

# SoMaS Competition 2015

Noether Berlin vs Borussia Munchengoldbach in the Bundesleibniz

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## Problem 4

At the start of the 2013-14 Premier League season the new Manchester United David Moyes said “I find it hard to believe that’s the way the balls came out of the bag, that’s for sure.” He added “I think it’s the hardest start for 20 years that Manchester United have had”.

We will assess the second claim first - that this was Man Utd’s hardest start to the season for 20 years. Whilst some may be happy to subjectively look over the first five fixtures Man Utd played the previous few seasons, as Mathematicians it is our responsibility to investigate rigorously.

### Methodology

We have tabulated (using archive records) Man Utd’s opening five fixtures in every Premier League season including the current one. This gives us 23 years of data — exceeding Moyes’ claimed period of 20 years. We have assigned each team a rank: this is their league position the previous season so the closest indicator of the teams ability when the fixtures are announced pre-season. For example the team finishing 17th in the Premier League has a rank of 17. Using this methodology a lower rank indicates a harder opponent.

If an opponent was promoted from the Championship they are ranked as follows. If we consider all four divisions of the football league sitting one on top of the other the winners of the Championship are effectively the 21st placed team in the country the previous season. This is consistent with FA Cup matches — commentators and pundits often reference that a team is, say, 67 league places below their opponent which is based on the Premier League teams being ranked 1-20, the Championship teams being ranked 21-44 and so on. So we say the winners have rank 21, second place have rank 22 and the team promoted via the playoffs have rank 23-26 depending on their league position.

We should note that the first four Premier League seasons had 22 teams so in this case the Championship winners have rank 23, and so on.

The full data table is included in Appendix 2.

## Results

Given this data, we can easily calculate the average rank (AR) of Man Utd's first five opponents for each season, and the overall average. In 2013-14 Man Utd's first five opponents had an average rank of 9.2 which is below the overall average 12.1. However there are three seasons where the average rank is lower indicating a harder start than Moyes'. Man Utd were champions at the end of the 2008/09 season which had an AR 8.4. The 2005/06 season has an AR of 8.2 and the 2011/12 season has the lowest AR at just 7.2 where they lost to title to Man City on goal difference. An AR of 9.4 in 1999/00 is also very close to that of Moyes' season.

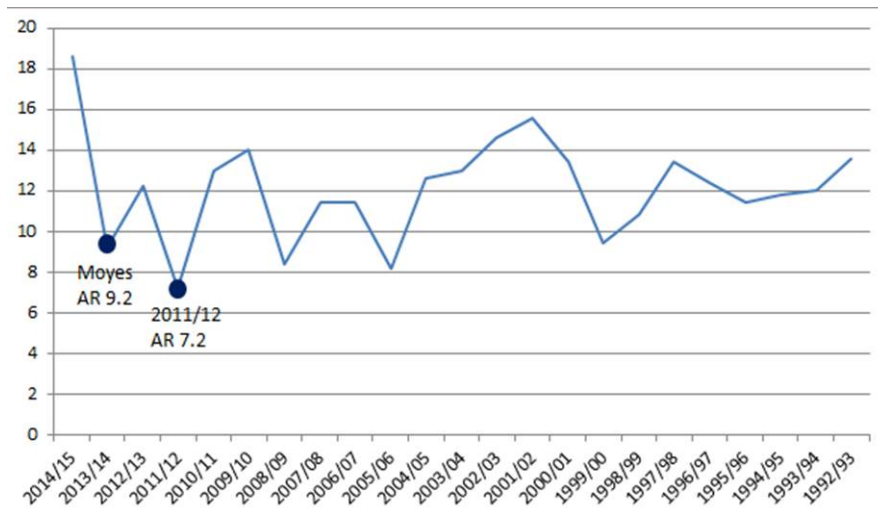


Figure 1: Average Rank (AR) of opening 5 opponents by season.

It is worth noting that for 2013/14, Crystal Palace's rank of 25 plays a significant role in increasing the average. However this could be true of any season where promoted teams are included so we see no reason to treat this differently or amend anything.

Taking all of this into account we strongly dispute Moyes' claim and suggest that the 2011/12 season was in fact Man Utd's hardest start to a season in the time period suggested. The fact that his successor Louis van Gaal received Man Utd's easiest opening five fixtures (using this method) will probably have annoyed Moyes further were he still to have privately held his suspicions about the process. There is also a chance that Moyes just said those remarks to begin, using the football cliché, a 'siege mentality' and an

‘us against the world’ impression for the players which was used often by his predecessor and notably Jose Mourinho most of this current season.

But was it the inclusion of Chelsea, Man City and Liverpool that Moyes objected to?

### **Remarks**

In 10 years of being Everton manager he never won a Merseyside derby at Anfield (or indeed any game at Old Trafford, Stamford Bridge or The Emirates) and he had never beaten Jose Mourinho, bringing his credential in managing big games into repute.

With a game against Jose Mourinho, a trip to Anfield plus a Manchester Derby in his first five games Moyes probably felt that he had a case, and under this fixture list he would have to address those issues immediately.

But should we modify the ranks in our model to include some sort of ‘rivalry factor’ for certain teams. This would certainly be subjective and would change significantly over time. Man City and Liverpool are Utd’s biggest rivals and were we to do a rivalry factor then these would be the two affected the most. But Man City were relegated twice over the period in question so they were considerably weaker at that time, hence should a ‘rivalry factor’ be necessary at that time? This has obviously changed dramatically in recent seasons. Should Arsenal receive the same factor — whilst not a local rivalry in the sense of the other two teams it has arguably been one of the fiercest during the Premier League era.

What of other ‘rivals’? Any ‘rivalry’ with Chelsea is drawn out of both teams competing against each other at the top over the past 10 years. This would mean imposing some sort of factor for the years proceeding 2003 to take this into account. By this logic we could also impose a similar factor on Blackburn Rovers for the seasons close to 1995/96 when Blackburn were champions and to some extent Newcastle at a similar time when they were direct challengers to Man Utd for the title. This also fails to take into account Leeds United — arguably Man Utd’s third traditional rival following Man City and Liverpool. Any factor affecting those two clubs should also be applied proportionally to Leeds’ rankings prior to them being relegated.

Conducting analysis using a method such as this would be possible yet it would be highly subjective with a lot of justification needed for any ‘rivalry ranks’. For example how they compare to each other and whether they change over time for clubs like Chelsea, Newcastle and even Man City etc. Should any reader wish to consider these scenarios we would be delighted to see the results of their investigations.

## Question 4 Excel Table

	Game 1		Game 2		Game 3		Game 4		Game 5		Average Rank		
2014/15	Swansea (H)	12	Sunderland (A)	14	Burnley (A)	22	QPR (H)	24	Leicester (A)	21	18.6		
2013/14	Swansea (A)	9	Chelsea (H)	3	Liverpool (A)	7	Crystal Palace (H)	25	Man City (A)	2	9.2	7th	
2012/13	Everton (A)	7	Fulham (H)	9	Southampton (A)	22	Wigan (H)	15	Liverpool (A)	8	12.2		
2011/12	West Brom (A)	11	Tottenham (H)	5	Arsenal (H)	4	Bolton (A)	14	Chelsea (H)	2	7.2	2nd	
2010/11	Newcastle (H)	21	West Ham (A)	17	Fulham (H)	12	Everton (A)	8	Liverpool (H)	7	13		
2009/10	Birmingham (H)	22	Burnley (A)	25	Wigan (A)	11	Arsenal (H)	4	Tottenham (A)	8	14		
2008/09	Newcastle (H)	12	Portsmouth (A)	8	Liverpool (A)	4	Chelsea (A)	2	Bolton (H)	16	8.4	1st	
2007/08	Reading (H)	8	Portsmouth (A)	9	Man City (A)	14	Tottenham (H)	5	Sunderland (H)	21	11.4		
2006/07	Fulham (H)	12	Charlton (A)	13	Watford (A)	23	Tottenham (H)	5	Arsenal (H)	4	11.4		
2005/06	Everton (A)	4	Aston Villa (H)	10	Newcastle (A)	14	Man City (H)	8	Liverpool (A)	5	8.2		
2004/05	Chelsea (A)	2	Norwich (H)	21	Blackburn (A)	15	Everton (H)	17	Bolton (A)	8	12.6		
2003/04	Bolton (H)	17	Newcastle (A)	3	Wolves (H)	25	Southampton (A)	8	Charlton (A)	12	13		
2002/03	West Brom (H)	22	Chelsea (A)	6	Sunderland (A)	17	Middlesborough (H)	12	Bolton (H)	16	14.6		
2001/02	Fulham (H)	21	Blackburn (A)	22	Aston Villa (A)	8	Everton (H)	16	Newcastle (A)	11	15.6		
2000/01	Newcastle (H)	11	Ipswich (A)	23	West Ham (A)	9	Bradford (H)	17	Sunderland (H)	7	13.4		
1999/00	Everton (A)	14	Sheff Wednesday (A)	12	Leeds (A)	4	Arsenal (A)	2	Coventry (A)	15	9.4		
1998/99	Leicester (H)	10	West Ham (A)	8	Charlton (H)	24	Coventry (H)	11	Arsenal (A)	1	10.8		
1997/98	Tottenham (A)	10	Southampton (H)	16	Leicester (A)	9	Everton (A)	15	Coventry (H)	17	13.4		
1996/97	Wimbledon (A)	14	Everton (H)	6	Blackburn (H)	7	Derby (A)	22	Leeds (A)	13	12.4		
22 teams	1995/96	Aston Villa (A)	18	West Ham (H)	14	Wimbledon (H)	9	Blackburn (A)	1	Everton (A)	15	11.4	
22 teams	1994/95	QPR (H)	9	Nott. Forest (A)	24	Tottenham (A)	15	Wimbledon (H)	6	Leeds (A)	5	11.8	
22 teams	1993/94	Norwich (A)	3	Sheff United (H)	14	Newcastle (H)	23	Aston Villa (A)	2	Southampton (A)	18	12	
22 teams	1992/93	Sheff United (A)	9	Everton (H)	12	Ipswich (H)	23	Southampton (H)	16	Nott. Forest (H)	8	13.6	