Ryan Oelkers, Michael Hummel Wednesday, December 17, 2008
MA 331 Intermediate Statistics Project III (Final Examination) Ionut Florescu
I pledge my honor that I have abided by the Stevens Honor System: Ryan Oelkers and Michael Hummel

Title: Pennsylvania Voters: Party Affiliation Factors

Dataset:

**** *Dataset was found on the Pennsylvania State Department website below*****
http://www.dos.state.pa.us/elections/cwp/view.asp?A=1310&Q=446974
*****2008 election results for President in Pennsylvania were taken from CNN.com*****
http://www.cnn.com/ELECTION/2008/results/president/

Data Set Description:

The data set, found at: http://www.dos.state.pa.us/elections/cwp/view.asp?A=1310&Q=446974, provides several spread sheets dividing voters by county, age, and registered party. The first spread sheet shows counties and then lists the number of registered Democrats, Republicans, non affiliated voters, and then all others, the last two respectively represent outside influences. The next two spread sheets list newly registered voters, beginning in April of 2008 and ending on November 2, 2008. They are listed numerically by county and then numerically by party, respectively. The data set also contains a spread sheet listing voters in their respective counties by age, seven age sets being given, the youngest set being 18-24, the oldest 75 years and older. The Democratic registered voters are then listed by county and age, and the Republican registered voters are then listed by county and age. The last spread sheet contained in the data set contains the number of active and inactive voters in the counties of Pennsylvania by Democrat, Republican, and Other. This data set will allow us to examine in detail geographical and social influences on voters and why they choose to register and vote in concordance with a certain political party. Pennsylvania contains many different cultural settings across its many counties and this data will allow us to pinpoint more conservative areas versus more liberal areas based on the numbers of registered voters and their party affiliation.

Objectives:

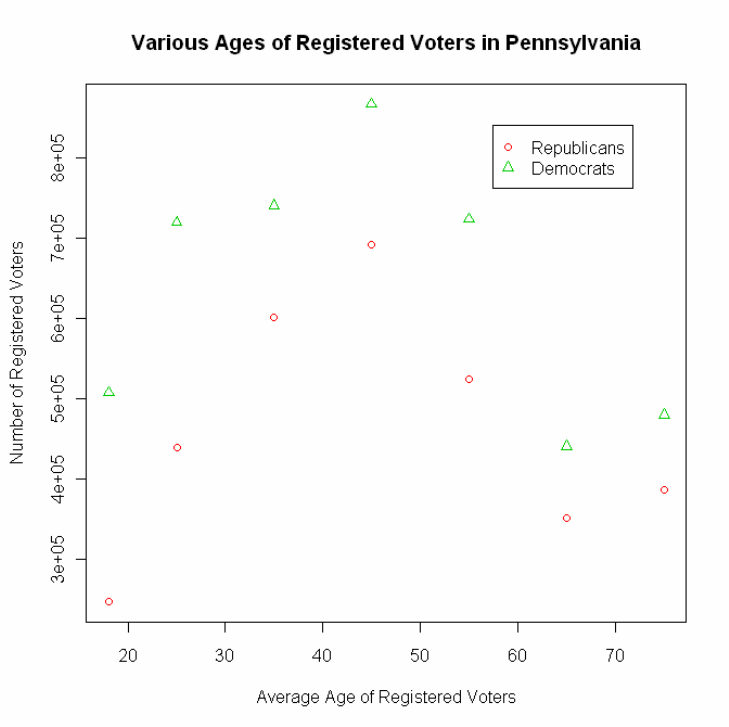
-Determine the effect of location or age on the political affiliation of Pennsylvania voters.

In order to determine if either age or county location of a voter had an effect on the political affiliation of voters we had to make some additions to the data provided. In the age dataset additionally a column for whether the data given was for the Republican Party (designated by a 1) or the Democratic Party (designated by a 2). Also the data for the general registration statistic by county had an addition two columns added. One for the majority registered party (1 for Republican or 2 for Democrat) as well as one with a number between 1-5 designating the area of the state the county resided in (Northeast 1, Southeast 2, Center 3, Northwest 4, Southwest 5). The following are the results we have come across. The formulas and data to each section can be found in the Appendix at the end of the report. The initial part of the section refers to the work done in Project II on regression. The second part of the section refers to the new work that was done on ANOVA and categorical variable significance for Project III (revised Project II) .

Using Regression:

AGE

In order to determine directly if any age group had significance in the political affiliation of a party we ran a simple linear regression analysis. From this we found that in fact not a single age group showed significance on the determination of the political affiliation of a voter. It is likely that this means, that a voter does not simply register to be affiliated with one party or another because of age. They would not say, "I will register to be a Republican because I am between the ages of 45-55." This, however, should not be confused with the idea that the Democratic Party is a younger party than the Republican Party. For instance when a plot is made and the average ages are taken of the Democratic Party the following is discovered. It is likely the topics and ideas which are taken care of or considered important by one party or another cater to a younger or older crowd and therefore are likely to draw more voters of a younger or older age. As the graph below shows there are many younger voters as Democrats then Republicans. The mean Age of a Democrat falls in the category of 35-44 years of age and 79% of the registered voters being under the age of 54. and the mean age of a Republican is between the years of 45-54 years of age and 78% of registered voters being above the age of 35. So while it would appear from observational evidence that the Democratic Party has many more voters of a younger age and the Republican Party has many older voters, from the evidence gathered we cannot say a voter makes his or her decision on party affiliation directly because of their current age.

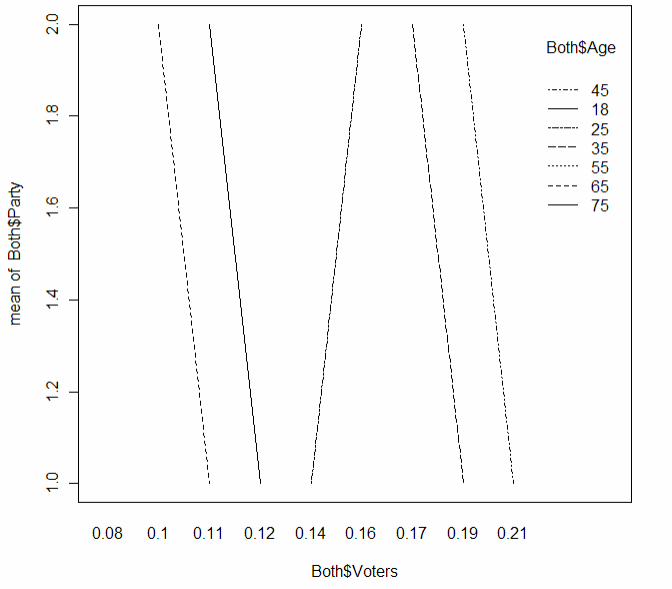


LOCATION

Again in order to determine the influence that the location of a voter has on the political affiliation of a party we did a simple linear regression analysis to check the validity of the variable. When the regression was performed there was no significance found. From this we can conclude that it is unlikely a voter makes his decision to join the Republican or Democratic Party solely on the fact that he is a resident of the southeastern part of Pennsylvania for example. It is likely, however, as there tends to be a large grouping of Democratically controlled counties in the southeastern portion of the state as well around the large cities of the state that the various factors that affect such areas are a main points of interest to the Democratic Party and therefore many residents choose that party. Again it is highly unlikely a person is making such a choice solely because they live in Philadelphia.

Using ANOVA:

The first steps in the ANOVA process are to look at the interaction plots. From the interaction plot we were given the following results. It would appear as though from the interaction plot that the factors shown are significant and slight interaction. From the graph alone it would leave a reader to believe that the only variables which show any significance as the ages of 25-34, 35-44, 45-54, 64-65, and 75+. The graph also shows that there is interaction between the variables above and the variable for the ages of 25-34. However, a chi squared test was also run on the relationships and the p-values of both voter percentages versus political party and voter age versus political party resulted in a p-value of 0.573 and 1 respectively. Both of these p-values are too high to prove any significant interaction. When the same test was done between voter age and voter percentages the p-value was smaller at 0.2661 but again too large to show any significant interaction.



Because the linear regression analysis provided no conclusive results, and the variables in this problem are categorical an ANOVA test is needed. The 7 different age groups were tested as well as the location variable. The interaction of location with age was tested as well, but the interaction between two ages was not. This is because while the location of a voter as well as his or her age can possibly be related, a voter can only be one age at a time and therefore testing two ages at a time would only create confusing results. From the test we can determine that party determination is a result of age when a voter is in the age

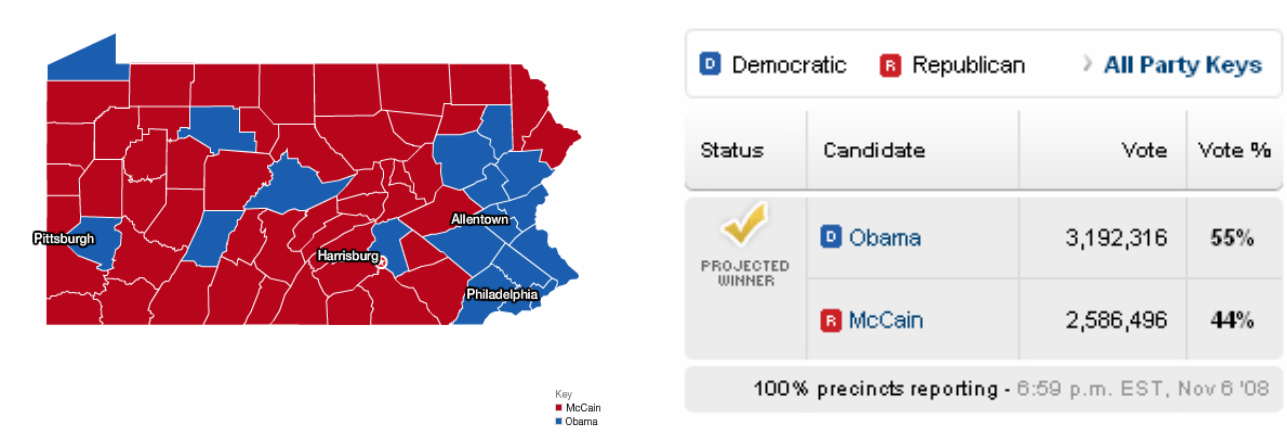
```
Response: Party$Party.Code
                                 Df    Sum Sq   Mean Sq   F value    Pr(>F)
Party$Eighteen                    1    0.7702    0.7702    4.4080 0.0379017 *
Party$TwentyFive                  1    3.4882    3.4882   19.9625 1.823e-05 ***
Party$ThirtyFive                  1    0.3178    0.3178    1.8189 0.1800321
Party$FortyFive                   1    1.9069    1.9069   10.9130 0.0012645 **
Party$FiftyFive                   1    2.7278    2.7278   15.6106 0.0001329 ***
Party$SixtyFive                   1    1.7906    1.7906   10.2473 0.0017591 **
Party$SeventyFive                 1    0.2588    0.2588    1.4811 0.2260278
Party$Location                    1    0.0020    0.0020    0.0116 0.9143647
Party$Eighteen:Party$Location     1    0.7581    0.7581    4.3386 0.0394182 *
Party$TwentyFive:Party$Location   1    0.5051    0.5051    2.8908 0.0917220 .
Party$ThirtyFive:Party$Location   1    0.0010    0.0010    0.0059 0.9388254
Party$FortyFive:Party$Location    1    0.0908    0.0908    0.5196 0.4724392
Party$FiftyFive:Party$Location    1 1.176e-06 1.176e-06 6.731e-06 0.9979343
Party$SixtyFive:Party$Location    1    0.0636    0.0636    0.3638 0.5475557
Party$SeventyFive:Party$Location  1    0.2000    0.2000    1.1447 0.2868467
Residuals                       118   20.6190    0.1747
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

groups of 18-24, 25-34, 45-54, 55-64, and 65-74. From the ANOVA test it would appear location plays no role on political affiliation, but if you are in the age group of 18-24 or 24-35 your location plays a small significance on which party you will be affiliating with.

-Determine which party has the most influential presence in Pennsylvania.

It should be noted that in the following hypothesis on voters it is assumed that a voter for the Democratic or Republican part would vote solely along party lines. From the information provided by the State Department of Pennsylvania there were a total of 8,748,031 registered voters. Of those registered voters 4,480,691 were Democrats, 3,243,391 were Republicans, 568,981 were registered in a third party and 464,968 had no political affiliation whatsoever. From those numbers alone it would appear the Democratic Party has the most political influence in the state. However, the activity of a voter must also be put into question. From the data given of the registered Democratic Party voters 4,076,561 were actually considered to be active voters. Of those voters registered Republican, 2,923,062 were considered to be active voters. When those numbers are compared to the totals [(active voters/registered voters)x100] there are currently 90.1% of the Democratic Party voters who are active and 89% of active Republican Party voters. Because of this overall in the state of Pennsylvania the Democratic Party has the most political influence. Interestingly enough, however, when looking at the counties solely by themselves, it would appear that there at 41 counties in which the Republican Party has a majority of voters, while the Democratic Party has a majority of voters solely in 26 counties. It is likely from this, there would be a majority of State Representatives in the Republican Party, but in a general state election for the President of the United States, the Democratic candidate would be the victor.

-Compare the results of the registered voters and dynamics of our model to the recent 2008 election for President.



Images courtesy of CNN.com

When checking the expected voting rates and the actual voting rates a few things are discovered. First, the State of Pennsylvania did in fact elect a Democratic candidate for the office of the President of the United States. Second a majority of the counties did in fact vote for the Republican Candidate and of the 26 Democratically held counties only 18 of them voted directly along party lines to receive a Democratic vote the other then

Chester and Delaware who had Republican majorities. Third both votes for the Republican and Democratic candidate were under the total registered, active voters for either party. This means that there are less active voters than the State Department had suggested as well as the voters in either parties may have voted for other candidates.

When the results of the election were checked against the expected results for the election some interesting results present themselves. In both cases for the Democratic and Republican Parties 59 of the 67 counties showed results significantly different from the predicted values while 8 counties showed similar results to the expected results (<10% difference). This result can be attributed to the number of unaffiliated voters in the state, the fact that a voter can vote different from his political affiliation and finally that a voter does not have to vote. A proportions test was run on the percentages of actual voters and it was found that for the Democratic Party they had a p-value of 0.6893 keeping the null hypothesis and the Republican Party had a p-value of 1.531e-07 rejecting the null hypothesis.

Conclusions to Case Study:

From the results of all the tests we have received we can produce the following model. In Pennsylvania when a voter is determining his political affiliation it his or her age should be taken into account. If the person falls into the category of the ages from 18-24, 25-34, 44-45, 55-64, 65-74 then their age plays a significant role on which political party they will affiliate with. While it is impossible to tell simply from the test which party they are more likely to affiliate with, looking at the observation data it would appear a younger voter, under the age of 55, would affiliate with the Democratic Party while an older voter, over the age of 35, would affiliate with the Republican Party. It should also be noted that while location plays no significant role on the determination of political affiliation, it should be noted that when paired with the age groups of 18-24 and 25-34 there is a slight significance to which party they will affiliate with, though it is impossible to tell from the test which party they will affiliate with. From the observational data, however, it looks as though the voter will affiliate with the Democratic Party if they are in a more urban county or the Republican Party if they are in a more rural county.

On a more interesting note, the Republican Party controls close to 2/3 of the state county wide with 41 counties under majority Republican control and only 26 under majority Democratic control. While it would appear that the Republicans would win a statewide election from this data, when the total percentages of the state are taken the Democratic Party has more than 1 million more votes that the Republican party and the statewide election for President would result in all of the electoral votes in Pennsylvania being given to the Democratic candidate for President.

While it would be interesting to compare the results for each election of the age groups as they became of age, it is somewhat impossible. As the voters in each age group will not be the same from year to year. The Pennsylvania State Department website also only gives current registration statistics. While it does keep voting statistics for previous years, there is no voter age or location breakdown in its specificity similar to the dataset we used for our case study.

Appendix:

Data and Code for Age(Regression):

```
> Age=read.csv("C:\\Documents and Settings\\Ryan Oelkers\\Desktop\\Classes\\Intermediate Statistics\\Project II\\age.csv",
header=T)
> summary(lm(Age$Party.Code~Age$Eighteen))

Call:
lm(formula = Age$Party.Code ~ Age$Eighteen)

Residuals:
   Min     1Q  Median     3Q    Max
-0.6015 -0.4782 -0.3416  0.5203  0.5327

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  1.467e+00  4.698e-02  31.219   <2e-16 ***
Age$Eighteen 5.913e-06  3.355e-06   1.763   0.0803 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.4979 on 132 degrees of freedom
Multiple R-squared: 0.02299,    Adjusted R-squared: 0.01559
F-statistic: 3.106 on 1 and 132 DF,  p-value: 0.0803

> summary(lm(Age$Party.Code~Age$TwentyFive))

Call:
lm(formula = Age$Party.Code ~ Age$TwentyFive)

Residuals:
   Min     1Q  Median     3Q    Max
-0.5939 -0.4843 -0.2469  0.5162  0.5251

Coefficients:
               Estimate Std. Error t value Pr(>|t|)
(Intercept)    1.475e+00  4.759e-02  30.982   <2e-16 ***
Age$TwentyFive 2.947e-06  2.296e-06   1.283    0.202
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.5007 on 132 degrees of freedom
Multiple R-squared: 0.01232,    Adjusted R-squared: 0.00484
F-statistic: 1.647 on 1 and 132 DF,  p-value: 0.2016

> summary(lm(Age$Party.Code~Age$ThirtyFive))

Call:
lm(formula = Age$Party.Code ~ Age$ThirtyFive)

Residuals:
   Min     1Q  Median     3Q    Max
-0.5605 -0.4904 -0.1146  0.5104  0.5164

Coefficients:
               Estimate Std. Error t value Pr(>|t|)
(Intercept)    1.483e+00  4.995e-02  29.696   <2e-16 ***
Age$ThirtyFive 1.666e-06  2.460e-06   0.677    0.499
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.5029 on 132 degrees of freedom
Multiple R-squared: 0.003462,   Adjusted R-squared: -0.004087
F-statistic: 0.4586 on 1 and 132 DF,  p-value: 0.4995

> summary(lm(Age$Party.Code~Age$FortyFive))

Call:
lm(formula = Age$Party.Code ~ Age$FortyFive)
```

```
Residuals:
   Min     1Q  Median     3Q    Max
-0.5709 -0.4883 -0.1176  0.5121  0.5198

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)   1.480e+00  5.065e-02  29.216   <2e-16 ***
Age$FortyFive 1.735e-06  2.240e-06   0.774     0.44
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.5026 on 132 degrees of freedom
Multiple R-squared: 0.004524,   Adjusted R-squared: -0.003018
F-statistic: 0.5998 on 1 and 132 DF,  p-value: 0.44

> summary(lm(Age$Party.Code~Age$FiftyFive))

Call:
lm(formula = Age$Party.Code ~ Age$FiftyFive)

Residuals:
   Min     1Q  Median     3Q    Max
-0.5997 -0.4821 -0.1664  0.5167  0.5309

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)   1.468e+00  5.122e-02  28.662   <2e-16 ***
Age$FiftyFive 3.428e-06  2.937e-06   1.167    0.245
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.5012 on 132 degrees of freedom
Multiple R-squared: 0.01021,    Adjusted R-squared: 0.002715
F-statistic: 1.362 on 1 and 132 DF,  p-value: 0.2453

> summary(lm(Age$Party.Code~Age$SixtyFive))

Call:
lm(formula = Age$Party.Code ~ Age$SixtyFive)

Residuals:
   Min     1Q  Median     3Q    Max
-0.5862 -0.4879 -0.1172  0.5117  0.5235

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)   1.476e+00  5.192e-02  28.418   <2e-16 ***
Age$SixtyFive 4.125e-06  4.821e-06   0.856    0.394
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.5024 on 132 degrees of freedom
Multiple R-squared: 0.005516,   Adjusted R-squared: -0.002018
F-statistic: 0.7321 on 1 and 132 DF,  p-value: 0.3937

> summary(lm(Age$Party.Code~Age$SeventyFive))

Call:
lm(formula = Age$Party.Code ~ Age$SeventyFive)

Residuals:
   Min     1Q  Median     3Q    Max
-0.5865 -0.4899 -0.1068  0.5107  0.5193

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)    1.480e+00  5.082e-02  29.122   <2e-16 ***
Age$SeventyFive 3.076e-06  4.080e-06   0.754    0.452
---
```

```
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.5027 on 132 degrees of freedom
Multiple R-squared: 0.004286,   Adjusted R-squared: -0.003257
F-statistic: 0.5682 on 1 and 132 DF,  p-value: 0.4523
> AgeEffect=read.csv("C:\\Documents and Settings\\Ryan Oelkers\\Desktop\\Classes\\Intermediate Statistics\\Project II\\bothage.csv",
header=T)
> AgeEffect
   Party Age Voters
1      1  18 246996
2      1  25 439457
3      1  35 601629
4      1  45 692527
5      1  55 524374
6      1  65 351397
7      1  75 386894
8      2  18 507481
9      2  25 719646
10     2  35 740858
11     2  45 867197
12     2  55 723987
13     2  65 440990
14     2  75 480256
> AgeEffect$Party= factor(AgeEffect$Party, labels = c("Republicans","Democrats"))
> plot(AgeEffect$Age,AgeEffect$Voters,pch=as.numeric(AgeEffect$Party),col=as.numeric(AgeEffect$Party)+1, main="Various
Ages of Registered Voters in Pennsylvania", xlab="Average Age of Registered Voters", ylab="Number of Registered Voters")
> legend(locator(1), legend=c("Republicans","Democrats"), pch=c(1,2), col=c(2,3))
>DemocratMean=(18*507481+25*719646+35*740858+45*867197+55*723987+65*440990+75*480256)/(507481+719646+740858
+867197+723987+440990+480256)
> DemocratMean
[1] 43.87597
> RepublicanMean=
(18*246966+25*439457+35*601629+45*692527+55*524374+65*351397+75*386894)/(246966+439457+601629+692527+524374+
351397+386894)
> RepublicanMean
[1] 45.74154
```

Data and Code for Location(Regression):

```
> Location=read.csv("C:\\Documents and Settings\\Ryan Oelkers\\Desktop\\Classes\\Intermediate Statistics\\Project II\\location.csv",
header=T)
> summary(lm(Location$Party.Code~Location$Location))

Call:
lm(formula = Location$Party.Code ~ Location$Location)

Residuals:
    Min      1Q  Median      3Q     Max
-0.5291 -0.4164 -0.3037  0.5554  0.6963

Coefficients:
                 Estimate Std. Error t value Pr(>|t|)
(Intercept)       1.24740    0.13243   9.420  9.1e-14 ***
Location$Location  0.05635    0.04275   1.318    0.192
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.4915 on 65 degrees of freedom
Multiple R-squared: 0.02603,    Adjusted R-squared: 0.01105
F-statistic: 1.737 on 1 and 65 DF,  p-value: 0.1921
```

Data and Code for ANOVA:

```
> Party=read.csv("D:\\Documents and Settings\\Ryan Oelkers\\Desktop\\age'location.csv", header=TRUE)
> Both=read.csv("D:\\Documents and Settings\\Ryan Oelkers\\Desktop\\bothage.csv", header=TRUE)
>
anova(lm(Party$Party.Code~Party$Eighteen+Party$TwentyFive+Party$ThirtyFive+Party$FortyFive+Party$FiftyFive+Party$SixtyFiv
e+Party$SeventyFive+Party$Location+Party$Eighteen:Party$Location+Party$TwentyFive:Party$Location+Party$ThirtyFive:Party$L
ocation+Party$FortyFive:Party$Location+Party$FiftyFive:Party$Location+Party$SixtyFive:Party$Location+Party$SeventyFive:Party
$Location))
Analysis of Variance Table
```

```
Response: Party$Party.Code
                              Df  Sum Sq  Mean Sq  F value    Pr(>F)
Party$Eighteen                 1  0.7702  0.7702   4.4080 0.0379017 *
Party$TwentyFive               1  3.4882  3.4882  19.9625 1.823e-05 ***
Party$ThirtyFive               1  0.3178  0.3178   1.8189 0.1800321
Party$FortyFive                1  1.9069  1.9069  10.9130 0.0012645 **
Party$FiftyFive                1  2.7278  2.7278  15.6106 0.0001329 ***
Party$SixtyFive                1  1.7906  1.7906  10.2473 0.0017591 **
Party$SeventyFive              1  0.2588  0.2588   1.4811 0.2260278
Party$Location                 1  0.0020  0.0020   0.0116 0.9143647
Party$Eighteen:Party$Location  1  0.7581  0.7581   4.3386 0.0394182 *
Party$TwentyFive:Party$Location  1  0.5051  0.5051   2.8908 0.0917220 .
Party$ThirtyFive:Party$Location  1  0.0010  0.0010   0.0059 0.9388254
Party$FortyFive:Party$Location   1  0.0908  0.0908   0.5196 0.4724392
Party$FiftyFive:Party$Location   1 1.176e-06 1.176e-06 6.731e-06 0.9979343
Party$SixtyFive:Party$Location   1  0.0636  0.0636   0.3638 0.5475557
Party$SeventyFive:Party$Location 1  0.2000  0.2000   1.1447 0.2868467
Residuals                      118 20.6190  0.1747
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> interaction.plot(Both$Voters,Both$Age,Both$Party)
> table(Both$Party, Both$Age)

   18 25 35 45 55 65 75
 1  1  1  1  1  1  1  1
 2  1  1  1  1  1  1  1
> chisq.test(table(Both$Party, Both$Age))

        Pearson's Chi-squared test

data:  table(Both$Party, Both$Age)
X-squared = 0, df = 6, p-value = 1

Warning message:
In chisq.test(table(Both$Party, Both$Age)) :
  Chi-squared approximation may be incorrect
> table(Both$Voters, Both$Age)

      18 25 35 45 55 65 75
  0.08  1  0  0  0  0  0  0
  0.1   0  0  0  0  0  1  0
  0.11  1  0  0  0  0  1  1
  0.12  0  0  0  0  0  0  1
  0.14  0  1  0  0  0  0  0
  0.16  0  1  0  0  2  0  0
  0.17  0  0  1  0  0  0  0
  0.19  0  0  1  1  0  0  0
  0.21  0  0  0  1  0  0  0
> chisq.test(table(Both$Voters, Both$Age))

        Pearson's Chi-squared test

data:  table(Both$Voters, Both$Age)
X-squared = 53.6667, df = 48, p-value = 0.2661

Warning message:
In chisq.test(table(Both$Voters, Both$Age)) :
  Chi-squared approximation may be incorrect
> table(Both$Voters, Both$Party)

      1 2
  0.08 1 0
  0.1  0 1
  0.11 1 2
  0.12 1 0
  0.14 1 0
  0.16 1 2
  0.17 0 1
  0.19 1 1
```

```
 0.21 1 0
> chisq.test(table(Both$Voters, Both$Party))

        Pearson's Chi-squared test

data:  table(Both$Voters, Both$Party)
X-squared = 6.6667, df = 8, p-value = 0.573

Warning message:
In chisq.test(table(Both$Voters, Both$Party)) :
  Chi-squared approximation may be incorrect
> Percentages=read.csv("D:\\Documents and Settings\\Ryan Oelkers\\Desktop\\actualvotes.csv", header=TRUE)
> prop.test(Percentages$Dem.Success,Percentages$Count,Percentages$Percent.Error.Dem)

        67-sample test for given proportions without continuity correction

data:  Percentages$Dem.Success out of Percentages$Count, null probabilities Percentages$Percent.Error.Dem
X-squared = 84.9079, df = 67, p-value = 0.06893
alternative hypothesis: two.sided
null values:
    prop 1     prop 2     prop 3     prop 4     prop 5     prop 6     prop 7     prop 8     prop 9    prop 10    prop 11    prop 12    prop 13    prop
14    prop 15    prop 16    prop 17    prop 18    prop 19    prop 20    prop 21
0.20698140 0.61526436 0.91303943 0.78214807 0.95334111 0.37053255 0.57405043 0.21417369 0.09783846 0.57720367
0.85685898 0.95261845 0.51681148 0.13125592 0.07363670 0.63865939 0.61261942 0.59273423 0.66396761 0.67795205
0.16606769
   prop 22    prop 23    prop 24    prop 25    prop 26    prop 27    prop 28    prop 29    prop 30    prop 31    prop 32    prop 33    prop 34
prop 35    prop 36    prop 37    prop 38    prop 39    prop 40    prop 41    prop 42
0.25259546 0.00851716 0.62098408 0.37537396 0.99000000 0.44871795 0.31802204 0.99000000 0.99000000 0.61927091
0.57115067 0.92188519 0.63698854 0.52440696 0.07023332 0.79278303 0.25640793 0.30232180 0.54815515 0.47826561
0.46621403
   prop 43    prop 44    prop 45    prop 46    prop 47    prop 48    prop 49    prop 50    prop 51    prop 52    prop 53    prop 54    prop 55
prop 56    prop 57    prop 58    prop 59    prop 60    prop 61    prop 62    prop 63
0.64299519 0.69108874 0.46776702 0.05831827 0.51359426 0.38546614 0.77875323 0.24655389 0.53181083 0.48209294
0.60869565 0.42235783 0.11032558 0.86049690 0.45276873 0.21036805 0.41683300 0.13056750 0.53456592 0.32287461
0.99000000
   prop 64    prop 65    prop 66    prop 67
0.07919381 0.98368210 0.06575300 0.37259627
sample estimates:
 prop 1  prop 2  prop 3  prop 4  prop 5  prop 6  prop 7  prop 8  prop 9 prop 10 prop 11 prop 12 prop 13 prop 14 prop 15 prop 16 prop
17 prop 18 prop 19 prop 20 prop 21 prop 22 prop 23 prop 24 prop 25 prop 26 prop 27 prop 28 prop 29
     1      1      1      1      1      1      1      1      0      1      1      1      1      1      0      1      1      1      1      1      1      1      0      1
1      1      1      1      1
prop 30 prop 31 prop 32 prop 33 prop 34 prop 35 prop 36 prop 37 prop 38 prop 39 prop 40 prop 41 prop 42 prop 43 prop 44 prop 45
prop 46 prop 47 prop 48 prop 49 prop 50 prop 51 prop 52 prop 53 prop 54 prop 55 prop 56 prop 57 prop 58
     1      1      1      1      1      1      0      1      1      1      1      1      1      1      1      1      0      1      0      1      1      1      1      1
1      1      1      1      1
prop 59 prop 60 prop 61 prop 62 prop 63 prop 64 prop 65 prop 66 prop 67
     1      1      1      1      1      0      1      0      1

Warning message:
In prop.test(Percentages$Dem.Success, Percentages$Count, Percentages$Percent.Error.Dem) :
  Chi-squared approximation may be incorrect
> prop.test(Percentages$Rep.Success,Percentages$Count,Percentages$Percent.Error.Rep)

        67-sample test for given proportions without continuity correction

data:  Percentages$Rep.Success out of Percentages$Count, null probabilities Percentages$Percent.Error.Rep
X-squared = 143.8664, df = 67, p-value = 1.531e-07
alternative hypothesis: two.sided
null values:
    prop 1     prop 2     prop 3     prop 4     prop 5     prop 6     prop 7     prop 8     prop 9     prop 10     prop 11     prop 12     prop 13
prop 14     prop 15     prop 16     prop 17     prop 18     prop 19
0.244241218 0.050137314 0.172057578 0.144459134 0.239389754 0.278325513 0.490490718 0.574609349 0.230334979
0.151537755 0.056569160 0.481033091 0.165348727 0.254063854 0.338784672 0.237803674 0.235795455 0.352792591
0.418417980
    prop 20     prop 21     prop 22     prop 23     prop 24     prop 25     prop 26     prop 27     prop 28     prop 29     prop 30     prop 31
prop 32     prop 33     prop 34     prop 35     prop 36     prop 37     prop 38
0.547261874 0.316201230 0.412135118 0.737477908 0.170345489 0.275484944 0.145584168 0.161786237 0.199875333
0.195359931 0.090189236 0.434578642 0.231533874 0.381490043 0.245706328 0.093448645 0.415376582 0.047125047
0.368228925
```

```
   prop 39     prop 40     prop 41     prop 42     prop 43     prop 44     prop 45     prop 46     prop 47     prop 48     prop 49     prop 50
prop 51     prop 52     prop 53     prop 54     prop 55     prop 56     prop 57
0.241462948 0.009469196 0.221876551 0.741029994 0.320052629 0.287417461 0.502587672 0.469846041 0.304061471
0.204791610 0.375138796 0.306476366 0.298552004 0.612636480 0.343583678 0.337628407 0.394340576 0.254623656
0.317934783
   prop 58     prop 59     prop 60     prop 61     prop 62     prop 63     prop 64     prop 65     prop 66     prop 67
0.469149844 0.543255549 0.323456790 0.378169618 0.389352606 0.005579144 0.362418767 0.093742897 0.840170485
0.334199449
sample estimates:
 prop 1  prop 2  prop 3  prop 4  prop 5  prop 6  prop 7  prop 8  prop 9 prop 10 prop 11 prop 12 prop 13 prop 14 prop 15 prop 16 prop
17 prop 18 prop 19 prop 20 prop 21 prop 22 prop 23 prop 24 prop 25 prop 26 prop 27 prop 28 prop 29
     1      0      1      1      1      1      1      1      1      1      0      1      1      1      1      1      1      1      1      1      1      1      1      1
1      1      1      1      1
prop 30 prop 31 prop 32 prop 33 prop 34 prop 35 prop 36 prop 37 prop 38 prop 39 prop 40 prop 41 prop 42 prop 43 prop 44 prop 45
prop 46 prop 47 prop 48 prop 49 prop 50 prop 51 prop 52 prop 53 prop 54 prop 55 prop 56 prop 57 prop 58
     0      1      1      1      1      0      1      0      1      1      0      1      1      1      1      1      1      1      1      1      1      1      1      1
1      1      1      1      1
prop 59 prop 60 prop 61 prop 62 prop 63 prop 64 prop 65 prop 66 prop 67
     1      1      1      1      0      1      0      1      1

Warning message:
In prop.test(Percentages$Rep.Success, Percentages$Count, Percentages$Percent.Error.Rep) :
  Chi-squared approximation may be incorrect
> table(Percentages$Dem.Success)

 0  1
 8 59
> table(Percentages$Rep.Success)

 0  1
 8 59
```