glm(formula = Donated ~ RecvsDefD * Sourcetype * Reactance, family = "binomial",
##      data = df)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -2.0517  -1.2256   0.7042   0.8652   1.3754
##
## Coefficients:
##                                     Estimate Std. Error
## (Intercept)                       -2.2661      1.4148
## RecvsDefDDef                       2.3394      1.5960
## SourcetypeNameAndPicture           4.2609      1.7356
## SourcetypeKnowledgeable            1.8156      1.7108
## SourcetypePolitical                3.9211      1.7620
## SourcetypePartisan                4.0801      1.8000
## Reactance                          0.7068      0.3495
## RecvsDefDDef:SourcetypeNameAndPicture -3.6135      2.0502
## RecvsDefDDef:SourcetypeKnowledgeable -1.1643      2.0587
## RecvsDefDDef:SourcetypePolitical     -4.2437      2.2493
## RecvsDefDDef:SourcetypePartisan     -3.7545      2.2404
## RecvsDefDDef:Reactance              -0.6970      0.3782
## SourcetypeNameAndPicture:Reactance  -0.9517      0.3972
## SourcetypeKnowledgeable:Reactance   -0.4263      0.4042
## SourcetypePolitical:Reactance        -0.7910      0.4063
## SourcetypePartisan:Reactance        -0.8928      0.4192
## RecvsDefDDef:SourcetypeNameAndPicture:Reactance  1.0061      0.4580
## RecvsDefDDef:SourcetypeKnowledgeable:Reactance  0.3912      0.4614
## RecvsDefDDef:SourcetypePolitical:Reactance      1.3030      0.5536
## RecvsDefDDef:SourcetypePartisan:Reactance      1.0556      0.5028
##                                     z value Pr(>|z|)
## (Intercept)                       -1.602    0.1092
## RecvsDefDDef                       1.466    0.1427
## SourcetypeNameAndPicture           2.455    0.0141 *
## SourcetypeKnowledgeable            1.061    0.2886
## SourcetypePolitical                2.225    0.0261 *
## SourcetypePartisan                2.267    0.0234 *
## Reactance                          2.022    0.0431 *
```



```

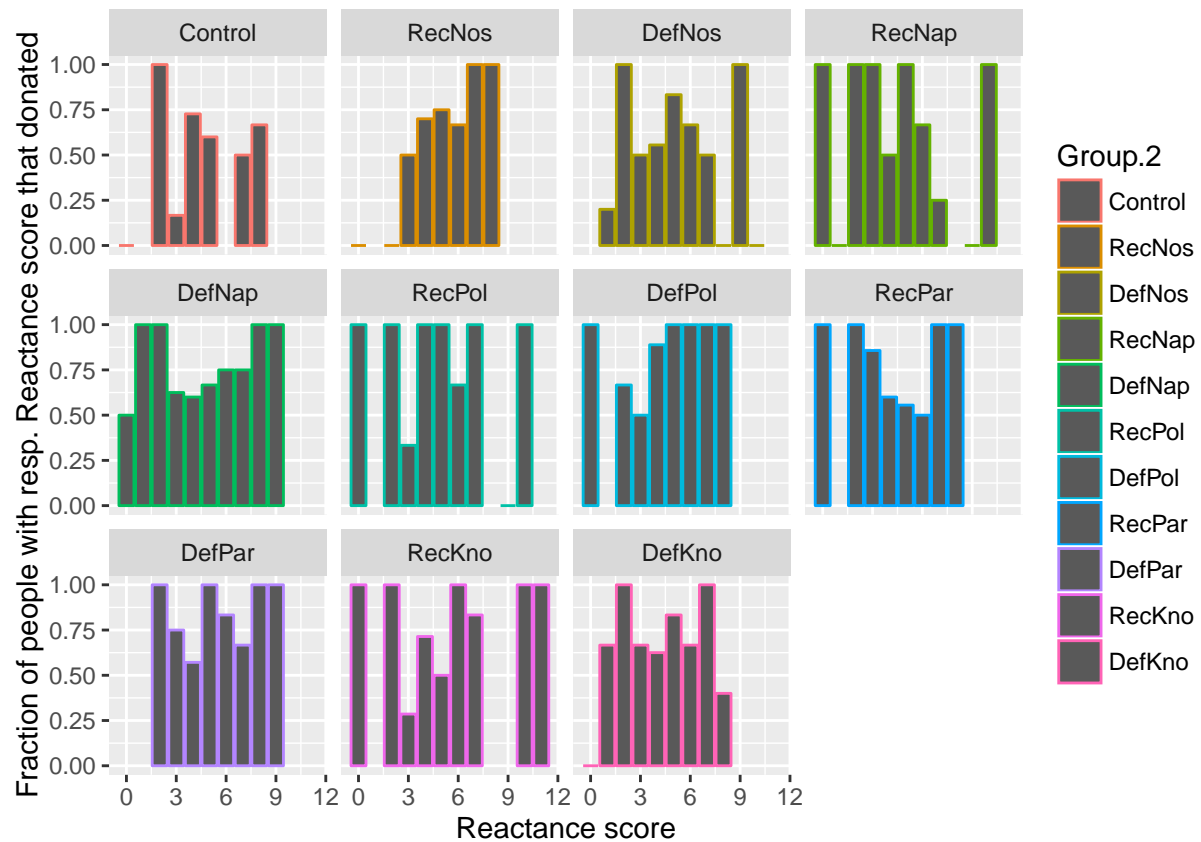
## RecvsDefDDef:SourcetypeNameAndPicture          -1.763    0.0780 .
## RecvsDefDDef:SourcetypeKnowledgeable           -0.566    0.5717
## RecvsDefDDef:SourcetypePolitical               -1.887    0.0592 .
## RecvsDefDDef:SourcetypePartisan               -1.676    0.0938 .
## RecvsDefDDef:Reactance                        -1.843    0.0653 .
## SourcetypeNameAndPicture:Reactance             -2.396    0.0166 *
## SourcetypeKnowledgeable:Reactance             -1.055    0.2916
## SourcetypePolitical:Reactance                 -1.947    0.0515 .
## SourcetypePartisan:Reactance                  -2.129    0.0332 *
## RecvsDefDDef:SourcetypeNameAndPicture:Reactance  2.197    0.0280 *
## RecvsDefDDef:SourcetypeKnowledgeable:Reactance  0.848    0.3965
## RecvsDefDDef:SourcetypePolitical:Reactance      2.354    0.0186 *
## RecvsDefDDef:SourcetypePartisan:Reactance      2.099    0.0358 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##    Null deviance: 393.08  on 322  degrees of freedom
## Residual deviance: 368.68  on 303  degrees of freedom
##   (31 observations deleted due to missingness)
## AIC: 408.68
##
## Number of Fisher Scoring iterations: 5

##
## Call:
## glm(formula = Donated ~ RecvsDefD * NosvsSomeD * Reactance, family = "binomial",
##      data = df)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -2.0517  -1.2256   0.7593   0.8170   1.2399
##
## Coefficients:
##
##              Estimate Std. Error z value
## (Intercept)      -2.2661      1.4146  -1.602
## RecvsDefDDef        2.3394      1.5959   1.466
## NosvsSomeDSome Source  3.4557      1.4927   2.315
## Reactance          0.7068      0.3495   2.023
## RecvsDefDDef:NosvsSomeDSome Source -2.8628      1.7281  -1.657
## RecvsDefDDef:Reactance -0.6970      0.3782  -1.843
## NosvsSomeDSome Source:Reactance -0.7534      0.3619  -2.082
## RecvsDefDDef:NosvsSomeDSome Source:Reactance  0.8301      0.4020   2.065
##
##              Pr(>|z|)
## (Intercept)      0.1092
## RecvsDefDDef      0.1427
## NosvsSomeDSome Source 0.0206 *
## Reactance         0.0431 *
## RecvsDefDDef:NosvsSomeDSome Source 0.0976 .
## RecvsDefDDef:Reactance 0.0653 .
## NosvsSomeDSome Source:Reactance 0.0374 *
## RecvsDefDDef:NosvsSomeDSome Source:Reactance 0.0389 *
## ---

```

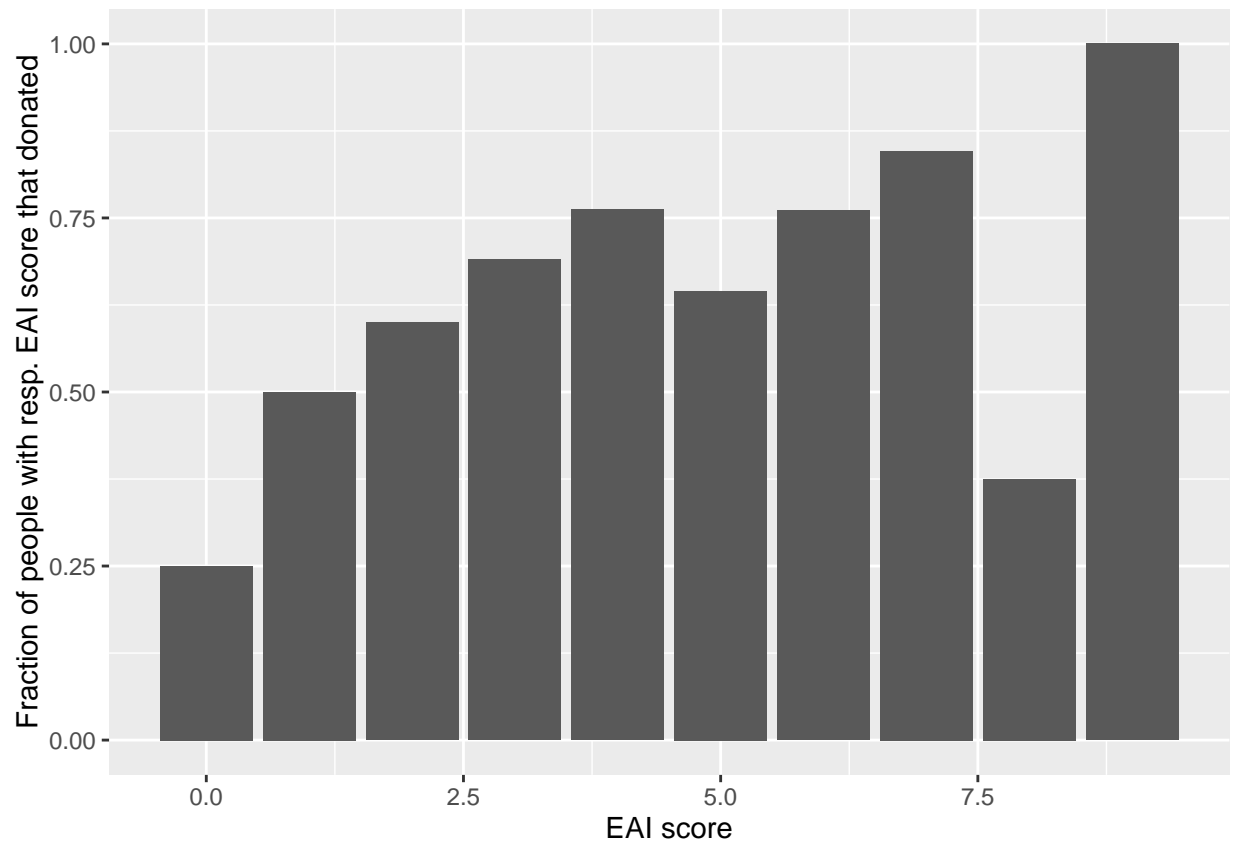
```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##      Null deviance: 393.08  on 322  degrees of freedom
## Residual deviance: 379.73  on 315  degrees of freedom
##   (31 observations deleted due to missingness)
## AIC: 395.73
##
## Number of Fisher Scoring iterations: 4
```

Decision to donate by Reactance score and treatment



At least visually there does not seem to be a relationship of Reactance score and Donation broken down by treatment.

Decision to donate by EAI score



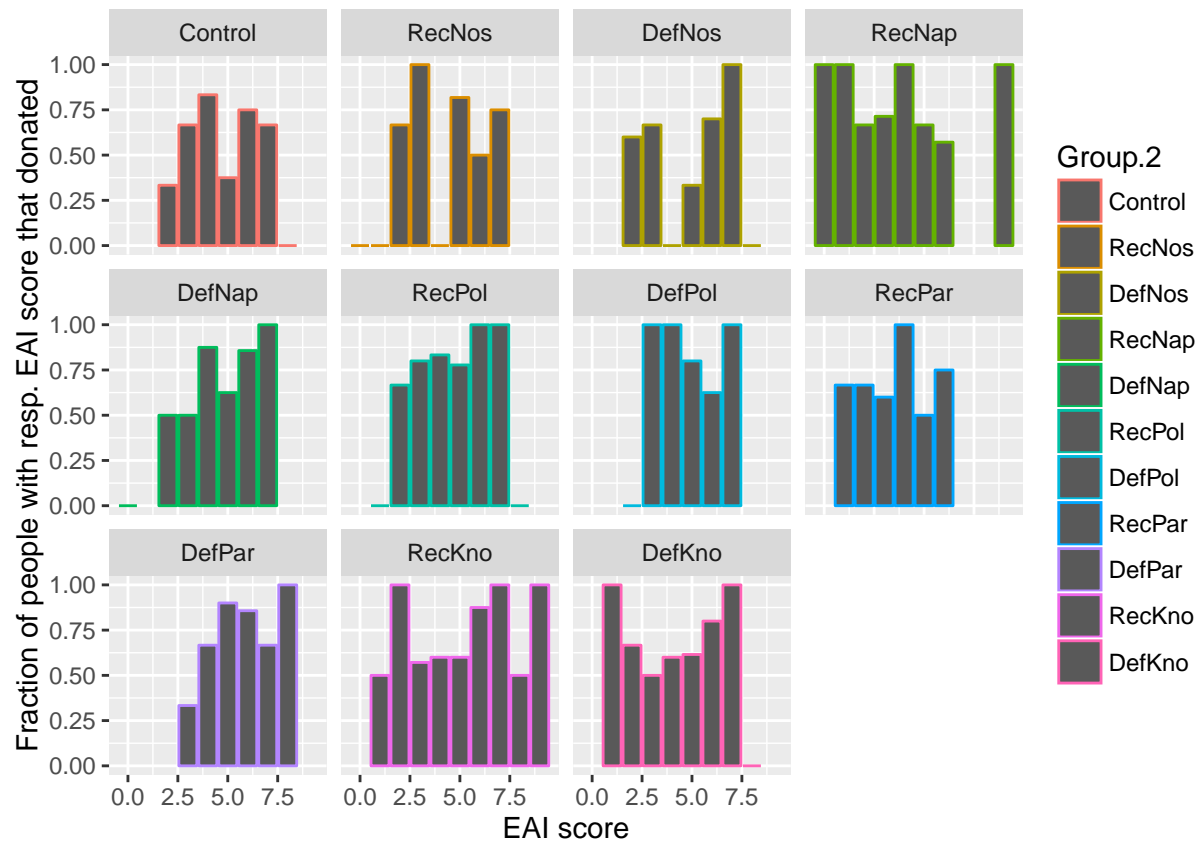
```
chisq.test(table(df$Donated, df$EAI))
```

```
## Warning in chisq.test(table(df$Donated, df$EAI)): Chi-squared approximation
## may be incorrect
```

```
##
## Pearson's Chi-squared test
##
## data:  table(df$Donated, df$EAI)
## X-squared = 17.998, df = 9, p-value = 0.0352
```

The χ^2 -test statistic is not significant, indicating that the decision whether or not to donate anything does not depend on the EAI.

Decision to donate by EAI score and treatment



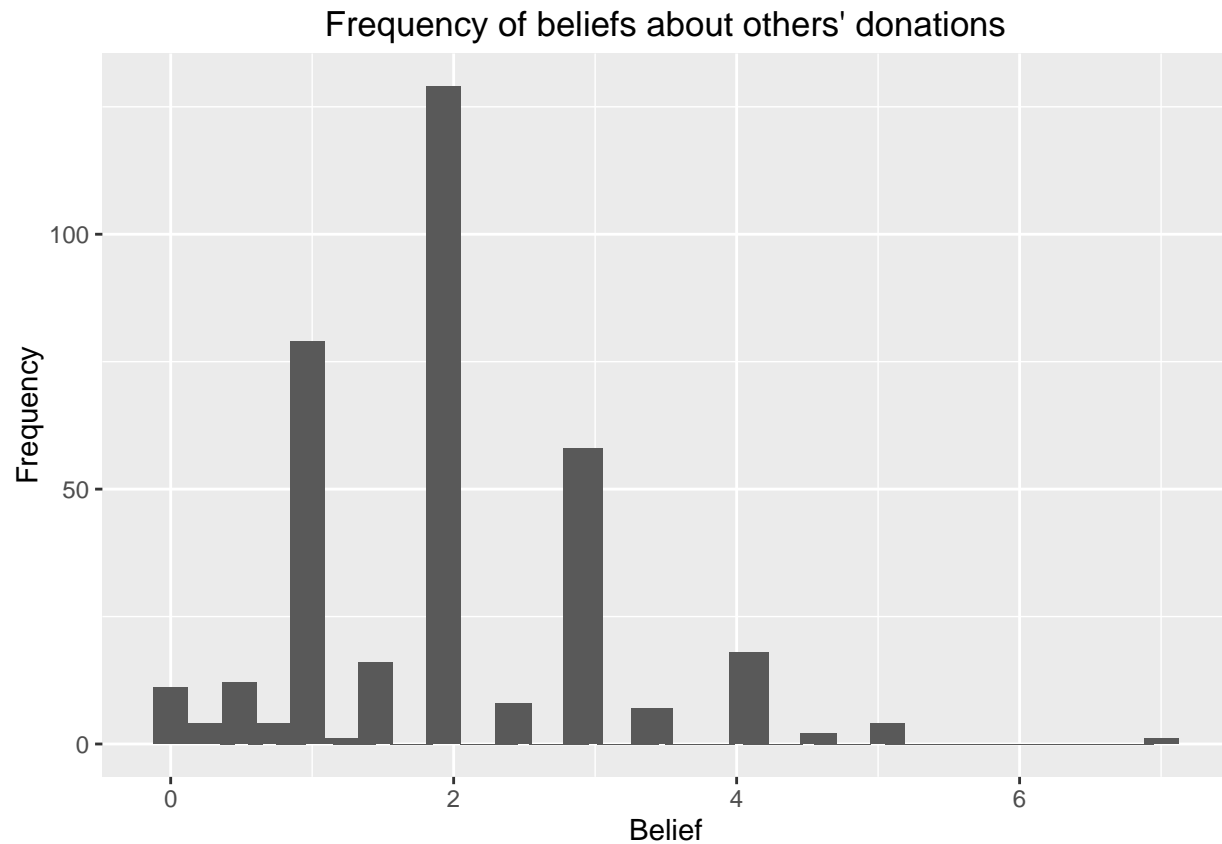
3. Variable: Beliefs about other participants donations

Aggregated descriptive statistics

```
summary(df$belief)
```

```
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.000   1.000   2.000   1.973   3.000   7.000
```

Distribution of aggregated beliefs about donations

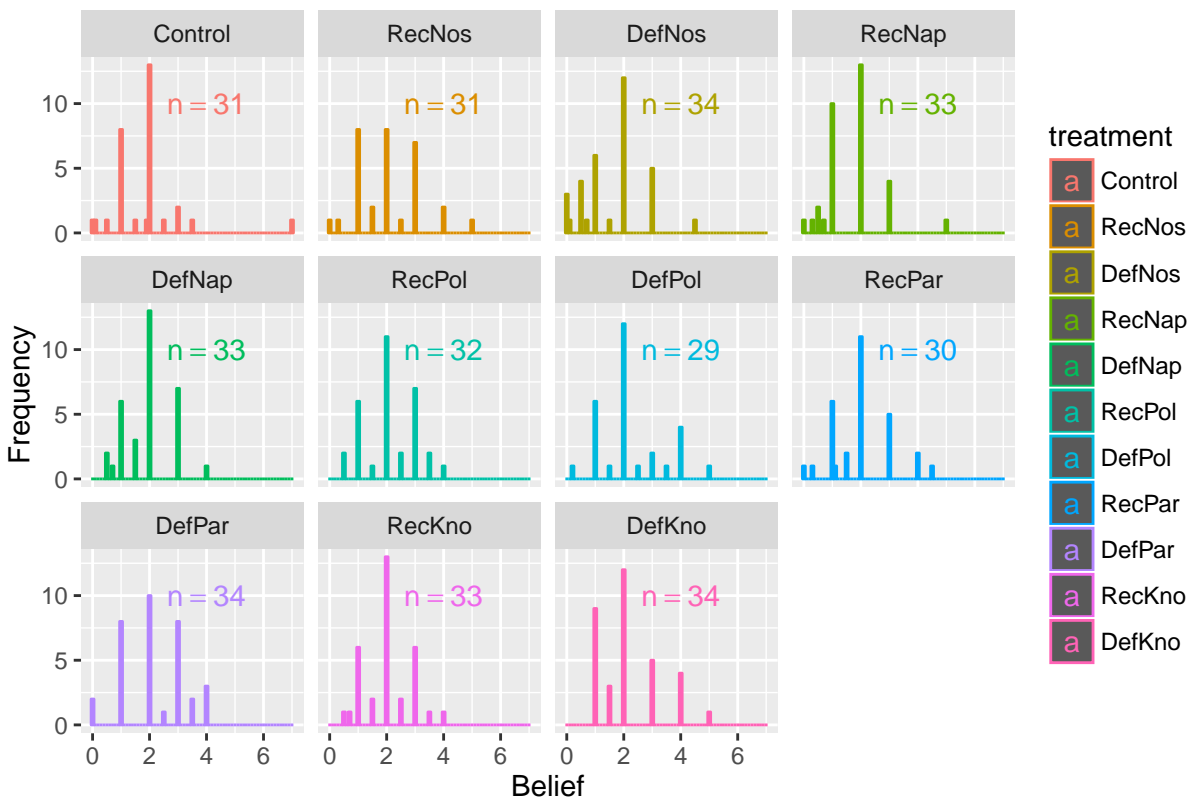


Distribution of beliefs by treatment

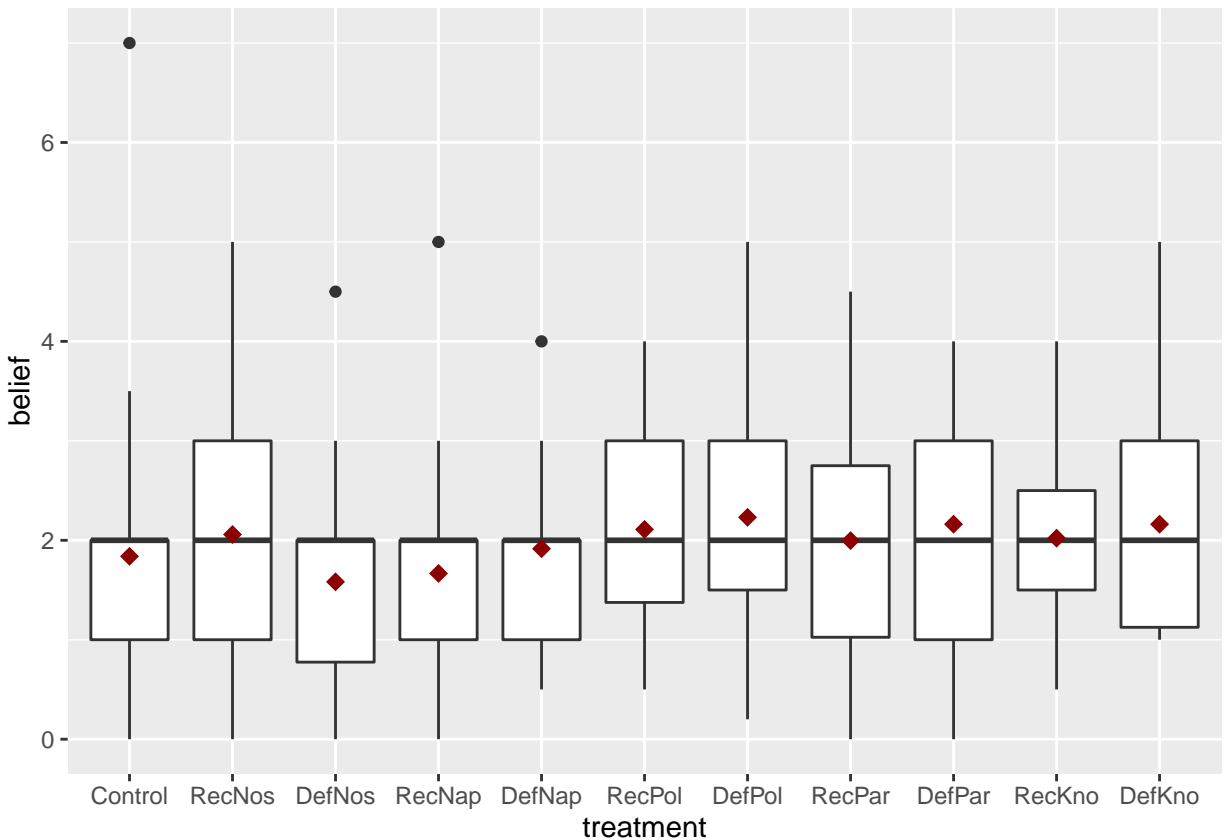
```
## group: Control
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 31 1.84 1.25     2    1.72 0.74  0  7    7  2.1    6.92 0.22
## -----
## group: RecNos
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 31 2.06 1.15     2    1.98 1.48  0  5    5  0.47   -0.28 0.21
## -----
## group: DefNos
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 34 1.58 1.07     2    1.55 1.48  0 4.5  4.5 0.43   -0.24 0.18
## -----
## group: RecNap
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 33 1.67 1.01     2    1.6  1.48  0  5    5  0.97    1.55 0.18
## -----
## group: DefNap
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 33 1.92 0.86     2    1.91 1.48 0.5  4    3.5 0.27   -0.62 0.15
## -----
## group: RecPol
```

```
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 32 2.11 0.92      2      2.1 1.48 0.5   4   3.5 0.02   -0.95 0.16
## -----
## group: DefPol
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 29 2.23 1.16      2      2.18 1.48 0.2   5   4.8 0.59   -0.45 0.21
## -----
## group: RecPar
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 30   2 1.07      2      1.92 1.48  0 4.5   4.5 0.46   -0.31 0.2
## -----
## group: DefPar
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 34 2.16 1.1      2      2.16 1.48  0  4     4 -0.1   -0.93 0.19
## -----
## group: RecKno
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 33 2.02 0.85      2      2  0.74 0.5   4   3.5 0.21   -0.64 0.15
## -----
## group: DefKno
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 34 2.16 1.09      2      2.05 1.48  1  5     4 0.82   -0.24 0.19
```

Frequency of beliefs about others donations by treatment



Beliefs by treatment (Boxplot)



Inferential Statistics

Following are relevant inferential statistics for each of three relevant dependent variables. These relevant dependent variables are 1. Donation, which is the amount the subject donated in order to retire emission rights 2. Donated, which is equal to 1 if the subject donated a positive amount, and 0 otherwise 3. Belief, which is the amount the subject thinks other participants in this experiment donated on average (not incentivized)

1. Variable: Donation to retire carbon licenses

Kruskal-Wallis-Test

The following KW-test tests the null-hypothesis that the median donations in each treatment are the same. The test assumes variance homogeneity and equal distributions of donations in each treatment. It basically tests whether the distributions from the different treatments are shifted.

```
kruskal.test(df$Donation ~ df$treatment)
```

```
##
##  Kruskal-Wallis rank sum test
##
## data:  df$Donation by df$treatment
```

```
## Kruskal-Wallis chi-squared = 7.434, df = 10, p-value = 0.6839
```

We do not reject the null ($p = .05$).

ANOVA (one-way)

```
summary(aov(df$Donation ~ df$treatment))
```

```
##              Df Sum Sq Mean Sq F value Pr(>F)
## df$treatment  10   13.5    1.345    0.557  0.849
## Residuals    343  828.6    2.416
```

We do not reject the null ($p = .05$).

2. Variable: Donation dummy (1 if donated, 0 otherwise)

Chi² Test

The following Chi²-test tests the null-hypothesis that whether or not a participant decides to donate anything to retire emission rights (extensive margin) is independent of the treatments.

```
table(df$Donated, df$treatment)
```

```
##
##              Control RecNos DefNos RecNap DefNap RecPol DefPol RecPar
## Not donated      13     11    16     10     9      7      5      8
## Donated          18     20    18     23     24     25     24     22
##
##              DefPar RecKno DefKno
## Not donated      8     10     12
## Donated          26     23     22
```

```
chisq.test(table(df$Donated, df$treatment))
```

```
##
## Pearson's Chi-squared test
##
## data:  table(df$Donated, df$treatment)
## X-squared = 11.645, df = 10, p-value = 0.3095
```

We fail to reject the null ($p = .05$).

3. Variable: Beliefs about other participants donations

Kruskal-Wallis Test

The following KW-test tests the null-hypothesis that the median beliefs about other participants average donations in each treatment are the same. The test assumes variance homogeneity and equal distributions of donations in each treatment. It basically tests whether the distributions from the different treatments are shifted.


```
kruskal.test(df$belief ~ df$treatment)
```

```
##  
## Kruskal-Wallis rank sum test  
##  
## data: df$belief by df$treatment  
## Kruskal-Wallis chi-squared = 14.128, df = 10, p-value = 0.1672
```

We do not reject the null. The beliefs about other participants donation amounts do not differ significantly between the treatments.

Test of hypotheses from the working paper

H0a

Mean and median payments to retire carbon licenses in the control condition are close to zero.

H_0 : Average Donations = 0 H_A : Average Donations $> < 0$

```
t.test(df$Donation, mu = 0)
```

```
##  
## One Sample t-test  
##  
## data: df$Donation  
## t = 17.564, df = 353, p-value < 2.2e-16  
## alternative hypothesis: true mean is not equal to 0  
## 95 percent confidence interval:  
## 1.280368 1.603248  
## sample estimates:  
## mean of x  
## 1.441808
```

```
wilcox.test(df$Donation, mu = 0)
```

```
##  
## Wilcoxon signed rank test with continuity correction  
##  
## data: df$Donation  
## V = 30135, p-value < 2.2e-16  
## alternative hypothesis: true location is not equal to 0
```

We reject the null that Donations are equal to 0

H0b

The share of subjects whose payments correspond to the recommended, respectively defaulted payment-value (convergence) is higher than in the control condition. Additionally, we expect that the share of subjects converging to the default is higher than the share converging to the recommendation.

Aggregated donations in recommendation treatments > donations in control group

```
describeBy(df$Donation, df$RecvsC)
```

```
## group: Control
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 31 1.13 1.15      1    1.02 1.48   0  4    4 0.42   -0.94 0.21
## -----
## group: Rec
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 159  1.4 1.42      1    1.2 1.48   0  7    7 1.24    1.89 0.11
```

```
t.test(df$Donation ~ df$RecvsC)
```

```
##
## Welch Two Sample t-test
##
## data: df$Donation by df$RecvsC
## t = -1.1398, df = 49.594, p-value = 0.2598
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.7413806  0.2046388
## sample estimates:
## mean in group Control      mean in group Rec
##           1.132258           1.400629
```

```
wilcox.test(df$Donation ~ df$RecvsC)
```

```
##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$RecvsC
## W = 2244, p-value = 0.4199
## alternative hypothesis: true location shift is not equal to 0
```

We cannot reject the null that Donations in recommendation treatments are equal to donations in control condition.

Aggregated donations in default treatments > donations in control group

```
describeBy(df$Donation, df$DefvsC)
```

```
## group: Control
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 31 1.13 1.15      1    1.02 1.48   0  4    4 0.42   -0.94 0.21
## -----
## group: Def
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 164 1.54 1.71      1    1.23 1.48   0  7    7 1.38    1.56 0.13
```

```
t.test(df$Donation ~ df$DefvsC)
```

```
##
## Welch Two Sample t-test
##
## data: df$Donation by df$DefvsC
## t = -1.6562, df = 58.519, p-value = 0.103
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.90097966 0.08500798
## sample estimates:
## mean in group Control      mean in group Def
##           1.132258           1.540244
```

```
wilcox.test(df$Donation ~ df$DefvsC)
```

```
##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$DefvsC
## W = 2289.5, p-value = 0.3698
## alternative hypothesis: true location shift is not equal to 0
```

We cannot reject the null that Donations in default treatments are equal to donations in control condition.

Aggregated donations in default treatments > donations in recommendation treatments

```
describeBy(df$Donation, df$RecvsDef)
```

```
## group: Rec
##   vars   n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1     1 159  1.4 1.42      1      1.2 1.48   0   7     7 1.24     1.89 0.11
## -----
## group: Def
##   vars   n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1     1 164  1.54 1.71      1      1.23 1.48   0   7     7 1.38     1.56 0.13
## -----
## group: Control
##   vars   n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1     1  31  1.13 1.15      1      1.02 1.48   0   4     4 0.42     -0.94 0.21
```

```
t.test(df$Donation[df$RecvsDef != "Control"] ~ df$RecvsDef[df$RecvsDef != "Control"])
```

```
##
## Welch Two Sample t-test
##
## data: df$Donation[df$RecvsDef != "Control"] by df$RecvsDef[df$RecvsDef != "Control"]
## t = -0.79821, df = 313.39, p-value = 0.4254
## alternative hypothesis: true difference in means is not equal to 0
```

```
## 95 percent confidence interval:
## -0.4837626 0.2045326
## sample estimates:
## mean in group Rec mean in group Def
##      1.400629      1.540244
```

```
# the above is the syntax alternative to Dummies, finally...
wilcox.test(df$Donation ~ df$RecvsDefD)
```

```
##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$RecvsDefD
## W = 12914, p-value = 0.8804
## alternative hypothesis: true location shift is not equal to 0
```

We cannot reject the null that Donations in default treatments are equal to donations in recommendation treatments.

H0c

The share of subjects converging to the recommended, respectively defaulted payment-values in the name and picture condition is higher than in the neutral source-condition.

For Recommendations: Donations in Name and Picture treatments > Donations in No-Source treatments

```
describeBy(df$Donation, df$RecNapvsRecNos)
```

```
## group: RecNap
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 33 1.32 1.31      1    1.15 1.48   0  5    5 0.83    0.13 0.23
## -----
## group: RecNos
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 31 1.24 1.39      1    0.99 1.48   0  5    5 1.14    0.52 0.25
```

```
t.test(df$Donation ~ df$RecNapvsRecNos)
```

```
##
## Welch Two Sample t-test
##
## data: df$Donation by df$RecNapvsRecNos
## t = 0.25345, df = 61.007, p-value = 0.8008
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.5906449 0.7621014
## sample estimates:
## mean in group RecNap mean in group RecNos
##      1.321212      1.235484
```

```
wilcox.test(df$Donation ~ df$RecNapvsRecNos)
```

```
## Warning in wilcox.test.default(x = c(2, 0.5, 0, 2, 1, 2, 3.5, 2, 3, 0,
## 0.5, : cannot compute exact p-value with ties
```

```
##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$RecNapvsRecNos
## W = 546, p-value = 0.6373
## alternative hypothesis: true location shift is not equal to 0
```

We cannot reject the null that Donations in recommendation treatments informing about the name and picture of the source are equal to donations in recommendation treatments providing no information about the source of the recommendation.

For Defaults: Donations in Name and Picture treatments > Donations in No-Source treatments

```
describeBy(df$Donation, df$DefNapvsDefNos)
```

```
## group: DefNap
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 33 1.38 1.13 1.5 1.29 1.19 0 4 4 0.27 -0.88 0.2
## -----
## group: DefNos
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 34 1.42 2.08 0.5 1.05 0.74 0 7 7 1.46 0.93 0.36
```

```
t.test(df$Donation ~ df$DefNapvsDefNos)
```

```
##
## Welch Two Sample t-test
##
## data: df$Donation by df$DefNapvsDefNos
## t = -0.11715, df = 51.157, p-value = 0.9072
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.8663619 0.7708183
## sample estimates:
## mean in group DefNap mean in group DefNos
## 1.375758 1.423529
```

```
wilcox.test(df$Donation ~ df$DefNapvsDefNos)
```

```
## Warning in wilcox.test.default(x = c(2, 0.7, 2, 3.5, 1, 0.5, 2, 0, 3, 0, :
## cannot compute exact p-value with ties
```

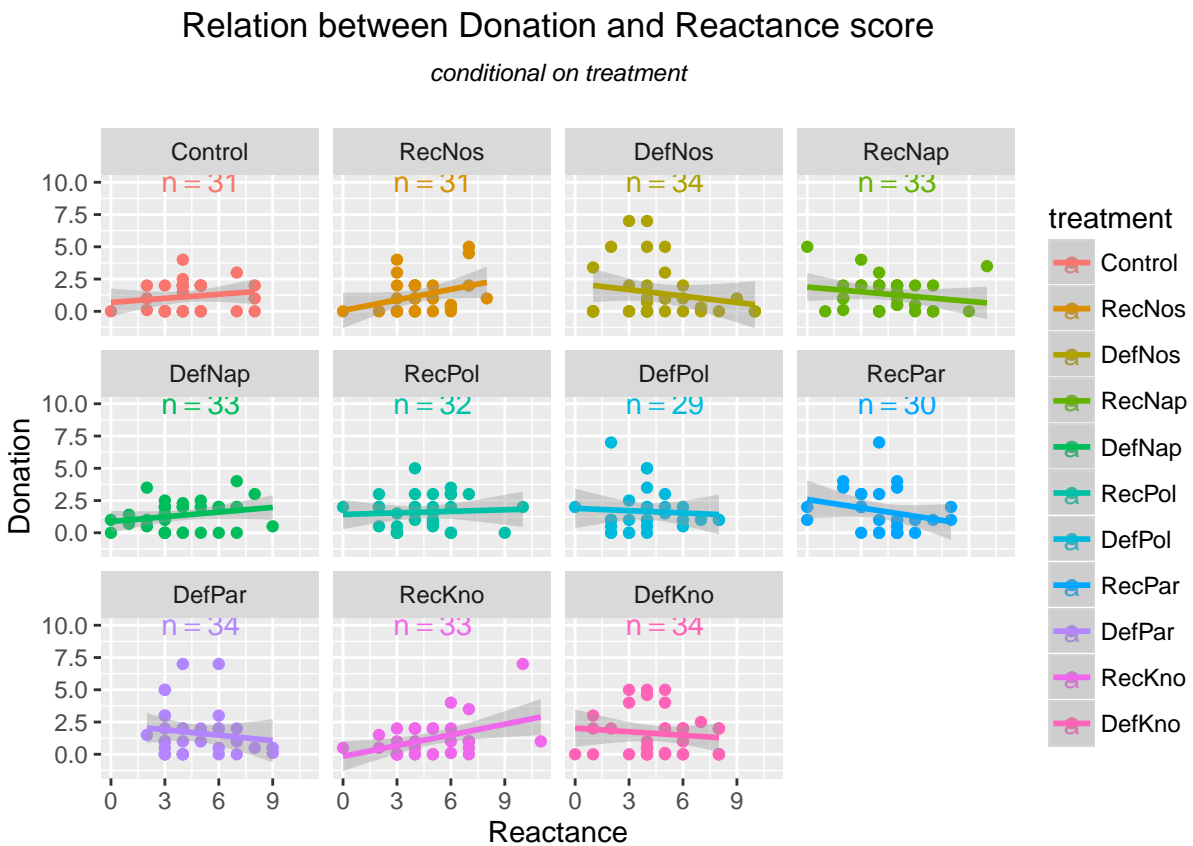
```
##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$DefNapvsDefNos
## W = 656, p-value = 0.2211
## alternative hypothesis: true location shift is not equal to 0
```

We cannot reject the null that Donations in default treatments informing about the name and picture of the source are equal to donations in default treatments providing no information about the source of the default.

H1

A subject's reaction towards the respective intervention ~~depends on~~ is predicted by trait reactance.

The following are not rigorous tests of the respective hypotheses, but rather approaches to get an idea about relationships and predictions.

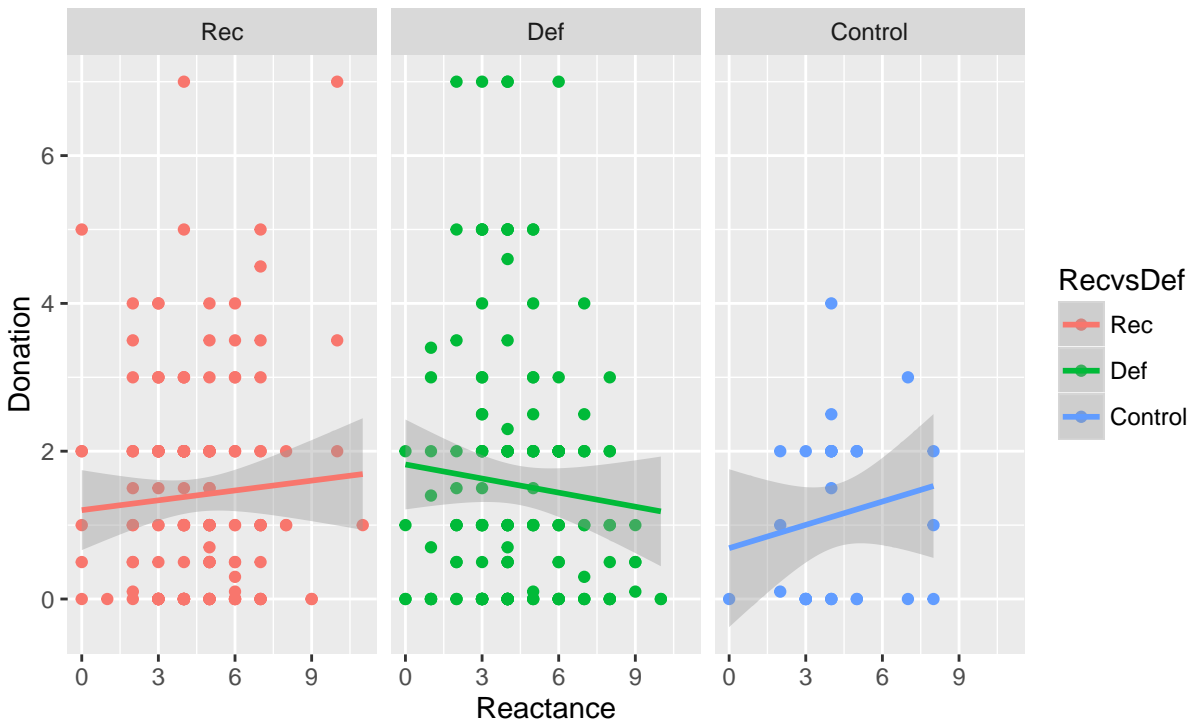


H1a

A subject that scores high on trait reactance is less likely to converge to the recommended and defaulted payment-values, than a subject scoring low on trait reactance. The following treats the Reactance score as metric.

Relation between Donation and Reactance score

resp. for Rec and Def treatment groups

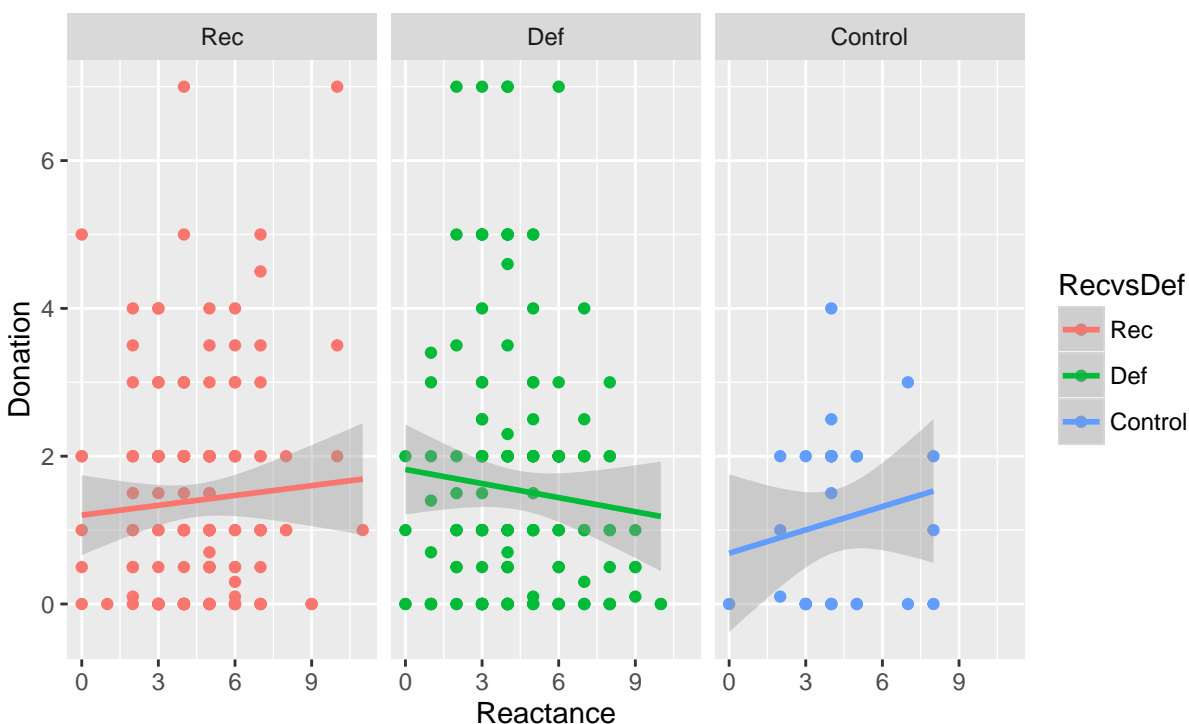


H1b

A subject that scores high on trait reactance is less likely to converge to the defaulted than to the recommended payment-value.

Relation between Donation and Reactance score

resp. for Rec and Def treatment groups



Left is recommendation group, middle is default group, right is Control.

H2

The share of subjects converging to the recommended, respectively defaulted payment-values in the condition informing about the academic degree of the source is higher than in the name and picture condition.

For Recommendations: Donations in Knowledge treatments > Donations in Name and Picture treatments

```
describeBy(df$Donation, df$RecNapvsRecKno)
```

```
## group: RecNap
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 33 1.32 1.31 1 1.15 1.48 0 5 5 0.83 0.13 0.23
## -----
## group: RecKno
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 33 1.18 1.47 1 0.91 1.48 0 7 7 2.06 5.17 0.26
```

```
t.test(df$Donation ~ df$RecNapvsRecKno)
```

```
##
```



```
## Welch Two Sample t-test
##
## data: df$Donation by df$RecNapvsRecKno
## t = 0.3982, df = 63.131, p-value = 0.6918
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.5479357 0.8206629
## sample estimates:
## mean in group RecNap mean in group RecKno
## 1.321212 1.184848
```

```
wilcox.test(df$Donation ~ df$RecNapvsRecKno)
```

```
## Warning in wilcox.test.default(x = c(2, 0.5, 0, 2, 1, 2, 3.5, 2, 3, 0,
## 0.5, : cannot compute exact p-value with ties
```

```
##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$RecNapvsRecKno
## W = 593, p-value = 0.5271
## alternative hypothesis: true location shift is not equal to 0
```

For Defaults: Donations in Knowledge treatments > Donations in Name and Picture treatments

```
describeBy(df$Donation, df$DefNapvsDefKno)
```

```
## group: DefNap
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 33 1.38 1.13 1.5 1.29 1.19 0 4 4 0.27 -0.88 0.2
## -----
## group: DefKno
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 34 1.59 1.7 1.5 1.4 2.22 0 5 5 0.73 -0.74 0.29
```

```
t.test(df$Donation ~ df$DefNapvsDefKno)
```

```
##
## Welch Two Sample t-test
##
## data: df$Donation by df$DefNapvsDefKno
## t = -0.62073, df = 57.523, p-value = 0.5372
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.9226528 0.4859326
## sample estimates:
## mean in group DefNap mean in group DefKno
## 1.375758 1.594118
```

```
wilcox.test(df$Donation ~ df$DefNapvsDefKno)
```

```
## Warning in wilcox.test.default(x = c(2, 0.7, 2, 3.5, 1, 0.5, 2, 0, 3, 0, :
## cannot compute exact p-value with ties

##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$DefNapvsDefKno
## W = 557.5, p-value = 0.9691
## alternative hypothesis: true location shift is not equal to 0
```

H3-1

The share of subjects converging to the recommended, respectively defaulted payment-values in the condition informing about the political characteristic of the source is lower than in the name and picture condition.

For Recommendations: Donations in Political treatments < Donations in Name and Picture treatments

```
describeBy(df$Donation, df$RecNapvsRecPol)
```

```
## group: RecNap
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 33 1.32 1.31      1    1.15 1.48   0  5    5 0.83    0.13 0.23
## -----
## group: RecPol
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 32 1.6 1.29   1.75    1.53 1.85   0  5    5 0.43   -0.48 0.23
```

```
t.test(df$Donation ~ df$RecNapvsRecPol)
```

```
##
## Welch Two Sample t-test
##
## data: df$Donation by df$RecNapvsRecPol
## t = -0.86661, df = 62.985, p-value = 0.3894
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.9216563 0.3640806
## sample estimates:
## mean in group RecNap mean in group RecPol
##           1.321212           1.600000
```

```
wilcox.test(df$Donation ~ df$RecNapvsRecPol)
```

```
## Warning in wilcox.test.default(x = c(2, 0.5, 0, 2, 1, 2, 3.5, 2, 3, 0,
## 0.5, : cannot compute exact p-value with ties
```

```
##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$RecNapvsRecPol
## W = 458, p-value = 0.3506
## alternative hypothesis: true location shift is not equal to 0
```

We cannot reject the null that Donations in recommendation treatments informing about the political mandate of the source are equal to donations in recommendations treatments providing the name and picture of the source.

For Defaults: Donations in Political treatments < Donations in Name and Picture treatments

```
describeBy(df$Donation, df$DefNapvsDefPol)
```

```
## group: DefNap
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 33 1.38 1.13 1.5 1.29 1.19 0 4 4 0.27 -0.88 0.2
## -----
## group: DefPol
## vars n mean sd median trimmed mad min max range skew kurtosis se
## 1 1 29 1.66 1.68 1 1.44 1.48 0 7 7 1.51 1.87 0.31
```

```
t.test(df$Donation ~ df$DefNapvsDefPol)
```

```
##
## Welch Two Sample t-test
##
## data: df$Donation by df$DefNapvsDefPol
## t = -0.75775, df = 48.01, p-value = 0.4523
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -1.0208211 0.4619914
## sample estimates:
## mean in group DefNap mean in group DefPol
## 1.375758 1.655172
```

```
wilcox.test(df$Donation ~ df$DefNapvsDefPol)
```

```
## Warning in wilcox.test.default(x = c(2, 0.7, 2, 3.5, 1, 0.5, 2, 0, 3, 0, :
## cannot compute exact p-value with ties
```

```
##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$DefNapvsDefPol
## W = 466.5, p-value = 0.8689
## alternative hypothesis: true location shift is not equal to 0
```

We cannot reject the null that donations in default treatments informing about the political mandate of the source are equal to donations in default treatments providing the name and picture of the source.

H3-2

When the source is political the share of subjects converging to the default is lower than the share of subjects converging to the recommendation.

Donations in default treatments informing about the political characteristics of the source < donations in recommendation treatments informing about the political characteristics of the source

```
describeBy(df$Donation, df$RecPolvsDefPol)
```

```
## group: RecPol
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1     1 32  1.6 1.29   1.75   1.53 1.85   0  5     5 0.43   -0.48 0.23
## -----
## group: DefPol
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1     1 29 1.66 1.68     1   1.44 1.48   0  7     7 1.51    1.87 0.31
```

```
t.test(df$Donation ~ df$RecPolvsDefPol)
```

```
##
## Welch Two Sample t-test
##
## data: df$Donation by df$RecPolvsDefPol
## t = -0.14289, df = 52.32, p-value = 0.8869
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.8298648 0.7195200
## sample estimates:
## mean in group RecPol mean in group DefPol
##           1.600000           1.655172
```

```
wilcox.test(df$Donation ~ df$RecPolvsDefPol)
```

```
## Warning in wilcox.test.default(x = c(3, 1, 0.5, 3.5, 0, 0, 0.5, 0, 2, 1, :
## cannot compute exact p-value with ties
```

```
##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$RecPolvsDefPol
## W = 486, p-value = 0.7531
## alternative hypothesis: true location shift is not equal to 0
```

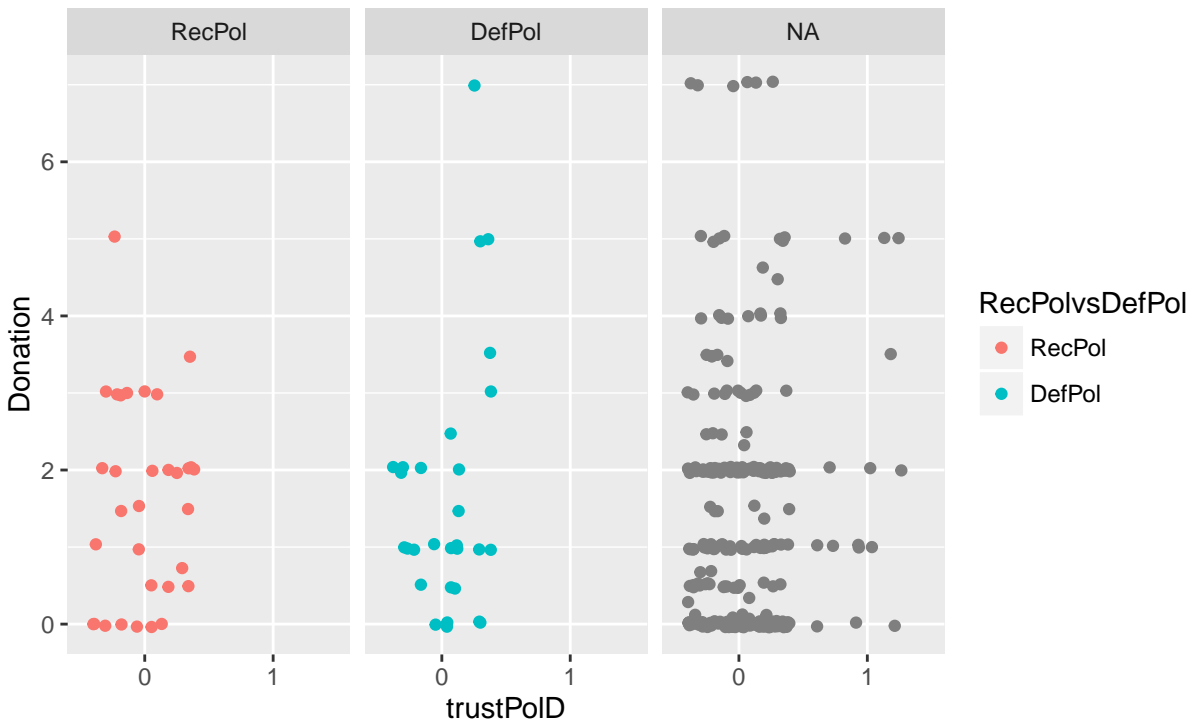
We cannot reject the null that donations in default treatments informing about the political characteristics of the source are equal to donations in recommendation treatments informing about the political characteristics of the source.

H3a (HERE ALSO INCLUDE PARTY TREATMENTS, NOT JUST POLITICAL?)

A subject that scores high on trust in politics is more likely to converge to the recommended and defaulted payment-values, than a subject scoring low on trust in politics. *In treatments informing about the political characteristics of the source.*

Relationship between trust in politics dummy and Donation

resp. for RecPol and DefPol treatment groups



```
##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$trustPolD
## W = 2104, p-value = 0.2474
## alternative hypothesis: true location shift is not equal to 0
```

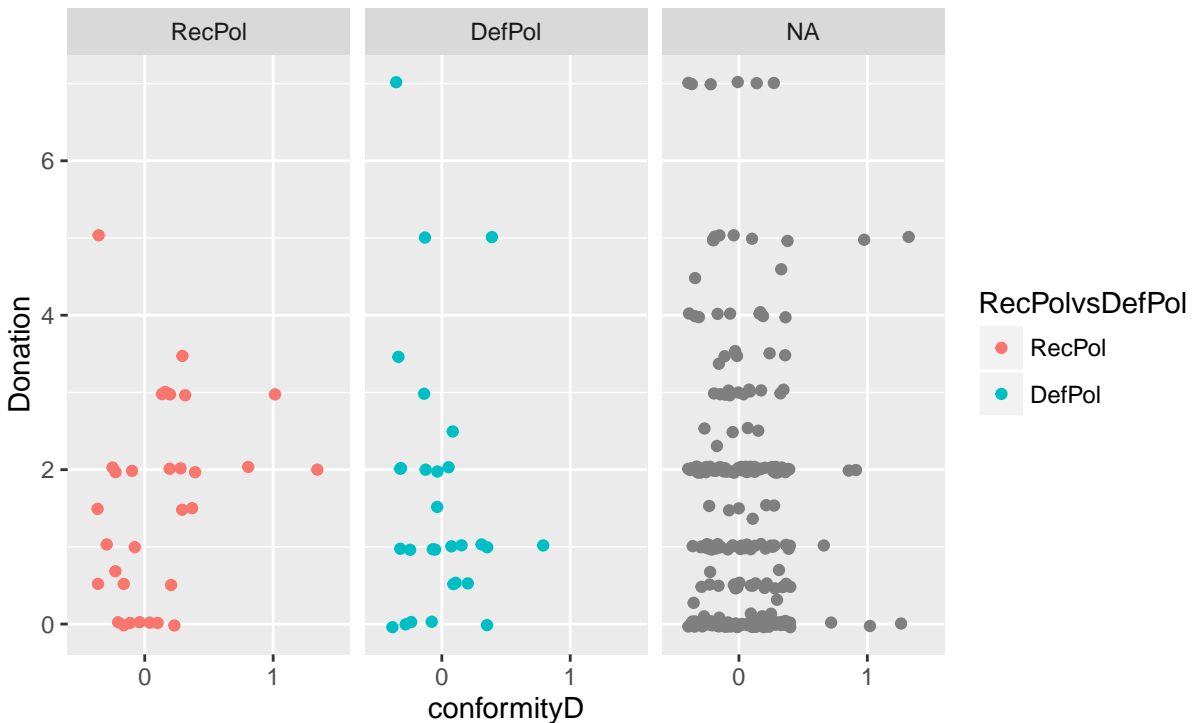
Problem is that there are not enough observations with high trust in politics (no observation in Default x Political treatment).

H3b

A subject that values conformity, i.e. doing what the majority does, is more likely to converge to the recommended and defaulted payment-values, than a subject that does not value conformity.

Relationship between conformity dummy and Donation

resp. for RecPol and DefPol treatment groups



```
##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$conformityD
## W = 1696, p-value = 0.2961
## alternative hypothesis: true location shift is not equal to 0
```

Problem is that there are not enough observations with high trust in politics.

H4

The share of subjects converging to the recommended, respectively defaulted payment-values, relative to the political-characteristic condition, is higher for subjects with same party preferences, and lower for subjects with different party preferences. **Hypothesis is possibly phrased wrongly.**

```
table(df$party)
```

```
##
##           AfD           Andere      Bündnis90/Grüne
##           9            21            71
##           CDU/CSU      Die Linke            FDP
##           58            65            11
## Keine (Nichtwähler) Keine Angabe      SPD
##           44            7            68
```

```
table(df$party, df$treatment)
```

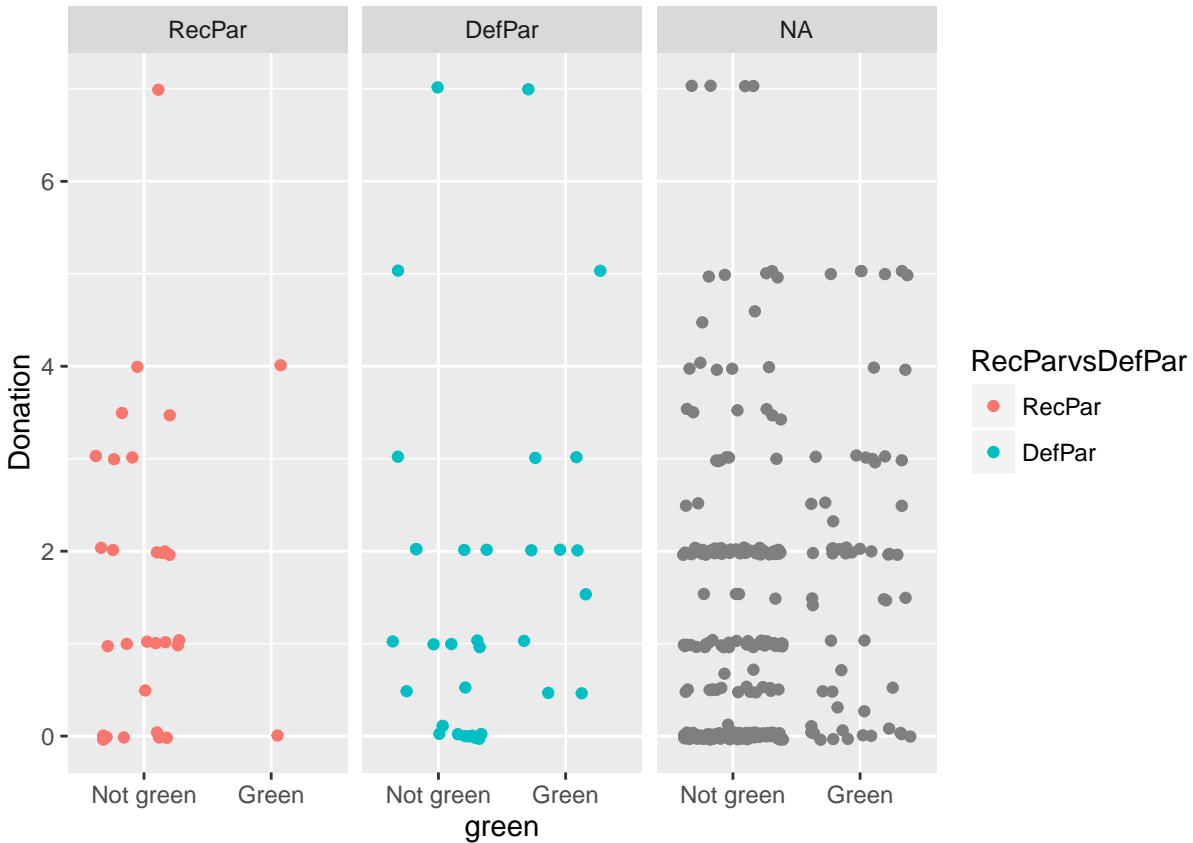
```
##
##               Control RecNos DefNos RecNap DefNap RecPol DefPol
## AfD                2     1     0     2     0     0     1
## Andere              2     3     1     3     1     1     1
## Bündnis90/Grüne     6     6     7     8     7     7     5
## CDU/CSU              5     7     4     2     5     4     5
## Die Linke            7     4     6     5     8     8     5
## FDP                  0     1     2     1     1     0     0
## Keine (Nichtwähler)  5     5     6     3     2     2     3
## Keine Angabe         1     0     3     0     0     0     2
## SPD                  3     4     5     9     9    10     7
##
##               RecPar DefPar RecKno DefKno
## AfD                0     0     1     2
## Andere              2     1     3     3
## Bündnis90/Grüne     2    11     5     7
## CDU/CSU              6     7    10     3
## Die Linke            7     5     6     4
## FDP                  0     0     3     3
## Keine (Nichtwähler)  7     5     3     3
## Keine Angabe         1     0     0     0
## SPD                  5     5     2     9
```

```
chisq.test(table(df$party, df$treatment))
```

```
## Warning in chisq.test(table(df$party, df$treatment)): Chi-squared
## approximation may be incorrect
```

```
##
## Pearson's Chi-squared test
##
## data:  table(df$party, df$treatment)
## X-squared = 82.373, df = 80, p-value = 0.4058
```

```
##
##               Control RecNos DefNos RecNap DefNap RecPol DefPol RecPar
## Not green        25     25     27     25     26     25     24     28
## Green             6      6      7      8      7      7      5      2
##
##               DefPar RecKno DefKno
## Not green        23     28     27
## Green            11      5      7
##
##               RecPar DefPar
## Not green        28     23
## Green             2     11
```



Further Statistics and Tests

Compare observations that believe we cooperated with Julia Verlinden vs. those who don't

Variable: Donation amount

```
## group: Ja
##   vars   n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1     1 153 1.32 1.27     1    1.16 1.48   0  5    5 0.88    0.23 0.1
## -----
## group: Nein
##   vars   n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1     1 109 1.73 1.79    1.5    1.45 1.48   0  7    7 1.3    1.38 0.17

##
## Welch Two Sample t-test
##
## data: df$Donation by df$believe2
## t = -2.0378, df = 182.44, p-value = 0.04301
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.80107778 -0.01294152
## sample estimates:
```



```
## mean in group Ja mean in group Nein
##      1.324183      1.731193

##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$believe2
## W = 7631.5, p-value = 0.2333
## alternative hypothesis: true location shift is not equal to 0
```

*Participants who believe we cooperated with Julia Verlinden have a **lower** mean Donation, and also a **lower** variance. The difference is significant ($p < .1$) judged by the Welch Two Sample t-test, but insignificant judged by the Wilcoxon-Mann-Whitney-U test.*

Variable: Decision to donate

```
##
##           Ja Nein
## Not donated  41  30
##   Donated   112  79
```

```
chisq.test(table(df$Donated, df$believe2))
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data: table(df$Donated, df$believe2)
## X-squared = 5.7642e-31, df = 1, p-value = 1
```

The Chi²-Test is not significant. This implies that the decision whether or not to contribute anything vs. nothing is not dependent on the answer to the question whether the respondent believed that we really cooperated with Julia Verlinden.

Decision to donate for subjects seeing a recommendation vs. subjects seeing a default, irrespective of source

```
table(df$Donated, df$RecvsDef)
```

```
##
##           Rec Def Control
## Not donated  46  50      13
##   Donated   113 114      18
```

```
chisq.test(table(df$Donated, df$RecvsDef))
```

```
##
## Pearson's Chi-squared test
##
## data: table(df$Donated, df$RecvsDef)
## X-squared = 2.072, df = 2, p-value = 0.3549
```

The Chi²-Test is not significant. This implies that the decision whether or not to contribute anything vs. nothing is not dependent on whether the subjects encountered a recommendation or a default value with or without any specific source or information on the source (or nothing at all, as in the control group).

Decision to donate for subjects seeing a recommendation vs. subjects seeing a default, with non-political source-information

```
##
##               Non-political/partisan Rec Non-political/partisan Def
## Not donated                31                37
## Donated                    66                64
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  table(df$Donated, df$RecvsDefNonPolPar)
## X-squared = 0.29465, df = 1, p-value = 0.5873
```

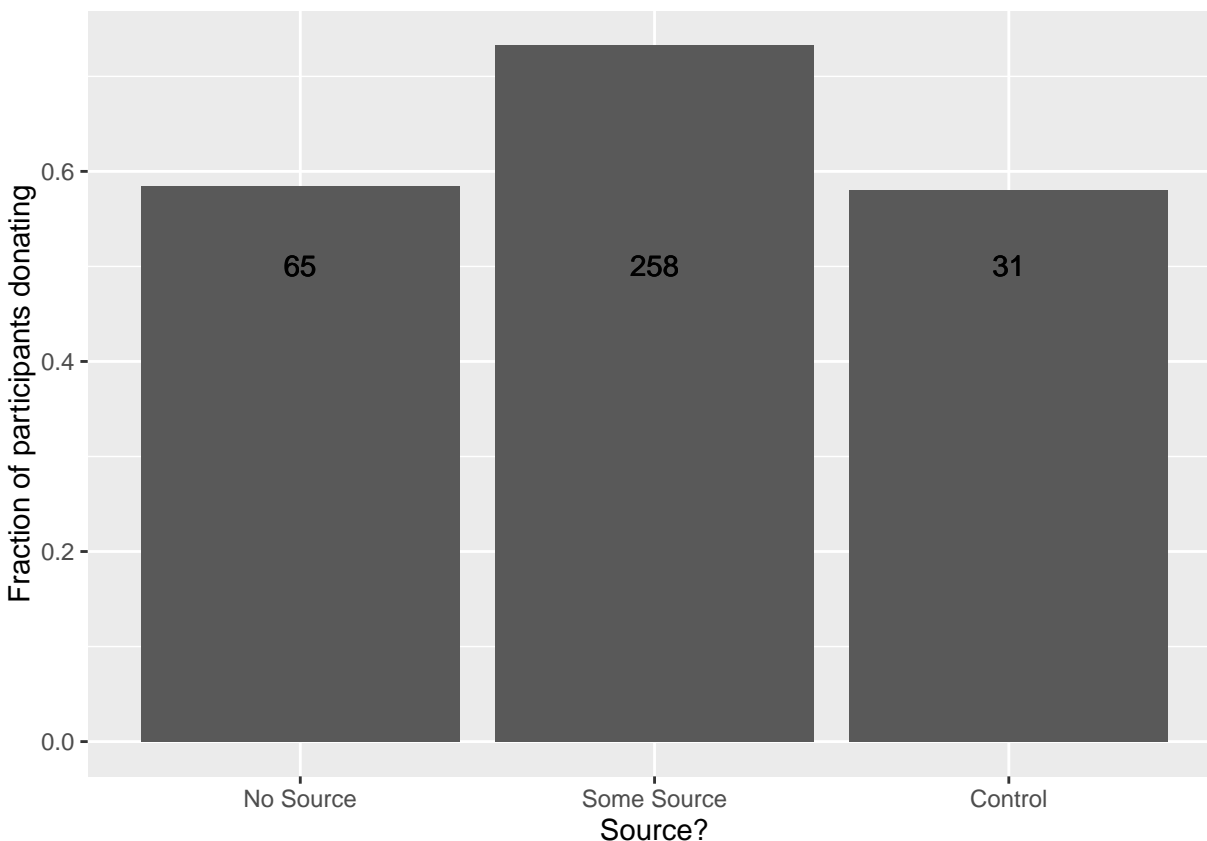
The Chi²-Test is not significant. This implies that the decision whether or not to contribute anything vs. nothing is not dependent on whether the subjects encountered a non-political or non-partisan recommendation or a respective default value.

Decision to donate for subjects seeing an intervention without source-information vs. some source-information

```
##
##               No Source Some Source Control
## Not donated        27         69      13
## Donated            38        189      18
```

```
##
## Pearson's Chi-squared test
##
## data:  table(df$Donated, df$NosvsSome)
## X-squared = 7.3127, df = 2, p-value = 0.02583
```

```
## Warning in Ops.factor(left, right): '/' not meaningful for factors
```



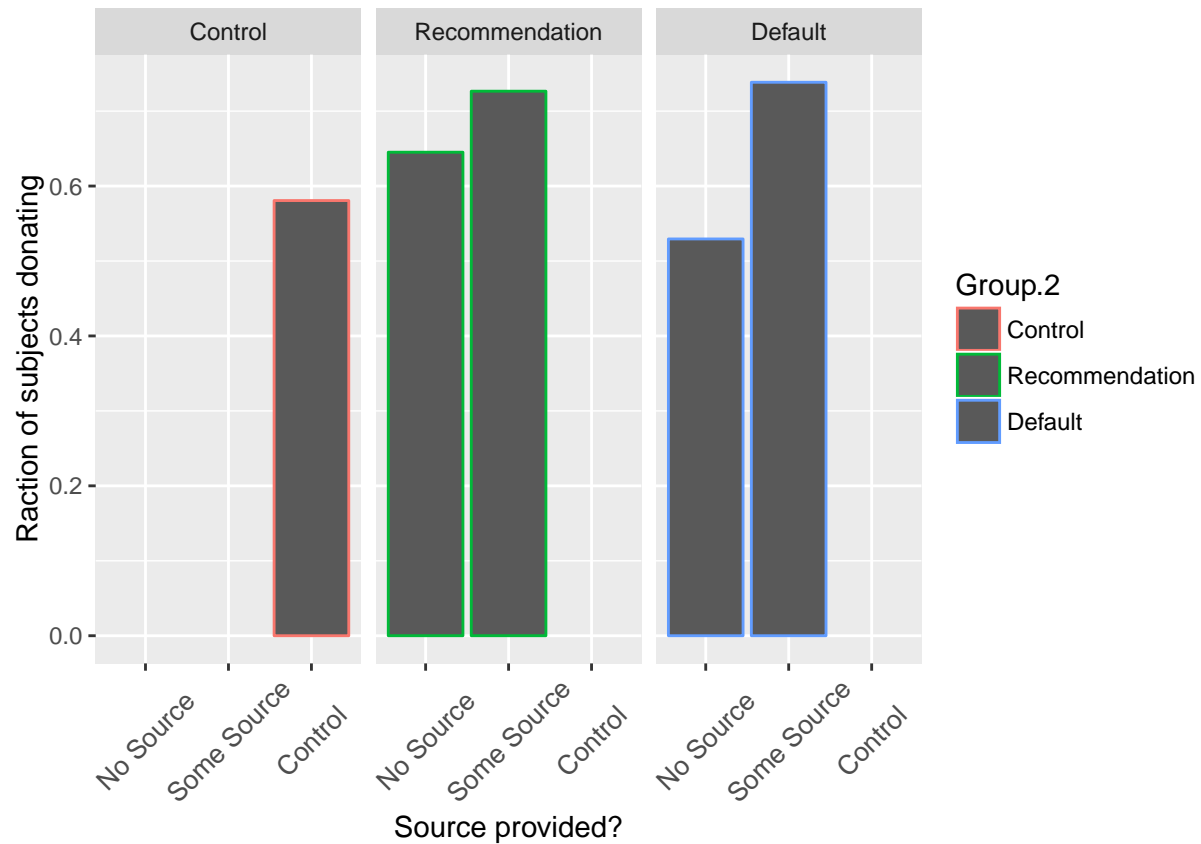
```
##
## Call:
## glm(formula = Donated ~ NosvsSome, family = "binomial", data = df)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.6241  -1.3256   0.7889   0.7889   1.0427
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)      0.34175    0.25170   1.358  0.1745
## NosvsSomeSome Source  0.66589    0.28833   2.309  0.0209 *
## NosvsSomeControl    -0.01633    0.44253  -0.037  0.9706
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##      Null deviance: 437.13  on 353  degrees of freedom
## Residual deviance: 430.04  on 351  degrees of freedom
## AIC: 436.04
##
## Number of Fisher Scoring iterations: 4
```

The χ^2 test is significant ($p < .1$). This implies that the decision whether or not to contribute or not depends on whether or not some source-information vs. no source-information is provided. In the logit regression, the

estimator for the provision of any source-information is also statistically significant.

Further investigation of this effect: Variation by type of intervention?

Don't know how to automatically pick scale for object of type data.frame. Defaulting to continuous.



```
##
## Call:
## glm(formula = Donated ~ Sourcetype * RecvsDefD, family = "binomial",
##      data = df)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.8750  -1.2278   0.7325   0.8497   1.1278
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)      0.5978    0.3754   1.593   0.111
## SourcetypeNameAndPicture 0.2351    0.5333   0.441   0.659
## SourcetypeKnowledgeable 0.2351    0.5333   0.441   0.659
## SourcetypePolitical      0.6751    0.5690   1.187   0.235
## SourcetypePartisan       0.4138    0.5580   0.742   0.458
## RecvsDefDDef            -0.4801    0.5089  -0.943   0.346
## SourcetypeNameAndPicture:RecvsDefDDef 0.6280    0.7451   0.843   0.399
## SourcetypeKnowledgeable:RecvsDefDDef 0.2533    0.7289   0.348   0.728
```

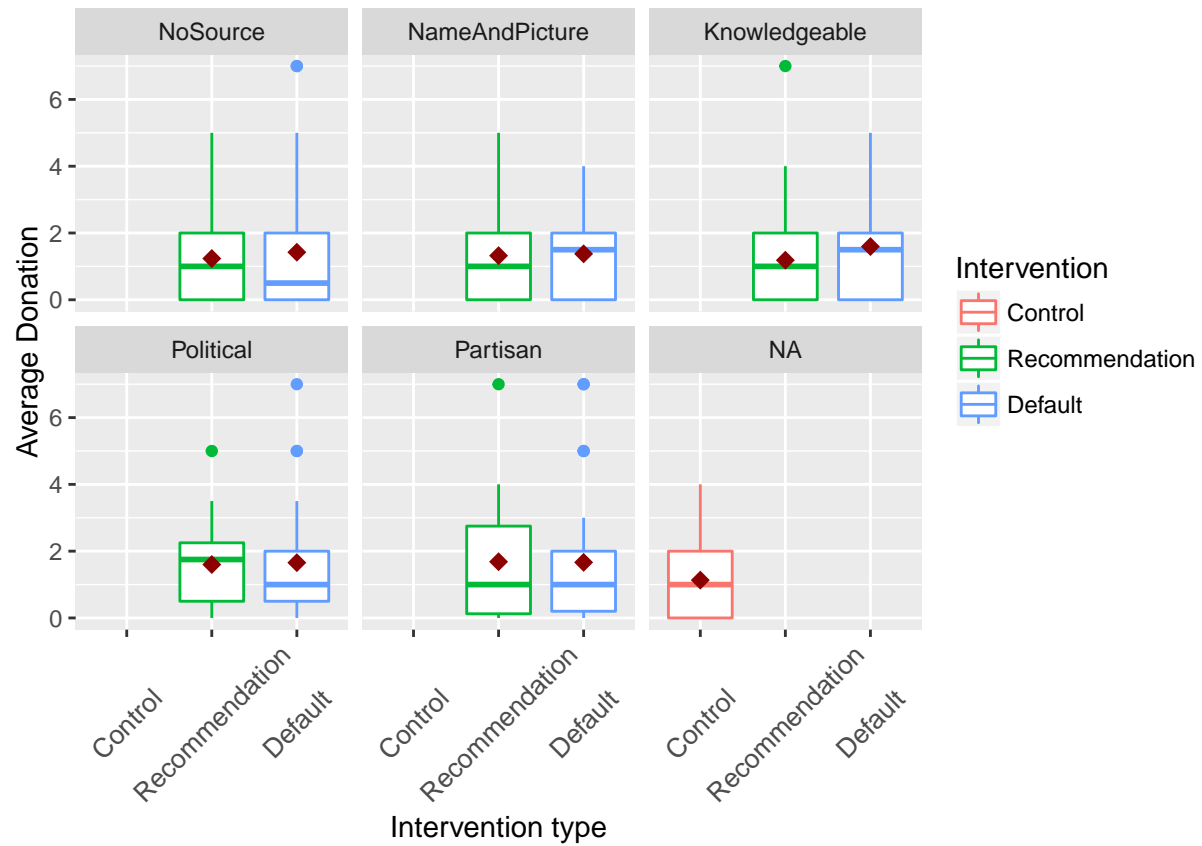
```

## SourcetypePolitical:RecvsDefDDef      0.7757      0.8267      0.938      0.348
## SourcetypePartisan:RecvsDefDDef      0.6471      0.7700      0.840      0.401
##
## (Dispersion parameter for binomial family taken to be 1)
##
##      Null deviance: 393.08  on 322  degrees of freedom
## Residual deviance: 383.31  on 313  degrees of freedom
##      (31 observations deleted due to missingness)
## AIC: 403.31
##
## Number of Fisher Scoring iterations: 4

##
## Call:
## glm(formula = Donated ~ NosvsSomeD * RecvsDefD, family = "binomial",
##      data = df)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.6378  -1.2278   0.7787   0.7993   1.1278
##
## Coefficients:
##                                Estimate Std. Error z value Pr(>|z|)
## (Intercept)                   0.5978     0.3754   1.593    0.111
## NosvsSomeDSome Source         0.3794     0.4245   0.894    0.371
## RecvsDefDDef                 -0.4801     0.5089  -0.943    0.346
## NosvsSomeDSome Source:RecvsDefDDef 0.5408     0.5815   0.930    0.352
##
## (Dispersion parameter for binomial family taken to be 1)
##
##      Null deviance: 393.08  on 322  degrees of freedom
## Residual deviance: 386.93  on 319  degrees of freedom
##      (31 observations deleted due to missingness)
## AIC: 394.93
##
## Number of Fisher Scoring iterations: 4

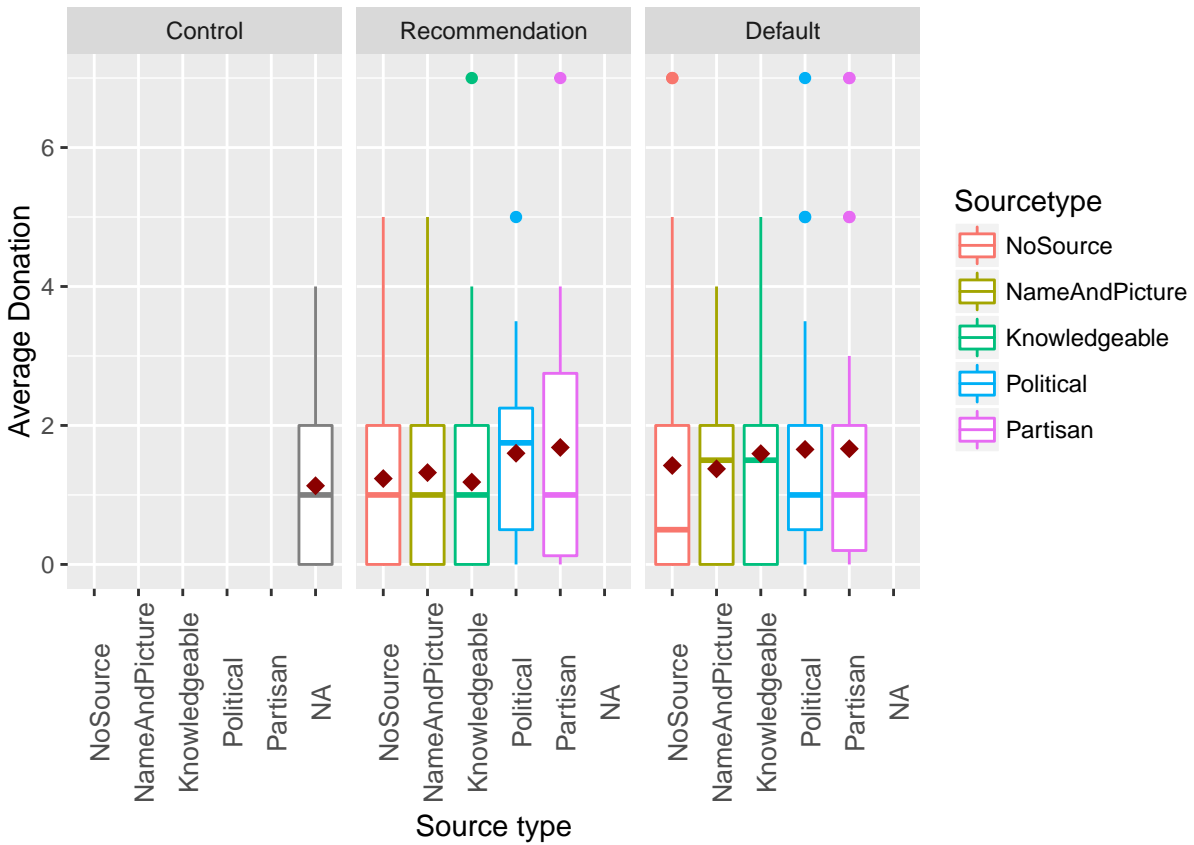
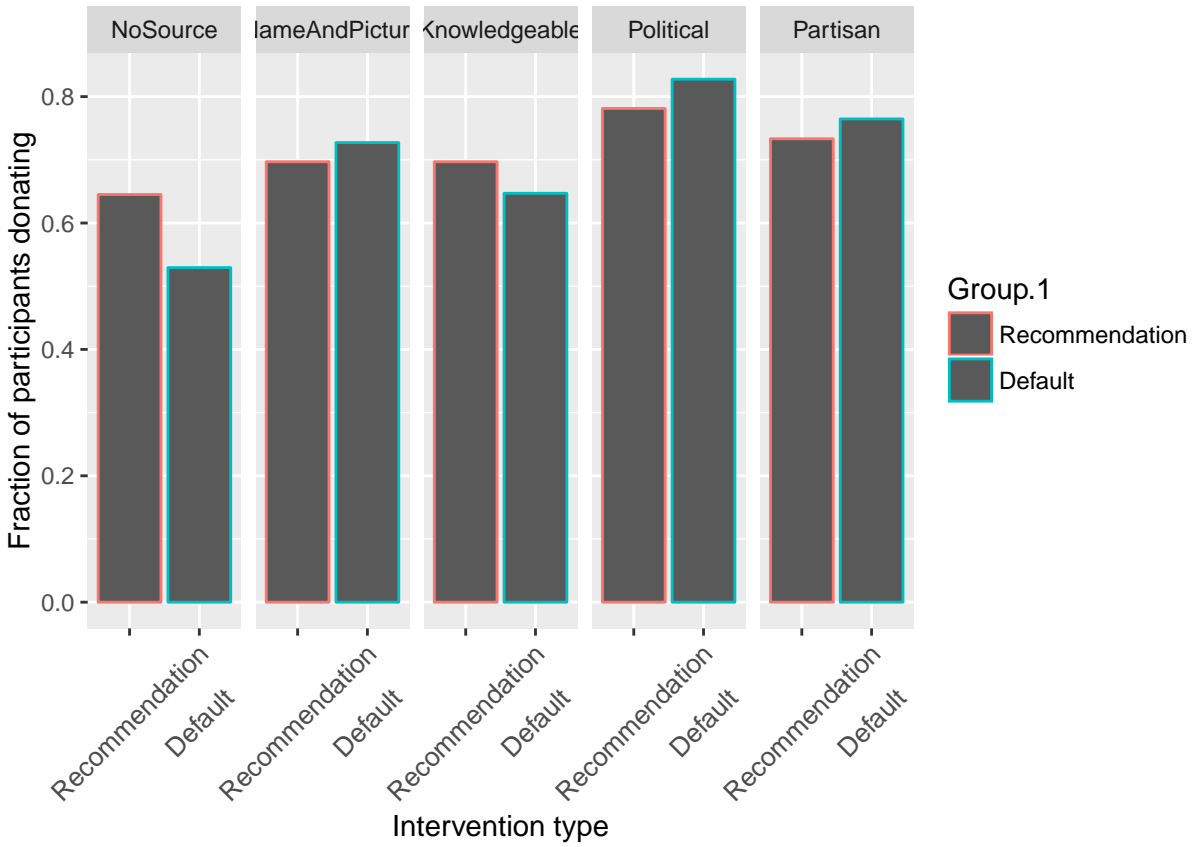
```

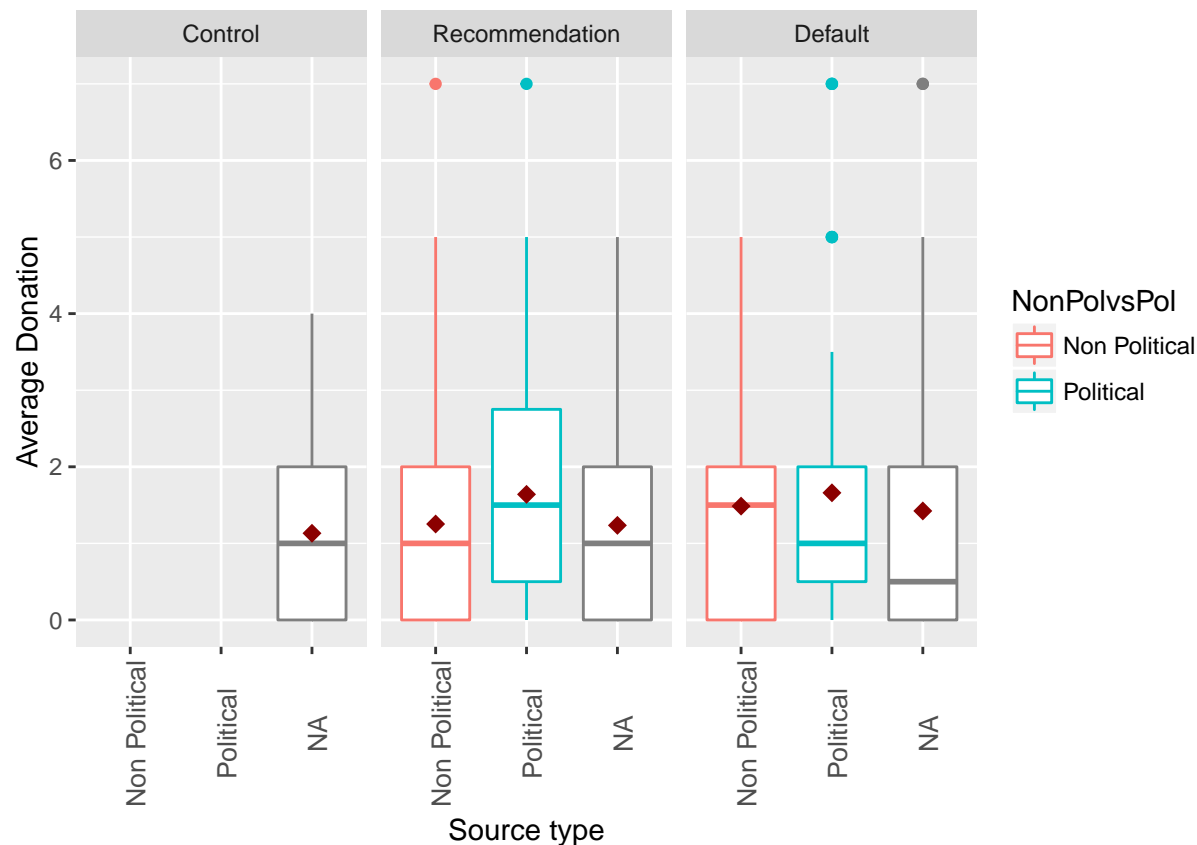
Graphs in order to see potential interactions (CHANGE TO BOXPLOTS)



```
## Warning in Ops.factor(left, right): '/' not meaningful for factors
```

```
## Warning in Ops.factor(left, right): '/' not meaningful for factors
```





```
## group: Non Political
##   vars   n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 133 1.37 1.41      1    1.16 1.48   0  7    7 1.15    1.35 0.12
## -----
## group: Political
##   vars   n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 125 1.65 1.62      1    1.4 1.48   0  7    7 1.36    1.93 0.15

##
## Wilcoxon rank sum test with continuity correction
##
## data:  df$Donation by df$NonPolvsPol
## W = 7533, p-value = 0.1848
## alternative hypothesis: true location shift is not equal to 0

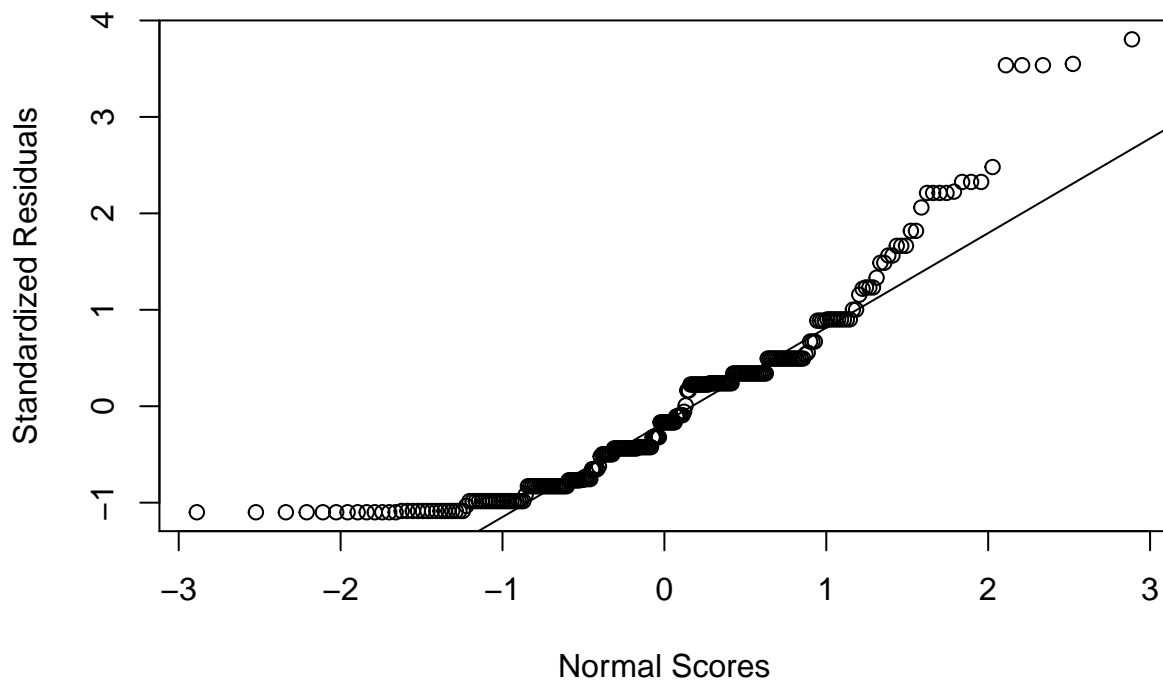
##
## Wilcoxon rank sum test with continuity correction
##
## data:  df$Donation[df$Intervention == "Recommendation"] by df$NonPolvsPol[df$Intervention == "Recommendation"]
## W = 1710.5, p-value = 0.103
## alternative hypothesis: true location shift is not equal to 0

##
## Call:
## lm(formula = Donation ~ NonPolvsPol * Intervention, data = df)
```



```
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.660 -1.253 -0.253  0.747  5.747
##
## Coefficients:
##              Estimate Std. Error t value
## (Intercept)      1.2530     0.1874   6.688
## NonPolvsPolPolitical  0.3873     0.2692   1.439
## InterventionDefault  0.2335     0.2640   0.885
## NonPolvsPolPolitical:InterventionDefault -0.2135     0.3793  -0.563
##              Pr(>|t|)
## (Intercept)      1.43e-10 ***
## NonPolvsPolPolitical  0.151
## InterventionDefault  0.377
## NonPolvsPolPolitical:InterventionDefault  0.574
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.522 on 254 degrees of freedom
## (96 observations deleted due to missingness)
## Multiple R-squared:  0.01154,    Adjusted R-squared:  -0.0001395
## F-statistic: 0.9881 on 3 and 254 DF,  p-value: 0.399
```

Normal Q-Q Plot

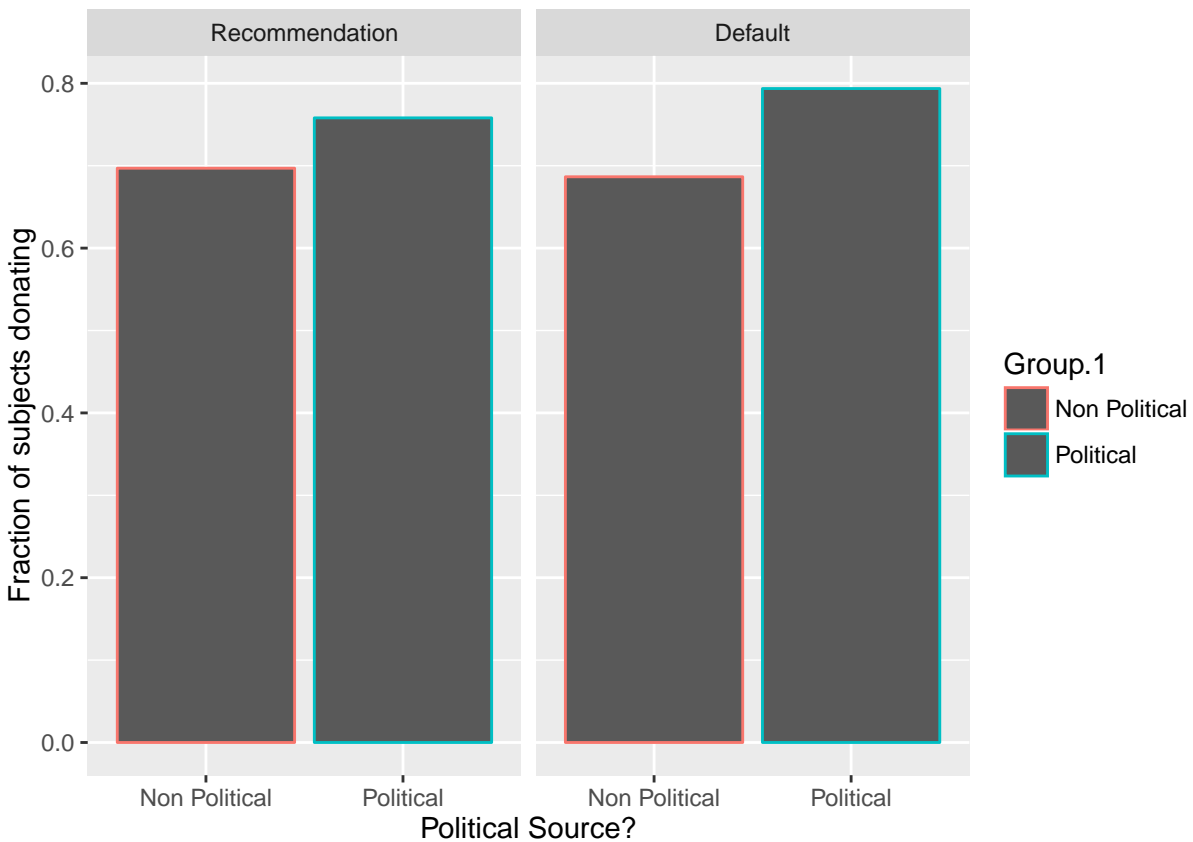


This suggests (visually) that providing information about political/partisan aspects of the source has an impact for average contributions for Recommendations, but not for Defaults. Further investigation with Wilcoxon

Test and linear OLS-regression finds no significant effects.

```
m <- aggregate(df$Donatedm, list(df$NonPolvsPol, df$Intervention), sum)
m$n <- aggregate(df$Donatedm, list(df$NonPolvsPol, df$Intervention), length)[3]
ggplot(data = m, aes(x = Group.1, y = x/n, colour = Group.1)) +
  facet_grid(~Group.2) +
  geom_bar(stat = "identity") +
  xlab("Political Source?") +
  ylab("Fraction of subjects donating")
```

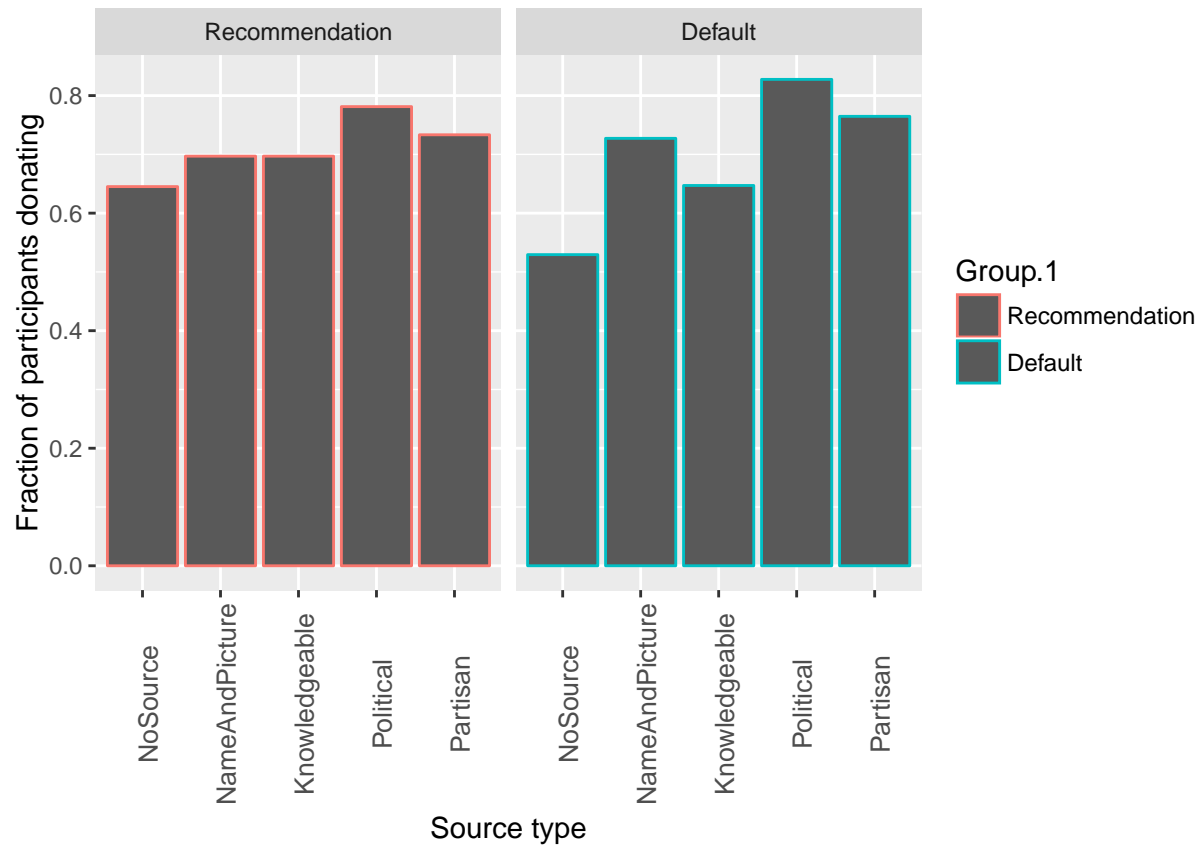
Don't know how to automatically pick scale for object of type data.frame. Defaulting to continuous.



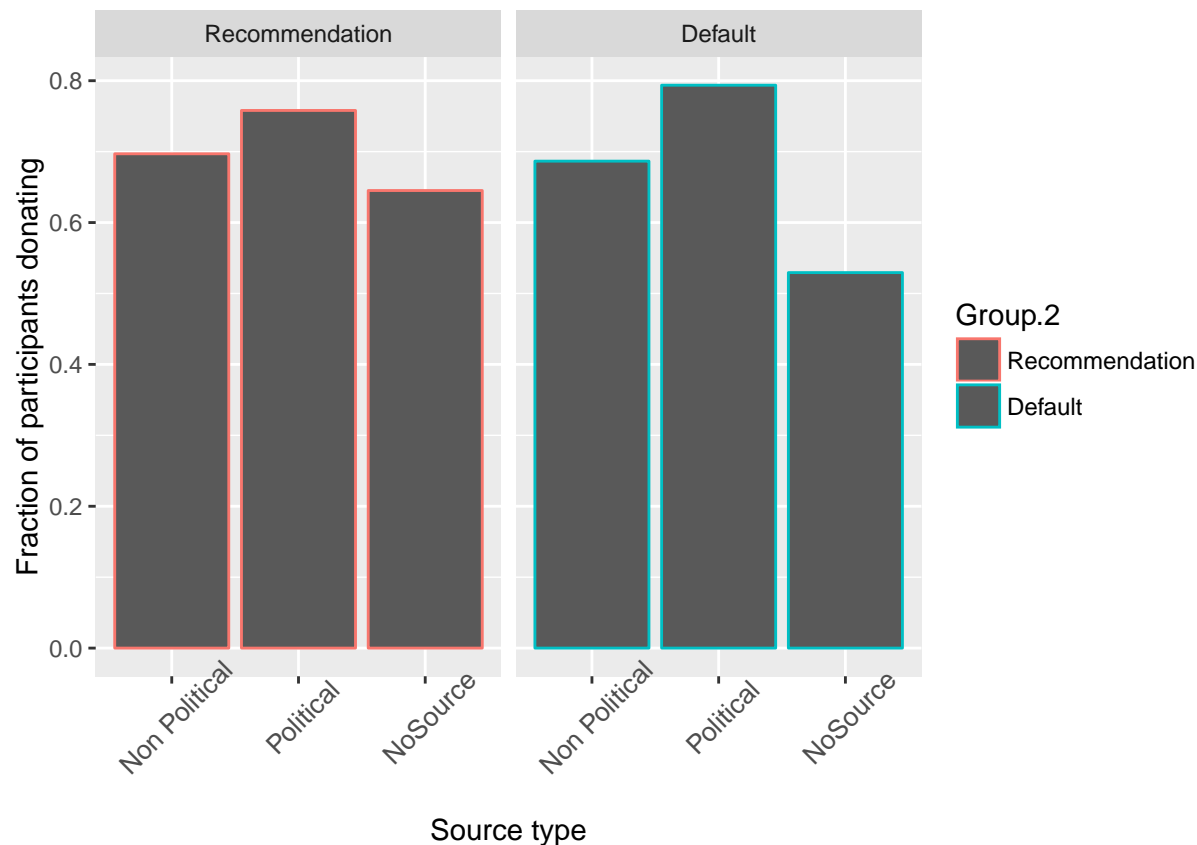
There does not seem to be anything of interest here.

Warning in Ops.factor(left, right): '/' not meaningful for factors

Warning in Ops.factor(left, right): '/' not meaningful for factors

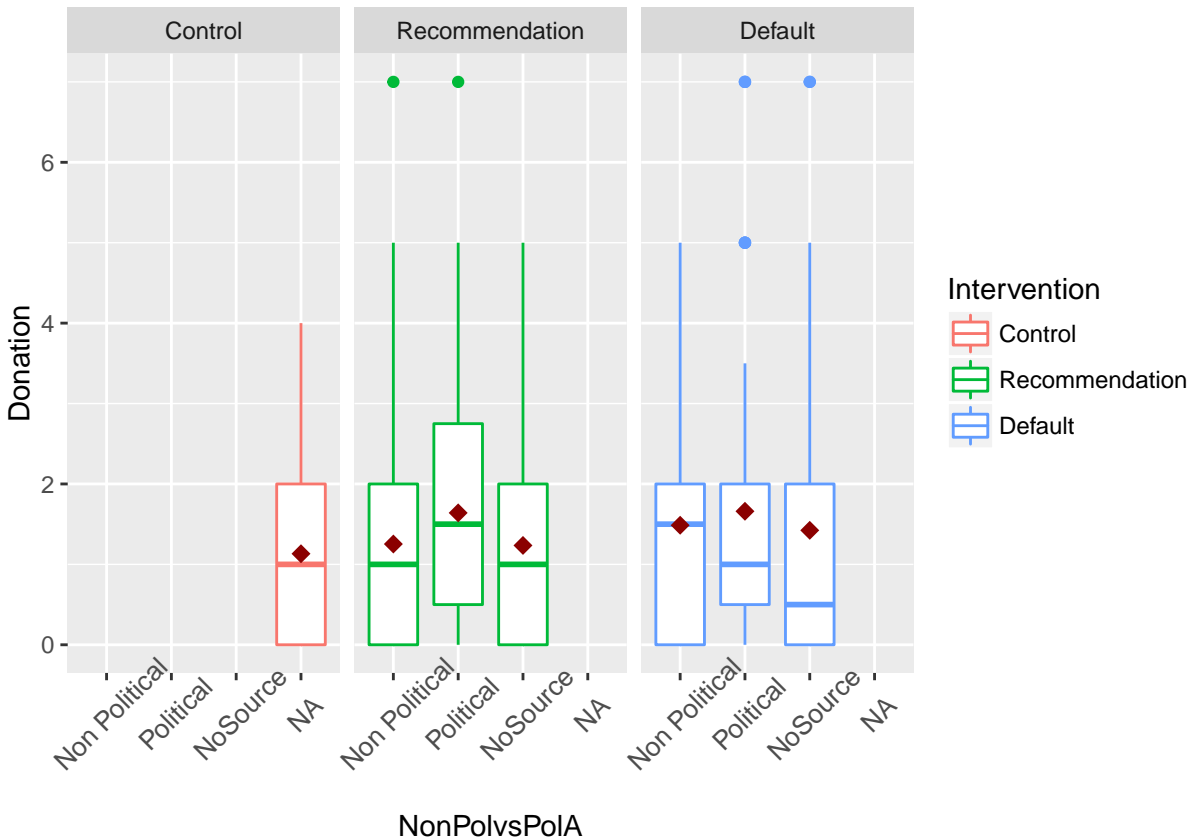


```
## Don't know how to automatically pick scale for object of type data.frame. Defaulting to continuous.
```



```
##
## Call:
## glm(formula = Donated ~ NonPolvsPolA * Intervention, family = "binomial",
##      data = df)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.7766  -1.2278   0.7443   0.8672   1.1278
##
## Coefficients:
##              Estimate Std. Error z value
## (Intercept)      0.83291    0.26784   3.110
## NonPolvsPolAPolitical  0.30919    0.39960   0.774
## NonPolvsPolANoSource -0.23507    0.46114  -0.510
## InterventionDefault -0.04879    0.37563  -0.130
## NonPolvsPolAPolitical:InterventionDefault  0.25377    0.57093   0.444
## NonPolvsPolANoSource:InterventionDefault -0.43126    0.63250  -0.682
##
##              Pr(>|z|)
## (Intercept)      0.00187 **
## NonPolvsPolAPolitical  0.43908
## NonPolvsPolANoSource  0.61022
## InterventionDefault  0.89665
## NonPolvsPolAPolitical:InterventionDefault  0.65670
## NonPolvsPolANoSource:InterventionDefault  0.49534
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##
## (Dispersion parameter for binomial family taken to be 1)
##
## Null deviance: 393.08 on 322 degrees of freedom
## Residual deviance: 384.39 on 317 degrees of freedom
## (31 observations deleted due to missingness)
## AIC: 396.39
##
## Number of Fisher Scoring iterations: 4
```



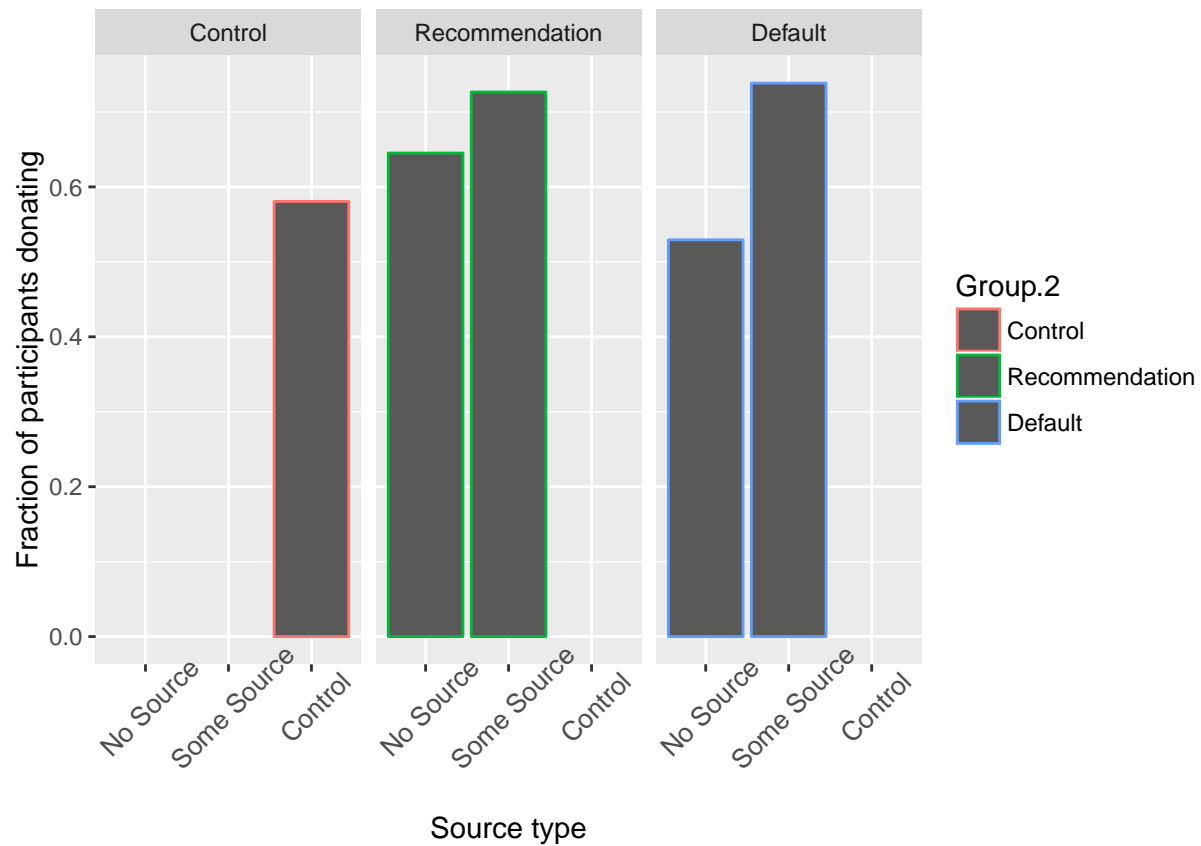
```
##
## Kruskal-Wallis rank sum test
##
## data: df$Donation[df$Intervention == "Recommendation"] by df$NonPolvsPolA[df$Intervention == "Recommendation"]
## Kruskal-Wallis chi-squared = 3.3912, df = 2, p-value = 0.1835

##
## Kruskal-Wallis rank sum test
##
## data: df$Donation[df$Intervention == "Default"] by df$NonPolvsPolA[df$Intervention == "Default"]
## Kruskal-Wallis chi-squared = 2.7509, df = 2, p-value = 0.2527
```

The logistic regression does not produce any significant predictors. Neither do the Kruskal Wallis tests for the respective interventions.

```
## Warning in Ops.factor(left, right): '/' not meaningful for factors
```

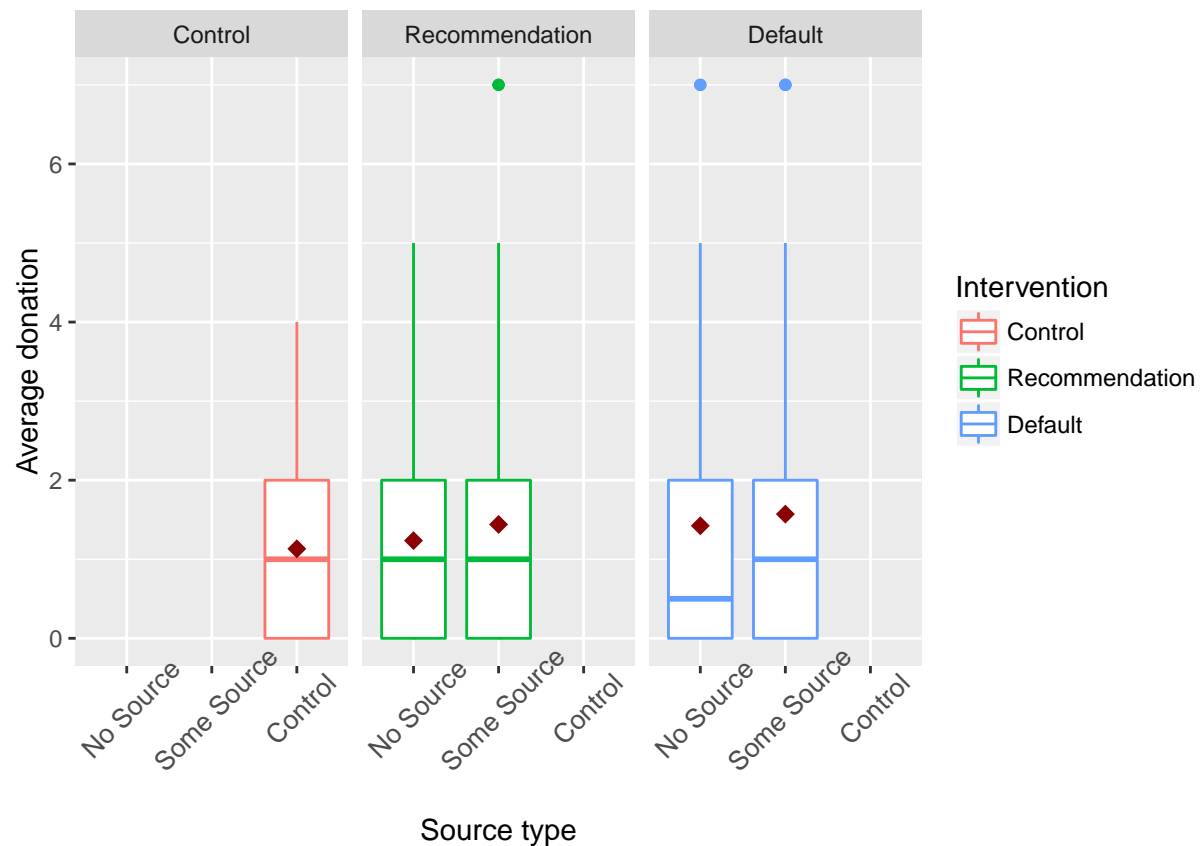
```
## Warning in Ops.factor(left, right): '/' not meaningful for factors
```



```
##
## Call:
## glm(formula = Donated ~ NosvsSome * RecvsDefD, family = "binomial",
##      data = df)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.6378  -1.2278   0.7787   0.7993   1.1278
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)      0.5978    0.3754   1.593   0.111
## NosvsSomeSome Source      0.3794    0.4245   0.894   0.371
## RecvsDefDDef      -0.4801    0.5089  -0.943   0.346
## NosvsSomeSome Source:RecvsDefDDef  0.5408    0.5815   0.930   0.352
##
## (Dispersion parameter for binomial family taken to be 1)
##
##      Null deviance: 393.08  on 322  degrees of freedom
## Residual deviance: 386.93  on 319  degrees of freedom
## (31 observations deleted due to missingness)
```

```
## AIC: 394.93
##
## Number of Fisher Scoring iterations: 4
```

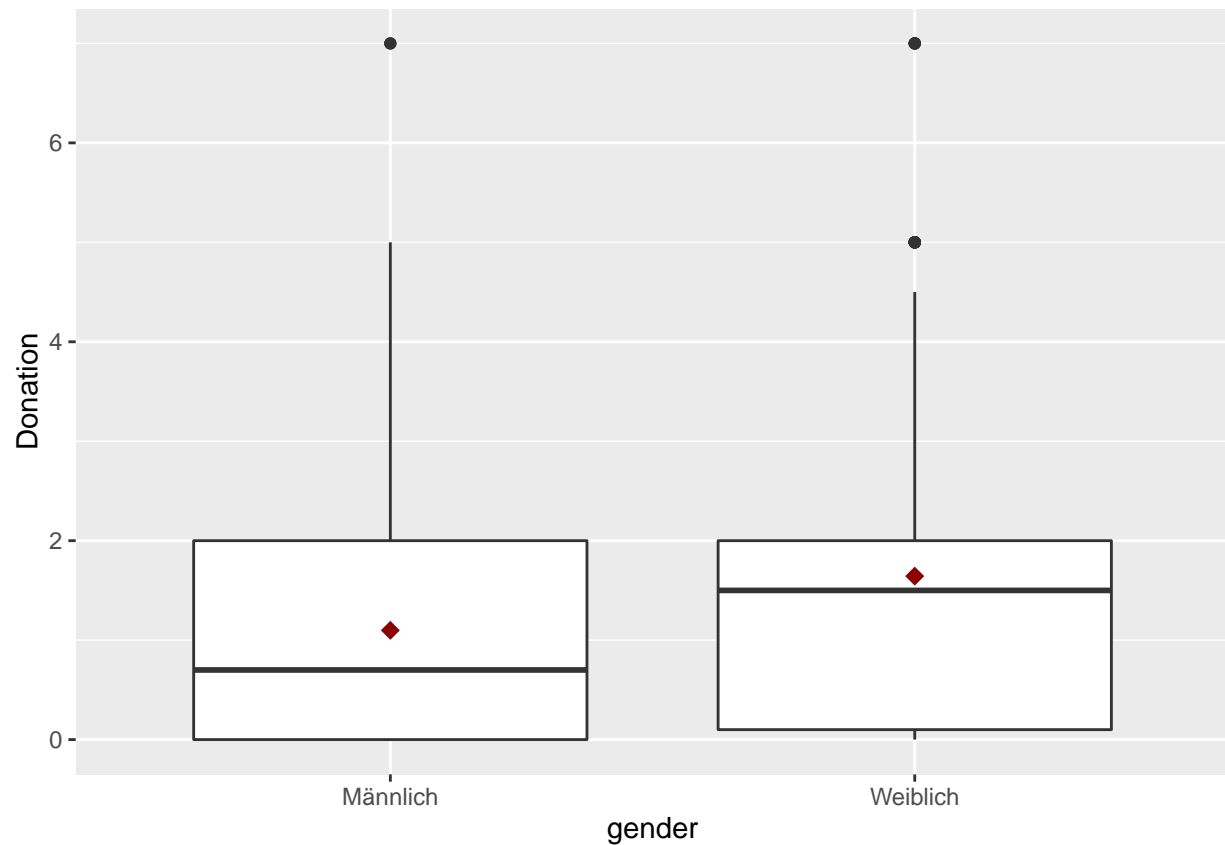
Suggests that the provision of any kind of source information increases the likelihood to donate (Extensive margin), especially for defaults. However, the logistic estimation model suggests that there is no interaction between the provision of some source information and the type of intervention. When including the type of intervention, the sourcetype is not significant anymore.



Gender differences

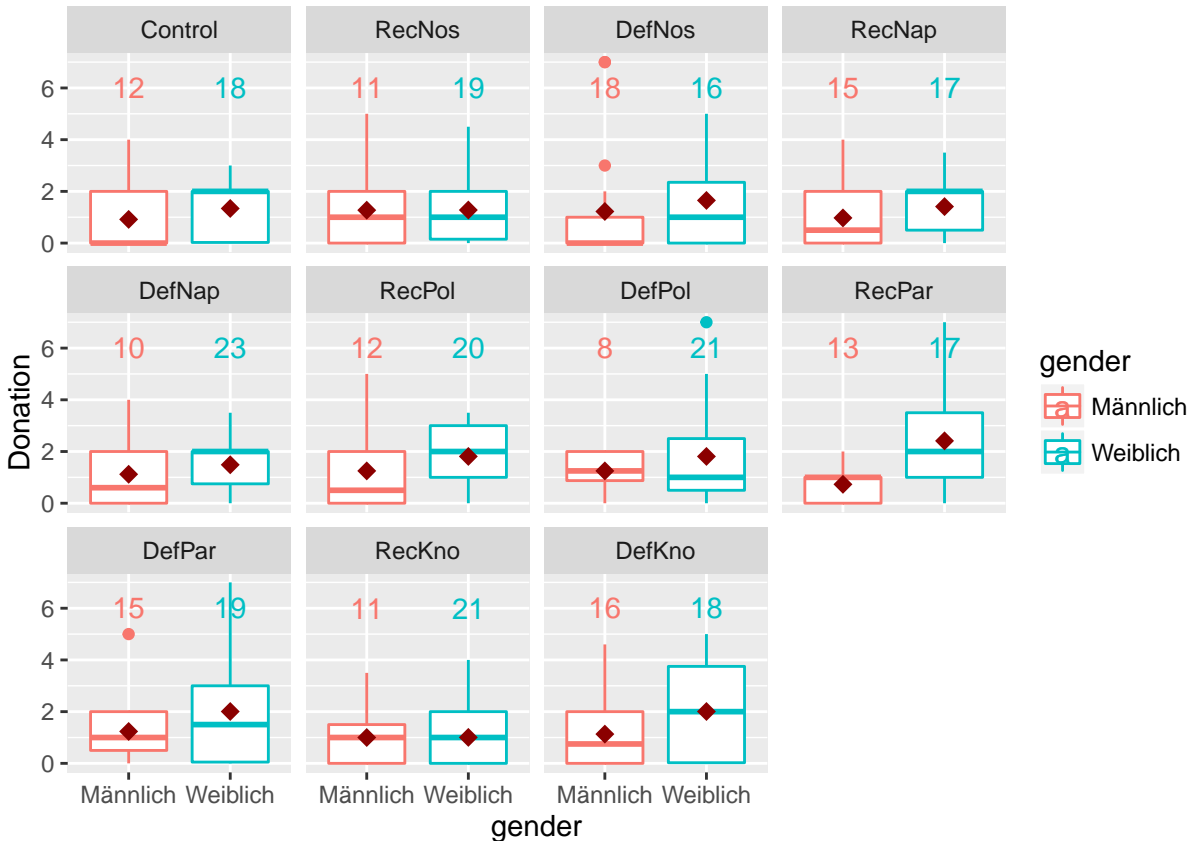
Average donation gender differences (by treatment)

```
## group: Keine Angabe
##   vars n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 4    3 3.56   2.5      3 3.71   0  7    7  0.1    -2.32 1.78
## -----
## group: Männlich
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 141  1.1 1.39   0.7   0.85 1.04   0  7    7 1.81     4 0.12
## -----
## group: Weiblich
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1    1 209 1.64 1.55   1.5   1.43 1.48   0  7    7 1.13    1.35 0.11
```



```
##
##  Welch Two Sample t-test
##
## data:  dfsub$Donation by dfsub$gender
## t = -3.4369, df = 321.65, p-value = 0.0006658
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -0.8569099 -0.2330083
## sample estimates:
## mean in group Männlich mean in group Weiblich
##           1.098582           1.643541

##
##  Wilcoxon rank sum test with continuity correction
##
## data:  dfsub$Donation by dfsub$gender
## W = 11246, p-value = 0.0001193
## alternative hypothesis: true location shift is not equal to 0
```

```
##
## Kruskal-Wallis rank sum test
##
## data: df$Donation[df$gender == "Weiblich"] by df$treatment[df$gender == "Weiblich"]
## Kruskal-Wallis chi-squared = 10.783, df = 10, p-value = 0.3746

##
## Kruskal-Wallis rank sum test
##
## data: df$Donation[df$gender == "Männlich"] by df$treatment[df$gender == "Männlich"]
## Kruskal-Wallis chi-squared = 3.978, df = 10, p-value = 0.9483
```

Could be interesting. For example, when looking at Control, RecNos, RecNap, RecPol, RecPar, (And RecKno), the treatment-effect seems to be present for women, but not (or even negatively) for men. This seems to be also true for Defaults, but slightly different. However, according to two Kruskal Wallis Tests there is no treatment effect for men, and none for women.

Extensive margin (by treatment)

```
##
## Call:
## glm(formula = gender ~ treatment, family = "binomial", data = dfs)
##
## Deviance Residuals:
```

```
##      Min      1Q   Median      3Q      Max
## -1.6049 -1.2793  0.8497   1.0108  1.2278
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)    0.4055    0.3727   1.088   0.277
## treatmentRecNos  0.1411    0.5314   0.265   0.791
## treatmentDefNos -0.5232    0.5069  -1.032   0.302
## treatmentRecNap -0.2803    0.5142  -0.545   0.586
## treatmentDefNap  0.4274    0.5314   0.804   0.421
## treatmentRecPol  0.1054    0.5217   0.202   0.840
## treatmentDefPol  0.5596    0.5581   1.003   0.316
## treatmentRecPar -0.1372    0.5241  -0.262   0.793
## treatmentDefPar -0.1691    0.5081  -0.333   0.739
## treatmentRecKno  0.2412    0.5267   0.458   0.647
## treatmentDefKno -0.2877    0.5069  -0.568   0.570
##
## (Dispersion parameter for binomial family taken to be 1)
##
##      Null deviance: 471.91  on 349  degrees of freedom
## Residual deviance: 463.97  on 339  degrees of freedom
## AIC: 485.97
##
## Number of Fisher Scoring iterations: 4
```

```
##
## Pearson's Chi-squared test
##
## data:  table(factor(dfsub$gender), dfsub$treatment)
## X-squared = 7.8565, df = 10, p-value = 0.6429
```

Gender is not significantly differently represented along tratments

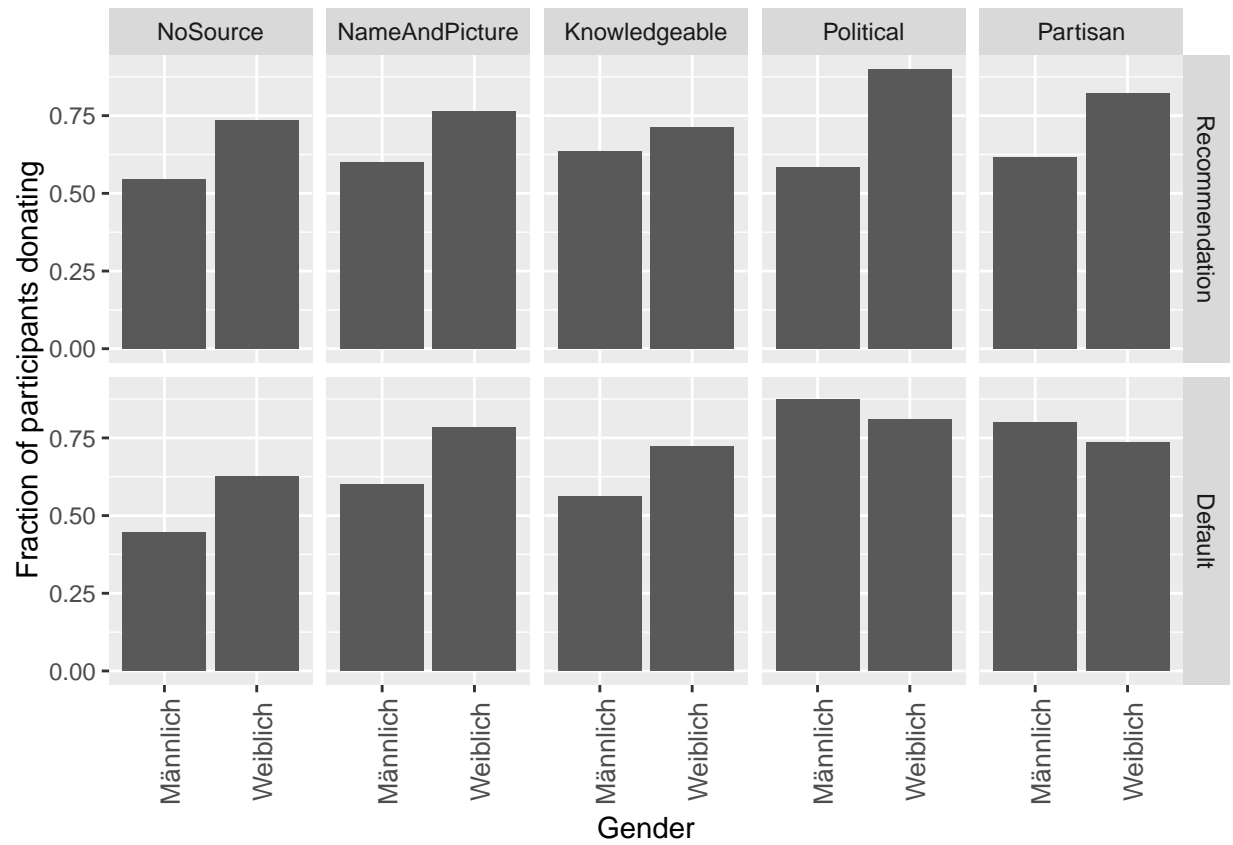
```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data:  table(dfsub$Donated, factor(dfsub$gender))
## X-squared = 10.039, df = 1, p-value = 0.001533
##
## Call:
## glm(formula = Donated ~ treatment * gender, family = "binomial",
##      data = dfsub)
##
## Deviance Residuals:
##      Min      1Q   Median      3Q      Max
## -2.1460 -1.2557  0.6841  0.8203  1.3232
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)    -0.3365    0.5855  -0.575   0.5655
## treatmentRecNos  0.5188    0.8423   0.616   0.5380
## treatmentDefNos  0.1133    0.7536   0.150   0.8805
```

```

## treatmentRecNap          0.7419      0.7878      0.942      0.3463
## treatmentDefNap          0.7419      0.8715      0.851      0.3946
## treatmentRecPol          0.6729      0.8281      0.813      0.4164
## treatmentDefPol          2.2824      1.2189      1.873      0.0611 .
## treatmentRecPar          0.8065      0.8172      0.987      0.3237
## treatmentDefPar          1.7228      0.8715      1.977      0.0481 *
## treatmentRecKno          0.8961      0.8577      1.045      0.2962
## treatmentDefKno          0.5878      0.7725      0.761      0.4467
## genderWeiblich           1.2920      0.7873      1.641      0.1008
## treatmentRecNos:genderWeiblich -0.4447      1.1216     -0.396      0.6917
## treatmentDefNos:genderWeiblich -0.5580      1.0543     -0.529      0.5966
## treatmentRecNap:genderWeiblich -0.5188      1.1066     -0.469      0.6392
## treatmentDefNap:genderWeiblich -0.4165      1.1367     -0.366      0.7140
## treatmentRecPol:genderWeiblich  0.5688      1.2321      0.462      0.6444
## treatmentDefPol:genderWeiblich -1.7910      1.4393     -1.244      0.2134
## treatmentRecPar:genderWeiblich -0.2215      1.1617     -0.191      0.8488
## treatmentDefPar:genderWeiblich -1.6487      1.1436     -1.442      0.1494
## treatmentRecKno:genderWeiblich -0.9353      1.1162     -0.838      0.4021
## treatmentDefKno:genderWeiblich -0.5878      1.0727     -0.548      0.5837
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
## Null deviance: 430.94 on 349 degrees of freedom
## Residual deviance: 405.43 on 328 degrees of freedom
## AIC: 449.43
##
## Number of Fisher Scoring iterations: 4

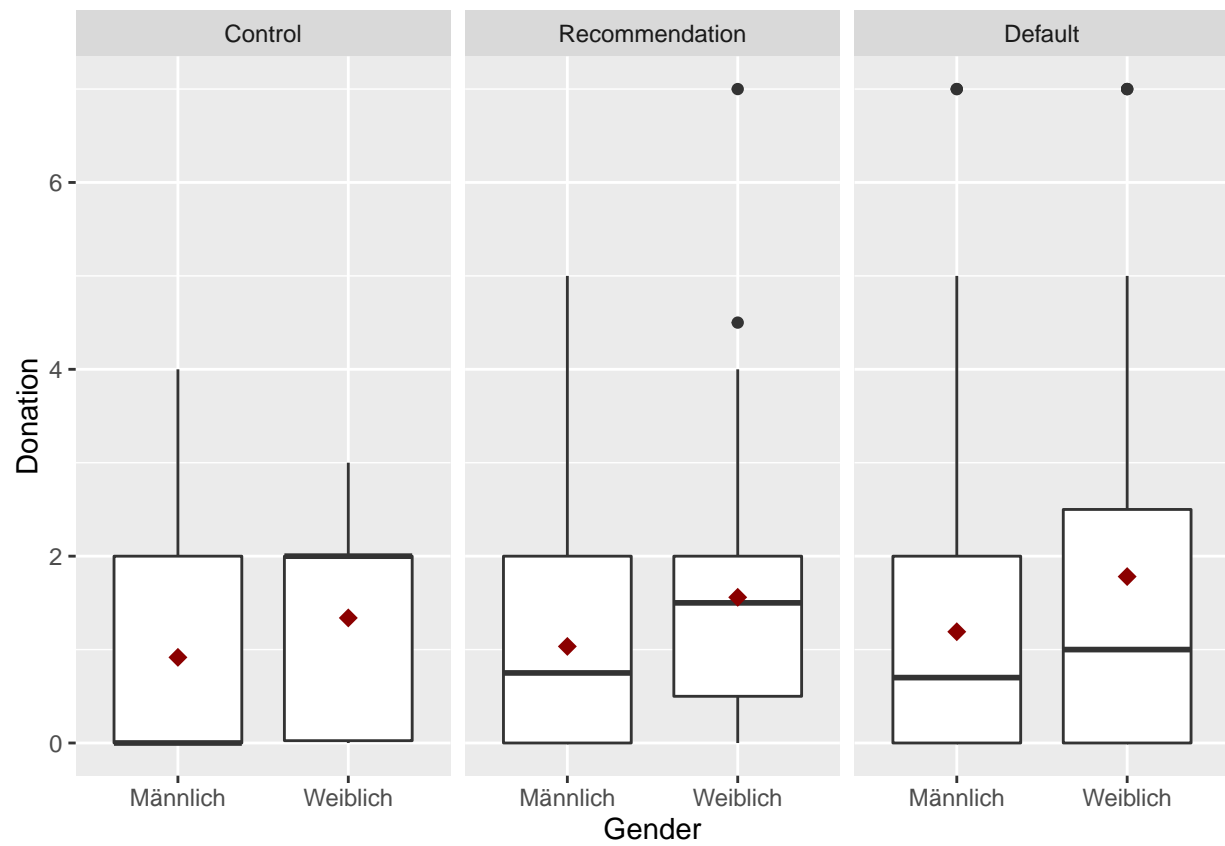
## Warning in Ops.factor(left, right): '/' not meaningful for factors
## Warning in Ops.factor(left, right): '/' not meaningful for factors
## Warning in Ops.factor(left, right): '/' not meaningful for factors

```

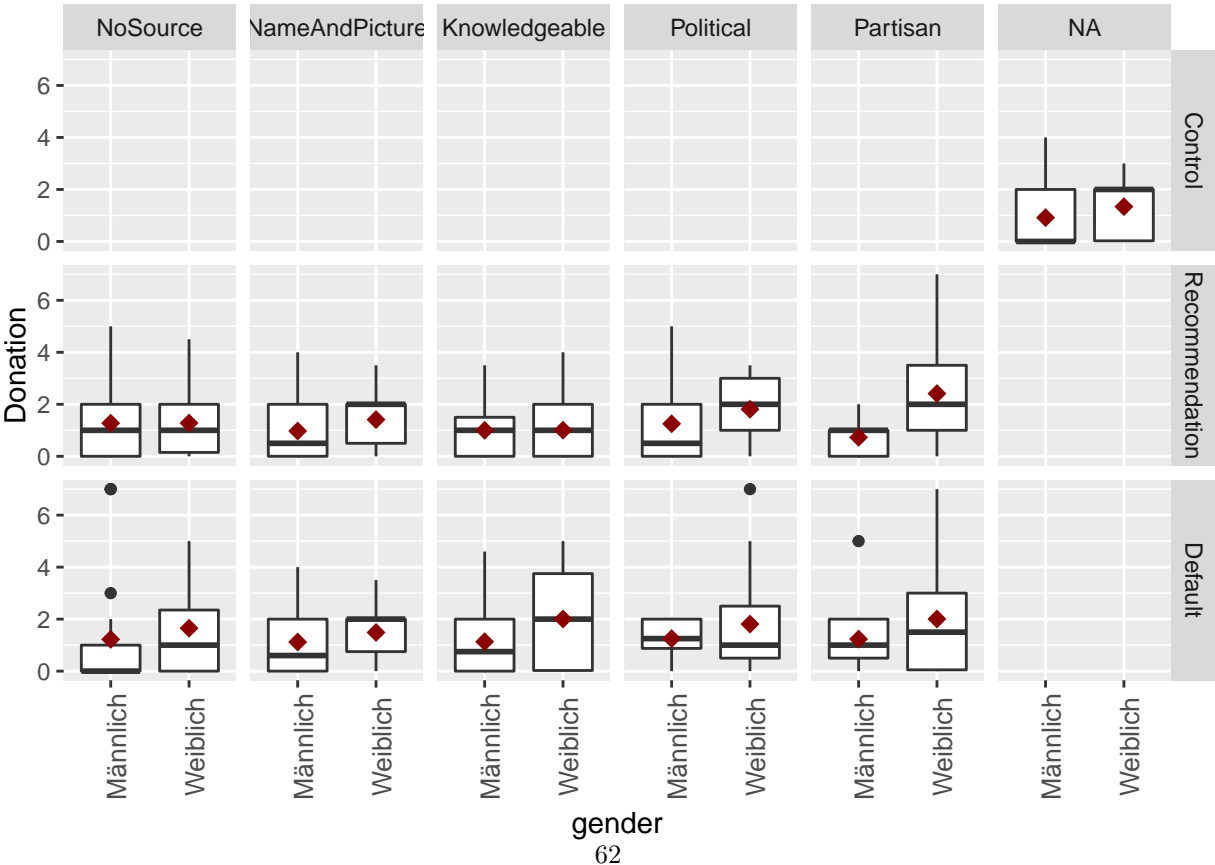
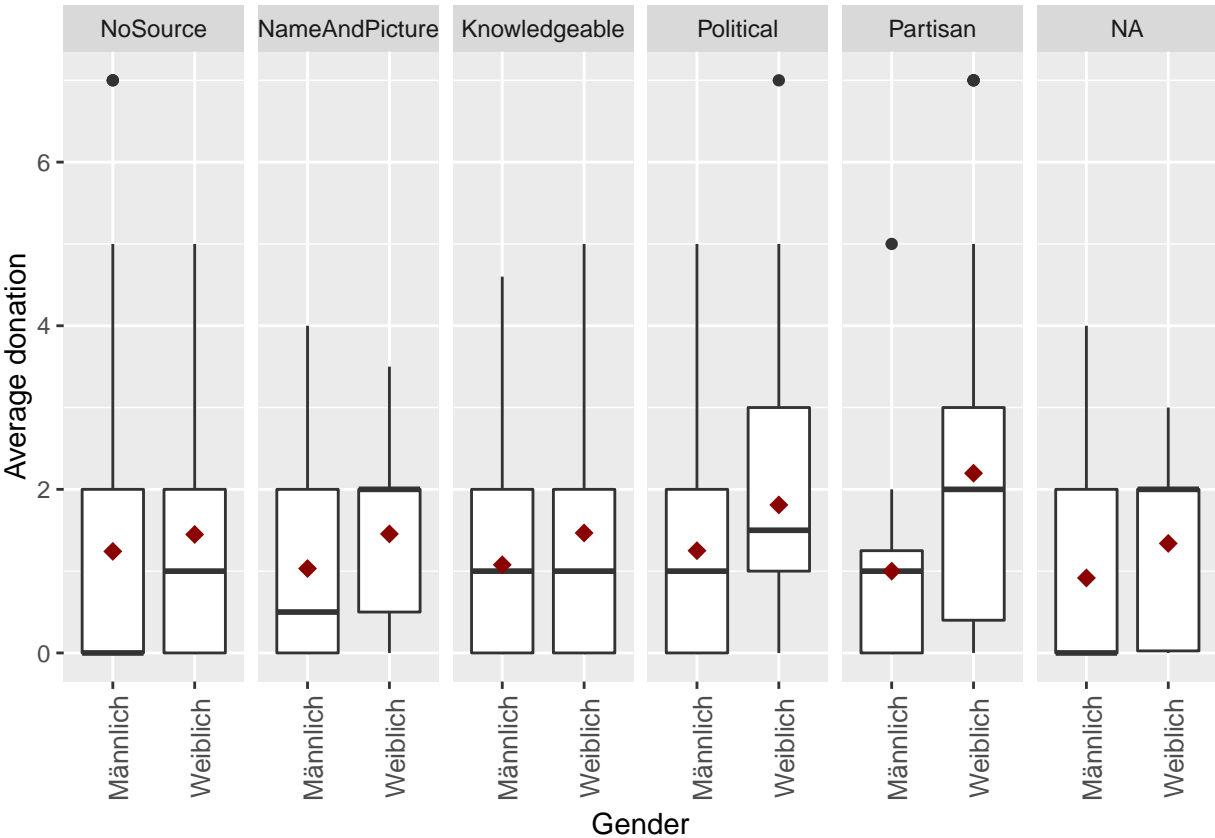


Judging based on the logistic regression, controlling for gender, contributing is significantly more likely for subjects seeing a default by a partisan-source compared to the control group, i.e. seeing no intervention and source.

Gender differences (by Intervention type)



Gender differences (by Source type)



```

##
## Kruskal-Wallis rank sum test
##
## data:  dfsub$Donation[dfsub$gender == "Weiblich" & dfsub$Intervention == "Recommendation"] by dfsub$
## Kruskal-Wallis chi-squared = 10.733, df = 4, p-value = 0.02973

##
## Kruskal-Wallis rank sum test
##
## data:  dfsub$Donation[dfsub$gender == "Weiblich" & dfsub$Intervention == "Default"] by dfsub$Sourcety
## Kruskal-Wallis chi-squared = 0.61934, df = 4, p-value = 0.9609

##
## Kruskal-Wallis rank sum test
##
## data:  dfsub$Donation[dfsub$gender == "Männlich" & dfsub$Intervention == "Recommendation"] by dfsub$
## Kruskal-Wallis chi-squared = 0.40054, df = 4, p-value = 0.9824

##
## Kruskal-Wallis rank sum test
##
## data:  dfsub$Donation[dfsub$gender == "Männlich" & dfsub$Intervention == "Default"] by dfsub$Sourcety
## Kruskal-Wallis chi-squared = 2.8933, df = 4, p-value = 0.5758

##
## Call:
## lm(formula = Donation ~ gender * RecvsDefD * Sourcetype, data = dfsub)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.4118 -1.1200 -0.2789  0.7667  5.7778
##
## Coefficients:
##                                Estimate Std. Error
## (Intercept)                   1.272727   0.459882
## genderWeiblich                 0.006220   0.577870
## RecvsDefDDef                  -0.050505   0.583726
## SourcetypeNameAndPicture      -0.299394   0.605463
## SourcetypeKnowledgeable       -0.272727   0.650371
## SourcetypePolitical           -0.022727   0.636678
## SourcetypePartisan            -0.541958   0.624856
## genderWeiblich:RecvsDefDDef     0.421558   0.780114
## genderWeiblich:SourcetypeNameAndPicture 0.432211   0.791122
## genderWeiblich:SourcetypeKnowledgeable -0.001458   0.810065
## genderWeiblich:SourcetypePolitical  0.553780   0.802571
## genderWeiblich:SourcetypePartisan  1.674775   0.806061
## RecvsDefDDef:SourcetypeNameAndPicture 0.197172   0.853504
## RecvsDefDDef:SourcetypeKnowledgeable 0.181755   0.835241
## RecvsDefDDef:SourcetypePolitical  0.050505   0.908517
## RecvsDefDDef:SourcetypePartisan  0.553069   0.821452
## genderWeiblich:RecvsDefDDef:SourcetypeNameAndPicture -0.493033   1.110994
## genderWeiblich:RecvsDefDDef:SourcetypeKnowledgeable  0.447986   1.097951
## genderWeiblich:RecvsDefDDef:SourcetypePolitical    -0.422034   1.149064

```

```

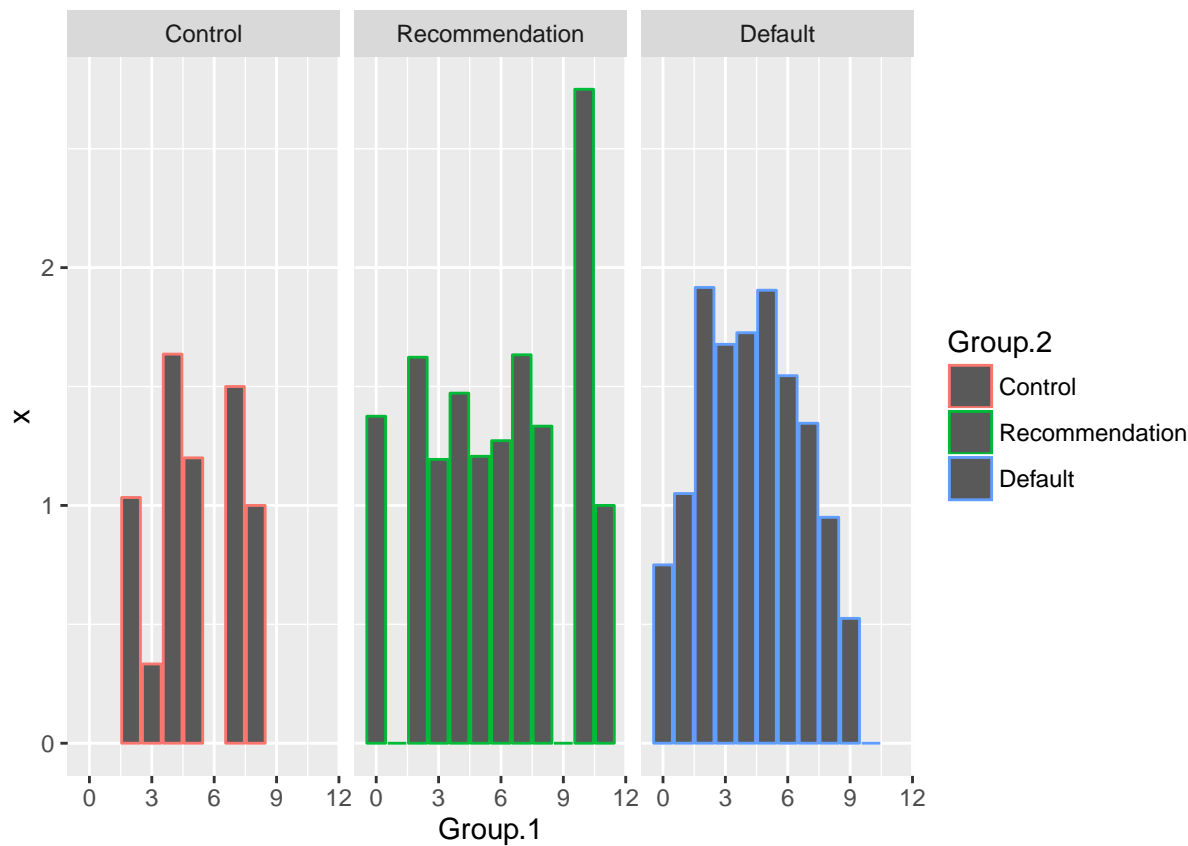
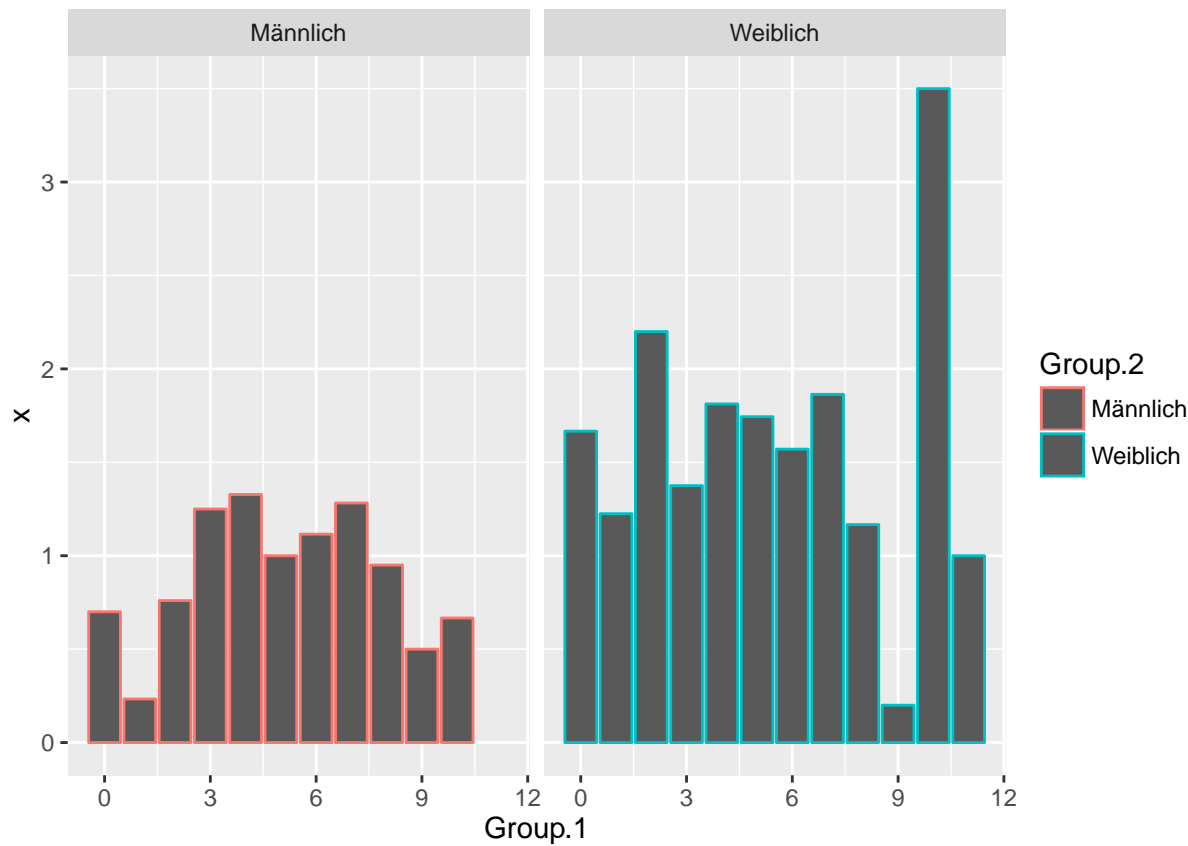
## genderWeiblich:RecvsDefDDef:SourcetypePartisan      -1.330623    1.096319
## t value Pr(>|t|)
## (Intercept)                2.768    0.0060 **
## genderWeiblich              0.011    0.9914
## RecvsDefDDef               -0.087    0.9311
## SourcetypeNameAndPicture   -0.494    0.6213
## SourcetypeKnowledgeable    -0.419    0.6753
## SourcetypePolitical        -0.036    0.9715
## SourcetypePartisan         -0.867    0.3865
## genderWeiblich:RecvsDefDDef    0.540    0.5893
## genderWeiblich:SourcetypeNameAndPicture    0.546    0.5852
## genderWeiblich:SourcetypeKnowledgeable    -0.002    0.9986
## genderWeiblich:SourcetypePolitical    0.690    0.4907
## genderWeiblich:SourcetypePartisan    2.078    0.0386 *
## RecvsDefDDef:SourcetypeNameAndPicture    0.231    0.8175
## RecvsDefDDef:SourcetypeKnowledgeable    0.218    0.8279
## RecvsDefDDef:SourcetypePolitical    0.056    0.9557
## RecvsDefDDef:SourcetypePartisan    0.673    0.5013
## genderWeiblich:RecvsDefDDef:SourcetypeNameAndPicture -0.444    0.6575
## genderWeiblich:RecvsDefDDef:SourcetypeKnowledgeable    0.408    0.6835
## genderWeiblich:RecvsDefDDef:SourcetypePolitical    -0.367    0.7137
## genderWeiblich:RecvsDefDDef:SourcetypePartisan    -1.214    0.2258
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.525 on 300 degrees of freedom
## (30 observations deleted due to missingness)
## Multiple R-squared:  0.07393,    Adjusted R-squared:  0.01528
## F-statistic: 1.261 on 19 and 300 DF,  p-value: 0.2084

##
## Kruskal-Wallis rank sum test
##
## data:  dfsusb$Donation[dfsub$gender == "Weiblich" & dfsusb$Intervention == "Recommendation"] by dfsusb$
## Kruskal-Wallis chi-squared = 8.9371, df = 2, p-value = 0.01146

```

Same as above, the treatment effect seems to be present for females, but only when the source of the recommendation is political or associated with the green party. For males, the treatment effect seems to be zero, or slightly negative. Kruskal Wallis Tests confirm this (threat of sequential tests, so maybe Bonferroni correction should be used).

Gender and Reactance interaction per treatment



Party preference differences

Including only “believers” in Julia Verlinden

First check if whether subjects believe we cooperated depends on treatment

```
## Warning in chisq.test(table(dfbelA$believe2, dfbelA$treatment)): Chi-
## squared approximation may be incorrect

##
## Pearson's Chi-squared test
##
## data:  table(dfbelA$believe2, dfbelA$treatment)
## X-squared = NaN, df = 10, p-value = NA

##
## Call:
## glm(formula = believe2 ~ treatment, family = "binomial", data = dfbelA)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.6835  -1.2068   0.7452   1.1010   1.2310
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)    0.18232    0.34960   0.522  0.6020
## treatmentDefNap  0.79851    0.52440   1.523  0.1278
## treatmentRecPol -0.30748    0.49771  -0.618  0.5367
## treatmentDefPol -0.11333    0.51021  -0.222  0.8242
## treatmentRecPar -0.04879    0.50611  -0.096  0.9232
## treatmentDefPar -0.30010    0.49018  -0.612  0.5404
## treatmentRecKno  0.95711    0.53593   1.786  0.0741 .
## treatmentDefKno  0.29725    0.49675   0.598  0.5496
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##      Null deviance: 350.80  on 257  degrees of freedom
## Residual deviance: 338.81  on 250  degrees of freedom
## AIC: 354.81
##
## Number of Fisher Scoring iterations: 4

##
## Call:
## glm(formula = believe2 ~ Sourcetype * Intervention, family = "binomial",
##      data = dfbelA)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.6835  -1.2068   0.7452   1.1010   1.2310
```

```
##
## Coefficients:
##
## Estimate Std. Error z value
## (Intercept) 0.18232 0.34960 0.522
## SourcetypeKnowledgeable 0.95711 0.53593 1.786
## SourcetypePolitical -0.30748 0.49771 -0.618
## SourcetypePartisan -0.04879 0.50611 -0.096
## InterventionDefault 0.79851 0.52440 1.523
## SourcetypeKnowledgeable:InterventionDefault -1.45837 0.75136 -1.941
## SourcetypePolitical:InterventionDefault -0.60435 0.73388 -0.823
## SourcetypePartisan:InterventionDefault -1.04982 0.72594 -1.446
## Pr(>|z|)
## (Intercept) 0.6020
## SourcetypeKnowledgeable 0.0741 .
## SourcetypePolitical 0.5367
## SourcetypePartisan 0.9232
## InterventionDefault 0.1278
## SourcetypeKnowledgeable:InterventionDefault 0.0523 .
## SourcetypePolitical:InterventionDefault 0.4102
## SourcetypePartisan:InterventionDefault 0.1481
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
## Null deviance: 350.80 on 257 degrees of freedom
## Residual deviance: 338.81 on 250 degrees of freedom
## AIC: 354.81
##
## Number of Fisher Scoring iterations: 4
```

Potentially interesting that subjects are more likely to not believe we cooperated with Julia when they are confronted with source information of a knowledgeable actor, but that this positive effect is weakened (negative interaction) when provided for a default, instead of a recommendation.

What explains the probability that people believe we cooperated with Julia?

```
##
## Pearson's Chi-squared test with simulated p-value (based on 2000
## replicates)
##
## data: table(dfbelA$believe2, dfbelA$gender)
## X-squared = 2.9328, df = NA, p-value = 0.2689
##
## Fisher's Exact Test for Count Data
##
## data: table(dfbelA$believe2, dfbelA$trustPol)
## p-value = 0.7709
## alternative hypothesis: two.sided
##
```

```
## Call:
## glm(formula = believe2 ~ treatment, family = "binomial", data = dfbelA)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.6835  -1.2068   0.7452   1.1010   1.2310
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)    0.18232    0.34960   0.522  0.6020
## treatmentDefNap  0.79851    0.52440   1.523  0.1278
## treatmentRecPol -0.30748    0.49771  -0.618  0.5367
## treatmentDefPol -0.11333    0.51021  -0.222  0.8242
## treatmentRecPar -0.04879    0.50611  -0.096  0.9232
## treatmentDefPar -0.30010    0.49018  -0.612  0.5404
## treatmentRecKno  0.95711    0.53593   1.786  0.0741 .
## treatmentDefKno  0.29725    0.49675   0.598  0.5496
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##      Null deviance: 350.80  on 257  degrees of freedom
## Residual deviance: 338.81  on 250  degrees of freedom
## AIC: 354.81
##
## Number of Fisher Scoring iterations: 4

## Warning in chisq.test(table(dfbelA$believe2, dfbelA$party)): Chi-squared
## approximation may be incorrect

##
## Pearson's Chi-squared test
##
## data:  table(dfbelA$believe2, dfbelA$party)
## X-squared = 1.8762, df = 8, p-value = 0.9846
```

(1) Whether or not respondents believe us that we cooperated with Julia does not depend on gender. (2) Whether or not people experienced an experimenter demand effect does not depend on treatment.

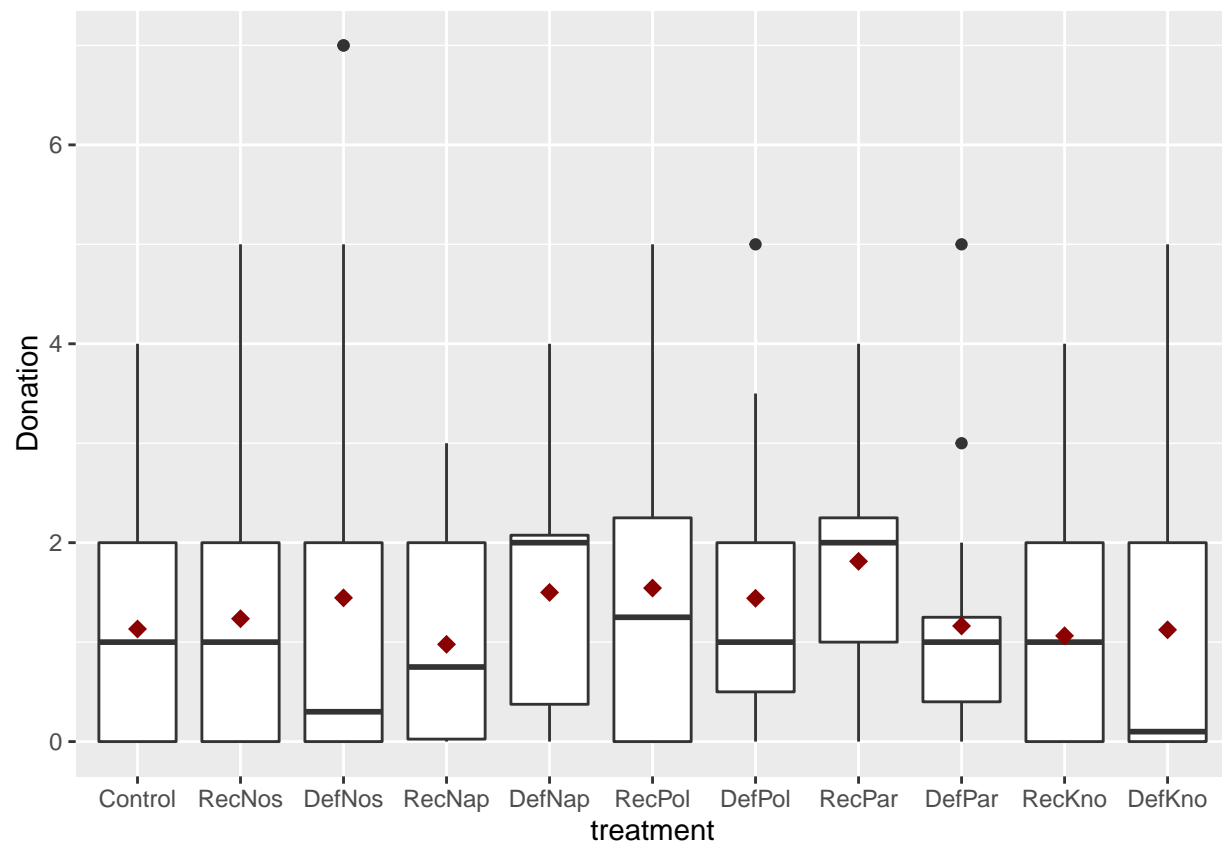
Check average donations by treatment only for those that believed we cooperated with Julia Verlinden

```
## group: Control
##      vars  n mean    sd median trimmed  mad min max range skew kurtosis   se
## 1      1 31 1.13 1.15      1    1.02 1.48   0  4      4 0.42    -0.94 0.21
## -----
## group: RecNos
##      vars  n mean    sd median trimmed  mad min max range skew kurtosis   se
## 1      1 31 1.24 1.39      1    0.99 1.48   0  5      5 1.14     0.52 0.25
## -----
## group: DefNos
```

```

##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 33 1.45 2.11    0.3    1.06 0.44  0  7    7 1.41    0.77 0.37
## -----
## group: RecNap
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 18 0.98 0.96    0.75    0.91 1.11  0  3    3 0.5    -1.17 0.23
## -----
## group: DefNap
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 24 1.5 1.2     2    1.43 1.48  0  4    4 0.18    -1.09 0.25
## -----
## group: RecPol
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 16 1.54 1.5    1.25    1.41 1.85  0  5    5 0.66    -0.6 0.38
## -----
## group: DefPol
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 17 1.44 1.4     1    1.3 1.48  0  5    5 0.98    0.11 0.34
## -----
## group: RecPar
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 16 1.81 1.12     2    1.79 1.48  0  4    4 0.34    -1 0.28
## -----
## group: DefPar
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 16 1.16 1.32     1    0.97 1.04  0  5    5 1.55    1.87 0.33
## -----
## group: RecKno
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 25 1.06 1.14     1    0.91 1.48  0  4    4 0.92    0.02 0.23
## -----
## group: DefKno
##   vars  n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 21 1.12 1.5     0.1    0.86 0.15  0  5    5 1.09    0.11 0.33

```

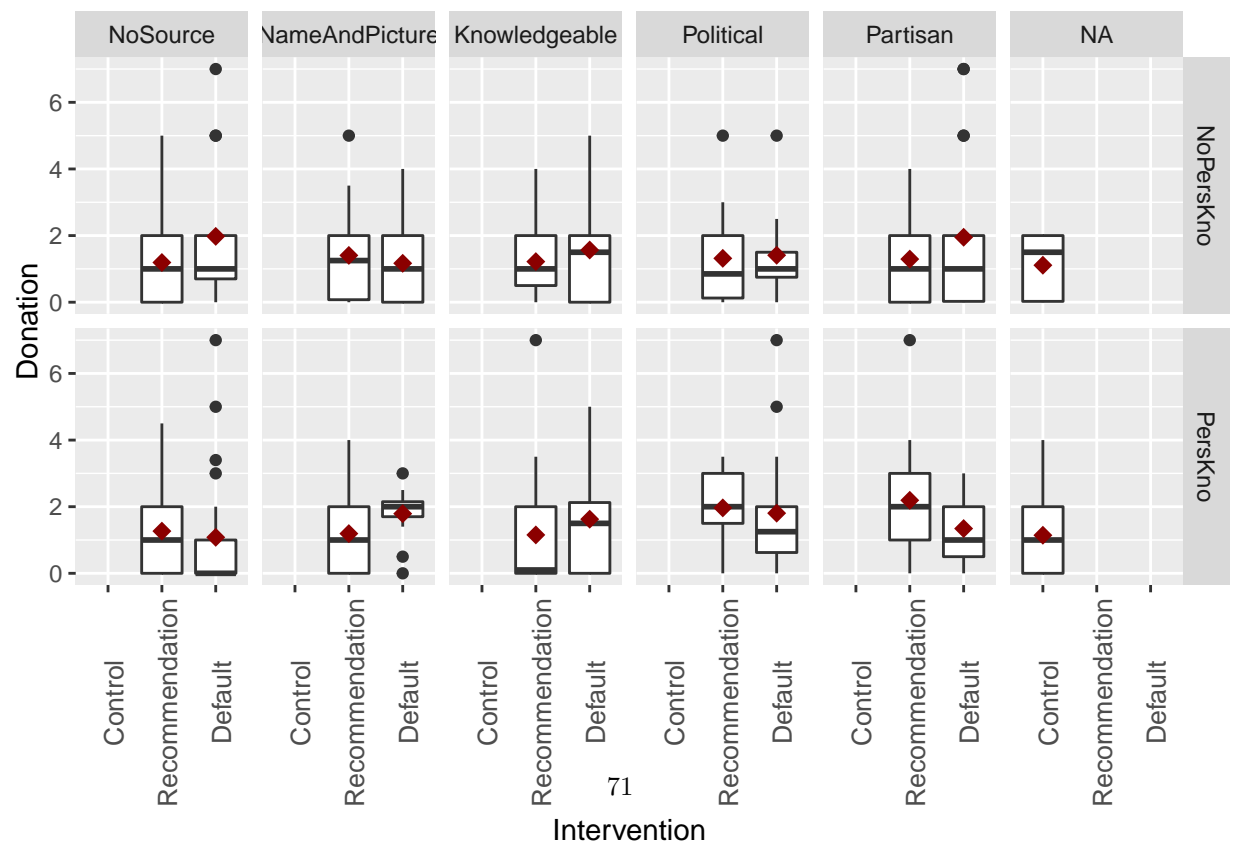
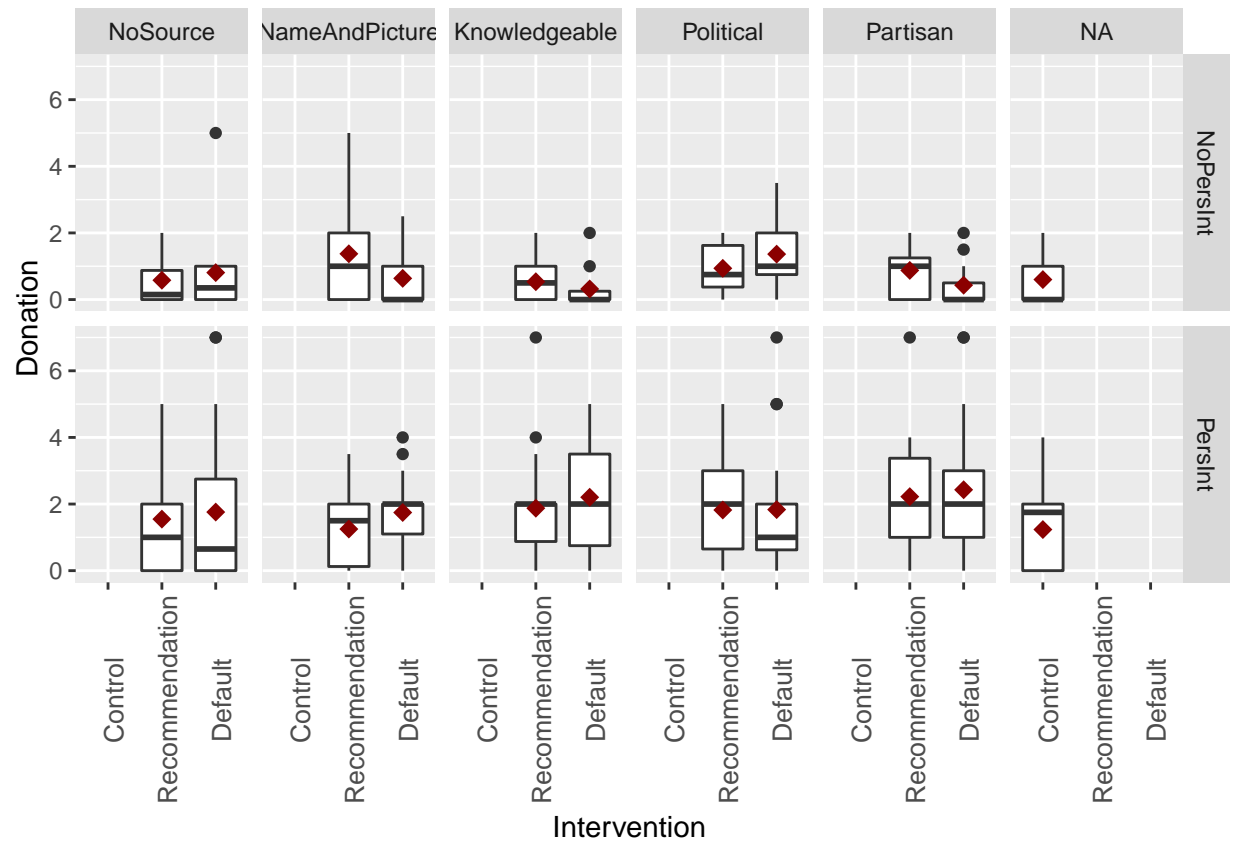


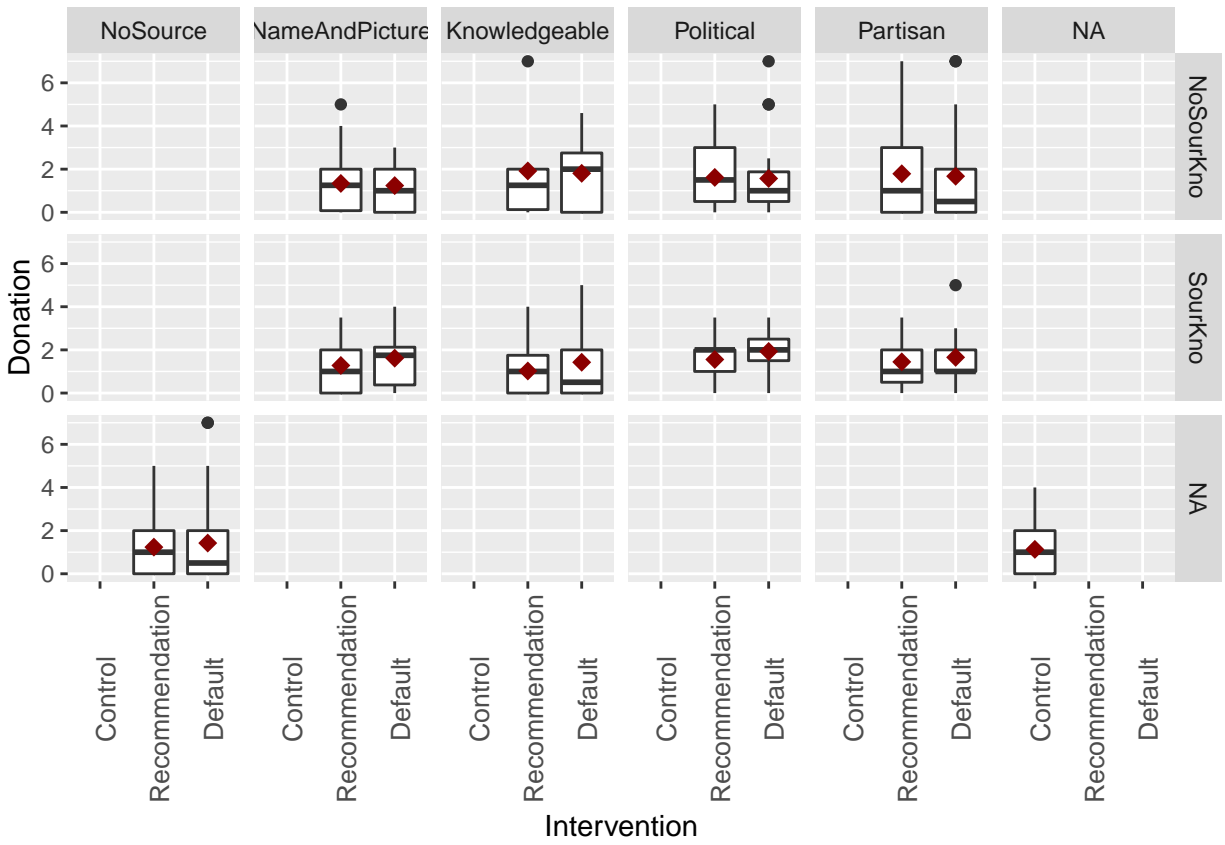
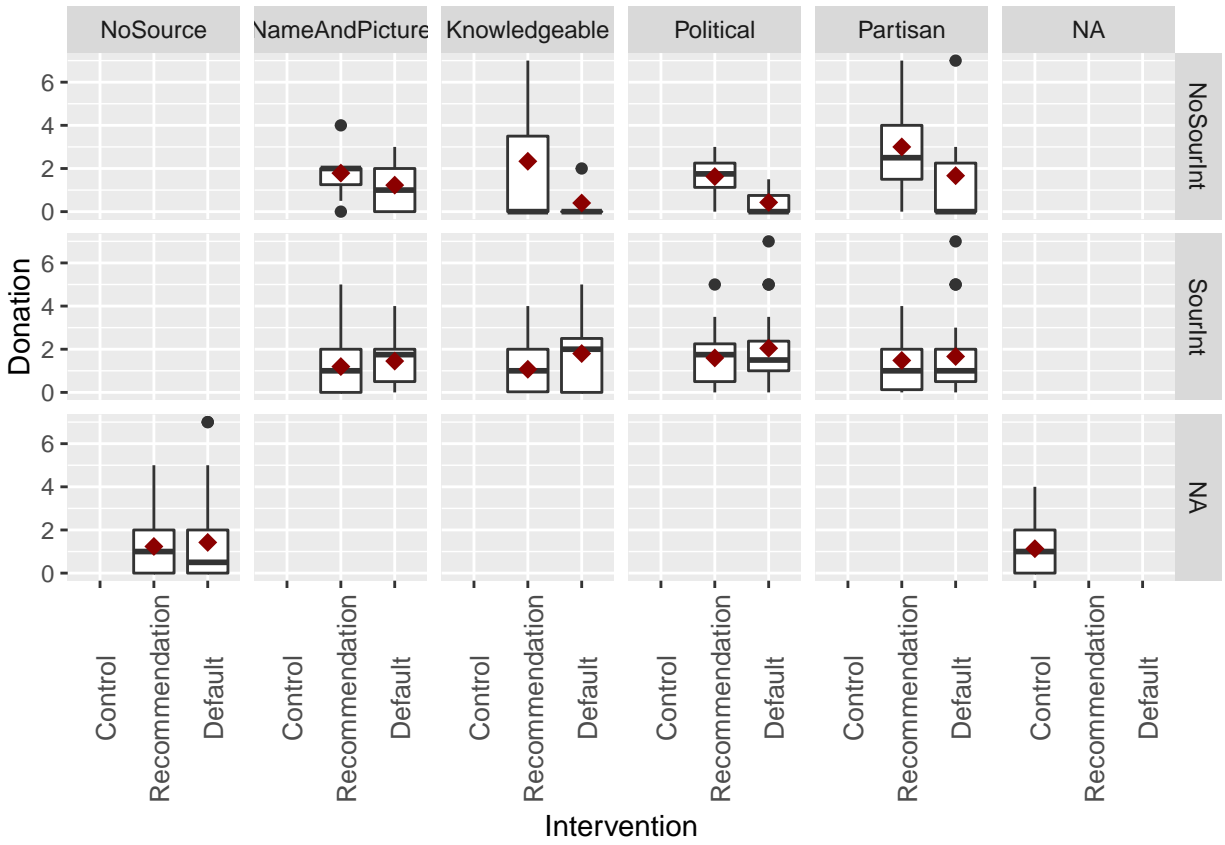
```
##
## Kruskal-Wallis rank sum test
##
## data: dfbel$Donation by dfbel$treatment
## Kruskal-Wallis chi-squared = 9.363, df = 10, p-value = 0.498
```

Kruskal Wallis test is not significant. This means that there are also no significant differences in Donations for those that believed we cooperated with Julia Verlinden.

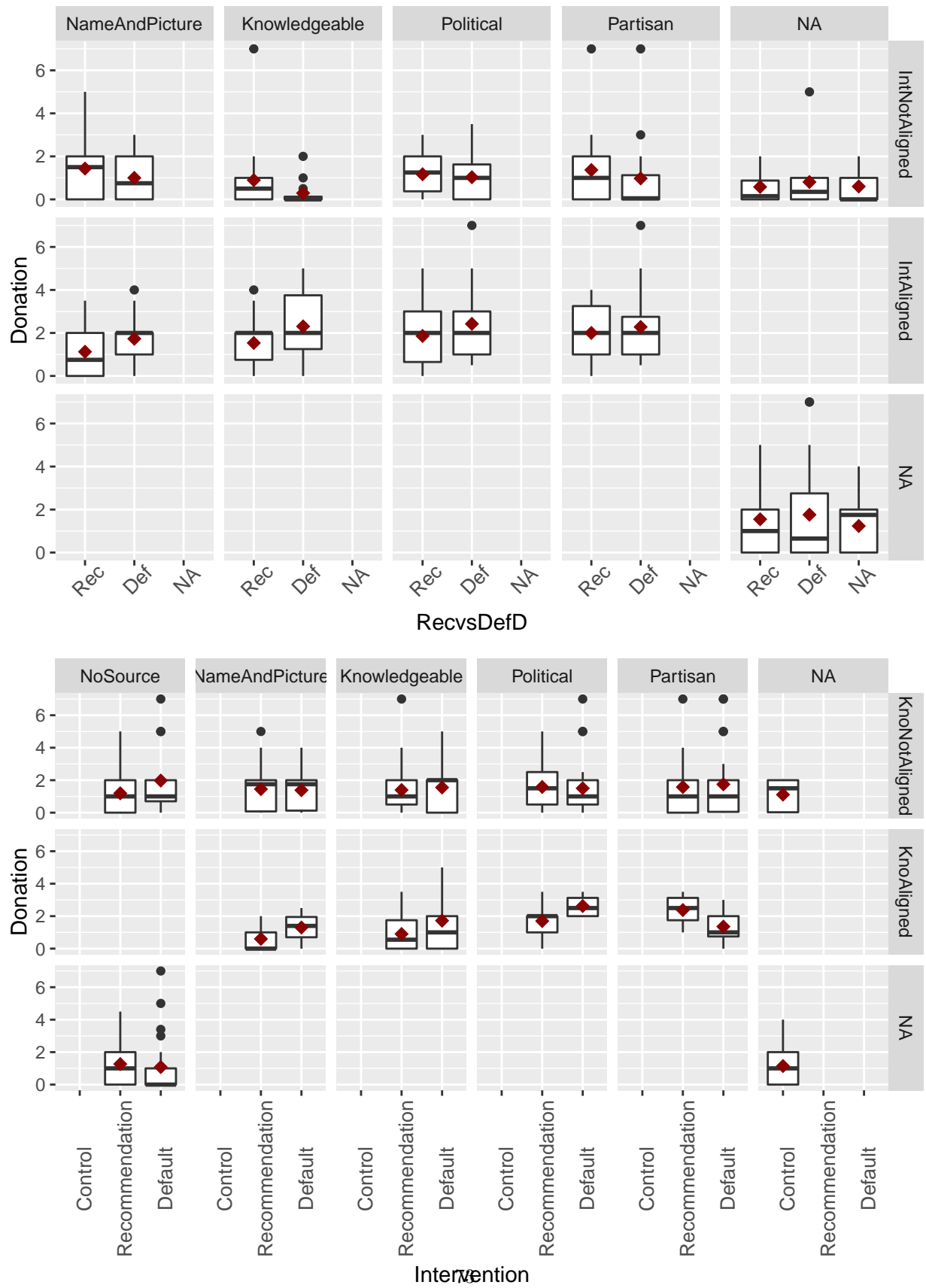
Treatment interactions with...

... personal Interest and Knowledge w.r.t climate protection





... alignment of interest/ knowledge between subject and the subject's perception of the source



```
##
## Call:
## lm(formula = Donation ~ RecvsDefD + SourcetypeD * intAlign +
##     knowAlign, data = df)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.1577 -1.1387 -0.1771  0.7813  6.3092
##
## Coefficients:
##                                Estimate Std. Error t value
## (Intercept)                   1.21867    0.25269   4.823
## RecvsDefDDef                   0.07733    0.18417   0.420
## SourcetypeDKnowledgeable      -0.52786    0.36386  -1.451
## SourcetypeDPolitical          -0.15728    0.36613  -0.430
## SourcetypeDPartisan           -0.06464    0.35606  -0.182
## intAlignIntAligned            0.27035    0.36637   0.738
## knowAlignKnoAligned           -0.22802    0.23801  -0.958
## SourcetypeDKnowledgeable:intAlignIntAligned  1.07103    0.50979   2.101
## SourcetypeDPolitical:intAlignIntAligned    0.76799    0.52441   1.464
## SourcetypeDPartisan:intAlignIntAligned    0.73333    0.51487   1.424
##                                Pr(>|t|)
## (Intercept)                   2.47e-06 ***
## RecvsDefDDef                   0.6749
## SourcetypeDKnowledgeable       0.1481
## SourcetypeDPolitical           0.6679
## SourcetypeDPartisan            0.8561
## intAlignIntAligned             0.4613
## knowAlignKnoAligned            0.3390
## SourcetypeDKnowledgeable:intAlignIntAligned  0.0367 *
## SourcetypeDPolitical:intAlignIntAligned    0.1443
## SourcetypeDPartisan:intAlignIntAligned    0.1556
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.457 on 248 degrees of freedom
## (96 observations deleted due to missingness)
## Multiple R-squared:  0.1154, Adjusted R-squared:  0.08327
## F-statistic: 3.594 on 9 and 248 DF, p-value: 0.0003173
```

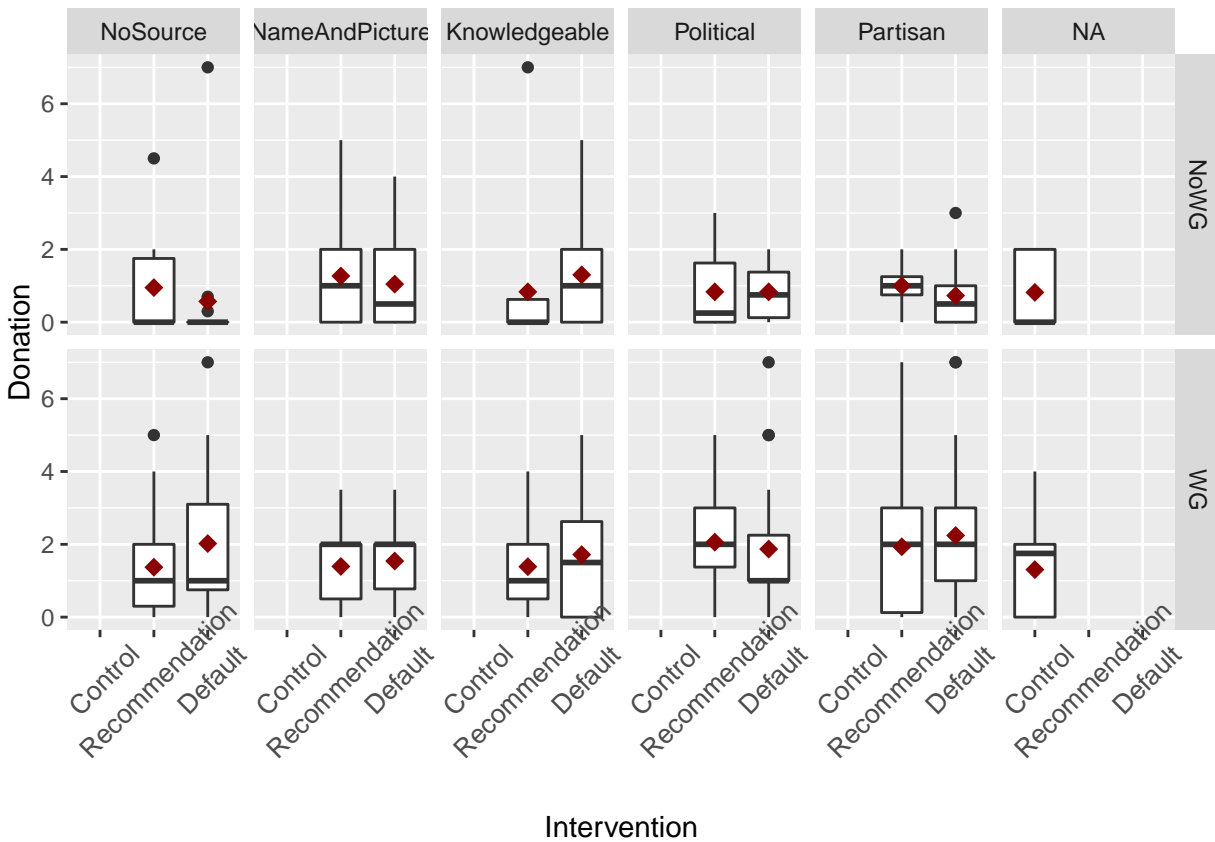
... warm Glow feeling/ feeling of guilt when (not) protecting the climate

```
## group: NoWG
##   vars   n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 126 0.93 1.38  0.05  0.67 0.07  0  7  7 2.09  5.23 0.12
## -----
## group: WG
##   vars   n mean   sd median trimmed  mad min max range skew kurtosis  se
## 1    1 228 1.72 1.56  1.75  1.51 1.56  0  7  7 1.16  1.42 0.1

##
##               NoWG  WG
## Not donated    63  46
```

```
## Donated 63 182
```

```
##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data: table(df$Donated, df$warmGlowD)
## X-squared = 32.489, df = 1, p-value = 1.199e-08
```



```
##
## Call:
## lm(formula = Donation ~ RecvsDefD + Sourcetype + warmGlowD, data = df)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.9814 -0.9603 -0.5160  0.5631  6.1941
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    0.77839    0.23650   3.291  0.00111 **
## RecvsDefDDef     0.09674    0.17119   0.565  0.57240
## SourcetypeNameAndPicture 0.08515    0.26859   0.317  0.75142
## SourcetypeKnowledgeable 0.02749    0.26726   0.103  0.91815
## SourcetypePolitical   0.23765    0.27401   0.867  0.38643
## SourcetypePartisan    0.30590    0.27031   1.132  0.25863
## warmGlowDWG         0.80037    0.17980   4.451 1.18e-05 ***
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.534 on 316 degrees of freedom
## (31 observations deleted due to missingness)
## Multiple R-squared:  0.0688, Adjusted R-squared:  0.05112
## F-statistic: 3.891 on 6 and 316 DF,  p-value: 0.0009162

##
## Call:
## glm(formula = Donated ~ RecvsDefD + Sourcetype + warmGlowD, family = "binomial",
##      data = df)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -2.0852  -0.9775   0.5610   0.7915   1.4583
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)    -0.4903     0.3374  -1.453   0.1462
## RecvsDefDDef    -0.1493     0.2625  -0.569   0.5694
## SourcetypeNameAndPicture  0.7693     0.3969   1.938   0.0526 .
## SourcetypeKnowledgeable  0.3511     0.3853   0.911   0.3621
## SourcetypePolitical    1.0531     0.4317   2.440   0.0147 *
## SourcetypePartisan     0.7876     0.4073   1.934   0.0531 .
## warmGlowDWG          1.4904     0.2652   5.619 1.92e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
## Null deviance: 393.08  on 322  degrees of freedom
## Residual deviance: 351.54  on 316  degrees of freedom
## (31 observations deleted due to missingness)
## AIC: 365.54
##
## Number of Fisher Scoring iterations: 4
```

... judging carbon offsetting as a efficient way to protect the climate

```
##
##      0      1      2      3      4
## 34  55 140 102  23

##
##      Control RecNos DefNos RecNap DefNap RecPol DefPol RecPar DefPar RecKno
## 0          4        4        3        5        2        3        4        2        2        2
## 1          7        1        4        2        6        8        5        2        5        9
## 2          9       12       18       11       13       11       10       17       14       10
## 3          7       12        9       13       10        6        7        7       12       10
## 4          4        2        0        2        2        4        3        2        1        2
##
##      DefKno
```

```

##      0      3
##      1      6
##      2     15
##      3      9
##      4      1

## Warning in chisq.test(table(df$retireEffic, df$treatment)): Chi-squared
## approximation may be incorrect

##
## Pearson's Chi-squared test
##
## data:  table(df$retireEffic, df$treatment)
## X-squared = 36.118, df = 40, p-value = 0.6457

##
## Call:
## glm(formula = retireEffD ~ treatment, family = "binomial", data = df)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.1010  -0.9508  -0.8446   1.3867   1.6304
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)   -0.59784    0.37538  -1.593   0.111
## treatmentRecNos  0.40368    0.52073   0.775   0.438
## treatmentDefNos -0.42381    0.54039  -0.784   0.433
## treatmentRecNap  0.41552    0.51296   0.810   0.418
## treatmentDefNap  0.03822    0.52140   0.073   0.942
## treatmentRecPol -0.19062    0.53513  -0.356   0.722
## treatmentDefPol -0.04402    0.54179  -0.081   0.935
## treatmentRecPar -0.24946    0.54739  -0.456   0.649
## treatmentDefPar  0.11826    0.51522   0.230   0.818
## treatmentRecKno  0.03822    0.52140   0.073   0.942
## treatmentDefKno -0.27763    0.53158  -0.522   0.601
##
## (Dispersion parameter for binomial family taken to be 1)
##
##      Null deviance: 459.74  on 353  degrees of freedom
## Residual deviance: 454.50  on 343  degrees of freedom
## AIC: 476.5
##
## Number of Fisher Scoring iterations: 4

```

Judgment (dummy) is independent of treatment

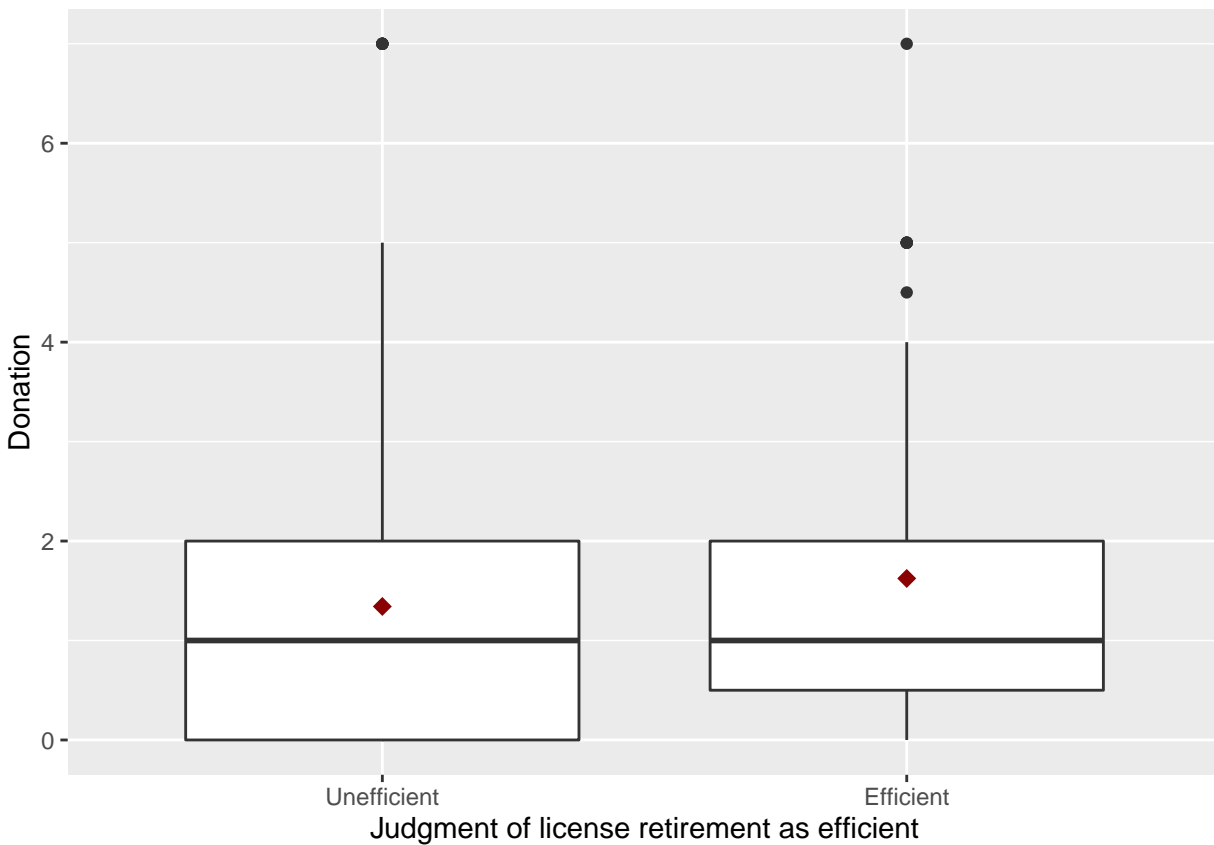
Average donation efficiency-judgment differences (by treatment)

```

## group: Unefficient
##      vars      n mean  sd median trimmed  mad min max range skew kurtosis   se
## 1      1 229 1.34 1.6      1    1.05 1.48   0   7     7 1.58     2.63 0.11

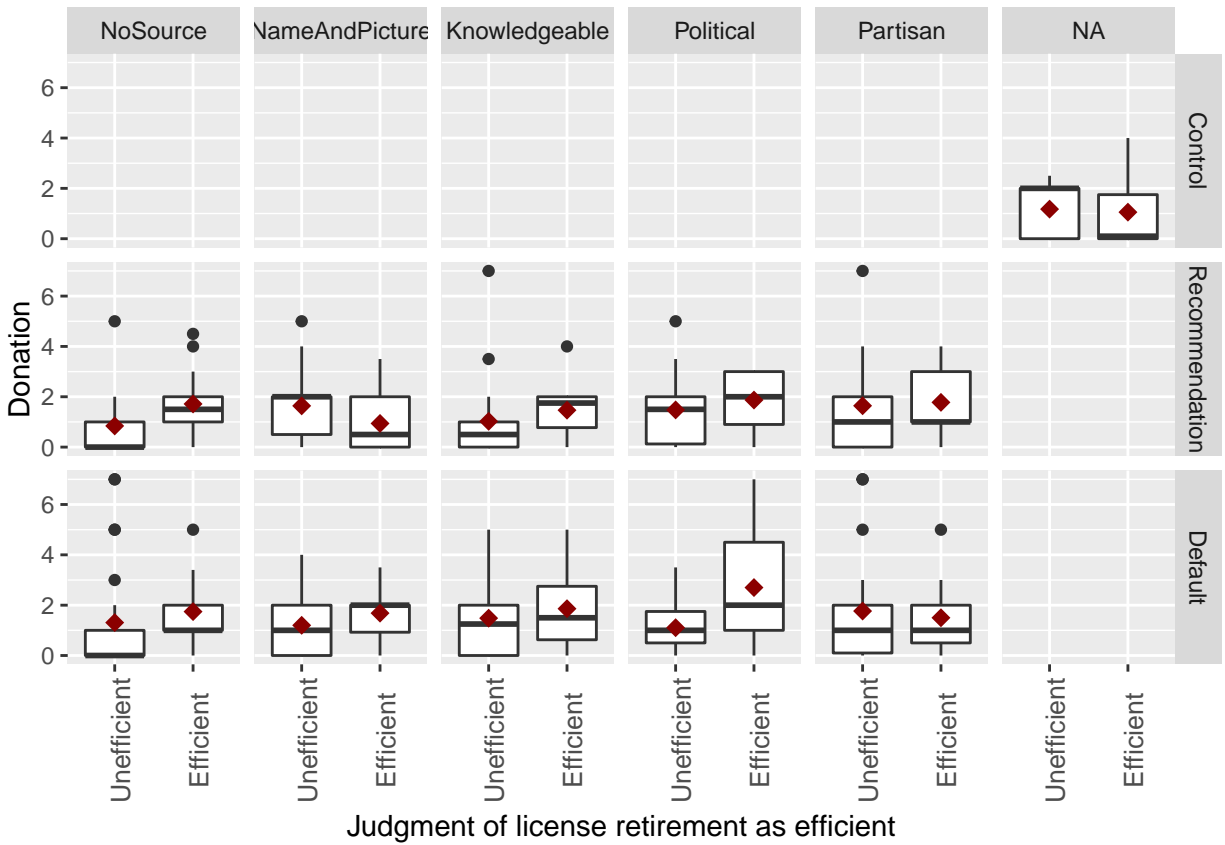
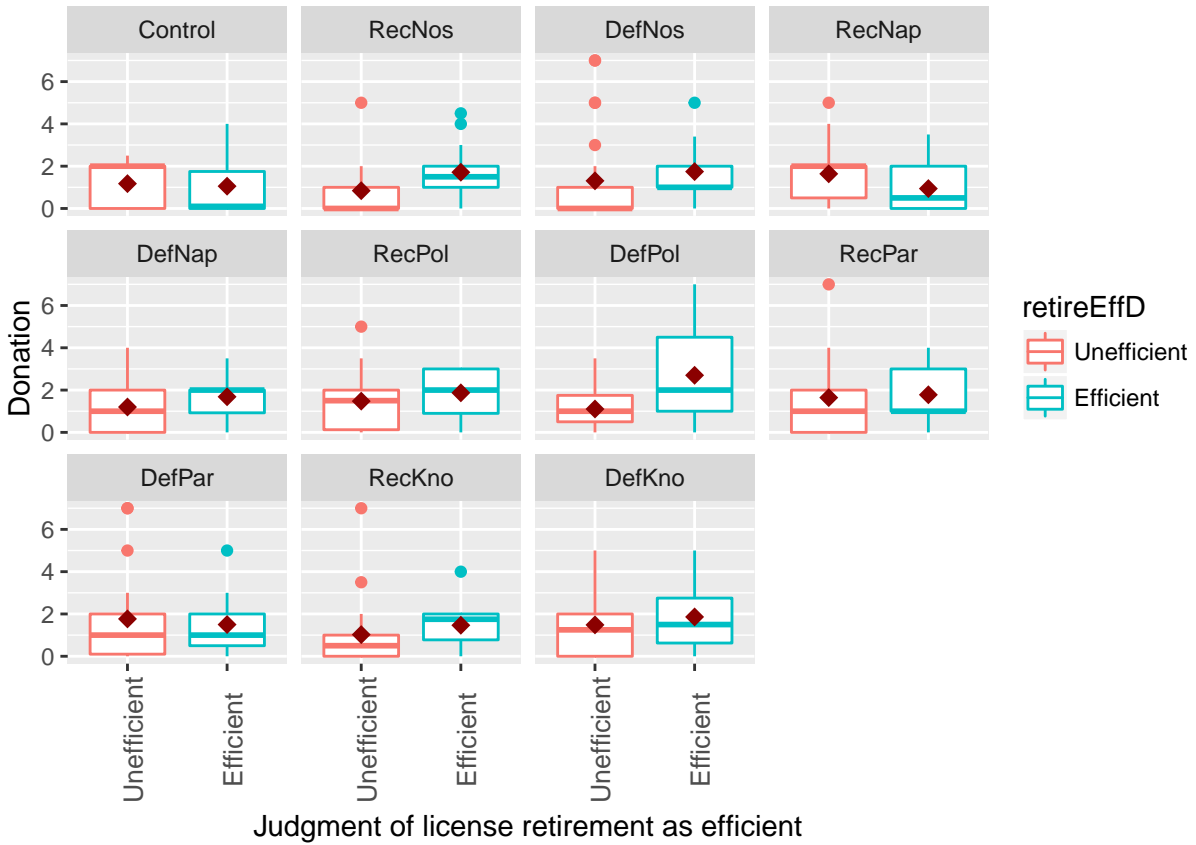
```

```
## -----
## group: Efficient
##   vars   n mean   sd median trimmed  mad min max range skew kurtosis   se
## 1     1 125 1.62 1.43     1   1.45 1.48   0   7    7 0.97    0.78 0.13
```



```
##
## Welch Two Sample t-test
##
## data: df$Donation by df$retireEffD
## t = -1.6958, df = 278.81, p-value = 0.09104
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.60857476 0.04529092
## sample estimates:
## mean in group Unefficient    mean in group Efficient
##           1.342358           1.624000

##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$retireEffD
## W = 11934, p-value = 0.008118
## alternative hypothesis: true location shift is not equal to 0
```



```
##
## Call:
## lm(formula = Donation ~ treatment * retireEffD, data = df)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.700 -1.175 -0.308  0.800  5.976
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1.17500    0.34595   3.396 0.000765
## treatmentRecNos    -0.33382    0.51037  -0.654 0.513511
## treatmentDefNos     0.13300    0.46413   0.287 0.774632
## treatmentRecNap     0.46389    0.50265   0.923 0.356734
## treatmentDefNap     0.02500    0.48338   0.052 0.958784
## treatmentRecPol     0.30227    0.47799   0.632 0.527574
## treatmentDefPol    -0.06974    0.49564  -0.141 0.888191
## treatmentRecPar     0.46786    0.48338   0.968 0.333807
## treatmentDefPar     0.59167    0.48338   1.224 0.221814
## treatmentRecKno    -0.15119    0.48338  -0.313 0.754647
## treatmentDefKno     0.30833    0.46841   0.658 0.510833
## retireEffDEfficient -0.12045    0.58075  -0.207 0.835816
## treatmentRecNos:retireEffDEfficient  0.99356    0.80563   1.233 0.218346
## treatmentDefNos:retireEffDEfficient  0.55690    0.83604   0.666 0.505802
## treatmentRecNap:retireEffDEfficient -0.57843    0.79361  -0.729 0.466600
## treatmentDefNap:retireEffDEfficient  0.60379    0.80667   0.748 0.454693
## treatmentRecPol:retireEffDEfficient  0.51318    0.82791   0.620 0.535779
## treatmentDefPol:retireEffDEfficient  1.71519    0.83822   2.046 0.041521
## treatmentRecPar:retireEffDEfficient  0.25538    0.84688   0.302 0.763185
## treatmentDefPar:retireEffDEfficient -0.14621    0.79710  -0.183 0.854573
## treatmentRecKno:retireEffDEfficient  0.56331    0.80667   0.698 0.485468
## treatmentDefKno:retireEffDEfficient  0.49712    0.82241   0.604 0.545947
##
## (Intercept)          ***
## treatmentRecNos
## treatmentDefNos
## treatmentRecNap
## treatmentDefNap
## treatmentRecPol
## treatmentDefPol
## treatmentRecPar
## treatmentDefPar
## treatmentRecKno
## treatmentDefKno
## retireEffDEfficient
## treatmentRecNos:retireEffDEfficient
## treatmentDefNos:retireEffDEfficient
## treatmentRecNap:retireEffDEfficient
## treatmentDefNap:retireEffDEfficient
## treatmentRecPol:retireEffDEfficient
## treatmentDefPol:retireEffDEfficient *
## treatmentRecPar:retireEffDEfficient
## treatmentDefPar:retireEffDEfficient
## treatmentRecKno:retireEffDEfficient
```



```
## treatmentDefKno:retireEffDEfficient
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.547 on 332 degrees of freedom
## Multiple R-squared:  0.05624,    Adjusted R-squared:  -0.003453
## F-statistic: 0.9422 on 21 and 332 DF,  p-value: 0.5364
```

... moral duty protect the climate

```
##
## No moral duty      Moral duty
##           136           218

##
##           Control RecNos DefNos RecNap DefNap RecPol DefPol RecPar
## No moral duty      11      13      14      19      16      5       7      12
## Moral duty         20      18      20      14      17      27      22      18
##
##           DefPar RecKno DefKno
## No moral duty      10      17      12
## Moral duty         24      16      22

##
## Pearson's Chi-squared test
##
## data:  table(df$moralD, df$treatment)
## X-squared = 20.174, df = 10, p-value = 0.02765

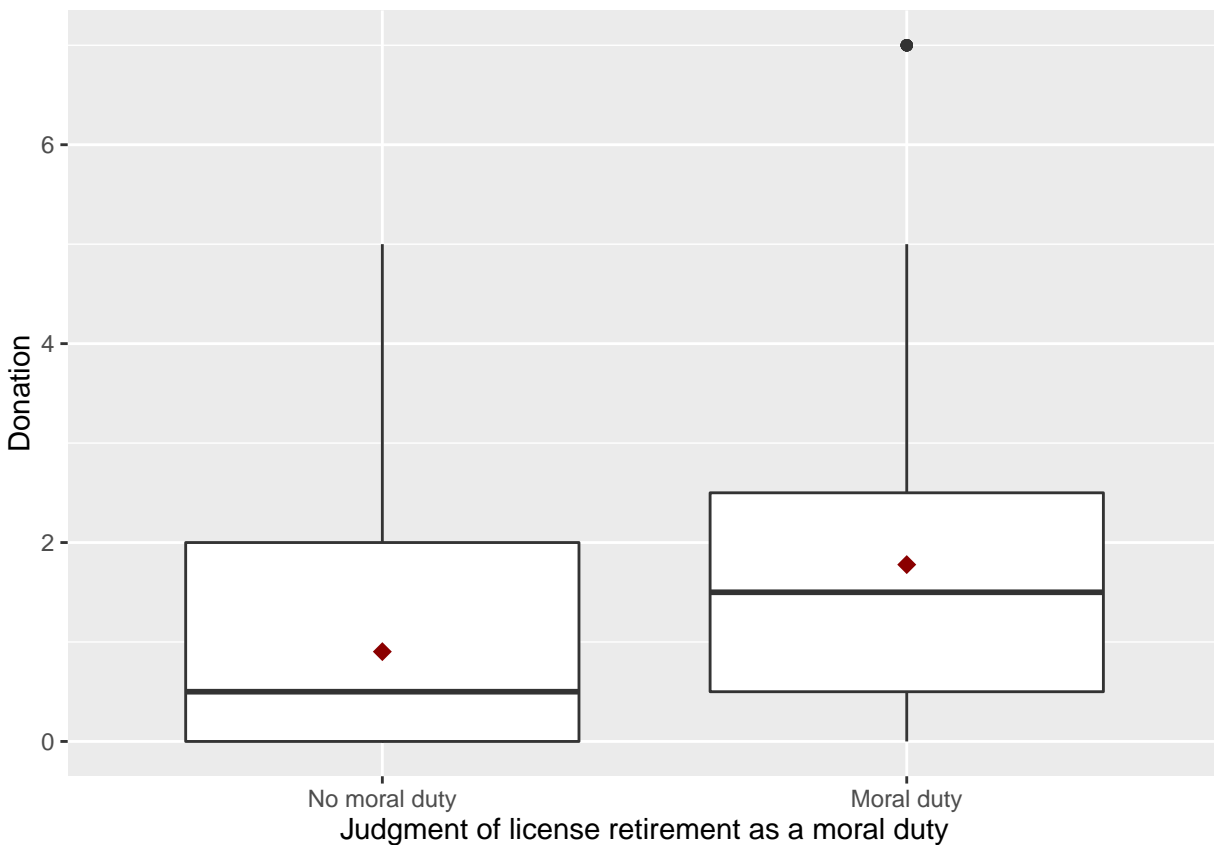
##
## Call:
## glm(formula = moralD ~ treatment, family = "binomial", data = df)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.9268  -1.2033   0.7433   1.0108   1.3095
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)    0.597837   0.375379   1.593   0.1112
## treatmentRecNos -0.272415   0.522865  -0.521   0.6024
## treatmentDefNos -0.241162   0.512189  -0.471   0.6378
## treatmentRecNap -0.903219   0.514752  -1.755   0.0793 .
## treatmentDefNap -0.537212   0.512087  -1.049   0.2941
## treatmentRecPol  1.088562   0.614773   1.771   0.0766 .
## treatmentDefPol  0.547295   0.573777   0.954   0.3402
## treatmentRecPar -0.192372   0.528959  -0.364   0.7161
## treatmentDefPar  0.277632   0.531578   0.522   0.6015
## treatmentRecKno -0.658462   0.512087  -1.286   0.1985
## treatmentDefKno  0.008299   0.519324   0.016   0.9873
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##
## (Dispersion parameter for binomial family taken to be 1)
##
## Null deviance: 471.58 on 353 degrees of freedom
## Residual deviance: 450.50 on 343 degrees of freedom
## AIC: 472.5
##
## Number of Fisher Scoring iterations: 4
```

Moral duty to protect climate is significantly different in treatments.

Average donation moral duty differences (by treatment)

```
## group: No moral duty
## vars  n mean  sd median trimmed  mad min max range skew kurtosis  se
## 1    1 136  0.9 1.07   0.5   0.77 0.74  0  5    5 1.27   1.74 0.09
## -----
## group: Moral duty
## vars  n mean  sd median trimmed  mad min max range skew kurtosis  se
## 1    1 218  1.78 1.69   1.5   1.54 1.48  0  7    7 1.15   1.12 0.11
```



```
##
## Welch Two Sample t-test
##
```

```
## data: df$Donation by df$moralD
## t = -5.9481, df = 351.88, p-value = 6.548e-09
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -1.1643716 -0.5857093
## sample estimates:
## mean in group No moral duty      mean in group Moral duty
##                0.9029412                1.7779817

##
## Wilcoxon rank sum test with continuity correction
##
## data: df$Donation by df$moralD
## W = 10152, p-value = 3.236e-07
## alternative hypothesis: true location shift is not equal to 0
```

The significant differences are not really dependable, since moral duty correlates with treatments.

```
##
## Call:
## lm(formula = Donation ~ treatment, data = df)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.6833 -1.2121 -0.3485  0.7431  5.8152
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    1.13226    0.27915   4.056 6.18e-05 ***
## treatmentRecNos  0.10323    0.39478   0.261  0.794
## treatmentDefNos  0.29127    0.38597   0.755  0.451
## treatmentRecNap  0.18895    0.38875   0.486  0.627
## treatmentDefNap  0.24350    0.38875   0.626  0.531
## treatmentRecPol  0.46774    0.39168   1.194  0.233
## treatmentDefPol  0.52291    0.40153   1.302  0.194
## treatmentRecPar  0.55108    0.39805   1.384  0.167
## treatmentDefPar  0.53245    0.38597   1.380  0.169
## treatmentRecKno  0.05259    0.38875   0.135  0.892
## treatmentDefKno  0.46186    0.38597   1.197  0.232
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.554 on 343 degrees of freedom
## Multiple R-squared:  0.01598,    Adjusted R-squared:  -0.01271
## F-statistic: 0.5569 on 10 and 343 DF,  p-value: 0.8486

##
## Call:
## lm(formula = Donation ~ RecvsDefD * Sourcetype, data = df)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.6833 -1.2355 -0.3758  0.6788  5.8152
```

```
##
## Coefficients:
##
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1.23548    0.28512   4.333 1.98e-05
## RecvsDefDDef      0.18805    0.39423   0.477   0.634
## SourcetypeNameAndPicture 0.08573    0.39707   0.216   0.829
## SourcetypeKnowledgeable -0.05064    0.39707  -0.128   0.899
## SourcetypePolitical    0.36452    0.40006   0.911   0.363
## SourcetypePartisan    0.44785    0.40657   1.102   0.272
## RecvsDefDDef:SourcetypeNameAndPicture -0.13350    0.55511  -0.240   0.810
## RecvsDefDDef:SourcetypeKnowledgeable  0.22122    0.55309   0.400   0.689
## RecvsDefDDef:SourcetypePolitical    -0.13287    0.56663  -0.234   0.815
## RecvsDefDDef:SourcetypePartisan    -0.20667    0.55995  -0.369   0.712
##
## (Intercept)          ***
## RecvsDefDDef
## SourcetypeNameAndPicture
## SourcetypeKnowledgeable
## SourcetypePolitical
## SourcetypePartisan
## RecvsDefDDef:SourcetypeNameAndPicture
## RecvsDefDDef:SourcetypeKnowledgeable
## RecvsDefDDef:SourcetypePolitical
## RecvsDefDDef:SourcetypePartisan
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.587 on 313 degrees of freedom
## (31 observations deleted due to missingness)
## Multiple R-squared:  0.01276,    Adjusted R-squared:  -0.01562
## F-statistic: 0.4496 on 9 and 313 DF,  p-value: 0.9071

##
## Call:
## lm(formula = Donation ~ treatment + moralD, data = df)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.0301 -0.9534 -0.2645  0.9668  5.3686
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      0.5730    0.2905   1.972  0.0494 *
## treatmentRecNos   0.1592    0.3811   0.418  0.6765
## treatmentDefNos   0.3406    0.3726   0.914  0.3612
## treatmentRecNap   0.3805    0.3770   1.009  0.3135
## treatmentDefNap   0.3562    0.3758   0.948  0.3438
## treatmentRecPol   0.2956    0.3794   0.779  0.4365
## treatmentDefPol   0.4246    0.3879   1.094  0.2745
## treatmentRecPar   0.5902    0.3842   1.536  0.1254
## treatmentDefPar   0.4798    0.3726   1.288  0.1987
## treatmentRecKno   0.1916    0.3761   0.509  0.6108
## treatmentDefKno   0.4602    0.3724   1.236  0.2174
## moralDMoral duty  0.8669    0.1688   5.137 4.7e-07 ***
```

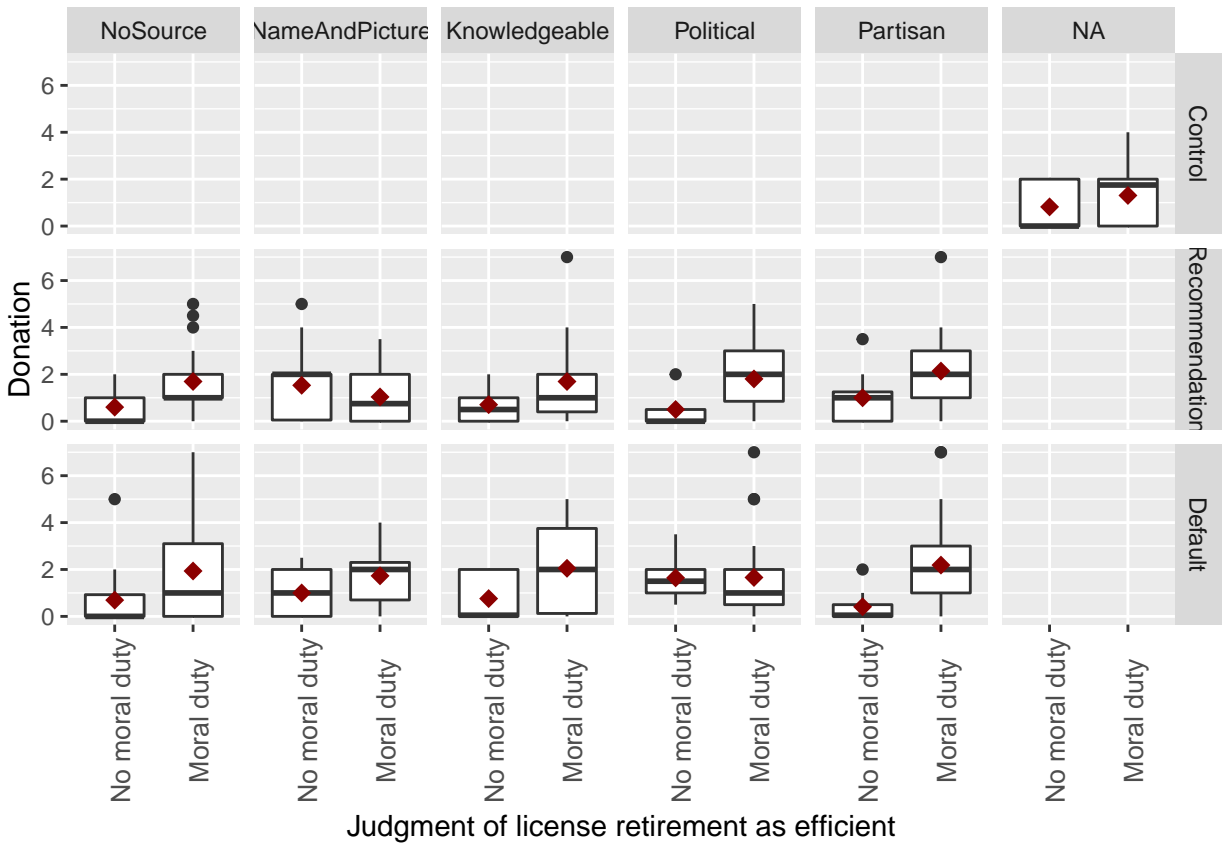
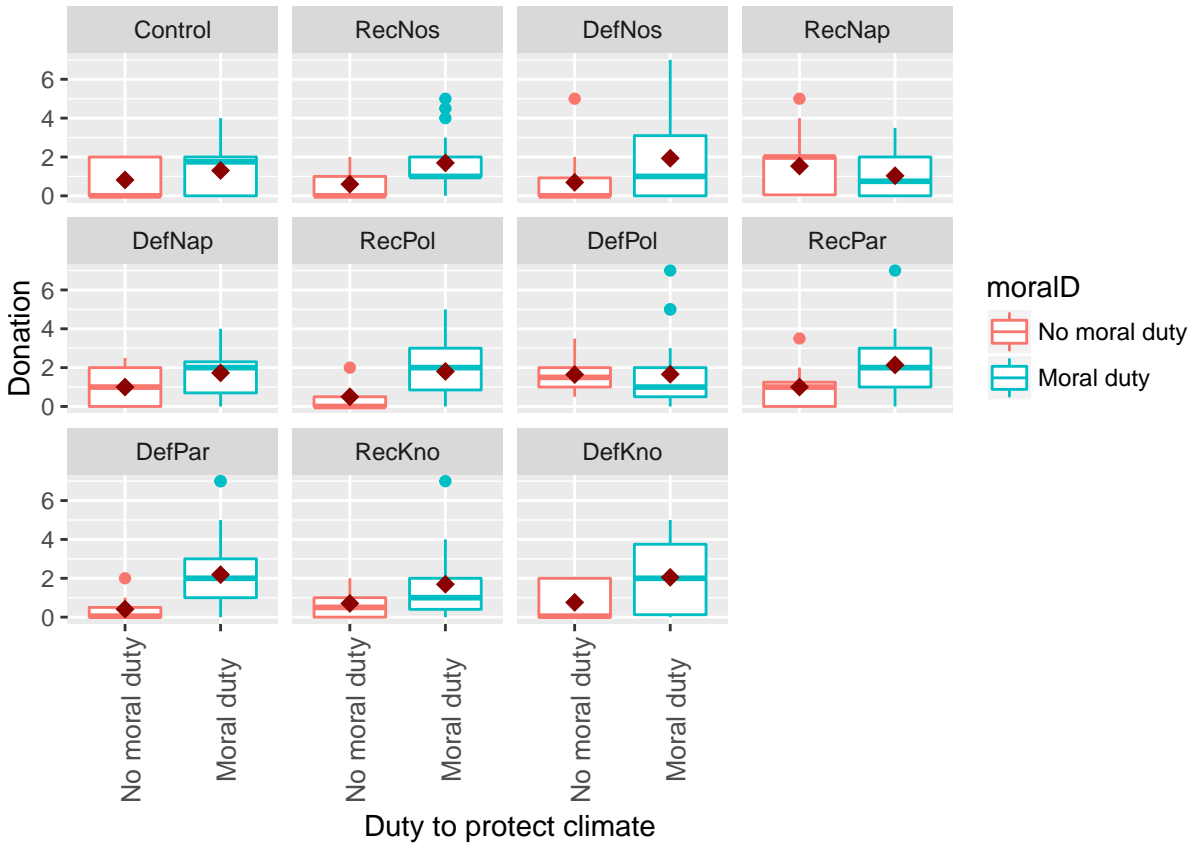
```

## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.5 on 342 degrees of freedom
## Multiple R-squared:  0.08647,    Adjusted R-squared:  0.05708
## F-statistic: 2.943 on 11 and 342 DF,  p-value: 0.0009758

##
## Call:
## lm(formula = Donation ~ RecvsDefD * NosvsSomeD + moralD, data = df)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.8850 -0.9087 -0.3850  1.0228  5.2027
##
## Coefficients:
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                   0.7084     0.2908   2.436  0.0154
## RecvsDefDDef                   0.1812     0.3770   0.480  0.6312
## NosvsSomeDSome Source         0.2003     0.3039   0.659  0.5102
## moralDMoral duty               0.9078     0.1738   5.222 3.21e-07
## RecvsDefDDef:NosvsSomeDSome Source -0.1127     0.4219  -0.267  0.7896
##
## (Intercept)                  *
## RecvsDefDDef
## NosvsSomeDSome Source
## moralDMoral duty             ***
## RecvsDefDDef:NosvsSomeDSome Source
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.518 on 318 degrees of freedom
## (31 observations deleted due to missingness)
## Multiple R-squared:  0.08267,    Adjusted R-squared:  0.07113
## F-statistic: 7.164 on 4 and 318 DF,  p-value: 1.557e-05

```

When controlling for treatments, moral duty is a significant positive predictor for the Donation amount. Feeling morally obliged to contribute to climate protection raises the Donation by 0.87 ???, when controlling for treatments.



... income

```
##
## Call:
## lm(formula = Donation ~ treatment + income, data = df)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.2841 -1.2204 -0.3455  0.7513  5.5815
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    0.9322687  0.2970041   3.139  0.00185 **
## treatmentRecNos 0.1259023  0.3853424   0.327  0.74408
## treatmentDefNos 0.3240266  0.3770174   0.859  0.39072
## treatmentRecNap 0.1849262  0.3853627   0.480  0.63163
## treatmentDefNap 0.2388851  0.3821894   0.625  0.53237
## treatmentRecPol 0.4969523  0.3851522   1.290  0.19786
## treatmentDefPol 0.4949507  0.3920420   1.262  0.20766
## treatmentRecPar 0.5966247  0.3957567   1.508  0.13263
## treatmentDefPar 0.5748647  0.3792515   1.516  0.13053
## treatmentRecKno -0.0973724  0.3855650  -0.253  0.80078
## treatmentDefKno  0.2442904  0.3851104   0.634  0.52630
## income          0.0002704  0.0001603   1.687  0.09259 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.516 on 330 degrees of freedom
## (12 observations deleted due to missingness)
## Multiple R-squared:  0.03034,    Adjusted R-squared:  -0.001986
## F-statistic: 0.9385 on 11 and 330 DF,  p-value: 0.5033

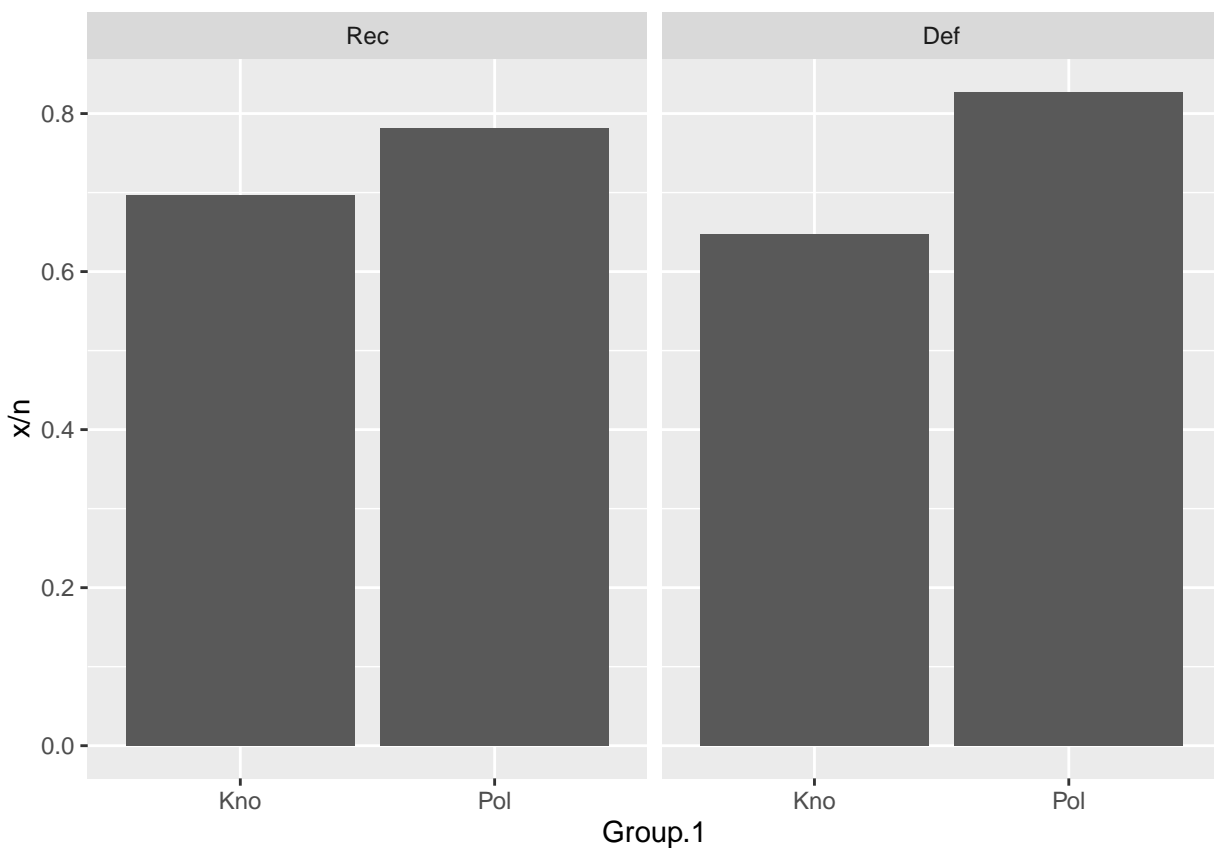
##
## Call:
## glm(formula = Donated ~ treatment + income, family = "binomial",
##      data = df)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.8760 -1.3180  0.7453  0.8836  1.1293
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)    3.157e-01  4.040e-01   0.781  0.4346
## treatmentRecNos 2.735e-01  5.232e-01   0.523  0.6012
## treatmentDefNos -2.061e-01  5.013e-01  -0.411  0.6811
## treatmentRecNap 4.177e-01  5.296e-01   0.789  0.4304
## treatmentDefNap 6.136e-01  5.359e-01   1.145  0.2523
## treatmentRecPol 9.072e-01  5.631e-01   1.611  0.1072
## treatmentDefPol 1.242e+00  6.121e-01   2.029  0.0425 *
## treatmentRecPar 5.924e-01  5.552e-01   1.067  0.2860
## treatmentDefPar 8.144e-01  5.455e-01   1.493  0.1354
## treatmentRecKno 4.180e-01  5.300e-01   0.789  0.4302
## treatmentDefKno 1.342e-01  5.181e-01   0.259  0.7956
```

```
## income          1.317e-05  2.376e-04  0.055  0.9558
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
## Null deviance: 428.11  on 341  degrees of freedom
## Residual deviance: 416.72  on 330  degrees of freedom
## (12 observations deleted due to missingness)
## AIC: 440.72
##
## Number of Fisher Scoring iterations: 4
```

Significant predictor for amount (intensive margin), but not for extensive margin.

Fractions of participants donating: Pol vs Knowledge

```
## Don't know how to automatically pick scale for object of type data.frame. Defaulting to continuous.
```



```
##
## Call:
## glm(formula = Donated ~ RecvsDefD * KnovsPol, family = "binomial",
## data = df)
##
```



```
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -1.8750  -1.4432   0.7026   0.8497   0.9331
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)      0.8329    0.3788   2.199   0.0279 *
## RecvsDefDDef     -0.2268    0.5218  -0.435   0.6638
## KnovsPolPol       0.4401    0.5713   0.770   0.4411
## RecvsDefDDef:KnovsPolPol 0.5224    0.8347   0.626   0.5314
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##      Null deviance: 148.19  on 127  degrees of freedom
## Residual deviance: 144.92  on 124  degrees of freedom
## (226 observations deleted due to missingness)
## AIC: 152.92
##
## Number of Fisher Scoring iterations: 4
```

Disaggregated reactance scores (4 categories)

Exclude observations with demandEffectD == 1

```
## group: 0
##   vars  n mean  sd median trimmed  mad min max range skew kurtosis  se
## 1     1 64 0.93 1.3   0.5   0.7 0.74   0  7   7 2.19   6.39 0.16
## -----
## group: 1
##   vars  n mean  sd median trimmed  mad min max range skew kurtosis  se
## 1     1 83 1.55 1.51   1   1.34 1.48   0  7   7 1.31   2.2 0.17
## -----
## group: 2
##   vars  n mean  sd median trimmed  mad min max range skew kurtosis  se
## 1     1 131 1.52 1.55   1   1.28 1.48   0  7   7 1.35   2.05 0.14
## -----
## group: 3
##   vars  n mean  sd median trimmed  mad min max range skew kurtosis  se
## 1     1 50 1.56 1.7   1   1.29 1.48   0  7   7 1.16   0.79 0.24
## -----
## group: 4
##   vars  n mean  sd median trimmed  mad min max range skew kurtosis  se
## 1     1 26 1.77 1.7   2   1.64 1.85   0  5   5 0.71   -0.6 0.33
##
## Kruskal-Wallis rank sum test
##
## data:  df$Donation by df$demandEffect
## Kruskal-Wallis chi-squared = 11.166, df = 4, p-value = 0.02476
```

```
##
##           0  1  2  3  4
## Not donated 28 19 38 16  8
## Donated     36 64 93 34 18

##
## Pearson's Chi-squared test
##
## data:  table(df$Donated, df$demandEffect)
## X-squared = 7.7038, df = 4, p-value = 0.1031

##
## Control RecNos DefNos RecNap DefNap RecPol DefPol RecPar DefPar RecKno
## 0         5      2      8      4      8      4      7      6      8      5
## 1         5      4      9     13      6      8      7     11      6      8
## 2        16     16     10      9     16     15      9     10     11     10
## 3         4      8      4      3      2      2      4      2      4      7
## 4         1      1      3      4      1      3      2      1      5      3
##
## DefKno
## 0         7
## 1         6
## 2         9
## 3        10
## 4         2

##
## Pearson's Chi-squared test with simulated p-value (based on 2000
## replicates)
##
## data:  table(df$demandEffect, df$treatment)
## X-squared = 46.611, df = NA, p-value = 0.2104
```

Chi²-Test suggests that experience of demand Effect does not depend on the treatment. Kruskal Wallis Test suggests that experiencing a demand effect has an impact on Donation amount. It is not significant (Chi²) with dependent variable Donated (extensive margin).

Use different codings for Reactance, EAI scores

Only look at subjects that contribute (possibly similar to Hurdle Model)

Change dependent variable Donation to log(Donation+1)

Hurdle Model

```
##
## Call:
```

```

## glm(formula = Donated ~ moralD + retireEffD + NosvsSomeD * RecvsDefD *
##   Reactance, family = "binomial", data = dfsub)
##
## Deviance Residuals:
##      Min       1Q   Median       3Q      Max
## -2.3432  -1.0774   0.6082   0.8293   1.4927
##
## Coefficients:
##                                Estimate Std. Error z value
## (Intercept)                   -3.4639     1.7125  -2.023
## moralDMoral duty                0.8887     0.2664   3.336
## retireEffDEfficient            1.0587     0.3059   3.461
## NosvsSomeDSome Source          4.0594     1.7738   2.289
## RecvsDefDDef                  2.9683     1.8659   1.591
## Reactance                      0.7711     0.4061   1.899
## NosvsSomeDSome Source:RecvsDefDDef -3.9997     2.0059  -1.994
## NosvsSomeDSome Source:Reactance  -0.8688     0.4195  -2.071
## RecvsDefDDef:Reactance          -0.8078     0.4340  -1.861
## NosvsSomeDSome Source:RecvsDefDDef:Reactance  1.0515     0.4599   2.286
##                                Pr(>|z|)
## (Intercept)                   0.043107 *
## moralDMoral duty              0.000850 ***
## retireEffDEfficient          0.000539 ***
## NosvsSomeDSome Source        0.022103 *
## RecvsDefDDef                 0.111658
## Reactance                    0.057626 .
## NosvsSomeDSome Source:RecvsDefDDef 0.046160 *
## NosvsSomeDSome Source:Reactance  0.038371 *
## RecvsDefDDef:Reactance        0.062701 .
## NosvsSomeDSome Source:RecvsDefDDef:Reactance 0.022248 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##      Null deviance: 389.24  on 319  degrees of freedom
## Residual deviance: 350.04  on 310  degrees of freedom
##   (30 observations deleted due to missingness)
## AIC: 370.04
##
## Number of Fisher Scoring iterations: 5
##
## Call:
## lm(formula = Donation ~ NosvsSomeD + RecvsDefD + belief + gender,
##   data = dfsub)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -3.8302  -0.8784  -0.0402   0.7205   5.7114
##
## Coefficients:
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                   -0.28924     0.23919  -1.209   0.2275

```

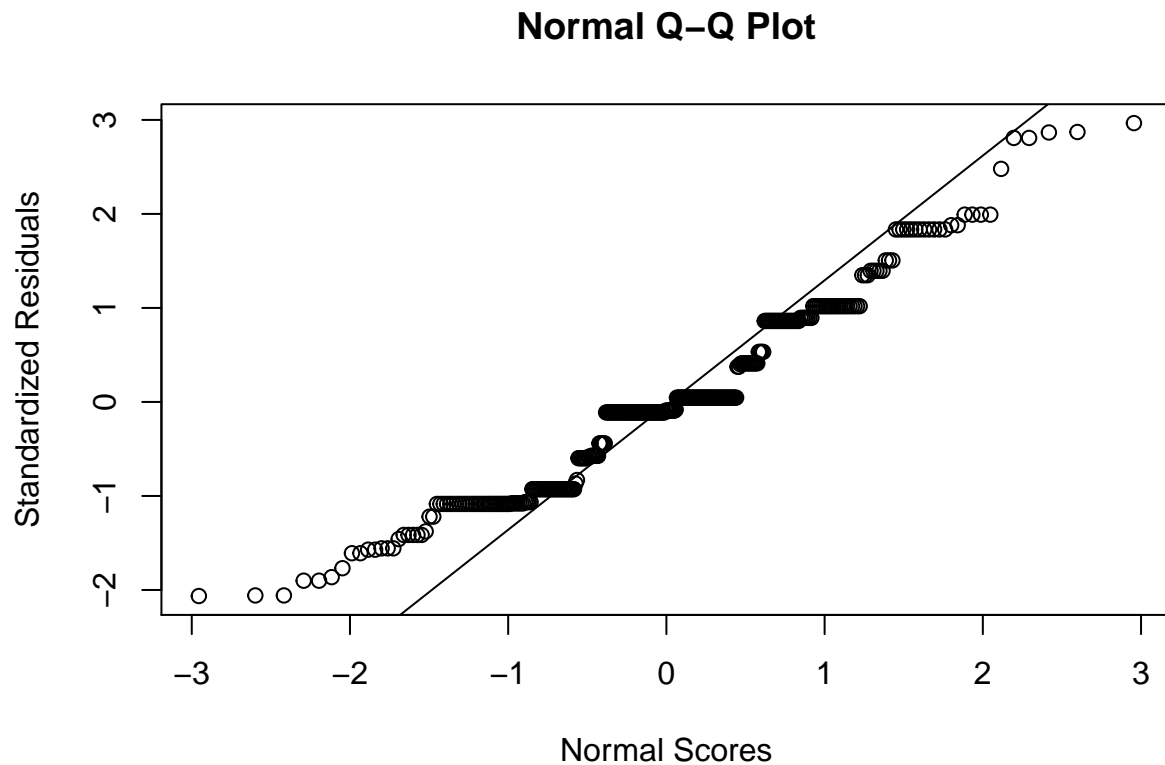
```

## NosvsSomeDSome Source -0.06009    0.18704   -0.321    0.7482
## RecvsDefDDef          0.17736    0.14902    1.190    0.2349
## belief                0.70023    0.07208    9.714   <2e-16 ***
## genderWeiblich        0.50097    0.15211    3.293    0.0011 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.332 on 315 degrees of freedom
## (30 observations deleted due to missingness)
## Multiple R-squared:  0.2584, Adjusted R-squared:  0.249
## F-statistic: 27.44 on 4 and 315 DF,  p-value: < 2.2e-16

##
## Call:
## mhurdle(formula = Donation ~ moralD + retireEffD + NosvsSomeD *
##         RecvsDefD * Reactance | NosvsSomeD + RecvsDefD + belief +
##         gender | 0, data = dfsub)
##
## Frequency of 0:  0.29688
##
## Coefficients :
##
##                                     Estimate Std. Error
## h1.(Intercept)                    -1.998915    0.951236
## h1.moralDMoral duty                 0.538670    0.158669
## h1.retireEffDEfficient              0.620922    0.174129
## h1.NosvsSomeDSome Source           2.360807    0.989879
## h1.RecvsDefDDef                   1.709939    1.055993
## h1.Reactance                      0.443590    0.220447
## h1.NosvsSomeDSome Source:RecvsDefDDef -2.294727    1.140993
## h1.NosvsSomeDSome Source:Reactance -0.503390    0.228975
## h1.RecvsDefDDef:Reactance          -0.466692    0.239487
## h1.NosvsSomeDSome Source:RecvsDefDDef:Reactance 0.606429    0.255479
## h2.(Intercept)                    -0.356651    0.151085
## h2.NosvsSomeDSome Source          -0.174946    0.117336
## h2.RecvsDefDDef                   0.089233    0.087665
## h2.belief                         0.389188    0.042861
## h2.genderWeiblich                 0.142373    0.091951
## sd                               0.656601    0.030952
##
##                                     t-value Pr(>|t|)
## h1.(Intercept)                    -2.1014 0.0356070 *
## h1.moralDMoral duty                 3.3949 0.0006865 ***
## h1.retireEffDEfficient              3.5659 0.0003627 ***
## h1.NosvsSomeDSome Source           2.3849 0.0170816 *
## h1.RecvsDefDDef                   1.6193 0.1053889
## h1.Reactance                      2.0122 0.0441959 *
## h1.NosvsSomeDSome Source:RecvsDefDDef -2.0112 0.0443080 *
## h1.NosvsSomeDSome Source:Reactance -2.1985 0.0279167 *
## h1.RecvsDefDDef:Reactance          -1.9487 0.0513297 .
## h1.NosvsSomeDSome Source:RecvsDefDDef:Reactance 2.3737 0.0176109 *
## h2.(Intercept)                    -2.3606 0.0182450 *
## h2.NosvsSomeDSome Source          -1.4910 0.1359659
## h2.RecvsDefDDef                   1.0179 0.3087327
## h2.belief                         9.0802 < 2.2e-16 ***
## h2.genderWeiblich                 1.5484 0.1215375

```

```
## sd 21.2132 < 2.2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Log-Likelihood: -504.58 on 16 Df
##
## R^2 :
## Coefficient of determination : 0.29446
## Likelihood ratio index      : 0.1021
```



Potentially interesting story. Is it possible to link regression to explain believes with regression to explain donations, of which belief is one independent variable? Probably overly complex. Of course here I will also have to check whether the assumptions for these models are met.