

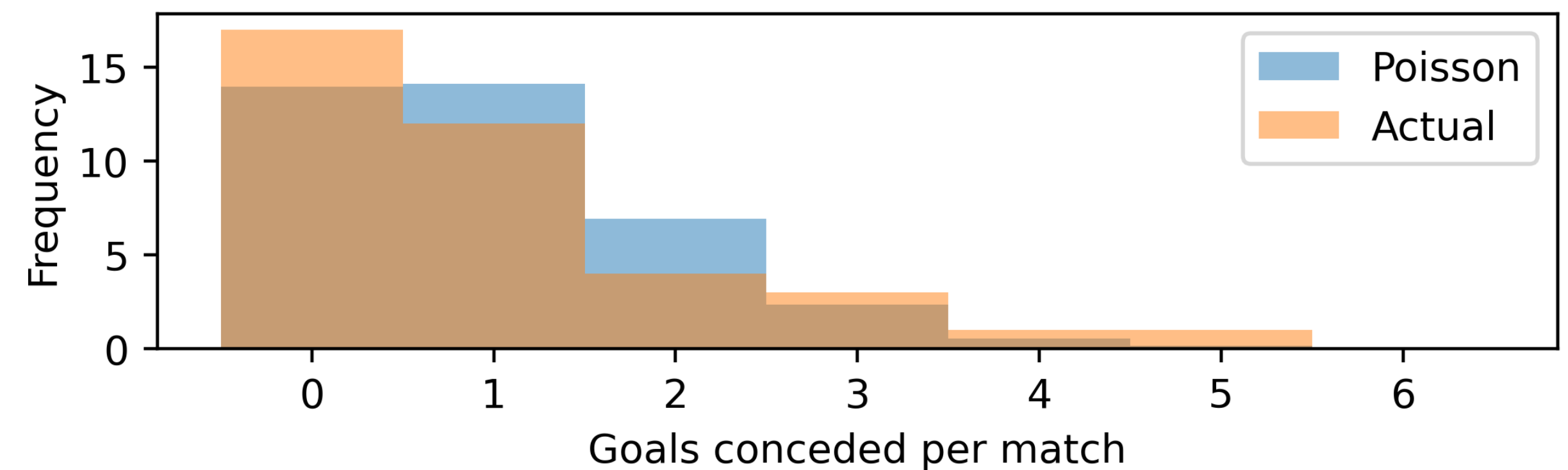
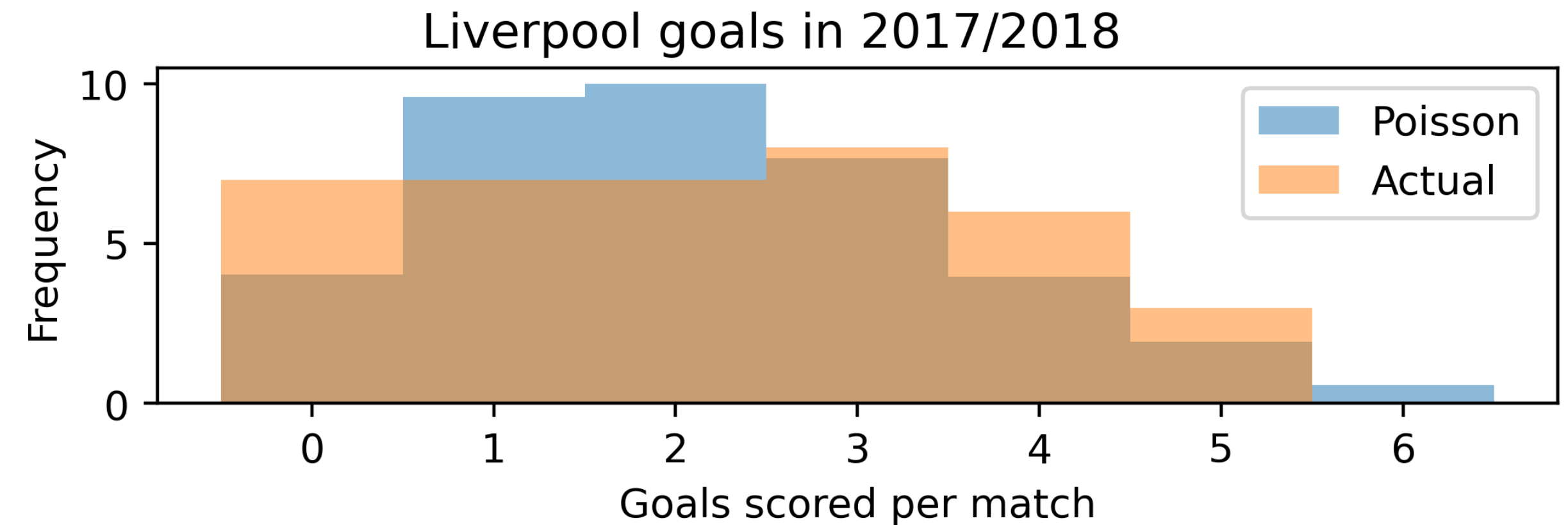
# **Analyzing Liverpool**

## **- club performance**

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# Data collection and overview

- Wyscout data from 2017/2018 season
- 380 games played, 38 per team, every team gets 2 Poisson distributions



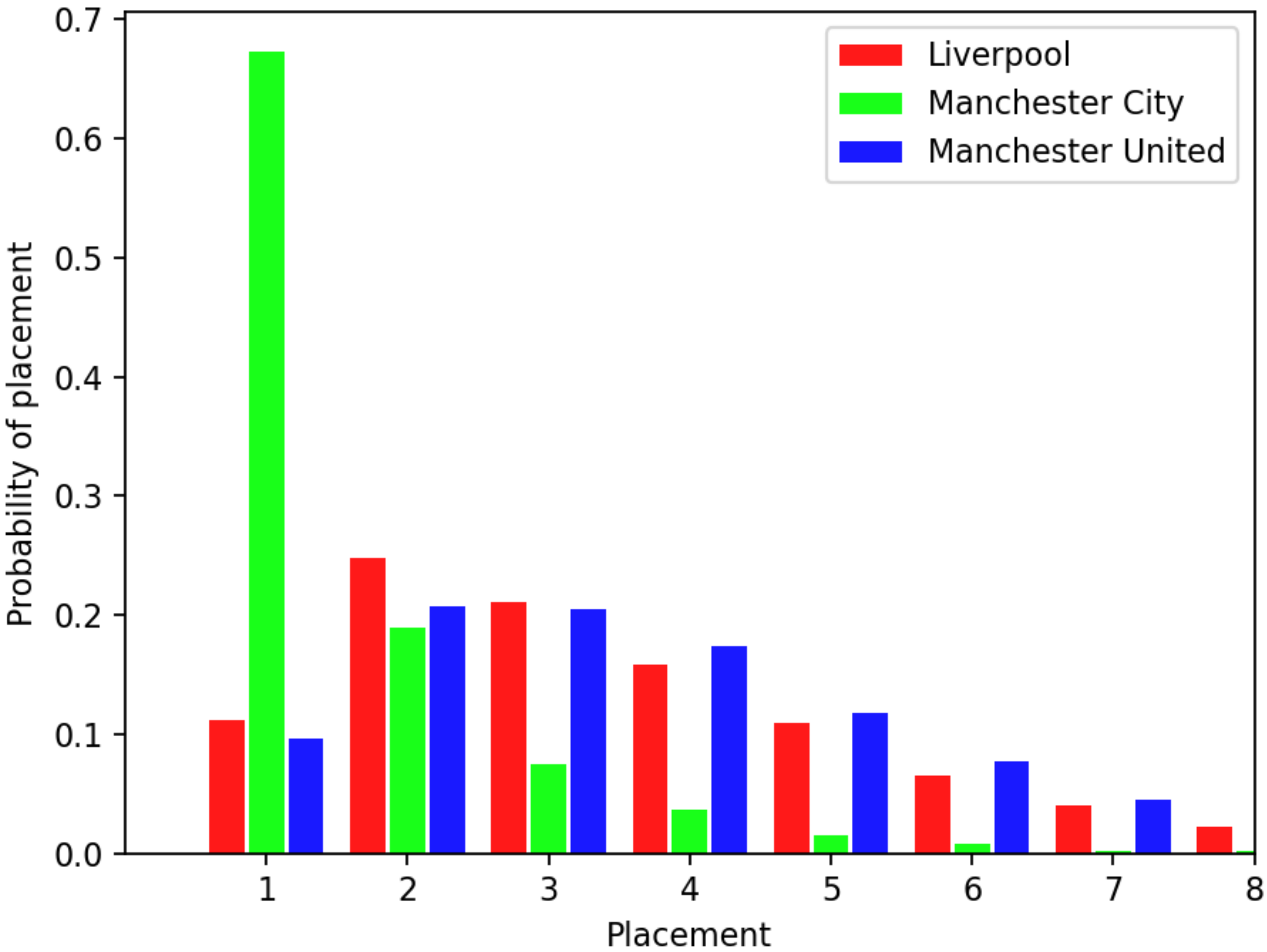
# Simulating the matches

- Every meetup is simulated
- Results get recorded, teams are ranked and every team gets a placement
- 10000 simulations are done

|    |          |           |            |           |         |         |         |           |           |                |         |          |             |         |           |         |              |             |          |       |
|----|----------|-----------|------------|-----------|---------|---------|---------|-----------|-----------|----------------|---------|----------|-------------|---------|-----------|---------|--------------|-------------|----------|-------|
| 1  | 68       | 12        | 8          | 7         | 3       | 3       | 0       | 0         | 0         | 0              | 0       | 0        | 0           | 0       | 0         | 0       | 0            | 0           | 0        |       |
| 2  | 18       | 24        | 20         | 17        | 9       | 8       | 1       | 1         | 0         | 0              | 0       | 0        | 0           | 0       | 0         | 0       | 0            | 0           | 0        |       |
| 3  | 8        | 22        | 21         | 20        | 11      | 12      | 1       | 2         | 1         | 1              | 1       | 0        | 0           | 0       | 0         | 0       | 1            | 0           | 0        |       |
| 4  | 4        | 16        | 17         | 17        | 15      | 14      | 3       | 3         | 2         | 2              | 1       | 1        | 1           | 1       | 0         | 0       | 0            | 1           | 1        |       |
| 5  | 1        | 11        | 12         | 14        | 15      | 16      | 5       | 5         | 4         | 3              | 3       | 2        | 1           | 2       | 1         | 1       | 0            | 2           | 1        |       |
| 6  | 1        | 7         | 8          | 10        | 13      | 13      | 8       | 7         | 6         | 5              | 4       | 3        | 3           | 3       | 2         | 1       | 1            | 3           | 2        |       |
| 7  | 0        | 4         | 5          | 6         | 10      | 9       | 8       | 9         | 8         | 8              | 6       | 4        | 4           | 4       | 2         | 2       | 2            | 5           | 4        |       |
| 8  | 0        | 2         | 3          | 4         | 7       | 7       | 9       | 9         | 8         | 8              | 6       | 5        | 5           | 5       | 3         | 3       | 2            | 5           | 5        |       |
| 9  | 0        | 1         | 2          | 2         | 5       | 5       | 8       | 9         | 8         | 8              | 7       | 6        | 6           | 6       | 3         | 4       | 3            | 7           | 6        |       |
| 10 | 0        | 1         | 1          | 1         | 4       | 4       | 8       | 8         | 8         | 8              | 7       | 6        | 7           | 7       | 4         | 5       | 4            | 7           | 6        |       |
| 11 | 0        | 0         | 1          | 1         | 3       | 3       | 7       | 8         | 8         | 8              | 7       | 7        | 7           | 7       | 5         | 5       | 5            | 8           | 7        |       |
| 12 | 0        | 0         | 0          | 1         | 2       | 2       | 7       | 7         | 7         | 7              | 8       | 7        | 8           | 7       | 6         | 6       | 5            | 8           | 7        |       |
| 13 | 0        | 0         | 0          | 0         | 1       | 1       | 7       | 6         | 7         | 7              | 8       | 7        | 8           | 7       | 6         | 7       | 6            | 7           | 7        |       |
| 14 | 0        | 0         | 0          | 0         | 1       | 1       | 6       | 6         | 7         | 6              | 8       | 7        | 7           | 7       | 7         | 8       | 7            | 7           | 7        |       |
| 15 | 0        | 0         | 0          | 0         | 1       | 1       | 5       | 5         | 6         | 6              | 7       | 8        | 8           | 8       | 8         | 7       | 8            | 7           | 8        |       |
| 16 | 0        | 0         | 0          | 0         | 1       | 1       | 4       | 4         | 5         | 6              | 7       | 8        | 7           | 8       | 9         | 9       | 8            | 7           | 8        |       |
| 17 | 0        | 0         | 0          | 0         | 0       | 0       | 4       | 4         | 5         | 5              | 7       | 8        | 8           | 8       | 9         | 10      | 10           | 7           | 8        |       |
| 18 | 0        | 0         | 0          | 0         | 0       | 0       | 3       | 3         | 4         | 4              | 6       | 7        | 7           | 7       | 10        | 10      | 11           | 7           | 8        |       |
| 19 | 0        | 0         | 0          | 0         | 0       | 0       | 2       | 2         | 3         | 4              | 5       | 8        | 7           | 7       | 11        | 11      | 13           | 6           | 8        |       |
| 20 | 0        | 0         | 0          | 0         | 0       | 0       | 2       | 2         | 2         | 3              | 4       | 6        | 6           | 7       | 12        | 12      | 14           | 5           | 7        |       |
|    | Man City | Liverpool | Man United | Tottenham | Chelsea | Arsenal | Burnley | Leicester | Newcastle | Crystal Palace | Everton | West Ham | Southampton | Watford | West Brom | Swansea | Huddersfield | Bournemouth | Brighton | Stoke |

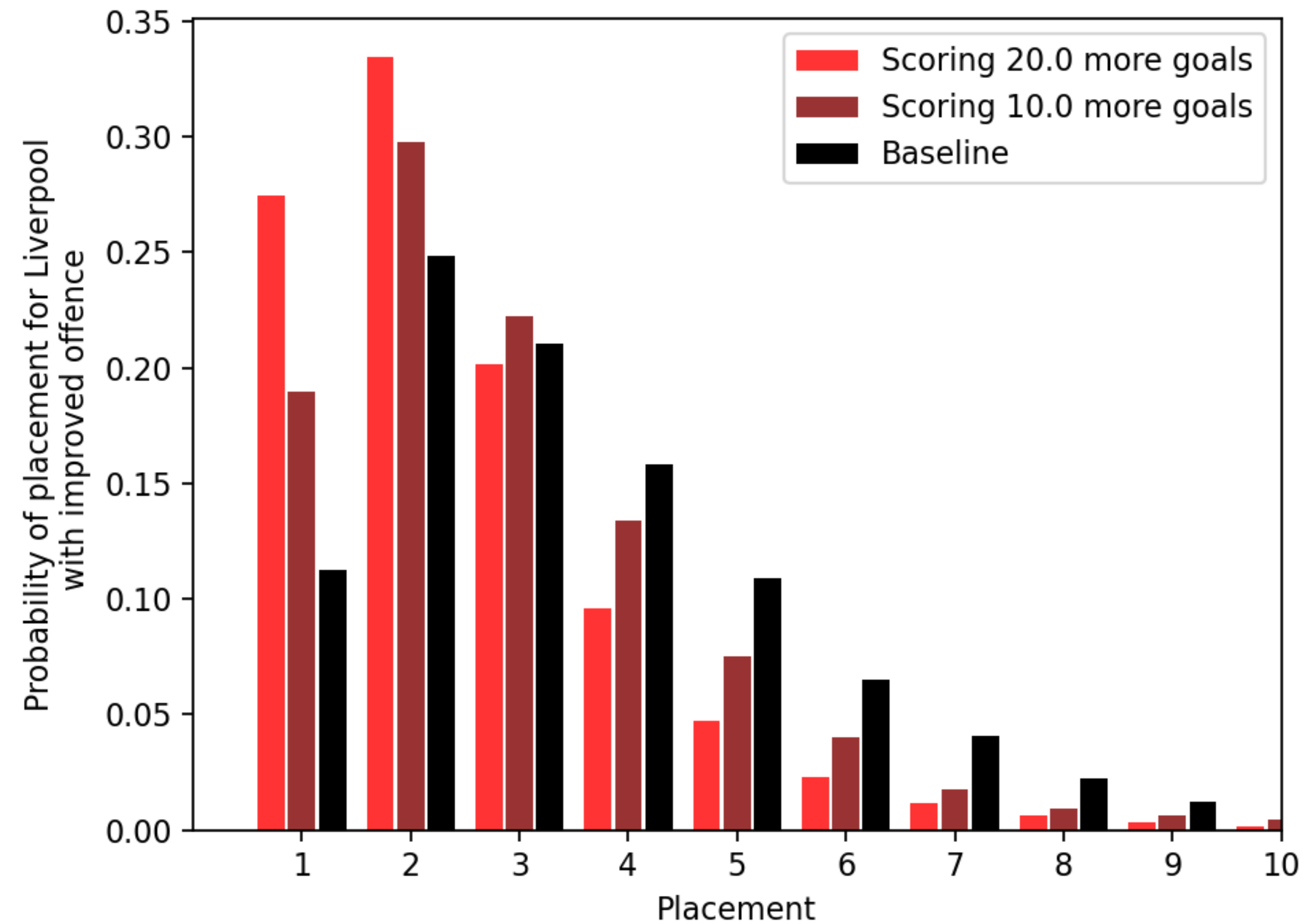
# Comparing the top

|                | Man City | Man United | Liverpool |
|----------------|----------|------------|-----------|
| Points         | 100      | 81         | 75        |
| Goals Scored   | 106      | 68         | 84        |
| Goals Conceded | 27       | 28         | 38        |

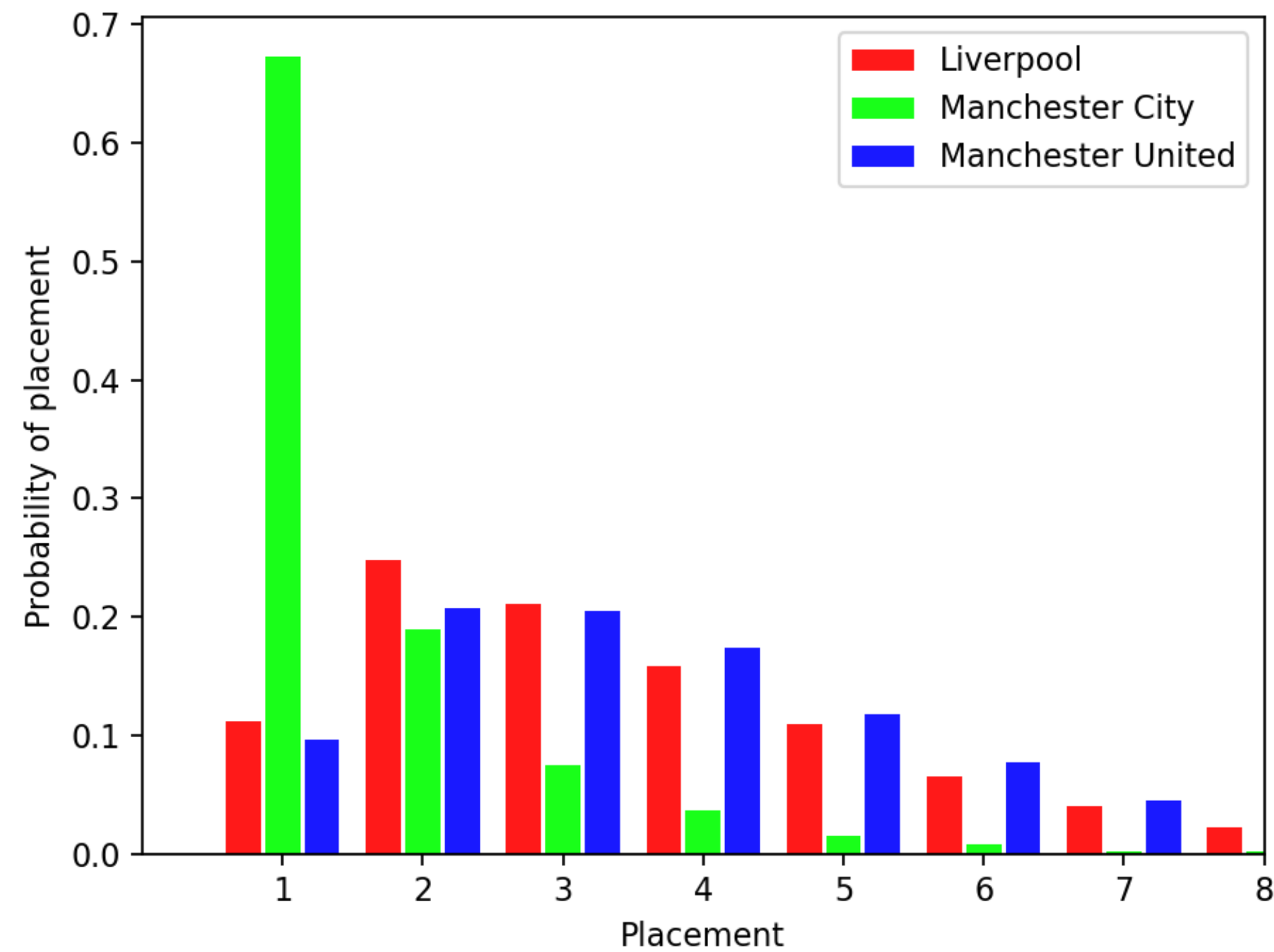


# Potential improvements

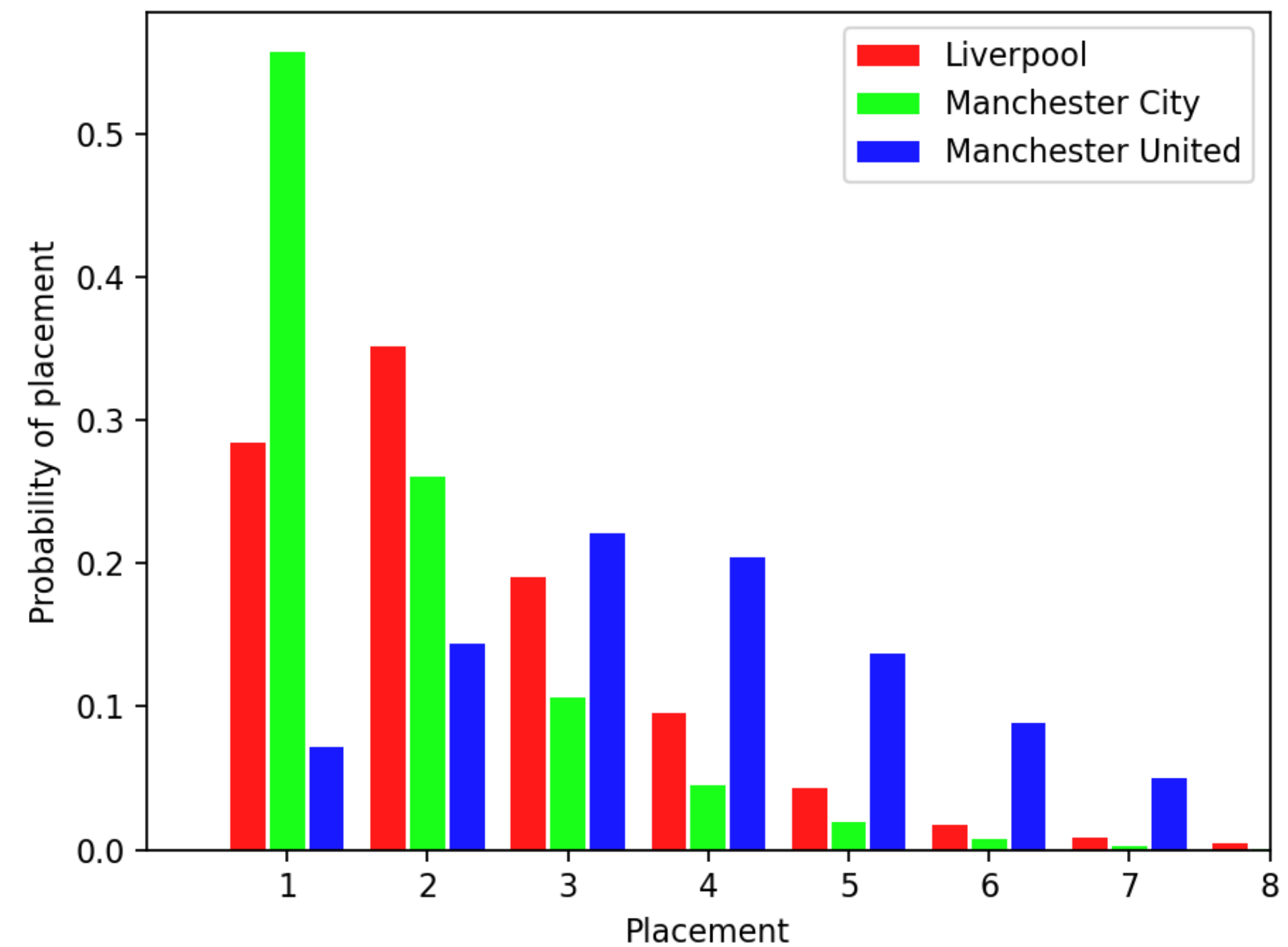
- Defense, scoring fewer goals:



# Comparing the top, after improving defense



Baseline



Improved defense

# Conclusion of the analysis

- The fitted Poisson distributions are close to the actual data
- Our simulations give a reasonable picture of the 2017/18 season
- The analysis predicts **defense** is the key factor

# What happened in reality?

- Bought two excellent defensive players:

|                             | Man City | Liverpool | Chelsea |
|-----------------------------|----------|-----------|---------|
| • Virgil van Dijk, defender |          |           |         |
| • Alisson, goalkeeper       |          |           |         |
| Points                      | 98       | 97        | 72      |
| Goals Scored                | 95       | 89        | 63      |
| Goals Conceded              | 23       | 22        | 39      |

- 2019/2020

|                | Liverpool | Man City | Man United |
|----------------|-----------|----------|------------|
| Points         | 99        | 81       | 66         |
| Goals Scored   | 85        | 102      | 66         |
| Goals Conceded | 33        | 35       | 36         |



**Thank you for listening!**