Project

Long Island Iced Tea

Contents


```
library(car)
library(dplyr)
library(ggplot2)
library(psych)
```

Data Preparation

```
data <- read.csv("All_Data_p.csv")
data <- subset(data, select = c(trialnum, choice, blocktype, RGPTS_persecution, RGPTS_reference))
data <- subset(data, blocktype != '4')
df <- subset(data, select = c(choice, blocktype, RGPTS_persecution, RGPTS_reference), trialnum == 4)
df_advice <- subset(df, select = c(choice, RGPTS_persecution, RGPTS_reference), blocktype == 'advice')
df_eaves <- subset(df, select = c(choice, RGPTS_persecution, RGPTS_reference), blocktype == 'eavesdrop')
```

Exploratory Analysis

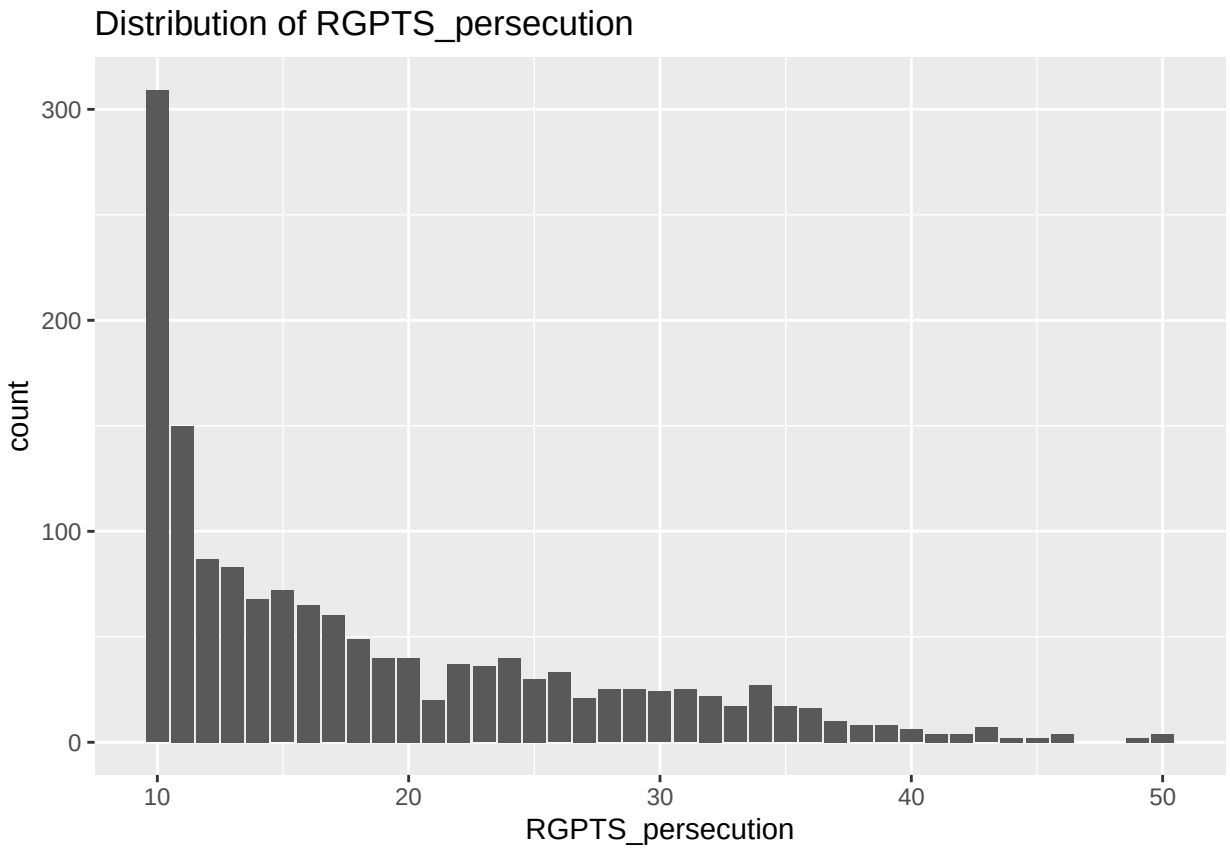
Data Summary

```
summary(data)
```

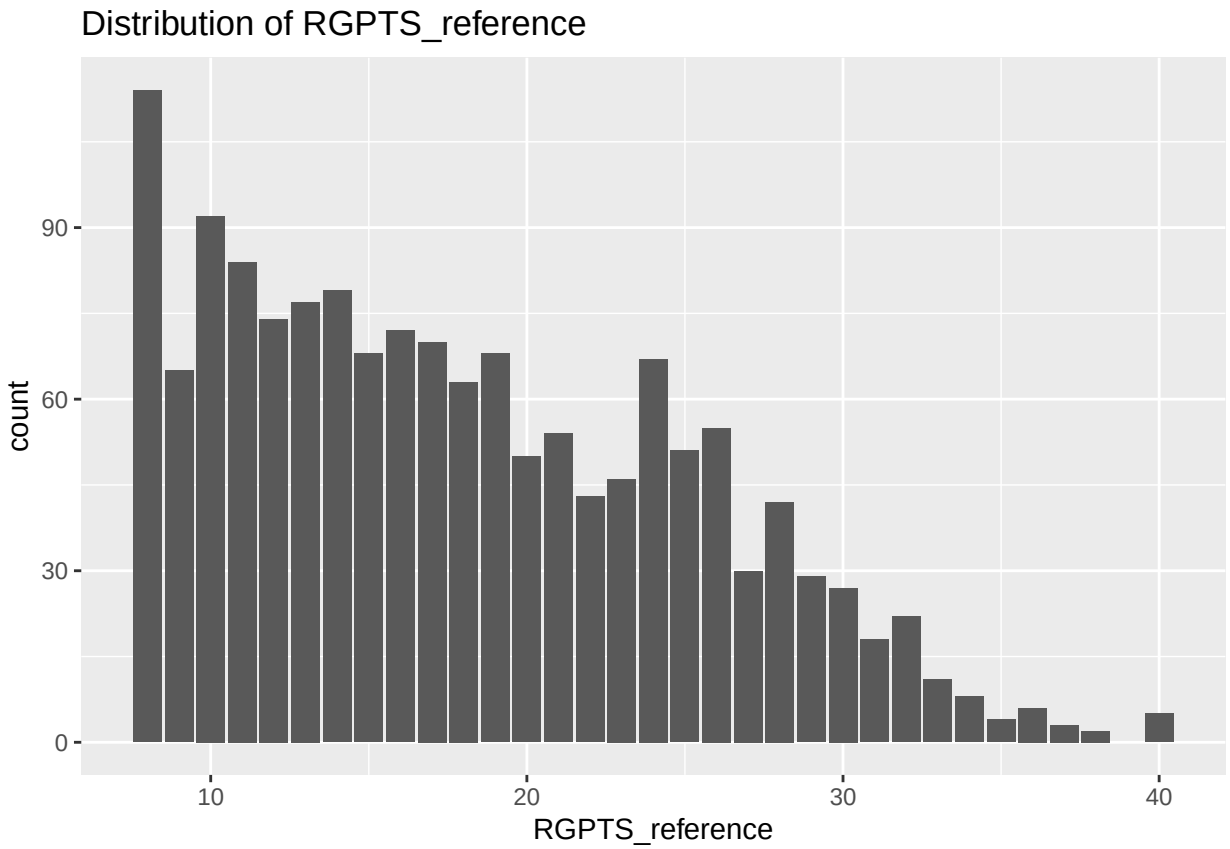
```
##     trialnum      choice        blocktype         RGPTS_persecution
##  Min.   : 0   Min.   :0.0000   Length:67437       Min.   :10.00
##  1st Qu.: 3   1st Qu.:0.0000   Class :character   1st Qu.:11.00
##  Median : 7   Median :1.0000   Mode  :character   Median :15.00
##  Mean   : 7   Mean   :0.7019                      Mean   :18.27
##  3rd Qu.:11   3rd Qu.:1.0000                      3rd Qu.:24.00
##  Max.   :14   Max.   :1.0000                      Max.   :50.00
##  RGPTS_reference
##  Min.   : 8.00
##  1st Qu.:12.00
##  Median :17.00
##  Mean   :17.92
##  3rd Qu.:24.00
##  Max.   :40.00
```

Frequency Histograms of RGPTS scores

```
ggplot(df_advice, aes(x = RGPTS_persecution)) +
  geom_bar() +
  labs(title = "Distribution of RGPTS_persecution")
```




```
ggplot(df_advice, aes(x = RGPTS_reference)) +
  geom_bar() +
  labs(title = "Distribution of RGPTS_reference")
```

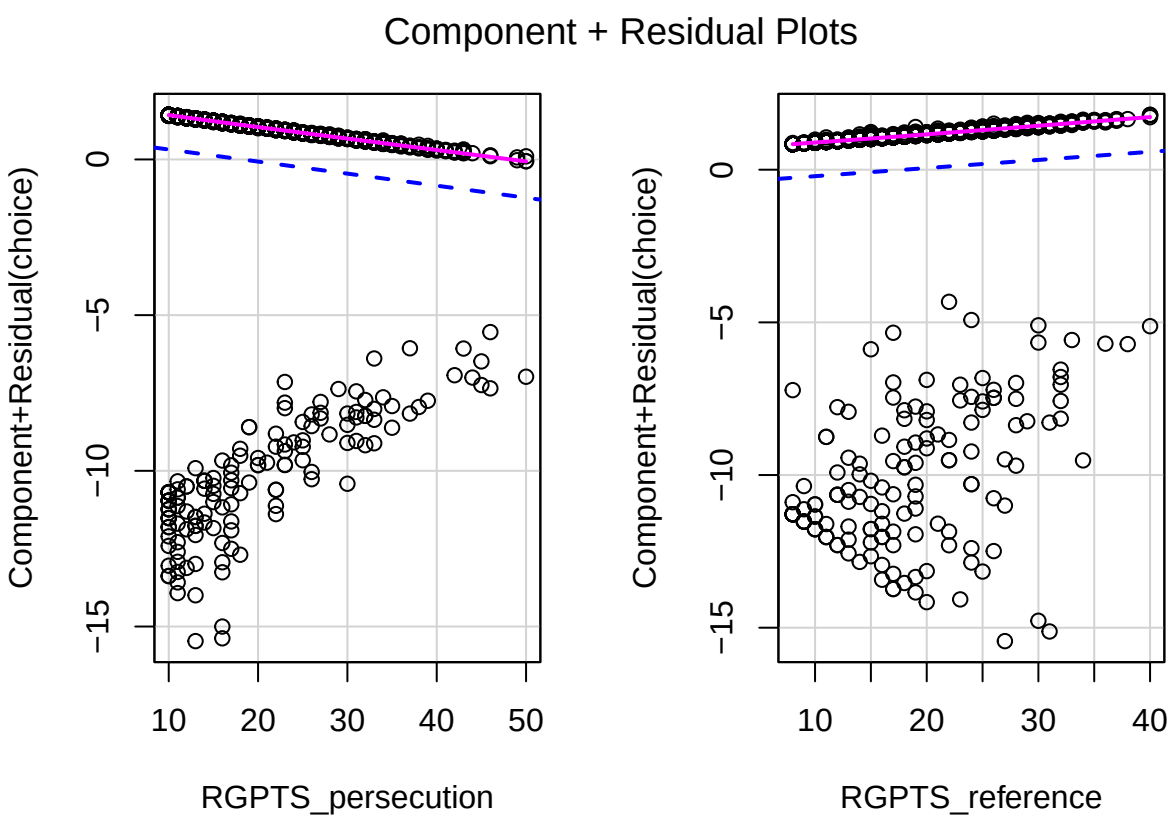


Assumption Testing

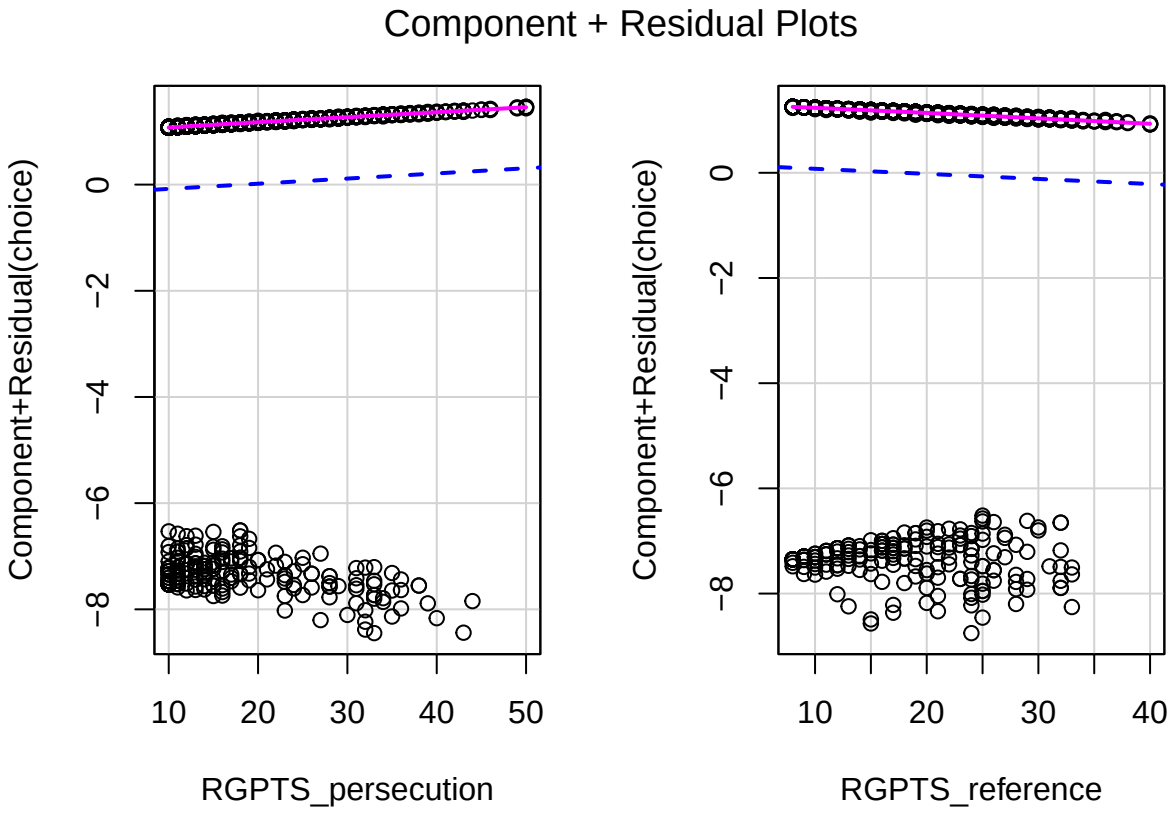
Linearity

```
model <- glm(choice ~ RGPTS_persecution + RGPTS_reference, data = df_advice, family = 'binomial')
model2 <- glm(choice ~ RGPTS_persecution + RGPTS_reference, data = df_eaves, family = 'binomial')

crPlots(model)
```

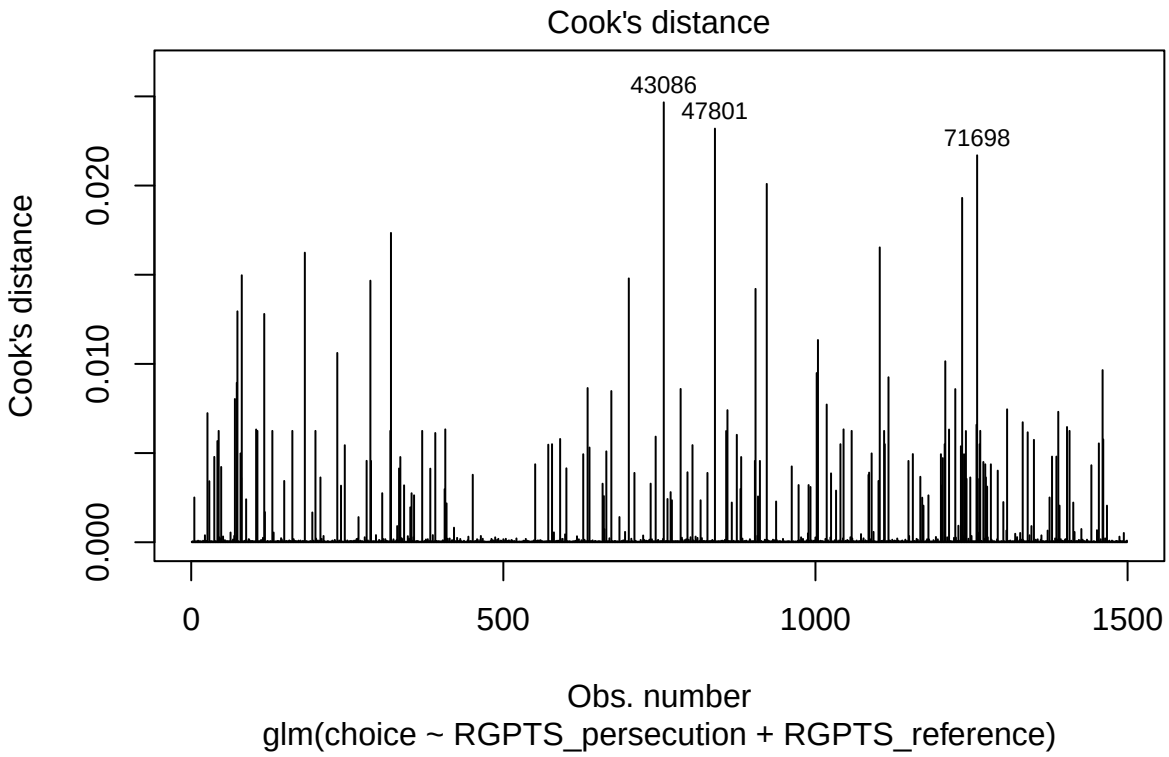



```
crPlots(model2)
```

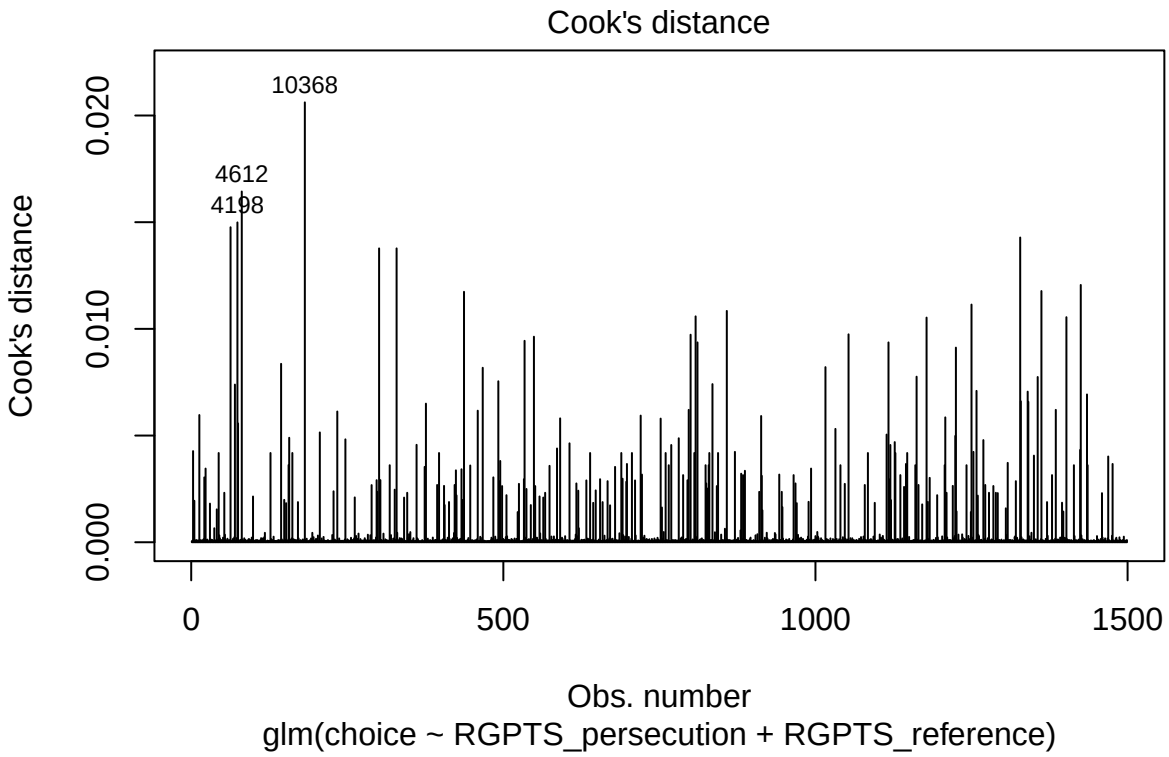


Outliers

```
plot(model, which=4)
```




```
plot(model2, which=4)
```



Multicollinearity

```
print("Advice")
```

```
## [1] "Advice"
```

```
vif(model)
```

```
## RGPTS_persecution   RGPTS_reference
##          2.462359          2.462359
```

```
print("Observation")
```

```
## [1] "Observation"
```

```
vif(model2)
```

```
## RGPTS_persecution   RGPTS_reference
##          2.343714          2.343714
```

Model Summary

```
summary(model)
```

```
##
## Call:
## glm(formula = choice ~ RGPTS_persecution + RGPTS_reference, family = "binomial",
##     data = df_advice)
##
## Coefficients:
##                   Estimate Std. Error z value Pr(>|z|)
## (Intercept)        2.49354    0.23382  10.664  < 2e-16 ***
## RGPTS_persecution -0.04001    0.01416  -2.825  0.00473 **
## RGPTS_reference    0.02641    0.01843   1.433  0.15192
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 966.22  on 1498  degrees of freedom
## Residual deviance: 957.40  on 1496  degrees of freedom
## AIC: 963.4
##
## Number of Fisher Scoring iterations: 5
```

```
summary(model2)
```

```
##
## Call:
## glm(formula = choice ~ RGPTS_persecution + RGPTS_reference, family = "binomial",
##     data = df_eaves)
##
## Coefficients:
##                    Estimate Std. Error z value Pr(>|z|)
## (Intercept)        1.841503   0.203908   9.031   <2e-16 ***
## RGPTS_persecution  0.010154   0.013407   0.757    0.449
## RGPTS_reference   -0.009917   0.016041  -0.618    0.536
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 1192.6  on 1498  degrees of freedom
## Residual deviance: 1192.0  on 1496  degrees of freedom
## AIC: 1198
##
## Number of Fisher Scoring iterations: 4
```

```
confint(model)
```

```
##                          2.5 %      97.5 %
```

```
## (Intercept)        2.041897280  2.95942769
## RGPTS_persecution -0.067574953 -0.01197073
## RGPTS_reference   -0.009447965  0.06285693
```

```
exp(coef(model))
```

```
##       (Intercept) RGPTS_persecution   RGPTS_reference
##        12.1040780         0.9607829         1.0267578
```

```
exp(confint(model))
```

```
##                       2.5 %     97.5 %
## (Intercept)       7.7052143 19.2869304
## RGPTS_persecution 0.9346577  0.9881006
## RGPTS_reference   0.9905965  1.0648745
```

```
confint(model2)
```

```
##                         2.5 %     97.5 %
## (Intercept)        1.44544626 2.24542317
## RGPTS_persecution -0.01578316 0.03681404
## RGPTS_reference   -0.04120207 0.02171815
```

```
exp(coef(model2))
```

```
##       (Intercept) RGPTS_persecution   RGPTS_reference
##         6.3060087         1.0102055         0.9901318
```

```
exp(confint(model2))
```

```
##                       2.5 %   97.5 %
## (Intercept)       4.2437455 9.444411
## RGPTS_persecution 0.9843407 1.037500
## RGPTS_reference   0.9596352 1.021956
```

Both R-GPTS or one?

```
modelnew <- glm(choice ~ RGPTS_persecution, data = df_advice, family = 'binomial')
modelnew1 <- glm(choice ~ RGPTS_persecution, data = df_eaves, family = 'binomial')

print("Original Models")
```

```
## [1] "Original Models"
```

```
print("Advice")
```

```
## [1] "Advice"
```

```
AIC(model)
```

```
## [1] 963.3989
```

```
print("Observation")
```

```
## [1] "Observation"
```

```
AIC(model2)
```

```
## [1] 1198.03
```

```
print("New Models")
```

```
## [1] "New Models"
```

```
print("Advice")
```

```
## [1] "Advice"
```

```
AIC(modelnew)
```

```
## [1] 963.4749
```

```
print("Observation")
```

```
## [1] "Observation"
```

```
AIC(modelnew1)
```

```
## [1] 1196.411
```

Accounting for Fluid Intelligence

```
data <- read.csv("All_Data_p.csv")
data <- subset(data, select = c(trialnum, choice, blocktype, RGPTS_persecution, RGPTS_reference, puzzle
data <- subset(data, blocktype != '4')
df <- subset(data, select = c(choice, blocktype, RGPTS_persecution, RGPTS_reference, puzzle_score), tri
df_advice <- subset(df, select = c(choice, RGPTS_persecution, RGPTS_reference, puzzle_score), blocktype
df_eaves <- subset(df, select = c(choice, RGPTS_persecution, RGPTS_reference, puzzle_score), blocktype =
modelf <- glm(choice ~ RGPTS_persecution + RGPTS_reference + puzzle_score,
              data = df_advice, family = "binomial")
modelf1 <- glm(choice ~ RGPTS_persecution + RGPTS_reference + puzzle_score,
              data = df_eaves, family = "binomial")
summary(modelf)
```

```
##
## Call:
## glm(formula = choice ~ RGPTS_persecution + RGPTS_reference +
##     puzzle_score, family = "binomial", data = df_advice)
##
## Coefficients:
##                   Estimate Std. Error z value Pr(>|z|)
## (Intercept)        2.62010    0.30111   8.701  < 2e-16 ***
## RGPTS_persecution -0.04097    0.01424  -2.876  0.00402 **
## RGPTS_reference    0.02660    0.01846   1.441  0.14946
## puzzle_score      -0.03387    0.05003  -0.677  0.49846
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 966.22  on 1498  degrees of freedom
## Residual deviance: 956.94  on 1495  degrees of freedom
## AIC: 964.94
##
## Number of Fisher Scoring iterations: 5
```

```
summary(modelf1)
```

```
##
## Call:
## glm(formula = choice ~ RGPTS_persecution + RGPTS_reference +
##     puzzle_score, family = "binomial", data = df_eaves)
##
## Coefficients:
##                   Estimate Std. Error z value Pr(>|z|)
## (Intercept)        1.69716    0.25522   6.650 2.93e-11 ***
## RGPTS_persecution  0.01122    0.01345   0.834    0.404
## RGPTS_reference   -0.01015    0.01603  -0.633    0.527
## puzzle_score       0.03985    0.04303   0.926    0.354
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 1192.6  on 1498  degrees of freedom
## Residual deviance: 1191.2  on 1495  degrees of freedom
## AIC: 1199.2
##
## Number of Fisher Scoring iterations: 4
```