West Brom Scouting Report vs. Manchester United, 3/6/2016

A StatsBomb Project

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Setting the Stage: 5 Manchester United @ 13 West Brom

- **Manchester United:** High powered, high caliber offense. A stingy defense with plenty of star power.

- Led by Wayne Rooney, Anthony Martial. A sturdy David De Gea protects the net for them.

The Situation

Man U Currently 5th on the table, striving for the top 4 with less than 10 games to go. They are visiting us on March 6th.

Position	Club	Played	GD	Points
1 •	Leicester	28	+20	**57**
2 •	Spurs	28	+27	**54**
3 •	Arsenal	28	+16	**51**
4 •	Man City	27	+17	**47**
5 •	Man Utd	28	+11	**47**
13 •	West Brom	28	-7	**36**
14 •	Crystal Palace	28	-6	**33**
15 •	Bournemouth	28	-12	**32**
16 •	Swansea	28	-10	**30**
17 ▲	Sunderland	28	-19	**24**
18 ▼	Norwich	28	-22	**24**
19 ▼	Newcastle	27	-23	**24**
20 •	Aston Villa	28	-29	**16**

With no important milestones to achieve above us, we must focus our attention to the bottom of the table. We are 12 points out of relegation.

Success can be measured for both teams with a tie, to keep things close in each respective race.

The Approach

- Need a way to quantify Man U's success up to this point
  - What defines *success?*
  - Wins & Losses.
  - Ties? ➜ Can attribute to a successful outcome for Man U
- Find the key statistics that define the outcomes of each of their games
  - Find if the average values of different statistics are statistically significantly different from one another
- For the stats that matter ➜ what are those values?

The Approach, *cont.*

- Used data from StatsBomb through RStudio
- Investigating stats up to Matchweek 28 where Manchester United is away
- Created tables in R that were saved to an Excel spreadsheet
- Downloaded excel spreadsheet and used in Minitab
- Collected P Values of each of the variables investigated. This was done for both Man U stats against opponents as well as opponents stats against Man U.
- For P Values of variables that were found to be significant, a sigmoid curve was created to find which quantity gave the given team a >50% chance to win.

Variables Investigated

Variable	Description
Shots	Making contact with the ball in an attempt to score
Goals	Successful goals in a game
Passes	Successful completion to a teammate
Incomplete Passes	Unsuccessful completion of an attempted pass
Pass Completion %	Percentage of passes attempted that are completed
Yellow Cards	Amount of yellow cards shown
Red Cards	Amount of red cards shown

Variables Investigated, *cont.*

Variable	Description
Fouls	Referee deems illegal play
Assists	Amount of goals in the game that are assisted
Unassisted	Amount of goals in the game that are unassisted
Duels Won	A challenge by a defender is successfully won
Distance to goal	The average distance to the goal of all shots attempted in the game
Distance to keeper	The average distance to the keeper of all shots attempted in the game
Distance to closest defender	The average distance to the closest defender of all shots attempted in the game

Results for ManU @ Opponents

- Table shown the right breaks down each variable and its respective P value of the means
- Two variables matter due to a low P value compared to the others
  - Goals
  - Yellow Cards
- Red Cards produced Not a Number due to no correlation being found

Variable	P Value
Shots	0.398
Goals	0.160
Passes	0.903
Inc_Passes	0.360
Pass_Pct	0.446
Yellow_Card	0.095
Red_Card	NaN
Fouls	0.729
Assists	0.389
Unassisted	0.598
Duels_Won	0.565
Dist_Goal	0.318
Dist_Keeper	0.403
Dist_D1	0.246

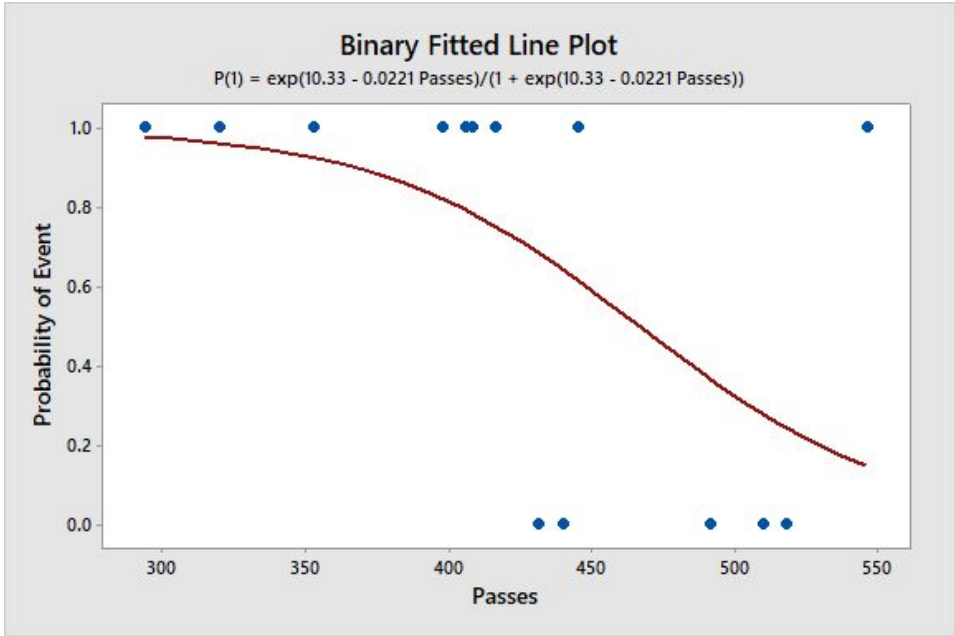
Results for Opponents vs. ManU

- Five variables matter here:
  - Goals
  - Passes
  - Pass Percentage
  - Assists
  - Distance to the Keeper

- The next step of this is to find the value for which these variable can influence the outcome of the game

Variable	P Value
Shots	0.891
Goals	0.071
Passes	0.024
Inc_Passes	0.436
Pass_Pct	0.039
Yellow_Card	0.699
Red_Card	NaN
Fouls	0.408
Assists	0.064
Unassisted	0.451
Duels_Won	0.406
Dist_Goal	0.223
Dist_Keeper	0.202
Dist_D1	0.895

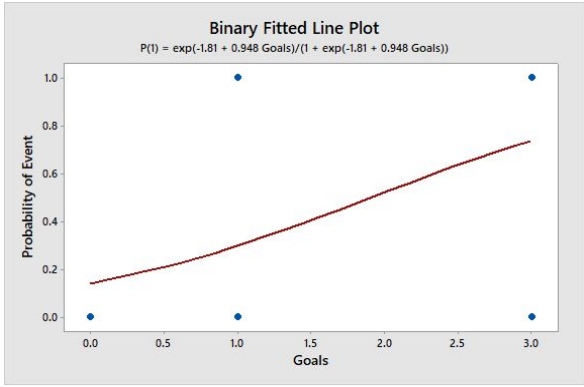
Sigmoid Curve Example



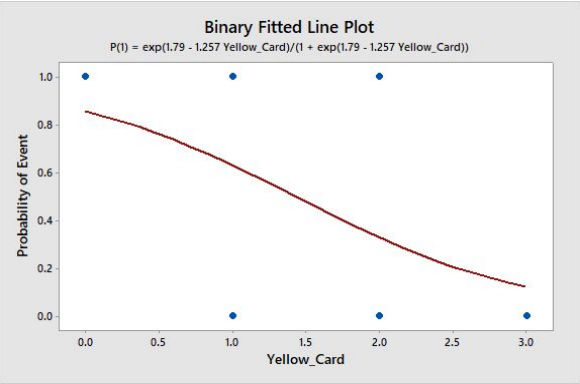
- A sigmoid curve calculates the probability of an event occurring (win/tie = 1.0, loss = 0.0) using a variable as a predictor

- The example curve to the left is opponent passes vs. ManU. The number we are looking for is the number of passes when the probability of winning = 0.5.

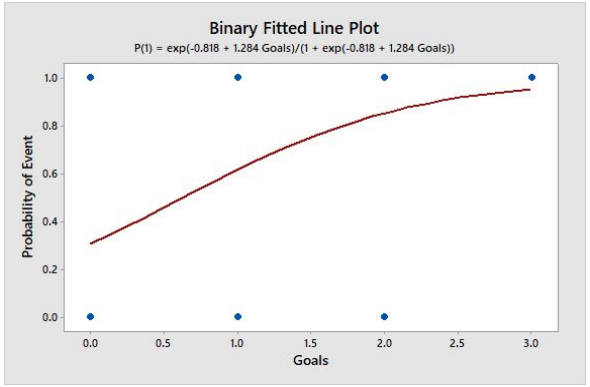
All Curve Results



ManU Away Goals
P = 0.5 ⟶ 2.0

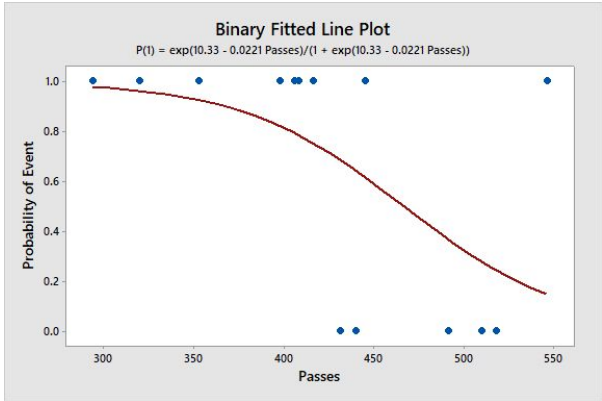


ManU Away Yellow Cards
P = 0.5 ⟶ 1.5

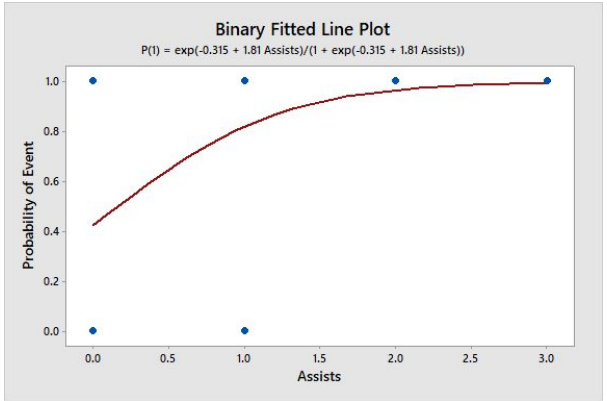


Opp Home Goals
P = 0.5 ⟶ 0.6

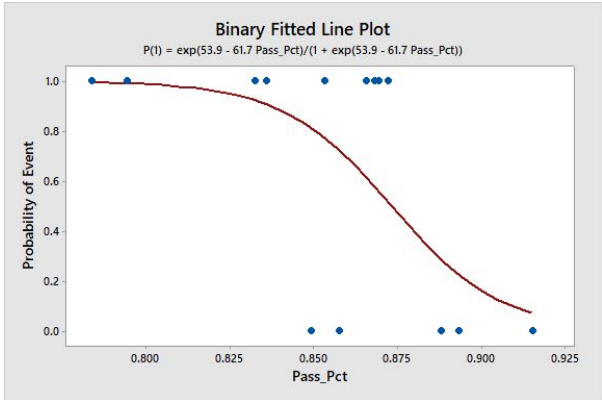
All Curve Results



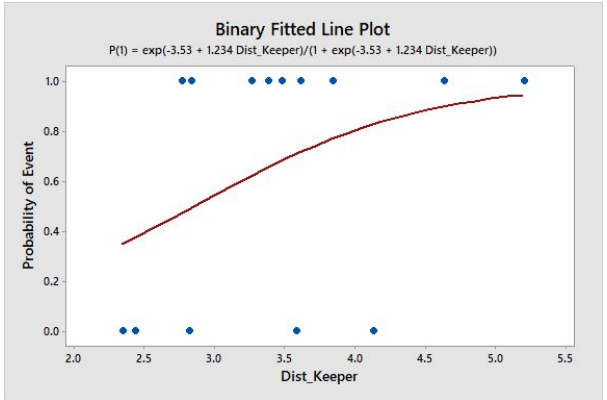
Opp Home Passes
P = 0.5 ⟶ 460



Opp Home Assists
P = 0.5 ⟶ 0.2



Opp Home Pass%
P = 0.5 ⟶ 87.5%



Opp Home Shot Distance to Keeper
P = 0.5 ⟶ 2.9

Key Takeaways

Manchester United loses away when they:

Variable	O/U	Value	P-Value
Score Goals	U	2.0	0.160
Receive Yellow Cards	O	1.5	0.095

Opponents of ManU win home when they:

Variable	O/U	Value	P-Value
Score Goals	O	0.6	0.071
Complete Passes	U	460	0.024
Passing Percentage	U	0.875	0.039
Score with an Assist	O	0.2	0.064
Shot Distance (yards) from Keeper	O	2.9	0.202

Game Study #1: ManU @ Sunderland, Matchweek 26

- Final: Sunderland 2 - 1 Manchester United
- What did Sunderland do right?
  - ManU = 1 goals
  - ManU = 3 yellow cards
  - Sunderland = 2 goals
  - Sunderland = 294 passes
  - Sunderland = 0.784 passing %
- Sunderland were able to complete five out of the seven key variables which lead to the 2-1 victory

Game Study #2: ManU @ Southampton, Matchweek 6

- Final: Southampton 2 - 3 Manchester United
- What did Southampton do wrong?
  - ManU = 3 goals
  - ManU = 0 yellow cards
  - Sunderland = 618 passes
  - Sunderland = 0.903 passing %
  - Assists = 0
- Southampton failed to complete five out of the seven key variables which lead to the 3-2 loss

Conclusion

- An inverse relationship between team success against ManU and passes & passing percentage within a game develops ➜ i.e. the less pass completions the better for the opponent
- If ManU is held under 2 goals, more often than not they have tied or lost that game
- If the ManU opponent score exactly 1 goal, the probability of winning that game increases to 60%
- The further away the average shot from David De Gea is, the higher likelihood the ManU opponent has to win that game