

December 22, 2023

Fantasy Football 2023

As the regular seasons comes to a close, here are some statistics that are interesting. They all basically show how we have all been feeling about our teams over the course of the year. But the plots look cool.

1 Wins

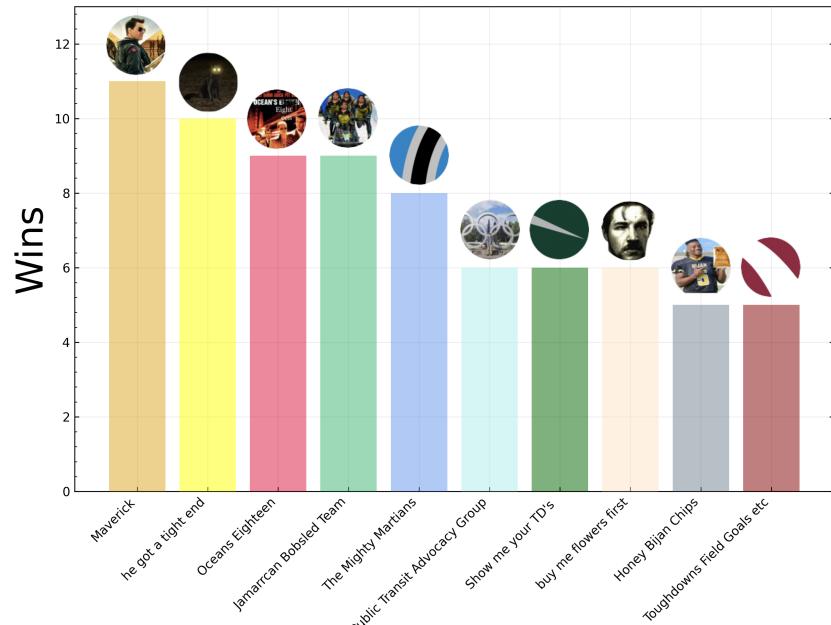


Figure 1: hello

2 Correlations

Simple Pearson r for points for vs. wins, points against vs. wins, moves vs. wins. Coefficient r is strength of linear relation and p-value is significance. Not

significant unless $p < 0.05$.

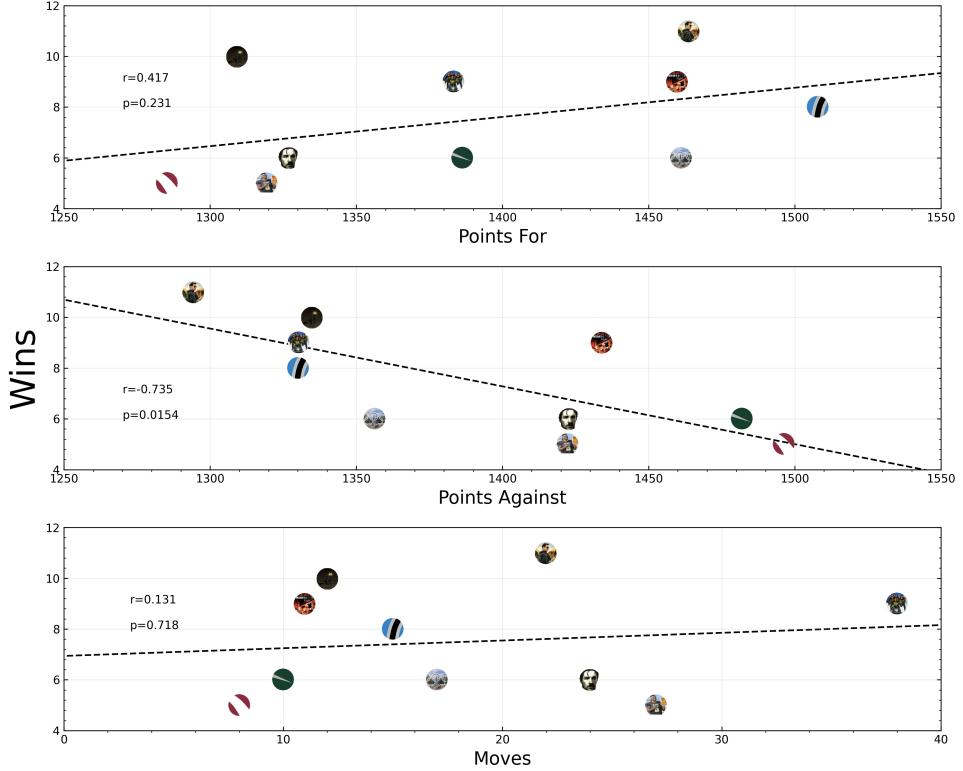


Figure 2: Correlations of points for, points against, and moves vs. wins. Barely any correlation in top figure. Very correlated in second figure. No correlation in third figure.

3 Pythagorean Wins

Expected wins found using Pythagoras wins metric:

$$W_{exp} = \frac{PF^2}{PF^2 + PA^2} \quad (1)$$

Wins against pythagoras found using:

$$WAP = W - W_{exp} \quad (2)$$

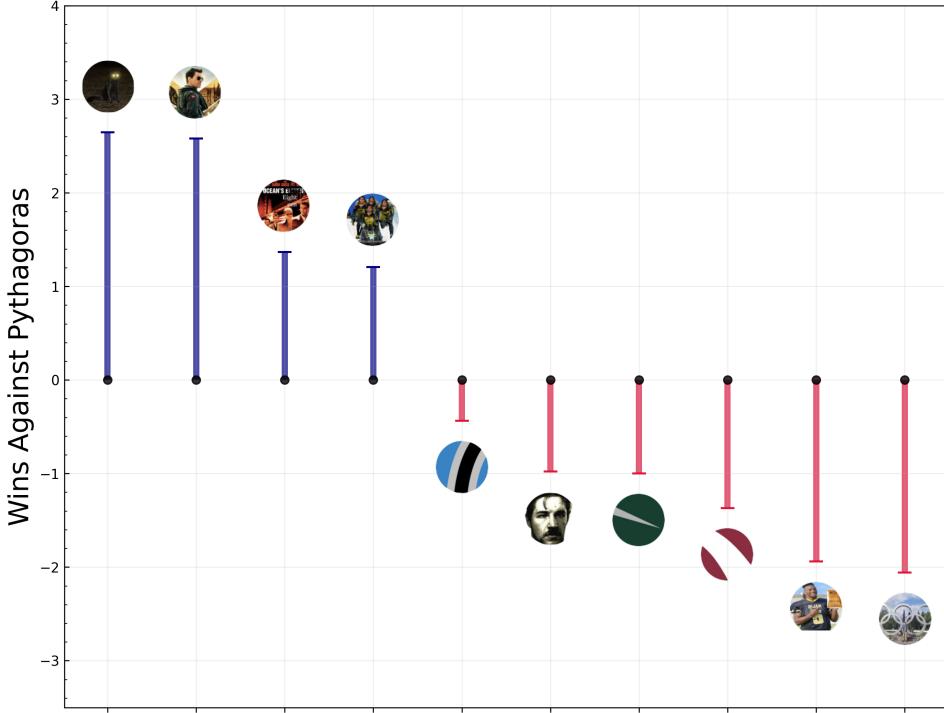


Figure 3: Wins against pythagoras sorted. Interpreted as the amount of wins above what was expected of your team. Blue w2on more than they should have and red won less than they should have.

We can find a better estimate for W_{exp} using the following:

$$W_{exp} = \frac{PF^{4.35}}{PF^{4.35} + PA^{4.35}} \quad (3)$$

Where the value of $p = 4.35$ was found by minimizing the RMSE for fitting the following:

$$\log(W/L) = p \cdot \log(PF/PA) \quad (4)$$

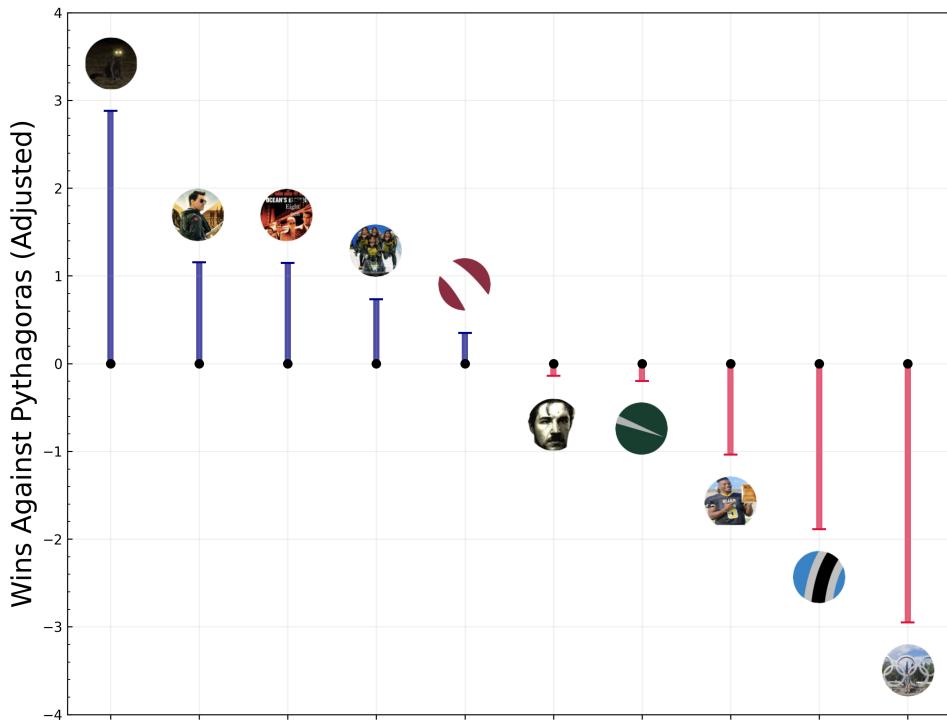


Figure 4: Adjusted wins against pythagoras to minimize RMSE of league data ratios. Matt got screwed.

4 Strength of Schedule

Strength of schedule found using the following standard result:

$$SC = \frac{1}{N} \frac{\sum_i PF_i}{PA} \quad (5)$$

$$SOS = \frac{N \cdot SC}{\max[SC]} = N \left(1 - \frac{\cdot SC}{\max[SC]} \right) \quad (6)$$

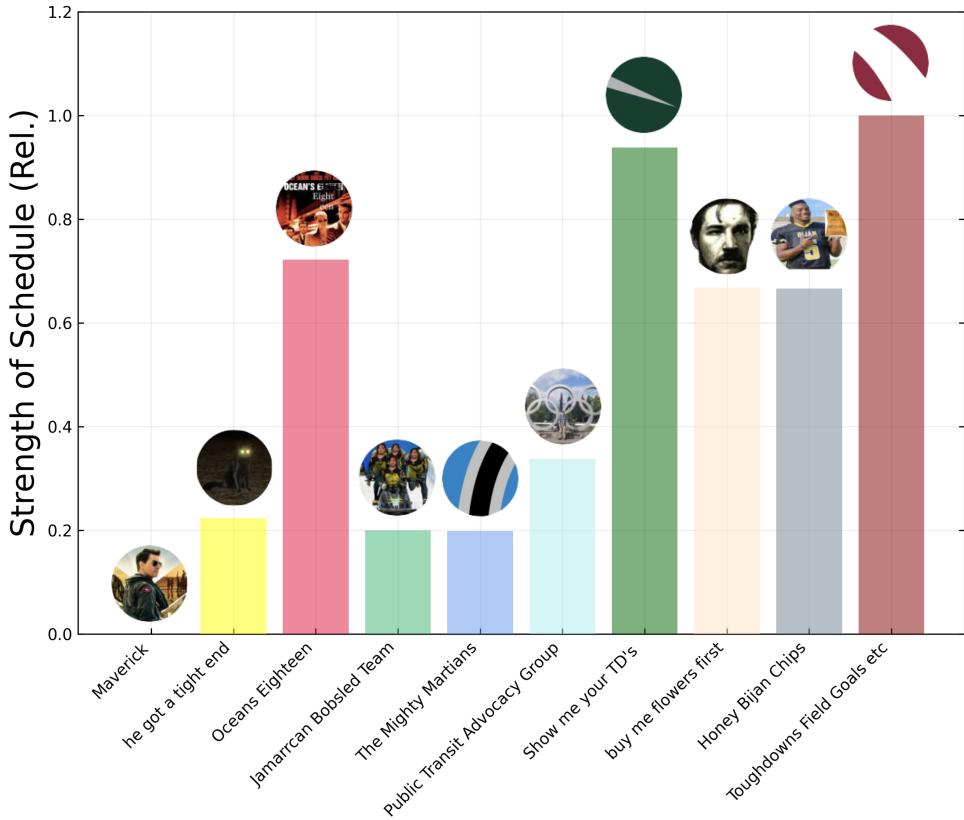


Figure 5: Measure of the strength of schedule normalized to the weakest schedule. 1.0 corresponds to strongest schedule. Gabrielle got screwed.

5 Luck

Affect of luck on outcomes each week calculated with the variance preserving formula. Result is quoted as percentage of outcome (W/L) attributed to random chance:

$$LUCK = N - \frac{APF^2 - PA^2}{PF^2 + PA^2} \quad (7)$$

Where $APF = \frac{1}{N} \sum_i PF_i$.

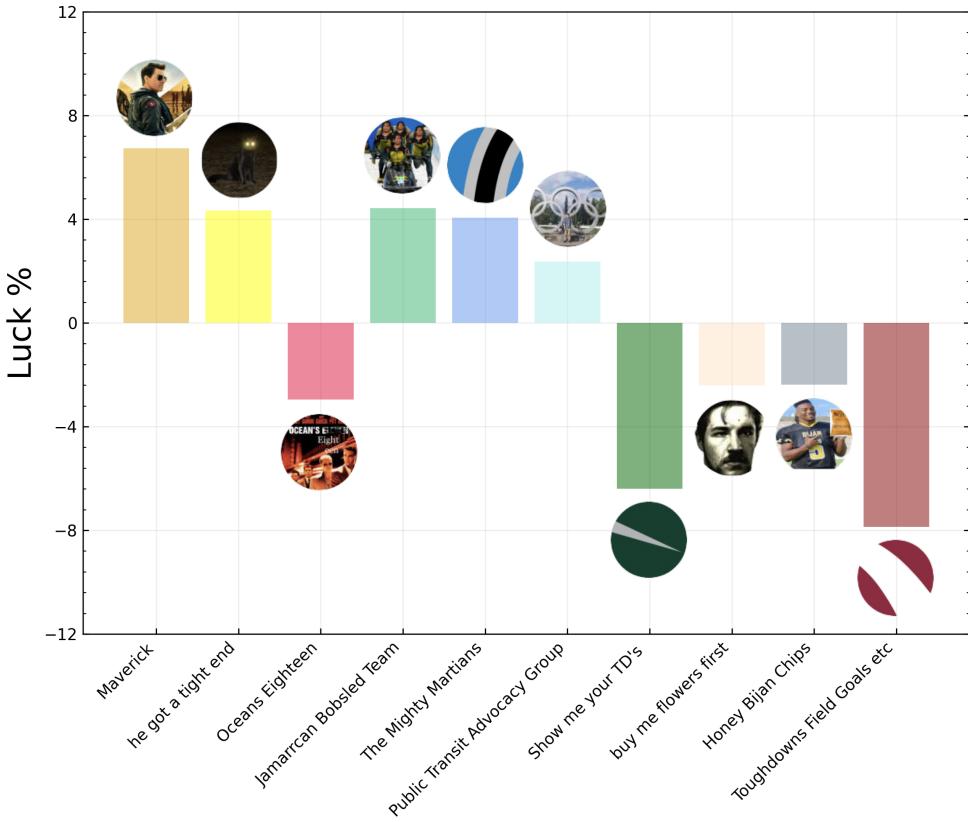


Figure 6: Percentage of results attribute to random variance in the sample. Luckier teams have wins attributed to variance and have positive Luck %. Unlucky teams have losses attributed to variance. Gabrielle and Ross got screwed.

6 Performance Coefficient

Raw coefficient of relative performance defined as the following:

$$PC = \frac{PF^2 - APS^2}{PF^2 + PA^2} \quad (8)$$

Adjusted and re-normalized gives us:

$$PC_{norm} = \frac{1}{max[PC]}(PC - min[PC]) \quad (9)$$

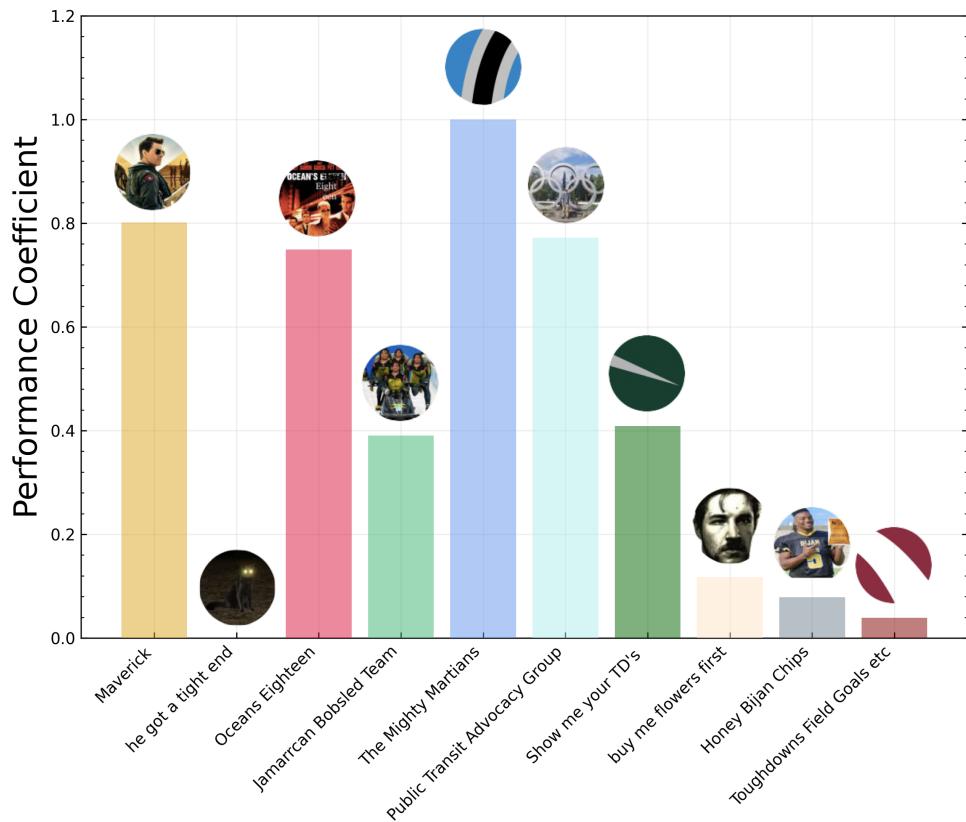


Figure 7: Performance coefficient measuring consistency against rest of schedule. Connor had the best team.

7 Conclusion

Gabrielle, Ross, and Matt got screwed the most. Fantasy is ridiculous and this analysis was an exercise in futility. Points for are barely a measure of success and most of this can be attributed to luck and relative strength of schedule.