MA388 Sabermetrics: Lesson 8

Value of Plays - Run Expectancy Matrix

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```
library(tidyverse)
library(Lahman)
library(knitr)
library(ggrepel)
library(broom)
```

Review

Last lesson, we discussed the following three models:

$$Wpct = \beta_0 + \beta_1 RD + \epsilon \tag{1}$$

$$Wpct = \frac{R^2}{R^2 + RA^2} + \epsilon \tag{2}$$

$$Wpct = \frac{R^k}{R^k + RA^k} + \epsilon \tag{3}$$

- Determine the value of k in the third model for the 2018 season.
- Calculate the predicted wins for each team in 2018 and plot the residuals vs. the predicted values.

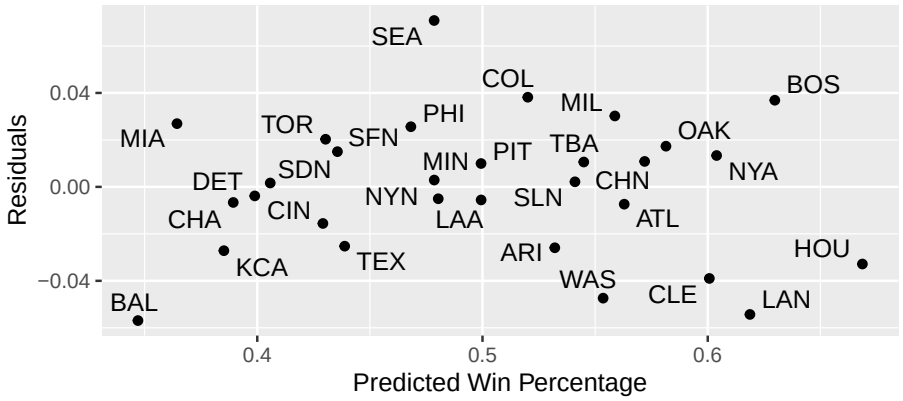

Figure 1: Pythagorean predictions, k = 1.75 (2018)