

Residual Plots

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2018-12-07

- Residual Examples

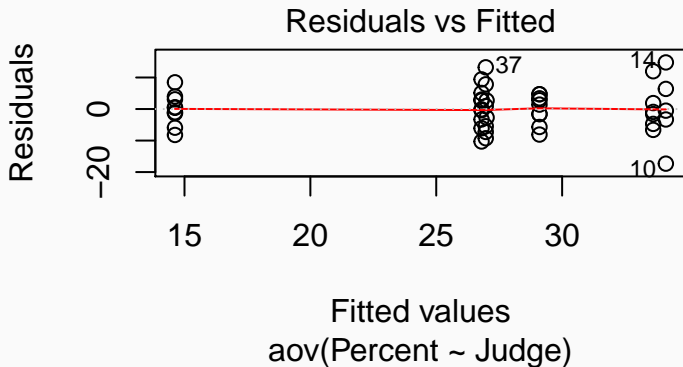
```
library(Sleuth3)  
data("case0502")
```

```
aout_alldiff <- aov(Percent ~ Judge, data = case0502)
```

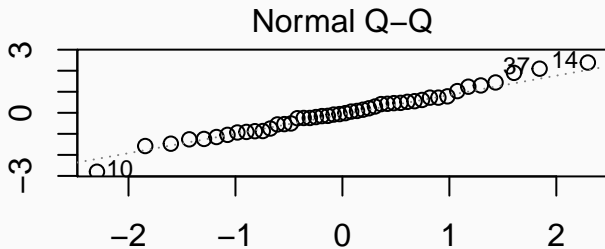
- Just apply `plot()` to the output of `aov()`.

```
plot(aout_alldiff)
```

Residual Plots ii

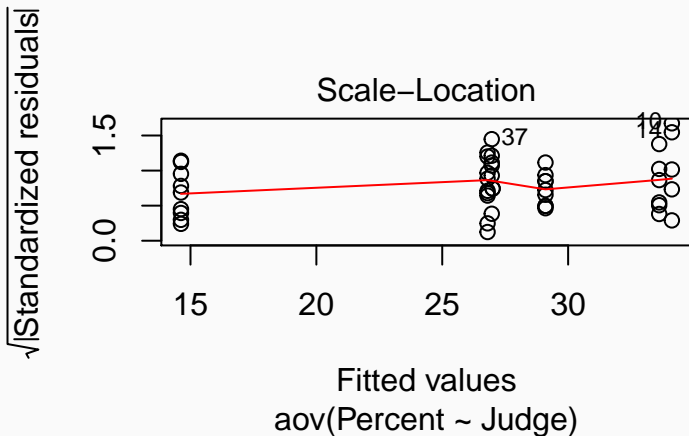


Standardized residuals

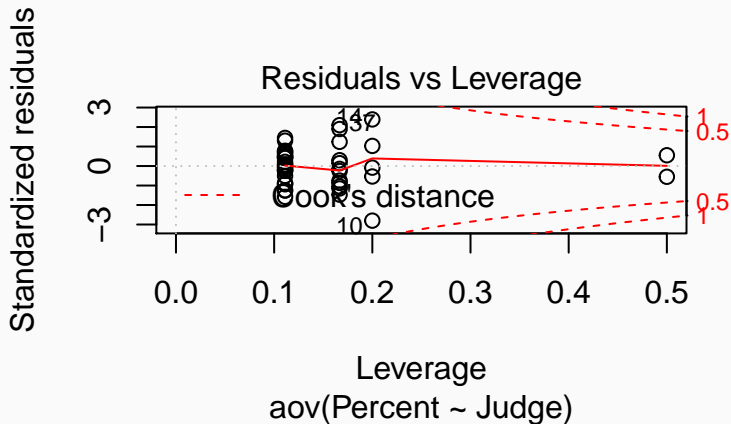


Theoretical Quantiles
aov(Percent ~ Judge)

Residual Plots iv

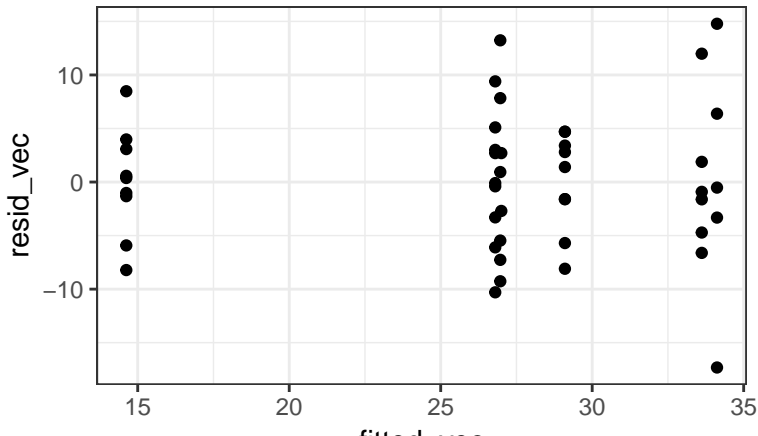


Residual Plots v



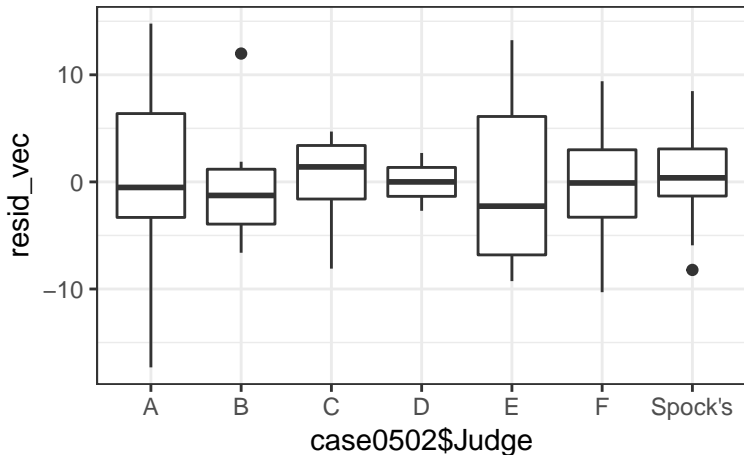
Or plot directly (resids vs fitted values)

```
library(ggplot2)
resid_vec <- aout_alldiff$residuals
fitted_vec <- aout_alldiff$fitted.values
qplot(x = fitted_vec, y = resid_vec)
```



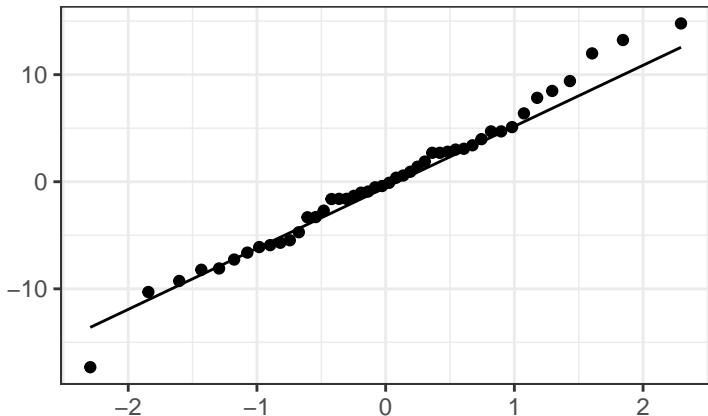
Boxplots (resids vs explanatory variable)

```
qplot(x = case0502$Judge, y = resid_vec,  
      geom = "boxplot")
```



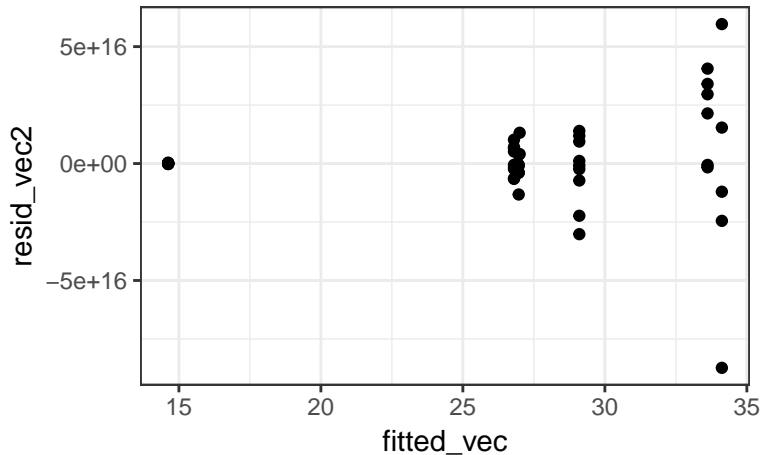
qq-plot of residuals

```
qplot(sample = resid_vec, geom = "qq") +  
  geom_qq_line()
```



What to look for

Unequal Variance



Outliers

