Determinants of Victory in the National Football League

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Research Question

- What statistics are the best predictors of a team winning an NFL football game?
- Applications in sports journalism.
- Better understanding of statistics means better analysis.
- preliminary research for developing an expected value approach to playcalling analytics.

Data

- Volume stats, moments for yards gained distribution, and Football Studyhall's "Five Factors"
- Moments: yards per play, variance, skewness, kurtosis
- Volume Stats: total yards, number of plays, completion percentage, time of possession

Five Factors

- Success Rate: percent of plays that gain 50 percent of yards to gain on 1st down, 70 on 2nd down, 100 on 3rd or 4th.
- Explosiveness: percent of yard to goal line per play.
- Finishing Drives: points per possession inside opponents 40 yard line
- Average Starting field position: how far do you have to go to score
- Turnovers: number of interceptions lost fumbles

Frame Title

- Logistic regression alone produced an F1 score of .871
- most predictive features: Turnovers, Points per trip, field position, Home completion percentage, Away Time of possession

Next Steps

- gains to be had in more sophisticated modelling
- addressing multicolinearity
- Trees, normalization