Beauty Ad Causal Experiment

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```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(plyr)
```

```
## ------------------------------------------------------------------------------
```

```
## You have loaded plyr after dplyr - this is likely to cause problems.
## If you need functions from both plyr and dplyr, please load plyr first, then dplyr:
## library(plyr); library(dplyr)
```

```
## ------------------------------------------------------------------------------
```

```
##
## Attaching package: 'plyr'
```

```
## The following objects are masked from 'package:dplyr':
##
##     arrange, count, desc, failwith, id, mutate, rename, summarise,
##     summarize
```

```
library(ggplot2)
library(car)
```

```
## Warning: package 'car' was built under R version 3.4.1
```

```
##
## Attaching package: 'car'
```

```
## The following object is masked from 'package:dplyr':
##
##     recode
```

Load & Clean data

```
setwd('/Users/ozimmer/GoogleDrive/berkeley/w241/BeatuyAd_CausalExperiment/Data')
d <- read.csv('BeautyAds_July 19, 2017_22.18.csv')

# Filter out irrelevant entries
d <- d[-c(1,2),]
d <- d[d$Status == 'IP Address',] #Remove survey preview
d <- d[d$Welcome == 'I agree',] #Remove users who didn't agree to participate
d <- d[d$Finished == 'True',] #Remove users who didn't finisn the survey
d <- d[d$Group %in% c('Treatment', 'Control'),]
d <- d[d$AudioCheck == 'Pineapple', ]

# Recoding of values
recode_values <- function(d, column){
  d[[column]] <- as.character(d[[column]])
  d[[column]] <- dplyr::recode(d[[column]], 'Strongly disagree' = -2,
                                       'Disagree' = -1, 'Agree' = 1, 'Strongly agree' =
2,
                                       .missing = 0, .default = 0)
}

columns_to_analyse <- c('Personal_Views_Confident', 'Personal_Views_Beautiful',
                        'Personal_Views_Beauty_Importance', 'Personal_Views_Relate_To_Mod
el')
for (column in columns_to_analyse){
  d[[column]] <- recode_values(d, column)
}

# Correct column names misspellings
d <- dplyr::rename(d, Coffee_validate_1 = Coffe_validate_1,
            Fit_i_identify_1 = FIt_i_identify_1,
            Work_i_identify_2 = work_i_identify_2)

# Combine and recode randomization 1 & 2 for the images
images <- c('Passion', 'Coffee', 'Couple', 'Work', 'Fit')
questions <- c('_i_identify_', '_i_prefer_', '_o_prefer_', '_validate_')
randomization <- c('1', '2')

for (image in images){
  for (question in questions){
    column1 <- paste(image, question, '1', sep = "")
    d[[column1]] <- ifelse(d[[column1]] == 'Ad 1', 2, ifelse(d[[column1]] == 'Ad 2', 1,
0))
    column2 <- paste(image, question, '2', sep = "")
    d[[column2]] <- ifelse(d[[column2]] == 'Ad 2', 2, ifelse(d[[column2]] == 'Ad 1', 1,
0))
    new_column <- paste(image, question, sep ="")
    d[[new_column]] <- d[[column1]] + d[[column2]] - 1
    d[[new_column]] <- ifelse(d[[new_column]] == -1, NA, d[[new_column]])
  }
}
```

ATE for text questions

```
columns_to_analyse <- c('Personal_Views_Confident', 'Personal_Views_Beautiful',
                        'Personal_Views_Beauty_Importance', 'Personal_Views_Relate_To_Mod
el')
for (column in columns_to_analyse){
  l1 <- lm(d[[column]] ~ d[['Group']])
  print(column)
  print(coef(summary(l1))[2,])
}
```

```
## [1] "Personal_Views_Confident"
##   Estimate Std. Error    t value   Pr(>|t|)
## 0.02564103 0.09016216 0.28438788 0.77626486
## [1] "Personal_Views_Beautiful"
##    Estimate  Std. Error     t value    Pr(>|t|)
## 0.005128205 0.095368810 0.053772351 0.957144214
## [1] "Personal_Views_Beauty_Importance"
##    Estimate  Std. Error     t value    Pr(>|t|)
## -0.05128205  0.10227822 -0.50139759  0.61637569
## [1] "Personal_Views_Relate_To_Model"
##   Estimate Std. Error    t value   Pr(>|t|)
## 0.24102564 0.11254984 2.14150141 0.03285591
```

Only Personal views relate to model has significant results.

Adding covariates

```
#str(d)
columns_to_analyse <- c('Personal_Views_Confident', 'Personal_Views_Beautiful',
                        'Personal_Views_Beauty_Importance', 'Personal_Views_Relate_To_Mod
el')
for (column in columns_to_analyse){
  l1 <- lm(d[[column]] ~ d[['Group']] + d$Age + d$Gender + d$Race + d$Location)
  print(column)
  print(summary(l1))
}
```

```
## [1] "Personal_Views_Confident"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]] + d$Age + d$Gender +
##     d$Race + d$Location)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -2.4932 -0.4907  0.1411  0.6119  1.5731
##
## Coefficients:
##                                                                    Estimate
## (Intercept)                                                        1.262973
## d[["Group"]]Treatment                                              0.048797
## d$Age25 - 34                                                      -0.177935
## d$Age35 - 44                                                      -0.070898
## d$Age45 - 54                                                      -0.219562
## d$Age55 - 64                                                      -0.352928
## d$Age65 - 74                                                       0.318822
## d$Age75 - 84                                                       1.502182
## d$GenderMale                                                       0.061126
## d$GenderOther                                                     -1.403576
## d$RaceAmerican Indian or Alaska Native                            -0.985494
## d$RaceAmerican Indian or Alaska Native,Other                      -1.339452
## d$RaceAsian                                                       -0.949393
## d$RaceBlack or African American                                   -1.205094
## d$RaceOther                                                       -1.822193
## d$RaceWhite                                                       -1.136917
## d$RaceWhite,American Indian or Alaska Native                      -1.325836
## d$RaceWhite,Asian                                                 -2.106510
## d$RaceWhite,Black or African American                             -2.249334
## d$RaceWhite,Black or African American,American Indian or Alaska Native -0.599337
## d$RaceWhite,Black or African American,Other                       -1.435302
## d$RaceWhite,Native Hawaiian or Pacific Islander                   -0.146163
## d$RaceWhite,Other                                                 -1.191528
## d$LocationAlaska                                                   0.941957
## d$LocationArizona                                                  0.657942
## d$LocationArkansas                                                 0.635790
## d$LocationCalifornia                                               0.277445
## d$LocationColorado                                                -0.122608
## d$LocationConnecticut                                              0.348195
## d$LocationDelaware                                                 0.582383
## d$LocationFlorida                                                  0.289139
## d$LocationGeorgia                                                  0.131035
## d$LocationHawaii                                                   0.815558
## d$LocationIdaho                                                    0.003082
## d$LocationIllinois                                                 0.455455
## d$LocationIndiana                                                 -0.001948
## d$LocationIowa                                                    -0.299963
## d$LocationKansas                                                  -0.134517
## d$LocationKentucky                                                -0.116413
## d$LocationLouisiana                                                0.072692
## d$LocationMaine                                                    0.307821
```

```
## d$LocationMaryland                                                    0.649374
## d$LocationMassachusetts                                              -0.194960
## d$LocationMichigan                                                    0.125120
## d$LocationMinnesota                                                  -0.381090
## d$LocationMississippi                                                -0.187182
## d$LocationMissouri                                                    0.328140
## d$LocationMontana                                                     0.555294
## d$LocationNevada                                                     -0.164755
## d$LocationNew Hampshire                                               0.540623
## d$LocationNew Jersey                                                  0.612490
## d$LocationNew Mexico                                                  0.196262
## d$LocationNew York                                                   -0.088450
## d$LocationNorth Carolina                                              0.358466
## d$LocationOhio                                                        0.531277
## d$LocationOklahoma                                                    1.112338
## d$LocationOregon                                                      0.026868
## d$LocationPennsylvania                                                0.362633
## d$LocationSouth Carolina                                              0.919395
## d$LocationTennessee                                                  -0.689364
## d$LocationTexas                                                       0.254414
## d$LocationUtah                                                        0.941957
## d$LocationVirginia                                                   -0.135929
## d$LocationWashington                                                 -0.511672
## d$LocationWest Virginia                                               0.928576
## d$LocationWisconsin                                                   0.621501
##                                                                     Std. Error
## (Intercept)                                                           1.066669
## d[["Group"]]Treatment                                                 0.100568
## d$Age25 - 34                                                          0.143422
## d$Age35 - 44                                                          0.174112
## d$Age45 - 54                                                          0.213452
## d$Age55 - 64                                                          0.237186
## d$Age65 - 74                                                          0.331229
## d$Age75 - 84                                                          0.986120
## d$GenderMale                                                          0.100469
## d$GenderOther                                                         0.939155
## d$RaceAmerican Indian or Alaska Native                                1.031289
## d$RaceAmerican Indian or Alaska Native,Other                          1.316627
## d$RaceAsian                                                           0.951942
## d$RaceBlack or African American                                       0.965157
## d$RaceOther                                                           0.980241
## d$RaceWhite                                                           0.945232
## d$RaceWhite,American Indian or Alaska Native                          1.101360
## d$RaceWhite,Asian                                                     1.299477
## d$RaceWhite,Black or African American                                 1.089720
## d$RaceWhite,Black or African American,American Indian or Alaska Native   1.325162
## d$RaceWhite,Black or African American,Other                           1.304239
## d$RaceWhite,Native Hawaiian or Pacific Islander                       1.372631
## d$RaceWhite,Other                                                     1.155946
## d$LocationAlaska                                                      0.991802
## d$LocationArizona                                                     0.561135
## d$LocationArkansas                                                    0.780749
## d$LocationCalifornia                                                  0.469022
## d$LocationColorado                                                    0.598258
```

```
## d$LocationConnecticut                                  0.773263
## d$LocationDelaware                                     0.778232
## d$LocationFlorida                                      0.473320
## d$LocationGeorgia                                      0.522705
## d$LocationHawaii                                       1.000342
## d$LocationIdaho                                        0.989352
## d$LocationIllinois                                     0.547554
## d$LocationIndiana                                      0.495807
## d$LocationIowa                                         0.627566
## d$LocationKansas                                       0.778993
## d$LocationKentucky                                     0.581115
## d$LocationLouisiana                                    0.776025
## d$LocationMaine                                        0.681063
## d$LocationMaryland                                     0.675911
## d$LocationMassachusetts                                0.548548
## d$LocationMichigan                                     0.519294
## d$LocationMinnesota                                    0.565925
## d$LocationMississippi                                  1.004423
## d$LocationMissouri                                     0.578382
## d$LocationMontana                                      0.782624
## d$LocationNevada                                       0.575136
## d$LocationNew Hampshire                                0.682915
## d$LocationNew Jersey                                   0.612517
## d$LocationNew Mexico                                   0.596931
## d$LocationNew York                                     0.475100
## d$LocationNorth Carolina                               0.505625
## d$LocationOhio                                         0.560681
## d$LocationOklahoma                                     0.788628
## d$LocationOregon                                       0.508184
## d$LocationPennsylvania                                 0.496604
## d$LocationSouth Carolina                               0.691498
## d$LocationTennessee                                    0.608608
## d$LocationTexas                                        0.493274
## d$LocationUtah                                         0.991802
## d$LocationVirginia                                     0.519924
## d$LocationWashington                                   0.584173
## d$LocationWest Virginia                                0.692117
## d$LocationWisconsin                                    0.597152
##                                                      t value
## (Intercept)                                            1.184
## d[["Group"]]Treatment                                  0.485
## d$Age25 - 34                                          -1.241
## d$Age35 - 44                                          -0.407
## d$Age45 - 54                                          -1.029
## d$Age55 - 64                                          -1.488
## d$Age65 - 74                                           0.963
## d$Age75 - 84                                           1.523
## d$GenderMale                                           0.608
## d$GenderOther                                         -1.495
## d$RaceAmerican Indian or Alaska Native                -0.956
## d$RaceAmerican Indian or Alaska Native,Other          -1.017
## d$RaceAsian                                           -0.997
## d$RaceBlack or African American                       -1.249
## d$RaceOther                                           -1.859
```

```
## d$RaceWhite                                                          -1.203
## d$RaceWhite,American Indian or Alaska Native                         -1.204
## d$RaceWhite,Asian                                                    -1.621
## d$RaceWhite,Black or African American                                -2.064
## d$RaceWhite,Black or African American,American Indian or Alaska Native  -0.452
## d$RaceWhite,Black or African American,Other                          -1.100
## d$RaceWhite,Native Hawaiian or Pacific Islander                      -0.106
## d$RaceWhite,Other                                                    -1.031
## d$LocationAlaska                                                      0.950
## d$LocationArizona                                                     1.173
## d$LocationArkansas                                                    0.814
## d$LocationCalifornia                                                  0.592
## d$LocationColorado                                                   -0.205
## d$LocationConnecticut                                                 0.450
## d$LocationDelaware                                                    0.748
## d$LocationFlorida                                                     0.611
## d$LocationGeorgia                                                     0.251
## d$LocationHawaii                                                      0.815
## d$LocationIdaho                                                       0.003
## d$LocationIllinois                                                    0.832
## d$LocationIndiana                                                    -0.004
## d$LocationIowa                                                       -0.478
## d$LocationKansas                                                     -0.173
## d$LocationKentucky                                                   -0.200
## d$LocationLouisiana                                                   0.094
## d$LocationMaine                                                       0.452
## d$LocationMaryland                                                    0.961
## d$LocationMassachusetts                                              -0.355
## d$LocationMichigan                                                    0.241
## d$LocationMinnesota                                                  -0.673
## d$LocationMississippi                                                -0.186
## d$LocationMissouri                                                    0.567
## d$LocationMontana                                                     0.710
## d$LocationNevada                                                     -0.286
## d$LocationNew Hampshire                                               0.792
## d$LocationNew Jersey                                                  1.000
## d$LocationNew Mexico                                                  0.329
## d$LocationNew York                                                   -0.186
## d$LocationNorth Carolina                                              0.709
## d$LocationOhio                                                        0.948
## d$LocationOklahoma                                                    1.410
## d$LocationOregon                                                      0.053
## d$LocationPennsylvania                                                0.730
## d$LocationSouth Carolina                                              1.330
## d$LocationTennessee                                                  -1.133
## d$LocationTexas                                                       0.516
## d$LocationUtah                                                        0.950
## d$LocationVirginia                                                   -0.261
## d$LocationWashington                                                 -0.876
## d$LocationWest Virginia                                               1.342
## d$LocationWisconsin                                                   1.041
##                                                                   Pr(>|t|)
## (Intercept)                                                         0.2373
## d[["Group"]]Treatment                                               0.6279
```

```
## d$Age25 - 34                                                          0.2156
## d$Age35 - 44                                                          0.6841
## d$Age45 - 54                                                          0.3044
## d$Age55 - 64                                                          0.1377
## d$Age65 - 74                                                          0.3365
## d$Age75 - 84                                                          0.1287
## d$GenderMale                                                          0.5433
## d$GenderOther                                                         0.1360
## d$RaceAmerican Indian or Alaska Native                                0.3400
## d$RaceAmerican Indian or Alaska Native,Other                          0.3098
## d$RaceAsian                                                           0.3194
## d$RaceBlack or African American                                       0.2127
## d$RaceOther                                                           0.0639
## d$RaceWhite                                                           0.2299
## d$RaceWhite,American Indian or Alaska Native                          0.2295
## d$RaceWhite,Asian                                                     0.1060
## d$RaceWhite,Black or African American                                 0.0398
## d$RaceWhite,Black or African American,American Indian or Alaska Native  0.6514
## d$RaceWhite,Black or African American,Other                           0.2719
## d$RaceWhite,Native Hawaiian or Pacific Islander                       0.9153
## d$RaceWhite,Other                                                     0.3034
## d$LocationAlaska                                                      0.3430
## d$LocationArizona                                                     0.2418
## d$LocationArkansas                                                    0.4161
## d$LocationCalifornia                                                  0.5546
## d$LocationColorado                                                    0.8377
## d$LocationConnecticut                                                 0.6528
## d$LocationDelaware                                                    0.4548
## d$LocationFlorida                                                     0.5417
## d$LocationGeorgia                                                     0.8022
## d$LocationHawaii                                                      0.4155
## d$LocationIdaho                                                       0.9975
## d$LocationIllinois                                                    0.4061
## d$LocationIndiana                                                     0.9969
## d$LocationIowa                                                        0.6330
## d$LocationKansas                                                      0.8630
## d$LocationKentucky                                                    0.8414
## d$LocationLouisiana                                                   0.9254
## d$LocationMaine                                                       0.6516
## d$LocationMaryland                                                    0.3374
## d$LocationMassachusetts                                               0.7225
## d$LocationMichigan                                                    0.8098
## d$LocationMinnesota                                                   0.5012
## d$LocationMississippi                                                 0.8523
## d$LocationMissouri                                                    0.5709
## d$LocationMontana                                                     0.4785
## d$LocationNevada                                                      0.7747
## d$LocationNew Hampshire                                               0.4291
## d$LocationNew Jersey                                                  0.3181
## d$LocationNew Mexico                                                  0.7425
## d$LocationNew York                                                    0.8524
## d$LocationNorth Carolina                                              0.4789
## d$LocationOhio                                                        0.3441
## d$LocationOklahoma                                                    0.1594
```

```
## d$LocationOregon                                                    0.9579
## d$LocationPennsylvania                                              0.4658
## d$LocationSouth Carolina                                            0.1846
## d$LocationTennessee                                                 0.2582
## d$LocationTexas                                                     0.6064
## d$LocationUtah                                                      0.3430
## d$LocationVirginia                                                  0.7939
## d$LocationWashington                                                0.3817
## d$LocationWest Virginia                                             0.1807
## d$LocationWisconsin                                                 0.2988
##
## (Intercept)
## d[["Group"]]Treatment
## d$Age25 - 34
## d$Age35 - 44
## d$Age45 - 54
## d$Age55 - 64
## d$Age65 - 74
## d$Age75 - 84
## d$GenderMale
## d$GenderOther
## d$RaceAmerican Indian or Alaska Native
## d$RaceAmerican Indian or Alaska Native,Other
## d$RaceAsian
## d$RaceBlack or African American
## d$RaceOther                                                        .
## d$RaceWhite
## d$RaceWhite,American Indian or Alaska Native
## d$RaceWhite,Asian
## d$RaceWhite,Black or African American                              *
## d$RaceWhite,Black or African American,American Indian or Alaska Native
## d$RaceWhite,Black or African American,Other
## d$RaceWhite,Native Hawaiian or Pacific Islander
## d$RaceWhite,Other
## d$LocationAlaska
## d$LocationArizona
## d$LocationArkansas
## d$LocationCalifornia
## d$LocationColorado
## d$LocationConnecticut
## d$LocationDelaware
## d$LocationFlorida
## d$LocationGeorgia
## d$LocationHawaii
## d$LocationIdaho
## d$LocationIllinois
## d$LocationIndiana
## d$LocationIowa
## d$LocationKansas
## d$LocationKentucky
## d$LocationLouisiana
## d$LocationMaine
## d$LocationMaryland
## d$LocationMassachusetts
```

```
## d$LocationMichigan
## d$LocationMinnesota
## d$LocationMississippi
## d$LocationMissouri
## d$LocationMontana
## d$LocationNevada
## d$LocationNew Hampshire
## d$LocationNew Jersey
## d$LocationNew Mexico
## d$LocationNew York
## d$LocationNorth Carolina
## d$LocationOhio
## d$LocationOklahoma
## d$LocationOregon
## d$LocationPennsylvania
## d$LocationSouth Carolina
## d$LocationTennessee
## d$LocationTexas
## d$LocationUtah
## d$LocationVirginia
## d$LocationWashington
## d$LocationWest Virginia
## d$LocationWisconsin
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.8843 on 324 degrees of freedom
## Multiple R-squared:  0.1763, Adjusted R-squared:  0.01103
## F-statistic: 1.067 on 65 and 324 DF,  p-value: 0.3517
##
## [1] "Personal_Views_Beautiful"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]] + d$Age + d$Gender +
##     d$Race + d$Location)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.69181 -0.57178  0.05302  0.69233  1.64643
##
## Coefficients:
##                                                                  Estimate
## (Intercept)                                                    -0.8683389
## d[["Group"]]Treatment                                          -0.0211181
## d$Age25 - 34                                                    0.0115195
## d$Age35 - 44                                                    0.1847817
## d$Age45 - 54                                                   -0.2436230
## d$Age55 - 64                                                   -0.3049160
## d$Age65 - 74                                                   -0.0864234
## d$Age75 - 84                                                   -1.2215575
## d$GenderMale                                                   -0.2236980
## d$GenderOther                                                  -1.8486136
## d$RaceAmerican Indian or Alaska Native                          1.6102442
## d$RaceAmerican Indian or Alaska Native,Other                   -0.0979582
```

```
## d$RaceAsian                                                          1.2727170
## d$RaceBlack or African American                                      1.3734582
## d$RaceOther                                                          0.3303833
## d$RaceWhite                                                          1.1785825
## d$RaceWhite,American Indian or Alaska Native                         0.8392542
## d$RaceWhite,Asian                                                    2.2305227
## d$RaceWhite,Black or African American                                1.4078858
## d$RaceWhite,Black or African American,American Indian or Alaska Native  1.7005652
## d$RaceWhite,Black or African American,Other                          0.9441768
## d$RaceWhite,Native Hawaiian or Pacific Islander                      2.0805175
## d$RaceWhite,Other                                                    1.5955935
## d$LocationAlaska                                                     0.9230531
## d$LocationArizona                                                    0.2746855
## d$LocationArkansas                                                  -0.0254151
## d$LocationCalifornia                                                -0.0133416
## d$LocationColorado                                                  -0.0346769
## d$LocationConnecticut                                                0.8759858
## d$LocationDelaware                                                   0.2189293
## d$LocationFlorida                                                    0.1363407
## d$LocationGeorgia                                                    0.2908360
## d$LocationHawaii                                                     0.6052205
## d$LocationIdaho                                                      0.6993550
## d$LocationIllinois                                                  -0.4731495
## d$LocationIndiana                                                   -0.2685025
## d$LocationIowa                                                       0.2771114
## d$LocationKansas                                                     0.1379418
## d$LocationKentucky                                                  -0.7112181
## d$LocationLouisiana                                                 -0.1941918
## d$LocationMaine                                                     -0.4243590
## d$LocationMaryland                                                   0.7739210
## d$LocationMassachusetts                                              0.1016356
## d$LocationMichigan                                                  -0.1840448
## d$LocationMinnesota                                                 -0.4096340
## d$LocationMississippi                                                0.9134544
## d$LocationMissouri                                                   0.4415970
## d$LocationMontana                                                   -0.6383274
## d$LocationNevada                                                     0.1422097
## d$LocationNew Hampshire                                              0.0374587
## d$LocationNew Jersey                                                 0.7699558
## d$LocationNew Mexico                                                 0.3372873
## d$LocationNew York                                                  -0.1288871
## d$LocationNorth Carolina                                             0.0041101
## d$LocationOhio                                                       0.0110859
## d$LocationOklahoma                                                  -0.0372851
## d$LocationOregon                                                     0.0003581
## d$LocationPennsylvania                                               0.0786747
## d$LocationSouth Carolina                                             0.7864268
## d$LocationTennessee                                                  0.1350120
## d$LocationTexas                                                     -0.0452224
## d$LocationUtah                                                       0.9230531
## d$LocationVirginia                                                  -0.8048164
## d$LocationWashington                                                 0.3030866
## d$LocationWest Virginia                                              0.5120141
## d$LocationWisconsin                                                  0.0047980
```

```
##                                                                 Std. Error
## (Intercept)                                                      1.1104998
## d[["Group"]]Treatment                                            0.1047003
## d$Age25 - 34                                                     0.1493149
## d$Age35 - 44                                                     0.1812665
## d$Age45 - 54                                                     0.2222227
## d$Age55 - 64                                                     0.2469320
## d$Age65 - 74                                                     0.3448396
## d$Age75 - 84                                                     1.0266408
## d$GenderMale                                                     0.1045972
## d$GenderOther                                                    0.9777453
## d$RaceAmerican Indian or Alaska Native                           1.0736653
## d$RaceAmerican Indian or Alaska Native,Other                     1.3707279
## d$RaceAsian                                                      0.9910582
## d$RaceBlack or African American                                  1.0048161
## d$RaceOther                                                      1.0205203
## d$RaceWhite                                                      0.9840724
## d$RaceWhite,American Indian or Alaska Native                     1.1466154
## d$RaceWhite,Asian                                                1.3528738
## d$RaceWhite,Black or African American                            1.1344974
## d$RaceWhite,Black or African American,American Indian or Alaska Native  1.3796142
## d$RaceWhite,Black or African American,Other                      1.3578311
## d$RaceWhite,Native Hawaiian or Pacific Islander                  1.4290334
## d$RaceWhite,Other                                                1.2034447
## d$LocationAlaska                                                 1.0325558
## d$LocationArizona                                                0.5841929
## d$LocationArkansas                                               0.8128308
## d$LocationCalifornia                                             0.4882940
## d$LocationColorado                                               0.6228408
## d$LocationConnecticut                                            0.8050372
## d$LocationDelaware                                               0.8102101
## d$LocationFlorida                                                0.4927694
## d$LocationGeorgia                                                0.5441833
## d$LocationHawaii                                                 1.0414472
## d$LocationIdaho                                                  1.0300059
## d$LocationIllinois                                               0.5700537
## d$LocationIndiana                                                0.5161806
## d$LocationIowa                                                   0.6533537
## d$LocationKansas                                                 0.8110028
## d$LocationKentucky                                               0.6049935
## d$LocationLouisiana                                              0.8079130
## d$LocationMaine                                                  0.7090484
## d$LocationMaryland                                               0.7036849
## d$LocationMassachusetts                                          0.5710888
## d$LocationMichigan                                               0.5406325
## d$LocationMinnesota                                              0.5891797
## d$LocationMississippi                                            1.0456958
## d$LocationMissouri                                               0.6021481
## d$LocationMontana                                                0.8147822
## d$LocationNevada                                                 0.5987689
## d$LocationNew Hampshire                                          0.7109762
## d$LocationNew Jersey                                             0.6376861
## d$LocationNew Mexico                                             0.6214590
## d$LocationNew York                                               0.4946224
```

```
## d$LocationNorth Carolina                                                0.5264017
## d$LocationOhio                                                          0.5837201
## d$LocationOklahoma                                                      0.8210330
## d$LocationOregon                                                        0.5290660
## d$LocationPennsylvania                                                  0.5170100
## d$LocationSouth Carolina                                                0.7199120
## d$LocationTennessee                                                     0.6336158
## d$LocationTexas                                                         0.5135425
## d$LocationUtah                                                          1.0325558
## d$LocationVirginia                                                      0.5412881
## d$LocationWashington                                                    0.6081775
## d$LocationWest Virginia                                                 0.7205565
## d$LocationWisconsin                                                     0.6216895
##                                                                        t value
## (Intercept)                                                            -0.782
## d[["Group"]]Treatment                                                  -0.202
## d$Age25 - 34                                                            0.077
## d$Age35 - 44                                                            1.019
## d$Age45 - 54                                                           -1.096
## d$Age55 - 64                                                           -1.235
## d$Age65 - 74                                                           -0.251
## d$Age75 - 84                                                           -1.190
## d$GenderMale                                                           -2.139
## d$GenderOther                                                          -1.891
## d$RaceAmerican Indian or Alaska Native                                  1.500
## d$RaceAmerican Indian or Alaska Native,Other                           -0.071
## d$RaceAsian                                                             1.284
## d$RaceBlack or African American                                         1.367
## d$RaceOther                                                             0.324
## d$RaceWhite                                                             1.198
## d$RaceWhite,American Indian or Alaska Native                            0.732
## d$RaceWhite,Asian                                                       1.649
## d$RaceWhite,Black or African American                                   1.241
## d$RaceWhite,Black or African American,American Indian or Alaska Native  1.233
## d$RaceWhite,Black or African American,Other                             0.695
## d$RaceWhite,Native Hawaiian or Pacific Islander                         1.456
## d$RaceWhite,Other                                                       1.326
## d$LocationAlaska                                                        0.894
## d$LocationArizona                                                       0.470
## d$LocationArkansas                                                     -0.031
## d$LocationCalifornia                                                   -0.027
## d$LocationColorado                                                     -0.056
## d$LocationConnecticut                                                   1.088
## d$LocationDelaware                                                      0.270
## d$LocationFlorida                                                       0.277
## d$LocationGeorgia                                                       0.534
## d$LocationHawaii                                                        0.581
## d$LocationIdaho                                                         0.679
## d$LocationIllinois                                                     -0.830
## d$LocationIndiana                                                      -0.520
## d$LocationIowa                                                          0.424
## d$LocationKansas                                                        0.170
## d$LocationKentucky                                                     -1.176
## d$LocationLouisiana                                                    -0.240
```

```
## d$LocationMaine                                                          -0.598
## d$LocationMaryland                                                        1.100
## d$LocationMassachusetts                                                   0.178
## d$LocationMichigan                                                       -0.340
## d$LocationMinnesota                                                      -0.695
## d$LocationMississippi                                                     0.874
## d$LocationMissouri                                                        0.733
## d$LocationMontana                                                        -0.783
## d$LocationNevada                                                          0.238
## d$LocationNew Hampshire                                                   0.053
## d$LocationNew Jersey                                                      1.207
## d$LocationNew Mexico                                                      0.543
## d$LocationNew York                                                       -0.261
## d$LocationNorth Carolina                                                  0.008
## d$LocationOhio                                                            0.019
## d$LocationOklahoma                                                       -0.045
## d$LocationOregon                                                          0.001
## d$LocationPennsylvania                                                    0.152
## d$LocationSouth Carolina                                                  1.092
## d$LocationTennessee                                                       0.213
## d$LocationTexas                                                          -0.088
## d$LocationUtah                                                            0.894
## d$LocationVirginia                                                       -1.487
## d$LocationWashington                                                      0.498
## d$LocationWest Virginia                                                   0.711
## d$LocationWisconsin                                                       0.008
##                                                                       Pr(>|t|)
## (Intercept)                                                             0.4348
## d[["Group"]]Treatment                                                   0.8403
## d$Age25 - 34                                                            0.9386
## d$Age35 - 44                                                            0.3088
## d$Age45 - 54                                                            0.2738
## d$Age55 - 64                                                            0.2178
## d$Age65 - 74                                                            0.8023
## d$Age75 - 84                                                            0.2350
## d$GenderMale                                                            0.0332
## d$GenderOther                                                           0.0596
## d$RaceAmerican Indian or Alaska Native                                  0.1346
## d$RaceAmerican Indian or Alaska Native,Other                            0.9431
## d$RaceAsian                                                             0.2000
## d$RaceBlack or African American                                         0.1726
## d$RaceOther                                                             0.7463
## d$RaceWhite                                                             0.2319
## d$RaceWhite,American Indian or Alaska Native                            0.4647
## d$RaceWhite,Asian                                                       0.1002
## d$RaceWhite,Black or African American                                   0.2155
## d$RaceWhite,Black or African American,American Indian or Alaska Native  0.2186
## d$RaceWhite,Black or African American,Other                             0.4873
## d$RaceWhite,Native Hawaiian or Pacific Islander                         0.1464
## d$RaceWhite,Other                                                       0.1858
## d$LocationAlaska                                                        0.3720
## d$LocationArizona                                                       0.6385
## d$LocationArkansas                                                      0.9751
## d$LocationCalifornia                                                    0.9782
```

```
## d$LocationColorado                                                    0.9556
## d$LocationConnecticut                                                 0.2773
## d$LocationDelaware                                                    0.7872
## d$LocationFlorida                                                     0.7822
## d$LocationGeorgia                                                     0.5934
## d$LocationHawaii                                                      0.5616
## d$LocationIdaho                                                       0.4976
## d$LocationIllinois                                                    0.4071
## d$LocationIndiana                                                     0.6033
## d$LocationIowa                                                        0.6717
## d$LocationKansas                                                      0.8650
## d$LocationKentucky                                                    0.2406
## d$LocationLouisiana                                                   0.8102
## d$LocationMaine                                                       0.5499
## d$LocationMaryland                                                    0.2722
## d$LocationMassachusetts                                               0.8589
## d$LocationMichigan                                                    0.7338
## d$LocationMinnesota                                                   0.4874
## d$LocationMississippi                                                 0.3830
## d$LocationMissouri                                                    0.4639
## d$LocationMontana                                                     0.4339
## d$LocationNevada                                                      0.8124
## d$LocationNew Hampshire                                               0.9580
## d$LocationNew Jersey                                                  0.2282
## d$LocationNew Mexico                                                  0.5877
## d$LocationNew York                                                    0.7946
## d$LocationNorth Carolina                                              0.9938
## d$LocationOhio                                                        0.9849
## d$LocationOklahoma                                                    0.9638
## d$LocationOregon                                                      0.9995
## d$LocationPennsylvania                                                0.8791
## d$LocationSouth Carolina                                              0.2755
## d$LocationTennessee                                                   0.8314
## d$LocationTexas                                                       0.9299
## d$LocationUtah                                                        0.3720
## d$LocationVirginia                                                    0.1380
## d$LocationWashington                                                  0.6186
## d$LocationWest Virginia                                               0.4779
## d$LocationWisconsin                                                   0.9938
##
## (Intercept)
## d[["Group"]]Treatment
## d$Age25 - 34
## d$Age35 - 44
## d$Age45 - 54
## d$Age55 - 64
## d$Age65 - 74
## d$Age75 - 84
## d$GenderMale                                                        *
## d$GenderOther                                                       .
## d$RaceAmerican Indian or Alaska Native
## d$RaceAmerican Indian or Alaska Native,Other
## d$RaceAsian
## d$RaceBlack or African American
```

```
## d$RaceOther
## d$RaceWhite
## d$RaceWhite,American Indian or Alaska Native
## d$RaceWhite,Asian
## d$RaceWhite,Black or African American
## d$RaceWhite,Black or African American,American Indian or Alaska Native
## d$RaceWhite,Black or African American,Other
## d$RaceWhite,Native Hawaiian or Pacific Islander
## d$RaceWhite,Other
## d$LocationAlaska
## d$LocationArizona
## d$LocationArkansas
## d$LocationCalifornia
## d$LocationColorado
## d$LocationConnecticut
## d$LocationDelaware
## d$LocationFlorida
## d$LocationGeorgia
## d$LocationHawaii
## d$LocationIdaho
## d$LocationIllinois
## d$LocationIndiana
## d$LocationIowa
## d$LocationKansas
## d$LocationKentucky
## d$LocationLouisiana
## d$LocationMaine
## d$LocationMaryland
## d$LocationMassachusetts
## d$LocationMichigan
## d$LocationMinnesota
## d$LocationMississippi
## d$LocationMissouri
## d$LocationMontana
## d$LocationNevada
## d$LocationNew Hampshire
## d$LocationNew Jersey
## d$LocationNew Mexico
## d$LocationNew York
## d$LocationNorth Carolina
## d$LocationOhio
## d$LocationOklahoma
## d$LocationOregon
## d$LocationPennsylvania
## d$LocationSouth Carolina
## d$LocationTennessee
## d$LocationTexas
## d$LocationUtah
## d$LocationVirginia
## d$LocationWashington
## d$LocationWest Virginia
## d$LocationWisconsin
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##
## Residual standard error: 0.9206 on 324 degrees of freedom
## Multiple R-squared:  0.2019, Adjusted R-squared:  0.04174
## F-statistic: 1.261 on 65 and 324 DF,  p-value: 0.1009
##
## [1] "Personal_Views_Beauty_Importance"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]] + d$Age + d$Gender +
##     d$Race + d$Location)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -2.32197 -0.66878  0.07691  0.67862  1.79909
##
## Coefficients:
##                                                                    Estimate
## (Intercept)                                                         1.61247
## d[["Group"]]Treatment                                              -0.03398
## d$Age25 - 34                                                       -0.26731
## d$Age35 - 44                                                       -0.30376
## d$Age45 - 54                                                        0.20080
## d$Age55 - 64                                                       -0.40507
## d$Age65 - 74                                                        0.17084
## d$Age75 - 84                                                        0.58757
## d$GenderMale                                                       -0.19864
## d$GenderOther                                                      -1.66346
## d$RaceAmerican Indian or Alaska Native                             -0.82353
## d$RaceAmerican Indian or Alaska Native,Other                       -1.95301
## d$RaceAsian                                                        -0.89906
## d$RaceBlack or African American                                    -0.94739
## d$RaceOther                                                        -1.75279
## d$RaceWhite                                                        -1.27001
## d$RaceWhite,American Indian or Alaska Native                       -3.59367
## d$RaceWhite,Asian                                                  -0.91550
## d$RaceWhite,Black or African American                              -1.75984
## d$RaceWhite,Black or African American,American Indian or Alaska Native -3.31100
## d$RaceWhite,Black or African American,Other                        -0.12815
## d$RaceWhite,Native Hawaiian or Pacific Islander                    -0.14652
## d$RaceWhite,Other                                                  -2.19899
## d$LocationAlaska                                                    0.15747
## d$LocationArizona                                                   0.19426
## d$LocationArkansas                                                 -0.72333
## d$LocationCalifornia                                                0.10850
## d$LocationColorado                                                 -0.25564
## d$LocationConnecticut                                              -0.02800
## d$LocationDelaware                                                  0.04648
## d$LocationFlorida                                                  -0.01836
## d$LocationGeorgia                                                   0.27198
## d$LocationHawaii                                                   -0.41211
## d$LocationIdaho                                                     0.95883
## d$LocationIllinois                                                 -0.41168
## d$LocationIndiana                                                  -0.32743
## d$LocationIowa                                                      0.19843
```

```
## d$LocationKansas                                                          1.09460
## d$LocationKentucky                                                       -0.68826
## d$LocationLouisiana                                                       0.69080
## d$LocationMaine                                                          -0.19851
## d$LocationMaryland                                                       -0.64162
## d$LocationMassachusetts                                                  -0.11254
## d$LocationMichigan                                                        0.09087
## d$LocationMinnesota                                                       0.34698
## d$LocationMississippi                                                     0.85619
## d$LocationMissouri                                                       -0.60827
## d$LocationMontana                                                        -1.38872
## d$LocationNevada                                                          0.35933
## d$LocationNew Hampshire                                                   0.09976
## d$LocationNew Jersey                                                      0.69378
## d$LocationNew Mexico                                                      0.21840
## d$LocationNew York                                                       -0.19704
## d$LocationNorth Carolina                                                  0.03627
## d$LocationOhio                                                           -0.51991
## d$LocationOklahoma                                                       -0.96894
## d$LocationOregon                                                         -0.03092
## d$LocationPennsylvania                                                    0.12111
## d$LocationSouth Carolina                                                  0.48113
## d$LocationTennessee                                                       0.26862
## d$LocationTexas                                                           0.60785
## d$LocationUtah                                                            1.15747
## d$LocationVirginia                                                       -0.40850
## d$LocationWashington                                                      0.44592
## d$LocationWest Virginia                                                   0.30596
## d$LocationWisconsin                                                      -0.74725
##                                                                         Std. Error
## (Intercept)                                                                1.15204
## d[["Group"]]Treatment                                                      0.10862
## d$Age25 - 34                                                               0.15490
## d$Age35 - 44                                                               0.18805
## d$Age45 - 54                                                               0.23054
## d$Age55 - 64                                                               0.25617
## d$Age65 - 74                                                               0.35774
## d$Age75 - 84                                                               1.06505
## d$GenderMale                                                               0.10851
## d$GenderOther                                                              1.01432
## d$RaceAmerican Indian or Alaska Native                                     1.11383
## d$RaceAmerican Indian or Alaska Native,Other                               1.42201
## d$RaceAsian                                                                1.02813
## d$RaceBlack or African American                                            1.04241
## d$RaceOther                                                                1.05870
## d$RaceWhite                                                                1.02089
## d$RaceWhite,American Indian or Alaska Native                               1.18951
## d$RaceWhite,Asian                                                          1.40348
## d$RaceWhite,Black or African American                                      1.17694
## d$RaceWhite,Black or African American,American Indian or Alaska Native     1.43122
## d$RaceWhite,Black or African American,Other                                1.40863
## d$RaceWhite,Native Hawaiian or Pacific Islander                            1.48249
## d$RaceWhite,Other                                                          1.24846
## d$LocationAlaska                                                           1.07118
```

```
## d$LocationArizona                                  0.60605
## d$LocationArkansas                                 0.84324
## d$LocationCalifornia                               0.50656
## d$LocationColorado                                 0.64614
## d$LocationConnecticut                              0.83515
## d$LocationDelaware                                 0.84052
## d$LocationFlorida                                  0.51120
## d$LocationGeorgia                                  0.56454
## d$LocationHawaii                                   1.08041
## d$LocationIdaho                                    1.06854
## d$LocationIllinois                                 0.59138
## d$LocationIndiana                                  0.53549
## d$LocationIowa                                     0.67780
## d$LocationKansas                                   0.84134
## d$LocationKentucky                                 0.62763
## d$LocationLouisiana                                0.83814
## d$LocationMaine                                    0.73557
## d$LocationMaryland                                 0.73001
## d$LocationMassachusetts                            0.59245
## d$LocationMichigan                                 0.56086
## d$LocationMinnesota                                0.61122
## d$LocationMississippi                              1.08481
## d$LocationMissouri                                 0.62467
## d$LocationMontana                                  0.84526
## d$LocationNevada                                   0.62117
## d$LocationNew Hampshire                            0.73757
## d$LocationNew Jersey                               0.66154
## d$LocationNew Mexico                               0.64471
## d$LocationNew York                                 0.51313
## d$LocationNorth Carolina                           0.54609
## d$LocationOhio                                     0.60556
## d$LocationOklahoma                                 0.85175
## d$LocationOregon                                   0.54886
## d$LocationPennsylvania                             0.53635
## d$LocationSouth Carolina                           0.74684
## d$LocationTennessee                                0.65732
## d$LocationTexas                                    0.53275
## d$LocationUtah                                     1.07118
## d$LocationVirginia                                 0.56154
## d$LocationWashington                               0.63093
## d$LocationWest Virginia                            0.74751
## d$LocationWisconsin                                0.64495
##                                                  t value
## (Intercept)                                        1.400
## d[["Group"]]Treatment                             -0.313
## d$Age25 - 34                                      -1.726
## d$Age35 - 44                                      -1.615
## d$Age45 - 54                                       0.871
## d$Age55 - 64                                      -1.581
## d$Age65 - 74                                       0.478
## d$Age75 - 84                                       0.552
## d$GenderMale                                      -1.831
## d$GenderOther                                     -1.640
## d$RaceAmerican Indian or Alaska Native            -0.739
```

```
## d$RaceAmerican Indian or Alaska Native,Other                                -1.373
## d$RaceAsian                                                                 -0.874
## d$RaceBlack or African American                                             -0.909
## d$RaceOther                                                                 -1.656
## d$RaceWhite                                                                 -1.244
## d$RaceWhite,American Indian or Alaska Native                                -3.021
## d$RaceWhite,Asian                                                           -0.652
## d$RaceWhite,Black or African American                                       -1.495
## d$RaceWhite,Black or African American,American Indian or Alaska Native      -2.313
## d$RaceWhite,Black or African American,Other                                 -0.091
## d$RaceWhite,Native Hawaiian or Pacific Islander                             -0.099
## d$RaceWhite,Other                                                           -1.761
## d$LocationAlaska                                                             0.147
## d$LocationArizona                                                            0.321
## d$LocationArkansas                                                          -0.858
## d$LocationCalifornia                                                         0.214
## d$LocationColorado                                                          -0.396
## d$LocationConnecticut                                                       -0.034
## d$LocationDelaware                                                           0.055
## d$LocationFlorida                                                           -0.036
## d$LocationGeorgia                                                            0.482
## d$LocationHawaii                                                            -0.381
## d$LocationIdaho                                                              0.897
## d$LocationIllinois                                                          -0.696
## d$LocationIndiana                                                           -0.611
## d$LocationIowa                                                               0.293
## d$LocationKansas                                                             1.301
## d$LocationKentucky                                                          -1.097
## d$LocationLouisiana                                                          0.824
## d$LocationMaine                                                             -0.270
## d$LocationMaryland                                                          -0.879
## d$LocationMassachusetts                                                     -0.190
## d$LocationMichigan                                                           0.162
## d$LocationMinnesota                                                          0.568
## d$LocationMississippi                                                        0.789
## d$LocationMissouri                                                          -0.974
## d$LocationMontana                                                           -1.643
## d$LocationNevada                                                             0.578
## d$LocationNew Hampshire                                                      0.135
## d$LocationNew Jersey                                                         1.049
## d$LocationNew Mexico                                                         0.339
## d$LocationNew York                                                          -0.384
## d$LocationNorth Carolina                                                     0.066
## d$LocationOhio                                                              -0.859
## d$LocationOklahoma                                                          -1.138
## d$LocationOregon                                                            -0.056
## d$LocationPennsylvania                                                       0.226
## d$LocationSouth Carolina                                                     0.644
## d$LocationTennessee                                                          0.409
## d$LocationTexas                                                              1.141
## d$LocationUtah                                                               1.081
## d$LocationVirginia                                                          -0.727
## d$LocationWashington                                                         0.707
## d$LocationWest Virginia                                                      0.409
```

```
## d$LocationWisconsin                                                      -1.159
##                                                                        Pr(>|t|)
## (Intercept)                                                             0.16257
## d[["Group"]]Treatment                                                   0.75461
## d$Age25 - 34                                                            0.08536
## d$Age35 - 44                                                            0.10722
## d$Age45 - 54                                                            0.38440
## d$Age55 - 64                                                            0.11480
## d$Age65 - 74                                                            0.63329
## d$Age75 - 84                                                            0.58155
## d$GenderMale                                                            0.06808
## d$GenderOther                                                           0.10198
## d$RaceAmerican Indian or Alaska Native                                  0.46022
## d$RaceAmerican Indian or Alaska Native,Other                            0.17057
## d$RaceAsian                                                             0.38251
## d$RaceBlack or African American                                         0.36411
## d$RaceOther                                                             0.09877
## d$RaceWhite                                                             0.21439
## d$RaceWhite,American Indian or Alaska Native                            0.00272
## d$RaceWhite,Asian                                                       0.51467
## d$RaceWhite,Black or African American                                   0.13582
## d$RaceWhite,Black or African American,American Indian or Alaska Native  0.02133
## d$RaceWhite,Black or African American,Other                             0.92757
## d$RaceWhite,Native Hawaiian or Pacific Islander                         0.92133
## d$RaceWhite,Other                                                       0.07912
## d$LocationAlaska                                                        0.88322
## d$LocationArizona                                                       0.74876
## d$LocationArkansas                                                      0.39164
## d$LocationCalifornia                                                    0.83053
## d$LocationColorado                                                      0.69263
## d$LocationConnecticut                                                   0.97328
## d$LocationDelaware                                                      0.95593
## d$LocationFlorida                                                       0.97137
## d$LocationGeorgia                                                       0.63030
## d$LocationHawaii                                                        0.70312
## d$LocationIdaho                                                         0.37021
## d$LocationIllinois                                                      0.48684
## d$LocationIndiana                                                       0.54133
## d$LocationIowa                                                          0.76990
## d$LocationKansas                                                        0.19418
## d$LocationKentucky                                                      0.27363
## d$LocationLouisiana                                                     0.41042
## d$LocationMaine                                                         0.78743
## d$LocationMaryland                                                      0.38010
## d$LocationMassachusetts                                                 0.84946
## d$LocationMichigan                                                      0.87139
## d$LocationMinnesota                                                     0.57064
## d$LocationMississippi                                                   0.43054
## d$LocationMissouri                                                      0.33091
## d$LocationMontana                                                       0.10136
## d$LocationNevada                                                        0.56334
## d$LocationNew Hampshire                                                 0.89250
## d$LocationNew Jersey                                                    0.29509
## d$LocationNew Mexico                                                    0.73501
```

```
## d$LocationNew York                                                    0.70123
## d$LocationNorth Carolina                                              0.94709
## d$LocationOhio                                                        0.39121
## d$LocationOklahoma                                                    0.25613
## d$LocationOregon                                                      0.95511
## d$LocationPennsylvania                                                0.82150
## d$LocationSouth Carolina                                              0.51989
## d$LocationTennessee                                                   0.68306
## d$LocationTexas                                                       0.25473
## d$LocationUtah                                                        0.28070
## d$LocationVirginia                                                    0.46746
## d$LocationWashington                                                  0.48022
## d$LocationWest Virginia                                               0.68258
## d$LocationWisconsin                                                   0.24746
##
## (Intercept)
## d[["Group"]]Treatment
## d$Age25 - 34                                                         .
## d$Age35 - 44
## d$Age45 - 54
## d$Age55 - 64
## d$Age65 - 74
## d$Age75 - 84
## d$GenderMale                                                         .
## d$GenderOther
## d$RaceAmerican Indian or Alaska Native
## d$RaceAmerican Indian or Alaska Native,Other
## d$RaceAsian
## d$RaceBlack or African American
## d$RaceOther                                                          .
## d$RaceWhite
## d$RaceWhite,American Indian or Alaska Native                         **
## d$RaceWhite,Asian
## d$RaceWhite,Black or African American
## d$RaceWhite,Black or African American,American Indian or Alaska Native *
## d$RaceWhite,Black or African American,Other
## d$RaceWhite,Native Hawaiian or Pacific Islander
## d$RaceWhite,Other                                                    .
## d$LocationAlaska
## d$LocationArizona
## d$LocationArkansas
## d$LocationCalifornia
## d$LocationColorado
## d$LocationConnecticut
## d$LocationDelaware
## d$LocationFlorida
## d$LocationGeorgia
## d$LocationHawaii
## d$LocationIdaho
## d$LocationIllinois
## d$LocationIndiana
## d$LocationIowa
## d$LocationKansas
## d$LocationKentucky
```

```
## d$LocationLouisiana
## d$LocationMaine
## d$LocationMaryland
## d$LocationMassachusetts
## d$LocationMichigan
## d$LocationMinnesota
## d$LocationMississippi
## d$LocationMissouri
## d$LocationMontana
## d$LocationNevada
## d$LocationNew Hampshire
## d$LocationNew Jersey
## d$LocationNew Mexico
## d$LocationNew York
## d$LocationNorth Carolina
## d$LocationOhio
## d$LocationOklahoma
## d$LocationOregon
## d$LocationPennsylvania
## d$LocationSouth Carolina
## d$LocationTennessee
## d$LocationTexas
## d$LocationUtah
## d$LocationVirginia
## d$LocationWashington
## d$LocationWest Virginia
## d$LocationWisconsin
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.9551 on 324 degrees of freedom
## Multiple R-squared:  0.2536, Adjusted R-squared:  0.1039
## F-statistic: 1.694 on 65 and 324 DF,  p-value: 0.001646
##
## [1] "Personal_Views_Relate_To_Model"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]] + d$Age + d$Gender +
##     d$Race + d$Location)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -2.2425 -0.7552 -0.1704  0.8857  2.1567
##
## Coefficients:
##                                                                    Estimate
## (Intercept)                                                        1.781441
## d[["Group"]]Treatment                                              0.227855
## d$Age25 - 34                                                       0.001994
## d$Age35 - 44                                                      -0.130711
## d$Age45 - 54                                                       0.174019
## d$Age55 - 64                                                      -0.212621
## d$Age65 - 74                                                       0.049747
## d$Age75 - 84                                                      -0.584412
```

```
## d$GenderMale                                                          -0.557644
## d$GenderOther                                                         -1.686046
## d$RaceAmerican Indian or Alaska Native                                -0.804566
## d$RaceAmerican Indian or Alaska Native,Other                          -0.591811
## d$RaceAsian                                                           -1.716451
## d$RaceBlack or African American                                       -2.000878
## d$RaceOther                                                           -2.027676
## d$RaceWhite                                                           -1.814915
## d$RaceWhite,American Indian or Alaska Native                          -2.305599
## d$RaceWhite,Asian                                                     -3.189454
## d$RaceWhite,Black or African American                                 -2.345086
## d$RaceWhite,Black or African American,American Indian or Alaska Native -0.602011
## d$RaceWhite,Black or African American,Other                           -1.120564
## d$RaceWhite,Native Hawaiian or Pacific Islander                       -2.225791
## d$RaceWhite,Other                                                     -1.805615
## d$LocationAlaska                                                       1.361269
## d$LocationArizona                                                      0.185648
## d$LocationArkansas                                                    -0.561152
## d$LocationCalifornia                                                  -0.201123
## d$LocationColorado                                                    -1.065185
## d$LocationConnecticut                                                  0.812037
## d$LocationDelaware                                                     0.924522
## d$LocationFlorida                                                     -0.105227
## d$LocationGeorgia                                                     -0.565621
## d$LocationHawaii                                                      -1.294840
## d$LocationIdaho                                                        0.803625
## d$LocationIllinois                                                    -0.282473
## d$LocationIndiana                                                      0.239956
## d$LocationIowa                                                        -0.328241
## d$LocationKansas                                                       0.715152
## d$LocationKentucky                                                    -0.433450
## d$LocationLouisiana                                                    0.445468
## d$LocationMaine                                                       -0.153494
## d$LocationMaryland                                                     0.322840
## d$LocationMassachusetts                                               -0.453646
## d$LocationMichigan                                                    -0.293712
## d$LocationMinnesota                                                   -0.530986
## d$LocationMississippi                                                 -1.408882
## d$LocationMissouri                                                     0.578139
## d$LocationMontana                                                     -1.516038
## d$LocationNevada                                                      -0.471861
## d$LocationNew Hampshire                                               -1.000185
## d$LocationNew Jersey                                                   0.273828
## d$LocationNew Mexico                                                  -0.164492
## d$LocationNew York                                                    -0.264193
## d$LocationNorth Carolina                                              -0.276575
## d$LocationOhio                                                         0.013458
## d$LocationOklahoma                                                    -0.710587
## d$LocationOregon                                                      -0.197214
## d$LocationPennsylvania                                                -0.208680
## d$LocationSouth Carolina                                               1.677594
## d$LocationTennessee                                                    0.175530
## d$LocationTexas                                                       -0.191624
## d$LocationUtah                                                        -0.638731
```

```
## d$LocationVirginia                                                    -0.473394
## d$LocationWashington                                                  -0.427580
## d$LocationWest Virginia                                               -0.911767
## d$LocationWisconsin                                                   -0.567140
##                                                                       Std. Error
## (Intercept)                                                             1.316057
## d[["Group"]]Treatment                                                   0.124081
## d$Age25 - 34                                                            0.176954
## d$Age35 - 44                                                            0.214819
## d$Age45 - 54                                                            0.263357
## d$Age55 - 64                                                            0.292640
## d$Age65 - 74                                                            0.408670
## d$Age75 - 84                                                            1.216675
## d$GenderMale                                                            0.123958
## d$GenderOther                                                           1.158729
## d$RaceAmerican Indian or Alaska Native                                  1.272404
## d$RaceAmerican Indian or Alaska Native,Other                            1.624454
## d$RaceAsian                                                             1.174506
## d$RaceBlack or African American                                         1.190811
## d$RaceOther                                                             1.209422
## d$RaceWhite                                                             1.166227
## d$RaceWhite,American Indian or Alaska Native                            1.358858
## d$RaceWhite,Asian                                                       1.603295
## d$RaceWhite,Black or African American                                   1.344496
## d$RaceWhite,Black or African American,American Indian or Alaska Native  1.634985
## d$RaceWhite,Black or African American,Other                             1.609170
## d$RaceWhite,Native Hawaiian or Pacific Islander                         1.693552
## d$RaceWhite,Other                                                       1.426206
## d$LocationAlaska                                                        1.223685
## d$LocationArizona                                                       0.692329
## d$LocationArkansas                                                      0.963288
## d$LocationCalifornia                                                    0.578679
## d$LocationColorado                                                      0.738131
## d$LocationConnecticut                                                   0.954052
## d$LocationDelaware                                                      0.960183
## d$LocationFlorida                                                       0.583983
## d$LocationGeorgia                                                       0.644913
## d$LocationHawaii                                                        1.234222
## d$LocationIdaho                                                         1.220663
## d$LocationIllinois                                                      0.675572
## d$LocationIndiana                                                       0.611727
## d$LocationIowa                                                          0.774292
## d$LocationKansas                                                        0.961122
## d$LocationKentucky                                                      0.716980
## d$LocationLouisiana                                                     0.957460
## d$LocationMaine                                                         0.840296
## d$LocationMaryland                                                      0.833939
## d$LocationMassachusetts                                                 0.676799
## d$LocationMichigan                                                      0.640705
## d$LocationMinnesota                                                     0.698239
## d$LocationMississippi                                                   1.239257
## d$LocationMissouri                                                      0.713608
## d$LocationMontana                                                       0.965601
## d$LocationNevada                                                        0.709603
```

```
## d$LocationNew Hampshire                                                  0.842580
## d$LocationNew Jersey                                                     0.755724
## d$LocationNew Mexico                                                     0.736493
## d$LocationNew York                                                       0.586179
## d$LocationNorth Carolina                                                 0.623840
## d$LocationOhio                                                           0.691769
## d$LocationOklahoma                                                       0.973009
## d$LocationOregon                                                         0.626998
## d$LocationPennsylvania                                                   0.612710
## d$LocationSouth Carolina                                                 0.853170
## d$LocationTennessee                                                      0.750900
## d$LocationTexas                                                          0.608601
## d$LocationUtah                                                           1.223685
## d$LocationVirginia                                                       0.641482
## d$LocationWashington                                                     0.720753
## d$LocationWest Virginia                                                  0.853934
## d$LocationWisconsin                                                      0.736766
##                                                                       t value
## (Intercept)                                                            1.354
## d[["Group"]]Treatment                                                  1.836
## d$Age25 - 34                                                           0.011
## d$Age35 - 44                                                          -0.608
## d$Age45 - 54                                                           0.661
## d$Age55 - 64                                                          -0.727
## d$Age65 - 74                                                           0.122
## d$Age75 - 84                                                          -0.480
## d$GenderMale                                                          -4.499
## d$GenderOther                                                         -1.455
## d$RaceAmerican Indian or Alaska Native                                -0.632
## d$RaceAmerican Indian or Alaska Native,Other                          -0.364
## d$RaceAsian                                                           -1.461
## d$RaceBlack or African American                                       -1.680
## d$RaceOther                                                           -1.677
## d$RaceWhite                                                           -1.556
## d$RaceWhite,American Indian or Alaska Native                          -1.697
## d$RaceWhite,Asian                                                     -1.989
## d$RaceWhite,Black or African American                                 -1.744
## d$RaceWhite,Black or African American,American Indian or Alaska Native -0.368
## d$RaceWhite,Black or African American,Other                           -0.696
## d$RaceWhite,Native Hawaiian or Pacific Islander                       -1.314
## d$RaceWhite,Other                                                     -1.266
## d$LocationAlaska                                                       1.112
## d$LocationArizona                                                      0.268
## d$LocationArkansas                                                    -0.583
## d$LocationCalifornia                                                  -0.348
## d$LocationColorado                                                    -1.443
## d$LocationConnecticut                                                  0.851
## d$LocationDelaware                                                     0.963
## d$LocationFlorida                                                     -0.180
## d$LocationGeorgia                                                     -0.877
## d$LocationHawaii                                                      -1.049
## d$LocationIdaho                                                        0.658
## d$LocationIllinois                                                    -0.418
## d$LocationIndiana                                                      0.392
```

```
## d$LocationIowa                                                  -0.424
## d$LocationKansas                                                 0.744
## d$LocationKentucky                                              -0.605
## d$LocationLouisiana                                              0.465
## d$LocationMaine                                                 -0.183
## d$LocationMaryland                                               0.387
## d$LocationMassachusetts                                         -0.670
## d$LocationMichigan                                              -0.458
## d$LocationMinnesota                                             -0.760
## d$LocationMississippi                                           -1.137
## d$LocationMissouri                                               0.810
## d$LocationMontana                                               -1.570
## d$LocationNevada                                                -0.665
## d$LocationNew Hampshire                                         -1.187
## d$LocationNew Jersey                                             0.362
## d$LocationNew Mexico                                            -0.223
## d$LocationNew York                                              -0.451
## d$LocationNorth Carolina                                        -0.443
## d$LocationOhio                                                   0.019
## d$LocationOklahoma                                              -0.730
## d$LocationOregon                                                -0.315
## d$LocationPennsylvania                                          -0.341
## d$LocationSouth Carolina                                         1.966
## d$LocationTennessee                                              0.234
## d$LocationTexas                                                 -0.315
## d$LocationUtah                                                  -0.522
## d$LocationVirginia                                              -0.738
## d$LocationWashington                                            -0.593
## d$LocationWest Virginia                                         -1.068
## d$LocationWisconsin                                             -0.770
##                                                                Pr(>|t|)
## (Intercept)                                                      0.1768
## d[["Group"]]Treatment                                            0.0672
## d$Age25 - 34                                                     0.9910
## d$Age35 - 44                                                     0.5433
## d$Age45 - 54                                                     0.5092
## d$Age55 - 64                                                     0.4680
## d$Age65 - 74                                                     0.9032
## d$Age75 - 84                                                     0.6313
## d$GenderMale                                                  9.54e-06
## d$GenderOther                                                    0.1466
## d$RaceAmerican Indian or Alaska Native                           0.5276
## d$RaceAmerican Indian or Alaska Native,Other                     0.7159
## d$RaceAsian                                                      0.1449
## d$RaceBlack or African American                                  0.0939
## d$RaceOther                                                      0.0946
## d$RaceWhite                                                      0.1206
## d$RaceWhite,American Indian or Alaska Native                     0.0907
## d$RaceWhite,Asian                                                0.0475
## d$RaceWhite,Black or African American                            0.0821
## d$RaceWhite,Black or African American,American Indian or Alaska Native   0.7130
## d$RaceWhite,Black or African American,Other                      0.4867
## d$RaceWhite,Native Hawaiian or Pacific Islander                  0.1897
## d$RaceWhite,Other                                                0.2064
```

```
## d$LocationAlaska                                                0.2668
## d$LocationArizona                                               0.7888
## d$LocationArkansas                                              0.5606
## d$LocationCalifornia                                            0.7284
## d$LocationColorado                                              0.1500
## d$LocationConnecticut                                           0.3953
## d$LocationDelaware                                              0.3363
## d$LocationFlorida                                               0.8571
## d$LocationGeorgia                                               0.3811
## d$LocationHawaii                                                0.2949
## d$LocationIdaho                                                 0.5108
## d$LocationIllinois                                              0.6761
## d$LocationIndiana                                               0.6951
## d$LocationIowa                                                  0.6719
## d$LocationKansas                                                0.4574
## d$LocationKentucky                                              0.5459
## d$LocationLouisiana                                             0.6421
## d$LocationMaine                                                 0.8552
## d$LocationMaryland                                              0.6989
## d$LocationMassachusetts                                         0.5032
## d$LocationMichigan                                              0.6470
## d$LocationMinnesota                                             0.4475
## d$LocationMississippi                                           0.2564
## d$LocationMissouri                                              0.4184
## d$LocationMontana                                               0.1174
## d$LocationNevada                                                0.5065
## d$LocationNew Hampshire                                         0.2361
## d$LocationNew Jersey                                            0.7173
## d$LocationNew Mexico                                            0.8234
## d$LocationNew York                                              0.6525
## d$LocationNorth Carolina                                        0.6578
## d$LocationOhio                                                  0.9845
## d$LocationOklahoma                                              0.4657
## d$LocationOregon                                                0.7533
## d$LocationPennsylvania                                          0.7336
## d$LocationSouth Carolina                                        0.0501
## d$LocationTennessee                                             0.8153
## d$LocationTexas                                                 0.7531
## d$LocationUtah                                                  0.6020
## d$LocationVirginia                                              0.4611
## d$LocationWashington                                            0.5534
## d$LocationWest Virginia                                         0.2864
## d$LocationWisconsin                                             0.4420
##
## (Intercept)
## d[["Group"]]Treatment                                          .
## d$Age25 - 34
## d$Age35 - 44
## d$Age45 - 54
## d$Age55 - 64
## d$Age65 - 74
## d$Age75 - 84
## d$GenderMale                                                   ***
## d$GenderOther
```

```
## d$RaceAmerican Indian or Alaska Native
## d$RaceAmerican Indian or Alaska Native,Other
## d$RaceAsian
## d$RaceBlack or African American                                          .
## d$RaceOther                                                              .
## d$RaceWhite
## d$RaceWhite,American Indian or Alaska Native                             .
## d$RaceWhite,Asian                                                        *
## d$RaceWhite,Black or African American                                    .
## d$RaceWhite,Black or African American,American Indian or Alaska Native
## d$RaceWhite,Black or African American,Other
## d$RaceWhite,Native Hawaiian or Pacific Islander
## d$RaceWhite,Other
## d$LocationAlaska
## d$LocationArizona
## d$LocationArkansas
## d$LocationCalifornia
## d$LocationColorado
## d$LocationConnecticut
## d$LocationDelaware
## d$LocationFlorida
## d$LocationGeorgia
## d$LocationHawaii
## d$LocationIdaho
## d$LocationIllinois
## d$LocationIndiana
## d$LocationIowa
## d$LocationKansas
## d$LocationKentucky
## d$LocationLouisiana
## d$LocationMaine
## d$LocationMaryland
## d$LocationMassachusetts
## d$LocationMichigan
## d$LocationMinnesota
## d$LocationMississippi
## d$LocationMissouri
## d$LocationMontana
## d$LocationNevada
## d$LocationNew Hampshire
## d$LocationNew Jersey
## d$LocationNew Mexico
## d$LocationNew York
## d$LocationNorth Carolina
## d$LocationOhio
## d$LocationOklahoma
## d$LocationOregon
## d$LocationPennsylvania
## d$LocationSouth Carolina                                                 .
## d$LocationTennessee
## d$LocationTexas
## d$LocationUtah
## d$LocationVirginia
## d$LocationWashington
```

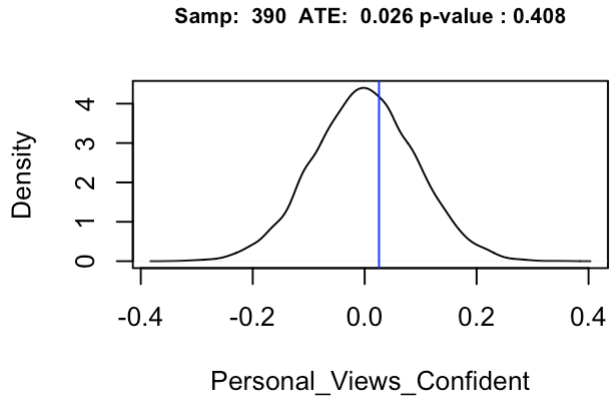
```
## d$LocationWest Virginia
## d$LocationWisconsin
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.091 on 324 degrees of freedom
## Multiple R-squared:  0.2045, Adjusted R-squared:  0.04496
## F-statistic: 1.282 on 65 and 324 DF,  p-value: 0.08574
```

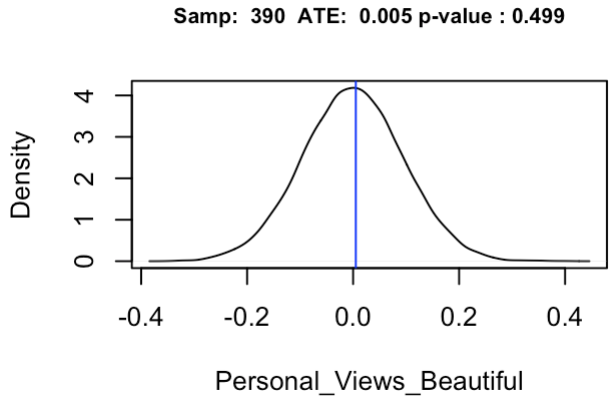
Differences in Mean for Text question

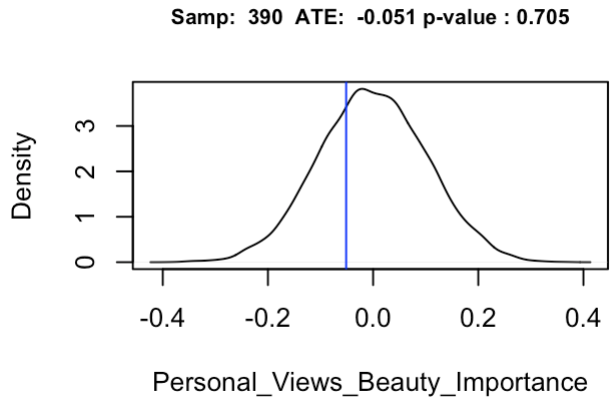
```
get_ATE <- function(d, column){
  return(mean(d[d$Group == 'Treatment',][[column]], na.rm = TRUE)- mean(d[d$Group == 'Co
ntrol',][[column]], na.rm = TRUE))
}
for (column in columns_to_analyse){
  print(column)
  print(get_ATE(d, column))
}
```

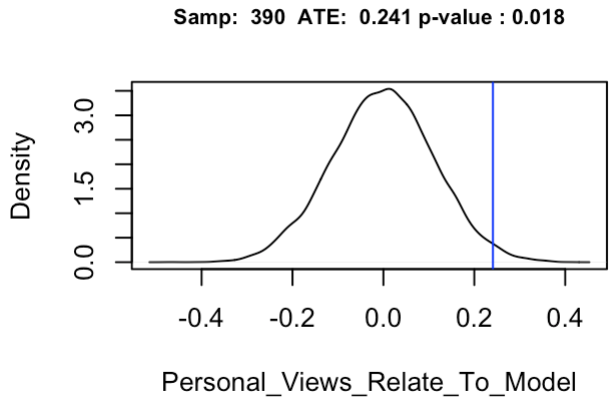
```
## [1] "Personal_Views_Confident"
## [1] 0.02564103
## [1] "Personal_Views_Beautiful"
## [1] 0.005128205
## [1] "Personal_Views_Beauty_Importance"
## [1] -0.05128205
## [1] "Personal_Views_Relate_To_Model"
## [1] 0.2410256
```

```
column <- 'Personal_Views_Confident'

control_treatment <- c(rep(1, length(d[[column]]) * (1/2)), rep(0, length(d[[column]]) *
 (1/2)))
sample_size <- length(d[[column]])

get_null_ATE_from_current_sample <- function(d, control_treatment, column){
  assignment <- sample(control_treatment, length(d[[column]]))
  dt <- data.frame(outcome = d[[column]], assignement = assignment)
  null.ATE <- mean(dt[assignment == 1, ]$outcome) - mean(dt[assignment == 0, ]$outcome)
  return(null.ATE)
}

par(mfrow=c(2,2))
for (column in columns_to_analyse){
  sharp.null.hypothesis <- replicate(10000, get_null_ATE_from_current_sample(d, control_
treatment, column))
  ATE <- get_ATE(d, column)
  p_value <- mean(ATE <= sharp.null.hypothesis)
  plot(density(sharp.null.hypothesis),  main = paste('Samp: ', sample_size, ' ATE: ', ro
und(ATE, 3),
                                                     'p-value :', round(p_value, 3)), ce
x.main= 0.8,
       xlab=column)
  abline(v = ATE, col = "blue")
}
```









Similar results than yielded by linear regression

Getting the ATE for IMAGES questions

```
images <- c('Passion', 'Coffee', 'Couple', 'Work', 'Fit')
questions <- c('_i_identify_', '_i_prefer_', '_o_prefer_', '_validate_')

for (image in images){
  for (question in questions){
    column <- paste(image, question, sep = "")
    l1 <- lm(d[[column]] ~ d[['Group']])
  print(column)
  print(summary(l1))
  }
}
```

```
## [1] "Passion_i_identify_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.3529 -0.3529 -0.2895  0.6471  0.7105
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.35294    0.03415  10.335   <2e-16 ***
## d[["Group"]]Treatment -0.06347    0.04811  -1.319    0.188
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.467 on 375 degrees of freedom
##   (13 observations deleted due to missingness)
## Multiple R-squared:  0.00462,    Adjusted R-squared:  0.001966
## F-statistic: 1.741 on 1 and 375 DF,  p-value: 0.1879
##
## [1] "Passion_i_prefer_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.3936 -0.3936 -0.2872  0.6064  0.7128
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.39362    0.03443  11.432   <2e-16 ***
## d[["Group"]]Treatment -0.10638    0.04869  -2.185   0.0295 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4721 on 374 degrees of freedom
##   (14 observations deleted due to missingness)
## Multiple R-squared:  0.0126, Adjusted R-squared:  0.009961
## F-statistic: 4.773 on 1 and 374 DF,  p-value: 0.02953
##
## [1] "Passion_o_prefer_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.6064 -0.5895  0.3936  0.4105  0.4105
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
```

```
## (Intercept)            0.60638    0.03585  16.914   <2e-16 ***
## d[["Group"]]Treatment -0.01691    0.05057  -0.334    0.738
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4916 on 376 degrees of freedom
##   (12 observations deleted due to missingness)
## Multiple R-squared:  0.0002973,  Adjusted R-squared:  -0.002361
## F-statistic: 0.1118 on 1 and 376 DF,  p-value: 0.7383
##
## [1] "Passion_validate_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.98936  0.01064  0.01064  0.02632  0.02632
##
## Coefficients:
##                        Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.989362   0.009842 100.525   <2e-16 ***
## d[["Group"]]Treatment -0.015677   0.013882  -1.129    0.259
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.1349 on 376 degrees of freedom
##   (12 observations deleted due to missingness)
## Multiple R-squared:  0.003381,   Adjusted R-squared:  0.00073
## F-statistic: 1.275 on 1 and 376 DF,  p-value: 0.2595
##
## [1] "Coffee_i_identify_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.1848 -0.1848 -0.1482 -0.1482  0.8518
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.18478    0.02749   6.723 6.74e-11 ***
## d[["Group"]]Treatment -0.03663    0.03861  -0.949    0.343
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.3728 on 371 degrees of freedom
##   (17 observations deleted due to missingness)
## Multiple R-squared:  0.002421,   Adjusted R-squared:  -0.0002684
## F-statistic: 0.9002 on 1 and 371 DF,  p-value: 0.3433
##
## [1] "Coffee_i_prefer_"
##
```

```
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.3027 -0.3027 -0.2526  0.6973  0.7474
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.30270    0.03295   9.187   <2e-16 ***
## d[["Group"]]Treatment -0.05007    0.04629  -1.082     0.28
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4482 on 373 degrees of freedom
##   (15 observations deleted due to missingness)
## Multiple R-squared:  0.003127,   Adjusted R-squared:  0.0004542
## F-statistic:  1.17 on 1 and 373 DF,  p-value: 0.2801
##
## [1] "Coffee_o_prefer_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.4842 -0.4842 -0.4216  0.5158  0.5784
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.42162    0.03663  11.512   <2e-16 ***
## d[["Group"]]Treatment  0.06259    0.05145   1.216    0.225
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4982 on 373 degrees of freedom
##   (15 observations deleted due to missingness)
## Multiple R-squared:  0.003951,   Adjusted R-squared:  0.001281
## F-statistic:  1.48 on 1 and 373 DF,  p-value: 0.2246
##
## [1] "Coffee_validate_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.98919  0.01081  0.01081  0.02105  0.02105
##
## Coefficients:
##                        Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.989189   0.009242 107.031   <2e-16 ***
## d[["Group"]]Treatment -0.010242   0.012984  -0.789    0.431
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.1257 on 373 degrees of freedom
##   (15 observations deleted due to missingness)
## Multiple R-squared:  0.001665,   Adjusted R-squared:  -0.001011
## F-statistic: 0.6222 on 1 and 373 DF,  p-value: 0.4307
##
## [1] "Couple_i_identify_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.2234 -0.2234 -0.2064 -0.2064  0.7936
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.20635    0.02995   6.890 2.37e-11 ***
## d[["Group"]]Treatment  0.01706    0.04241   0.402    0.688
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4117 on 375 degrees of freedom
##   (13 observations deleted due to missingness)
## Multiple R-squared:  0.0004311,  Adjusted R-squared:  -0.002234
## F-statistic: 0.1617 on 1 and 375 DF,  p-value: 0.6878
##
## [1] "Couple_i_prefer_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.3191 -0.3191 -0.3175  0.6808  0.6825
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)           0.317460   0.033973   9.344   <2e-16 ***
## d[["Group"]]Treatment 0.001689   0.048110   0.035    0.972
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4671 on 375 degrees of freedom
##   (13 observations deleted due to missingness)
## Multiple R-squared:  3.285e-06,  Adjusted R-squared:  -0.002663
## F-statistic: 0.001232 on 1 and 375 DF,  p-value: 0.972
##
## [1] "Couple_o_prefer_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
```

```
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.5904 -0.5106  0.4096  0.4894  0.4894
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.51064    0.03626  14.083   <2e-16 ***
## d[["Group"]]Treatment  0.07979    0.05128   1.556    0.121
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4972 on 374 degrees of freedom
##   (14 observations deleted due to missingness)
## Multiple R-squared:  0.006432,   Adjusted R-squared:  0.003775
## F-statistic: 2.421 on 1 and 374 DF,  p-value: 0.1206
##
## [1] "Couple_validate_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.98930  0.01070  0.01070  0.02646  0.02646
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)           0.973545   0.009842  98.922   <2e-16 ***
## d[["Group"]]Treatment 0.015760   0.013955   1.129    0.259
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.1353 on 374 degrees of freedom
##   (14 observations deleted due to missingness)
## Multiple R-squared:  0.003398,   Adjusted R-squared:  0.0007338
## F-statistic: 1.275 on 1 and 374 DF,  p-value: 0.2595
##
## [1] "Work_i_identify_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.5027 -0.4628 -0.4628  0.4974  0.5372
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.46277    0.03651  12.674   <2e-16 ***
## d[["Group"]]Treatment  0.03988    0.05157   0.773     0.44
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5006 on 375 degrees of freedom
```

```
##   (13 observations deleted due to missingness)
## Multiple R-squared:  0.001592,   Adjusted R-squared:  -0.00107
## F-statistic: 0.598 on 1 and 375 DF,  p-value: 0.4398
##
## [1] "Work_i_prefer_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.6738 -0.6649  0.3262  0.3351  0.3351
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)           0.664894   0.034402  19.327   <2e-16 ***
## d[["Group"]]Treatment 0.008903   0.048716   0.183    0.855
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4717 on 373 degrees of freedom
##   (15 observations deleted due to missingness)
## Multiple R-squared:  8.954e-05,  Adjusted R-squared:  -0.002591
## F-statistic: 0.0334 on 1 and 373 DF,  p-value: 0.8551
##
## [1] "Work_o_prefer_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.7884  0.2116  0.2116  0.2394  0.2394
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.76064    0.03054  24.905   <2e-16 ***
## d[["Group"]]Treatment  0.02772    0.04314   0.643    0.521
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4188 on 375 degrees of freedom
##   (13 observations deleted due to missingness)
## Multiple R-squared:  0.0011, Adjusted R-squared:  -0.001564
## F-statistic: 0.413 on 1 and 375 DF,  p-value: 0.5208
##
## [1] "Work_validate_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.98413  0.01587  0.01587  0.02128  0.02128
```

```
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)           0.978723   0.009870  99.166   <2e-16 ***
## d[["Group"]]Treatment 0.005404   0.013939   0.388    0.698
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.1353 on 375 degrees of freedom
##   (13 observations deleted due to missingness)
## Multiple R-squared:  0.0004006,  Adjusted R-squared:  -0.002265
## F-statistic: 0.1503 on 1 and 375 DF,  p-value: 0.6985
##
## [1] "Fit_i_identify_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.4032 -0.4032 -0.3723  0.5968  0.6277
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.40323    0.03580  11.262   <2e-16 ***
## d[["Group"]]Treatment -0.03089    0.05050  -0.612    0.541
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4883 on 372 degrees of freedom
##   (16 observations deleted due to missingness)
## Multiple R-squared:  0.001005,   Adjusted R-squared:  -0.001681
## F-statistic: 0.3741 on 1 and 372 DF,  p-value: 0.5412
##
## [1] "Fit_i_prefer_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.3936 -0.3936 -0.3817  0.6064  0.6183
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.38172    0.03582  10.657   <2e-16 ***
## d[["Group"]]Treatment  0.01190    0.05052   0.235    0.814
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4885 on 372 degrees of freedom
##   (16 observations deleted due to missingness)
## Multiple R-squared:  0.000149,   Adjusted R-squared:  -0.002539
## F-statistic: 0.05545 on 1 and 372 DF,  p-value: 0.814
```

```
##
## [1] "Fit_o_prefer_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -0.5957 -0.5806  0.4043  0.4194  0.4194
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            0.58065    0.03618  16.049   <2e-16 ***
## d[["Group"]]Treatment  0.01510    0.05103   0.296    0.767
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4934 on 372 degrees of freedom
##   (16 observations deleted due to missingness)
## Multiple R-squared:  0.0002353,  Adjusted R-squared:  -0.002452
## F-statistic: 0.08756 on 1 and 372 DF,  p-value: 0.7675
##
## [1] "Fit_validate_"
##
## Call:
## lm(formula = d[[column]] ~ d[["Group"]])
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.98925  0.00000  0.00000  0.01075  0.01075
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)           0.989247   0.005347 184.997   <2e-16 ***
## d[["Group"]]Treatment 0.010753   0.007542   1.426    0.155
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.07293 on 372 degrees of freedom
##   (16 observations deleted due to missingness)
## Multiple R-squared:  0.005434,   Adjusted R-squared:  0.002761
## F-statistic: 2.033 on 1 and 372 DF,  p-value: 0.1548
```