

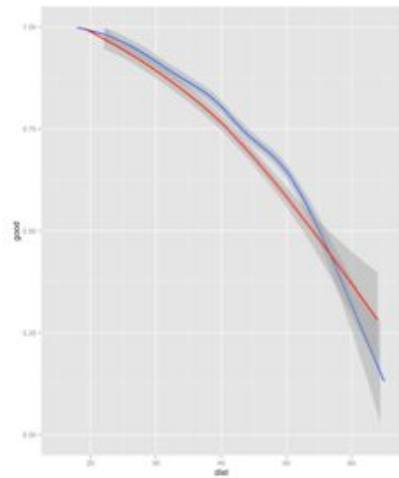


Machine Learning and the NFL Field Goal: Can Algorithms Beat the Scouts?

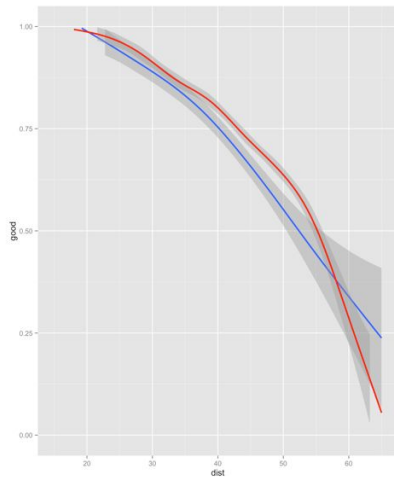
- Sabermetrics has revolutionized baseball, but football analytics have seen little such success: difficult to isolate single-player contributions
- Field goals are the exception, where success depends only on the kicker
- Machine learning models can separate talent from situational factors, identifying the best performers and predicting outcomes
- Factors considered: weather, field surface, situational pressure, distance, player



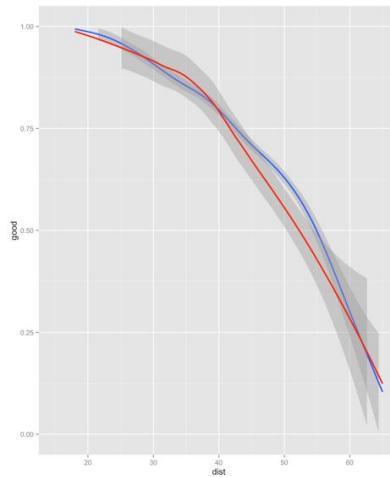
Isolated Effects: how Weather, Field, and Pressure Impact a Field Goal



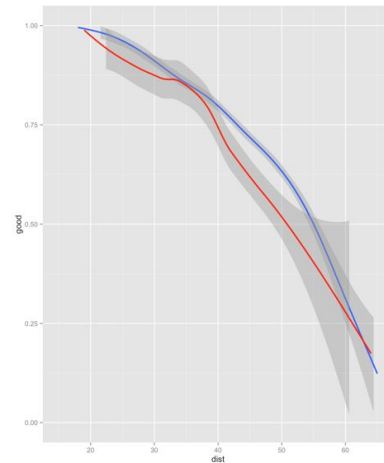
wind



Temperature



Situational Pressure



Precipitation

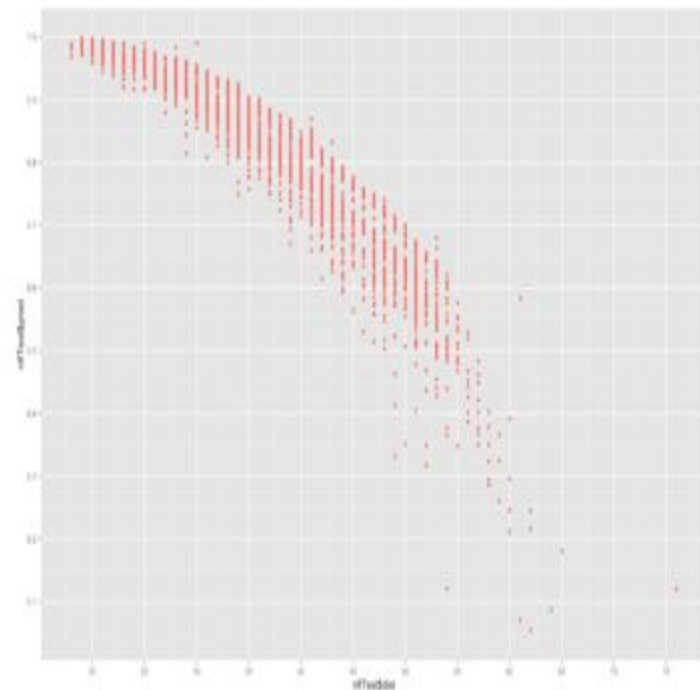
Points-Added

- Using probability estimates, a kicker can then be measured against his expected performance

Points Added = (Field Goal Success - Probability of Success) x 3

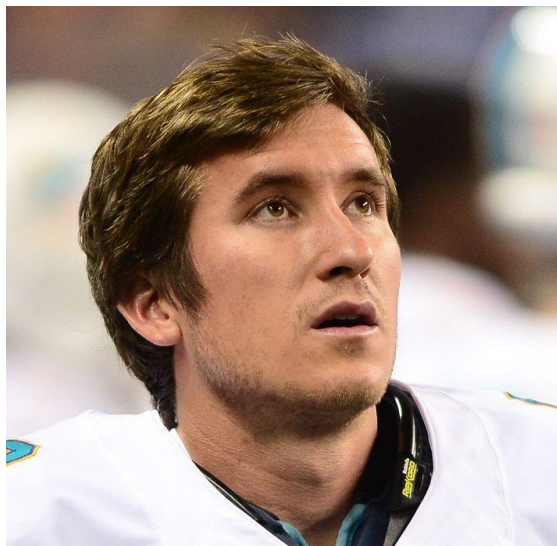
- Measured across a player's career, this metric separates skill from all other factors at play
- Best kickers of past decade:
 - Justin Tucker (.373), Dan Bailey (.304), Kai Fobarth (.301), Blair Walsh (.283)

Predicted Values



The Analysts get it Wrong

- “Pretty much the worst kicker in the NFL” - Bill Barnwell, SBNation



- Caleb Sturgis, above-average kicker
- .01 points per attempt above the expected value

- “Kickers are never worth a first round pick ever” - SimonOnSports



- Sebastian Janikowski, Raiders all-time scoring leader
- Holds NFL record for > 50 yard field goals made