

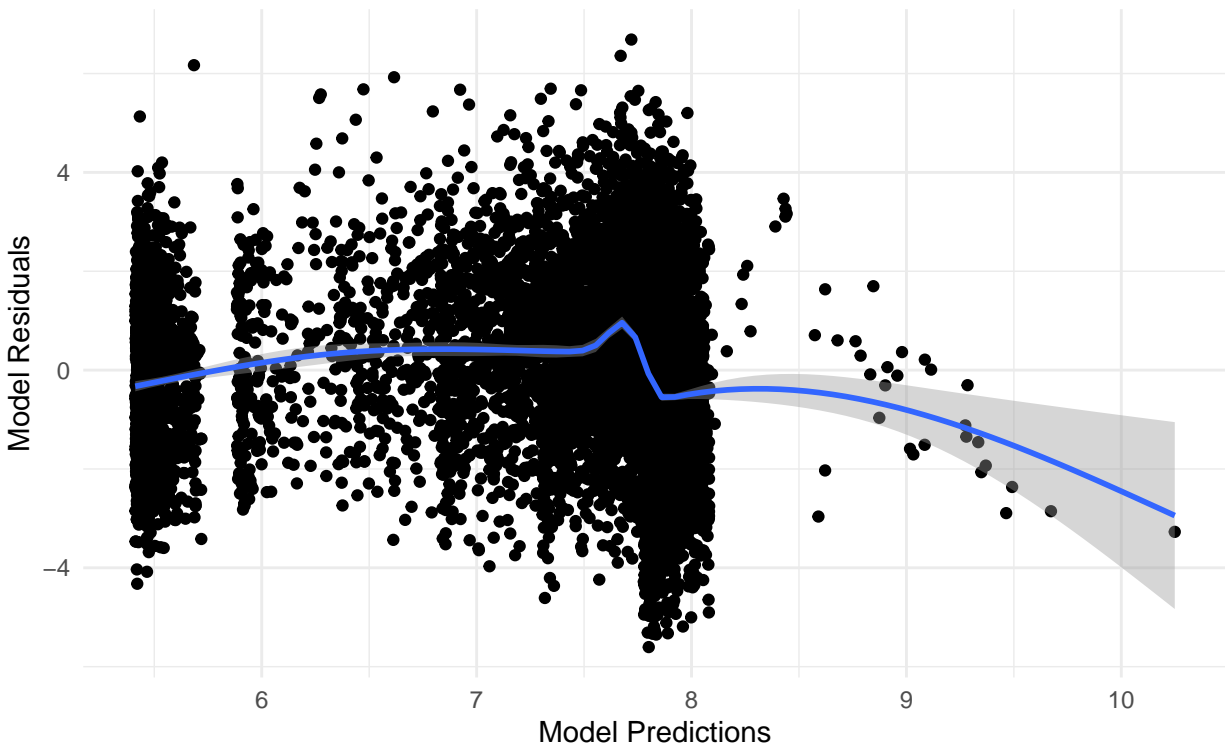
# Evaluating the Classical Linear Model Assumptions

## Q1.4 Constant Error Variance

First the linear regression model was created.

```
model_12 <- lm(log(views) ~ rate + length, data= videos)
```

To assess whether the distribution of the errors is homoskedastic, we can perform an ocular test on the model residuals versus predicted values plot. Homoskedastic errors would reveal a band of even thickness from left to right. Examining the plot reveals a slightly uneven band in the lower half of the predicted values though it is not severe. However in the upper half of the predicted values there is a sharp decrease in the variance of residuals.



Additionally, we can conduct a Breusch-Pagan test. A p-value less than 0.05 would indicate heteroskedasticity. Analysis of the test below reveals a statistically significant result supporting heteroskedasticity.

```
##  
## studentized Breusch-Pagan test  
##  
## data: model_12  
## BP = 128.39, df = 2, p-value < 2.2e-16
```

Therefore, we conclude the assumption for Constant Error Variance / Homoskedasticity of Errors is not met.