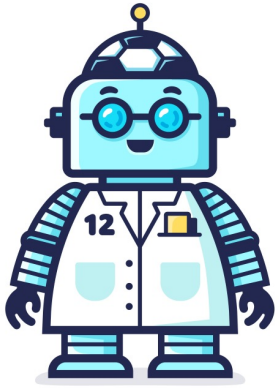
SOC²ERMATICS

Tutorial 2

mpl soccer



UPPSALA UNIVERSITET

Where you should be up to

Go in to webpages; lesson 1 is all you need for assignment; prioritise assignment over lesson 2, but try to get started.

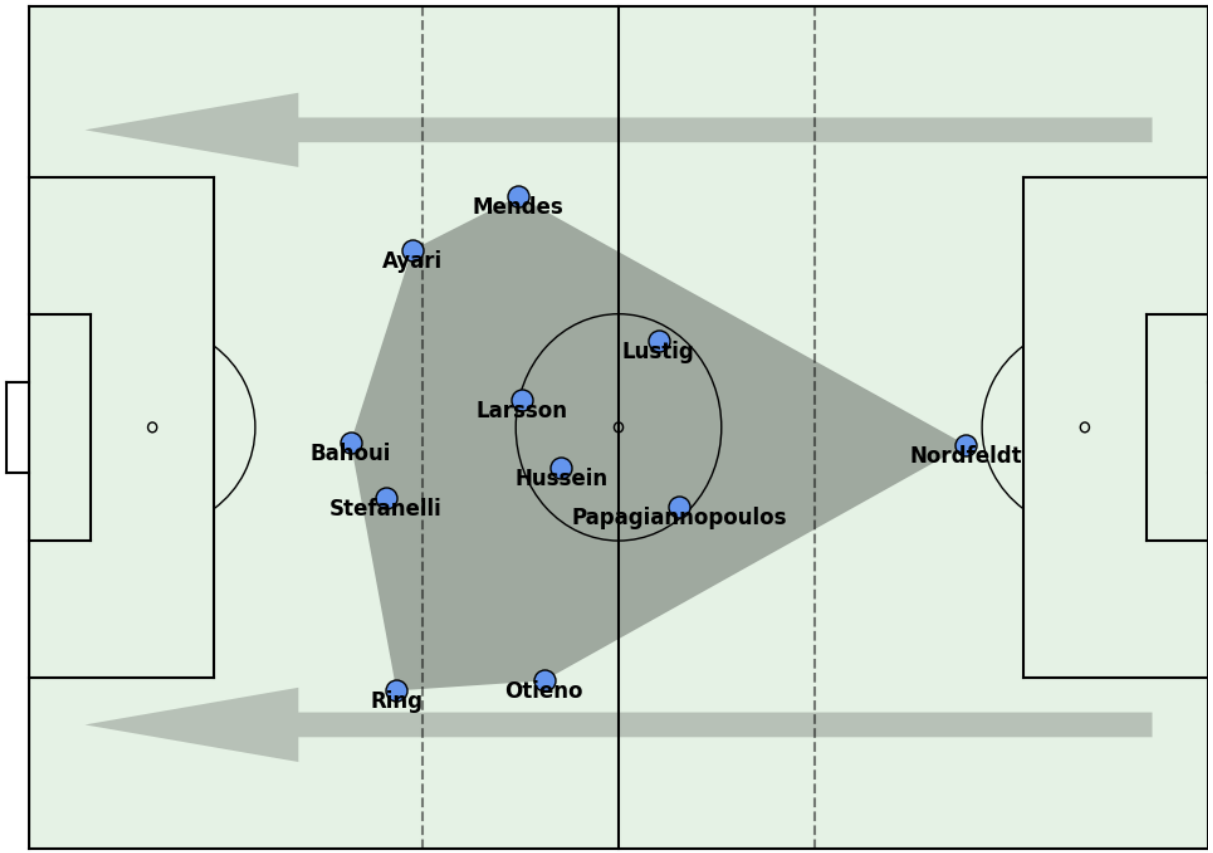
Make sure everyone is in a group

Group Questions

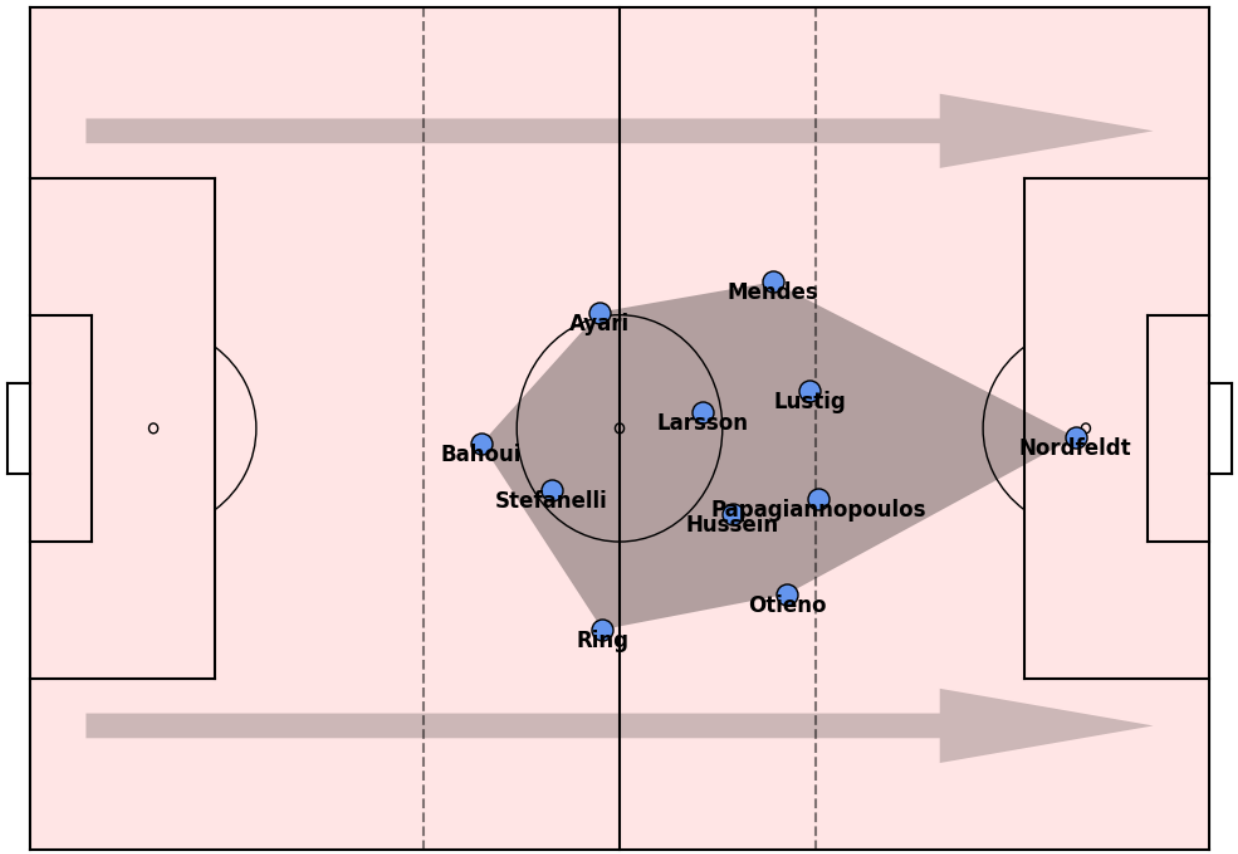
Arsenal

1. With the pitch size standardizer, actions on different sized pitches can have their positions distorted when plotted on the same graph. What are the common pitfalls to watch out for when graphing this?
2. Psychological data (such as RPE Tests and Wellness Tests) and physical output tests can give us context on how a player could perform in a match, are there any open data sources for this that we could use?
3. What are the current or potential uses of live data for professional football clubs, for instance as an aid for coaches and players during half time? *Next slide*

AIK Attacking in first half
(Area = 1264.9 m^2, Diameter = 147.2m)



AIK Defending in first half
(Area = 874.1 m^2, Diameter = 124.0m)



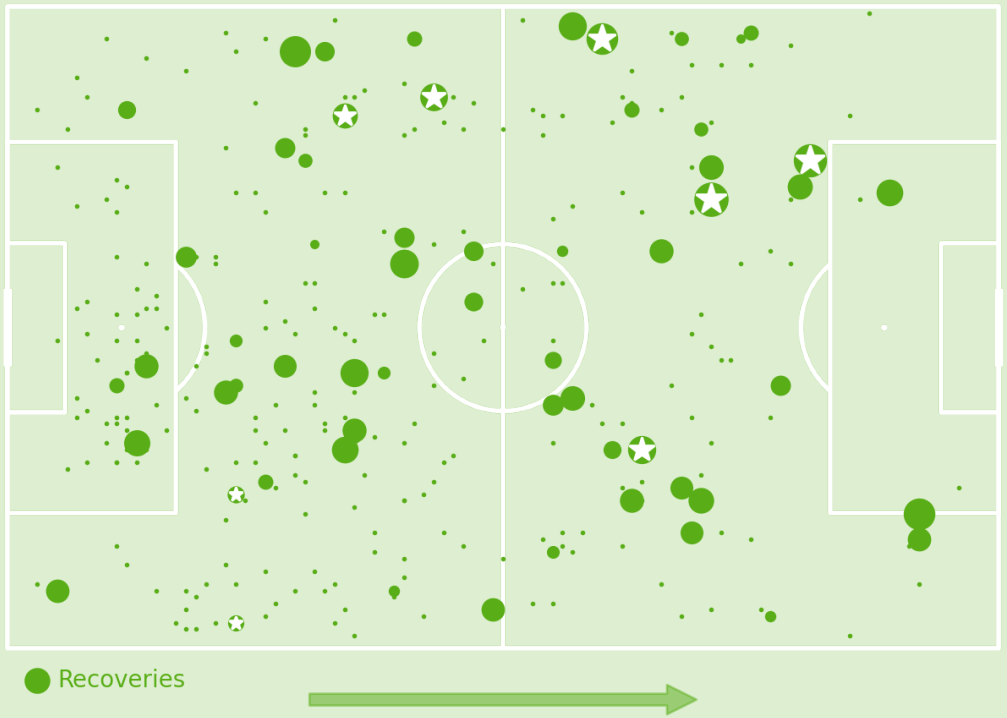
Chelsea

1. Is there any good way to highlight actions (passes) that do not necessarily lead to a goal but provide value (chance creation) in the game? Is the only way to distinguish a quality pass if it moves the play forward (distance-wise) and should that be the only indicator or is there any other way to gauge this attribute of player? *Lesson 4! Next slide.*

   Any standard approach that you would recommend to factor in contextual knowledge to add calculated metrics on top of raw data?
2. To what extent do teams/coaches actually rely on mathematical analysis for in-game tactics over their intuition? Also at a board-level, how does it affect their judgement in terms of signing new players. Does the best statistical player get picked in the transfer market or is the big money signing more attractive?
3. The plots only tell the story about either a point in time or give an aggregated view over the past matches. Is there an effective way to add animations or interactiveness to the plots so that we can look at transitional change over time (say week on week for example) of the KPIs? On a related note, can these visualizations be animated in any sort of a dashboard, so it can be used dynamically?

Liverpool

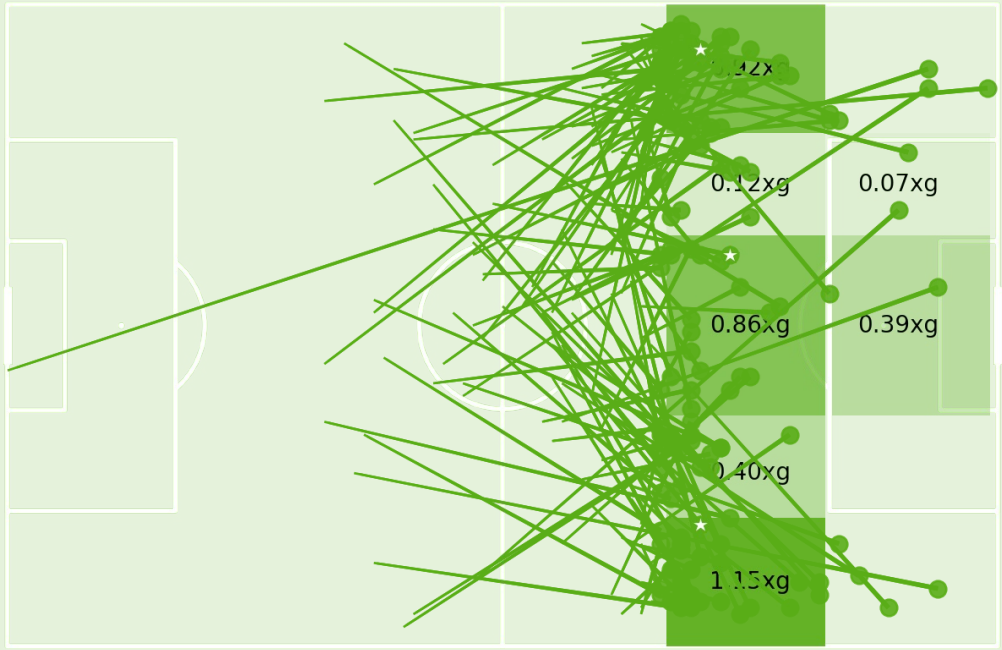
Transition Map For



TWELVE

PREMIER LEAGUE 2021-22

Liverpool Final 3rd Entries For



TWELVE

Liverpool

1. Is there a way of analysing sequences of actions that leads to a goal, other than the heatmap? *xGchain*
2. Are there any more measurements similar to centralization that can be used to analyze player networks? *PageRank for players* *https://youtu.be/ZXEHPKmx410?t=899*
3. In the passing network tutorial the passes aren't counted both ways between players. They are counted individually and thus there are two lines plotted between each pair of players and only the more dominant one is visible. Is there any good way to count the total amount of passes between two players? *https://soccermatics.medium.com/the-pieces-in-peps-passing-puzzle-9842c46a168e*

Manchester United

1. How does expected goals and other statistical models take into account outlying factors like the balance of the player, the pressure he/she is put under and how many players who are in between the shot taker and the goal that can for example block the shot?
2. Concerning assignment 1, "2, What actions did they perform that were important and why?": As someone who watches football, but isn't used to thinking about individual player strengths: how can I approach this? *Just start plotting things and see what stands out? Good idea1!*

3. Apart from the data about retrieving the ball within 5 seconds, what other analytical discoveries did you(David Sumpter) do during your time in Hammarby IF?

Burnley

1. How to plot goalkeeper data?
   Difficult. Co-ordinates on goal. Statsbomb 360
2. How is health and player characteristics like height and weight account for this type of statistics?
   Top speed!
3. When does a club introduce analytics to their ways of working? What level of "professionalism"? *Under 10s!*

4. What percentage of the budget do clubs use for football analytics in each level of professionalism, if that sounds right for you all? *Far too little!*

PL 2

1. What do you consider being the most important aspect for when you first start getting into data analytics

2. Is there any database where you easily can find the match id for a particular match?

https://soccermatics.readthedocs.io/en/latest/gallery/plot_UsingStatsbomb.html#lienup-data

3. Which of the available dataset would you recommend using?

BREAK.

Exercise (15 minutes)

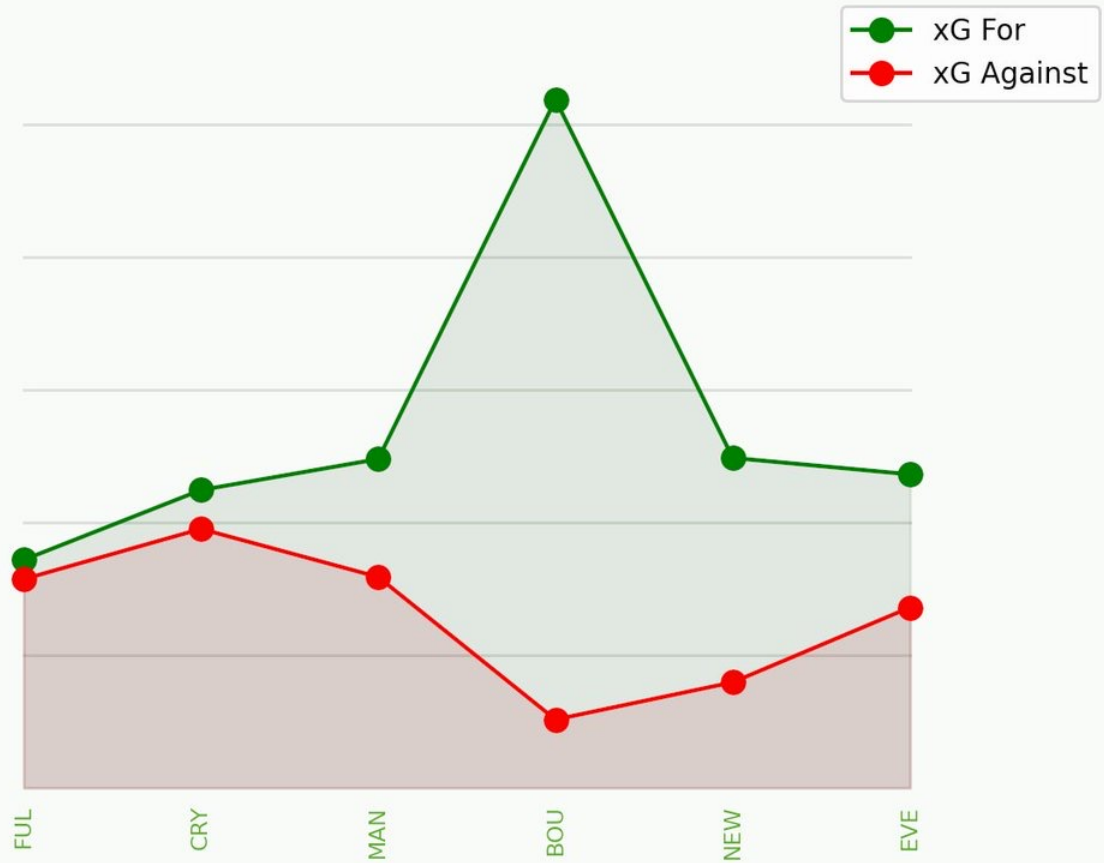
Discuss Liverpool's first six games

Elect a chairperson. Write three takeaway points about Liverpool's first 6 weeks using Visualisations on the next four pages.

TWELVE

PREMIER LEAGUE (2022-23)

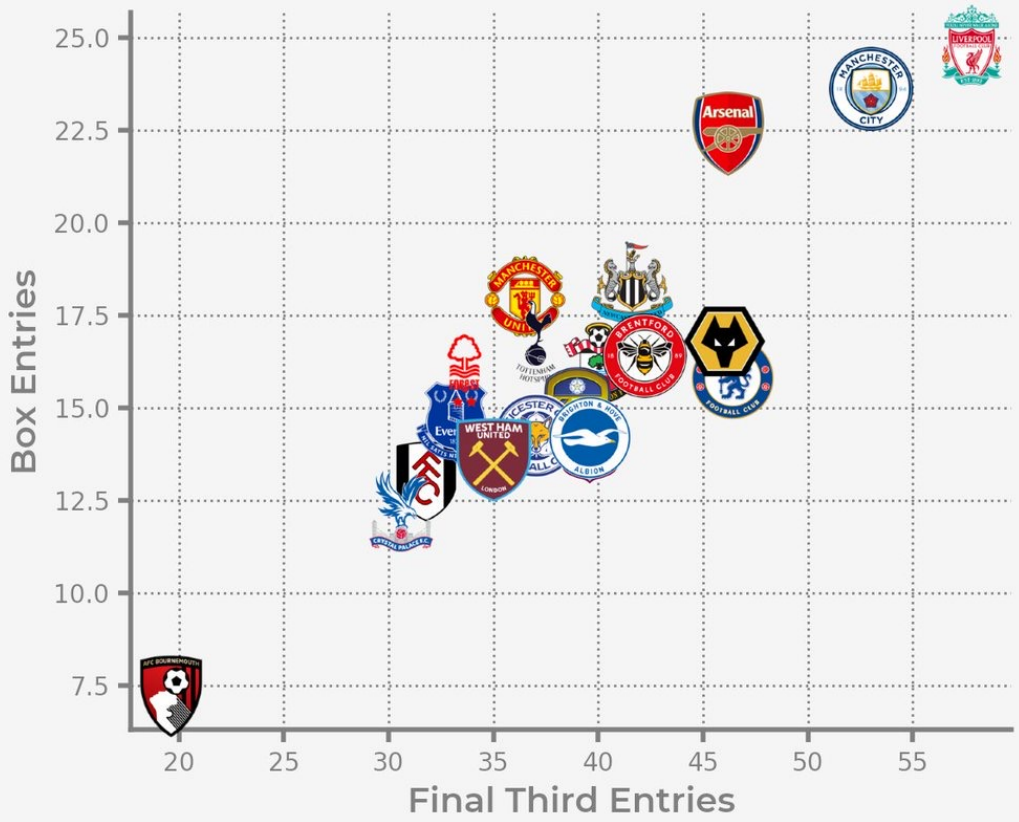
Liverpool xG Performance



TWELVE

PREMIER LEAGUE (2022-23)

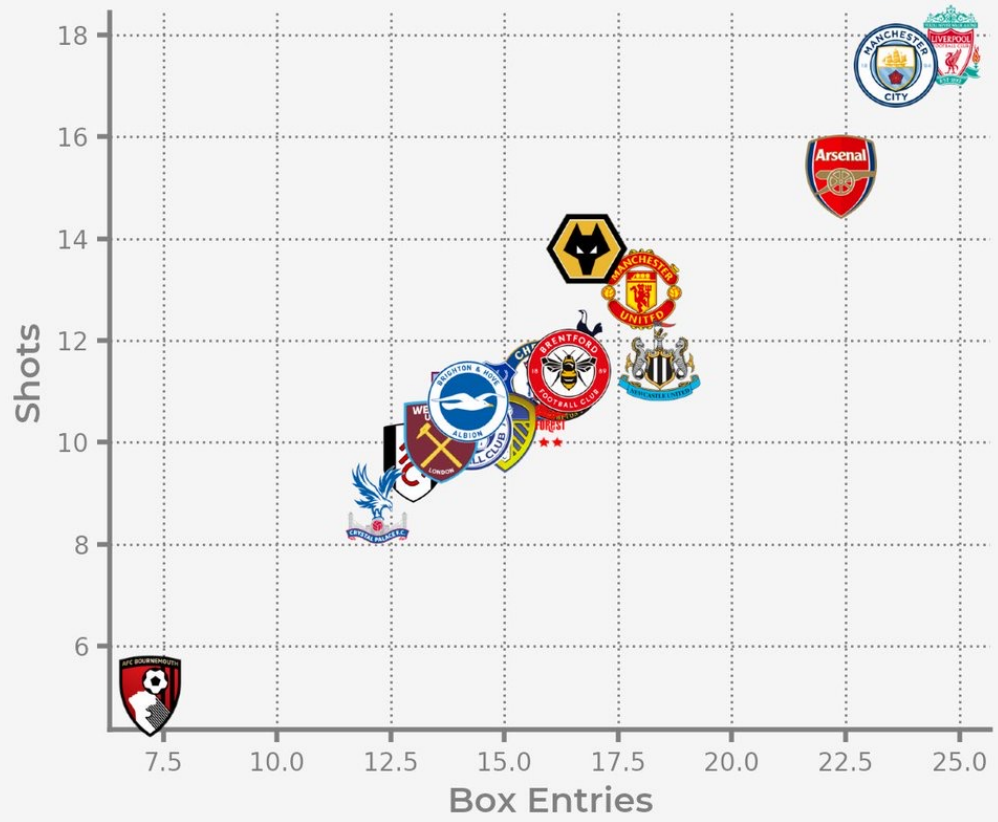
Final Third to Box



TWELVE

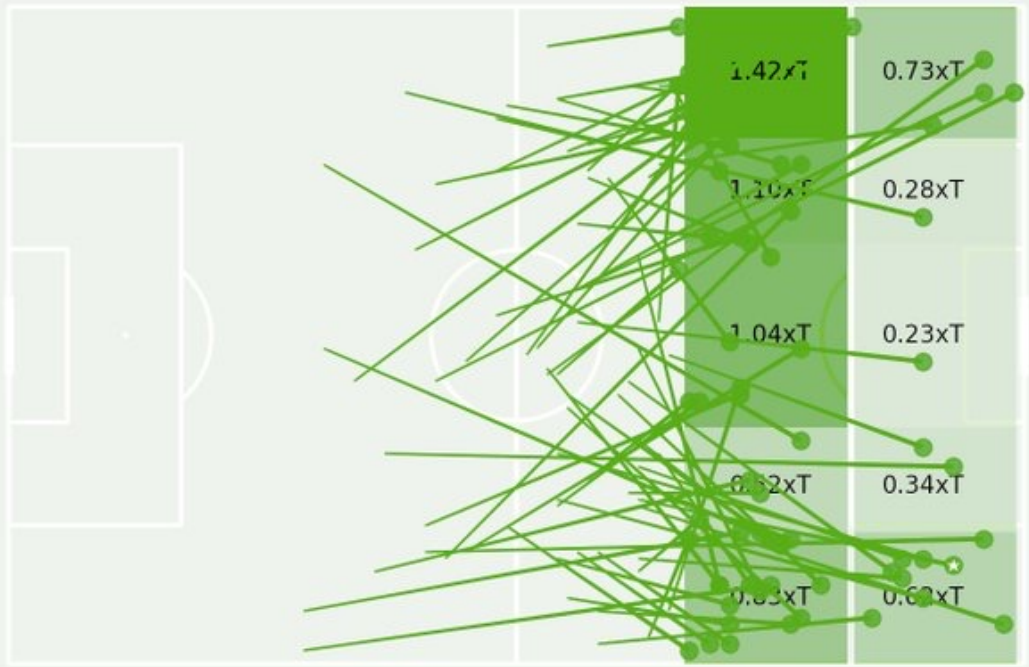
PREMIER LEAGUE (2022-23)

Box Entries to Shots



PREMIER LEAGUE (2022-23)

Liverpool Final 3rd Entries For



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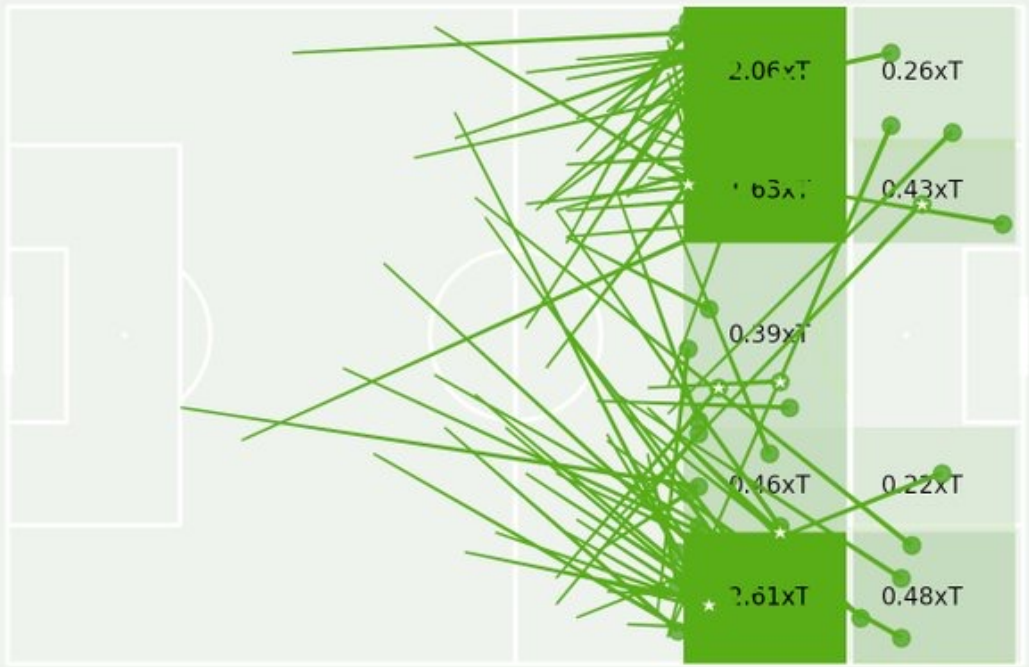
PREMIER LEAGUE (2022-23)

Liverpool Final 3rd Entries For



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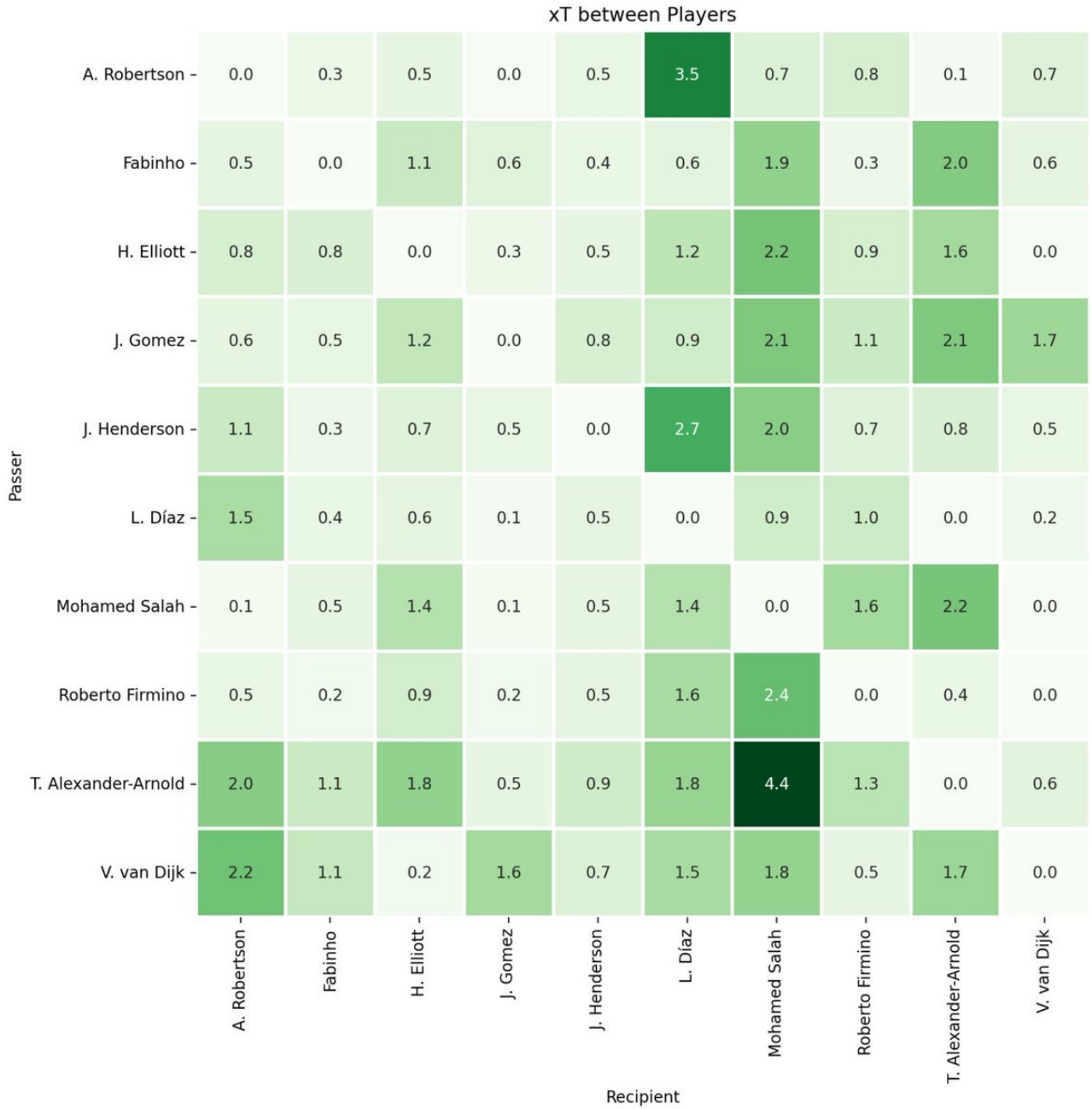
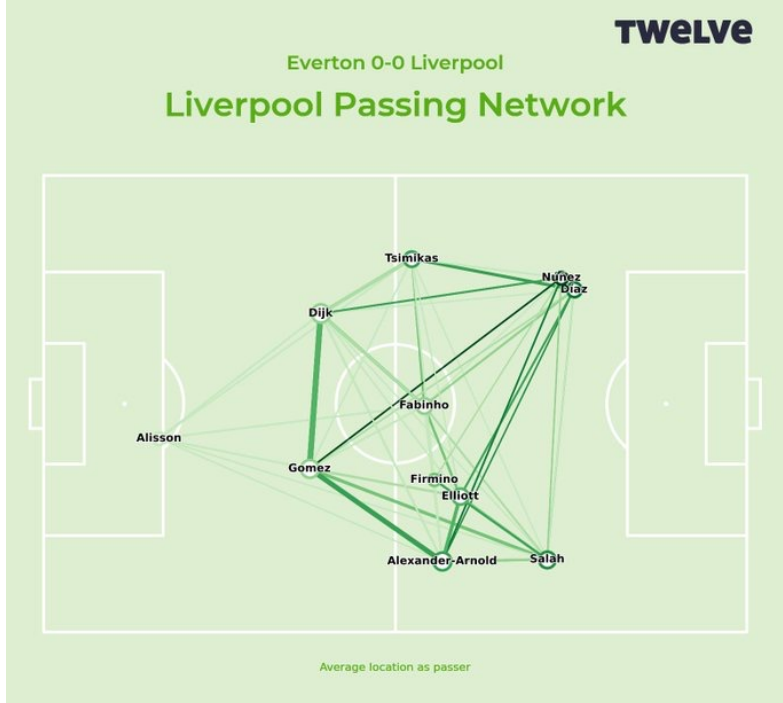
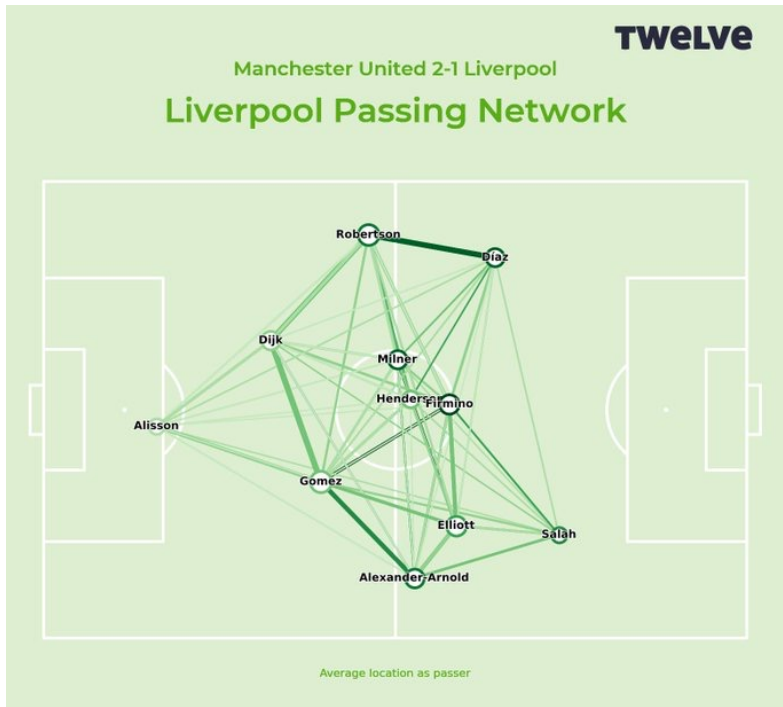
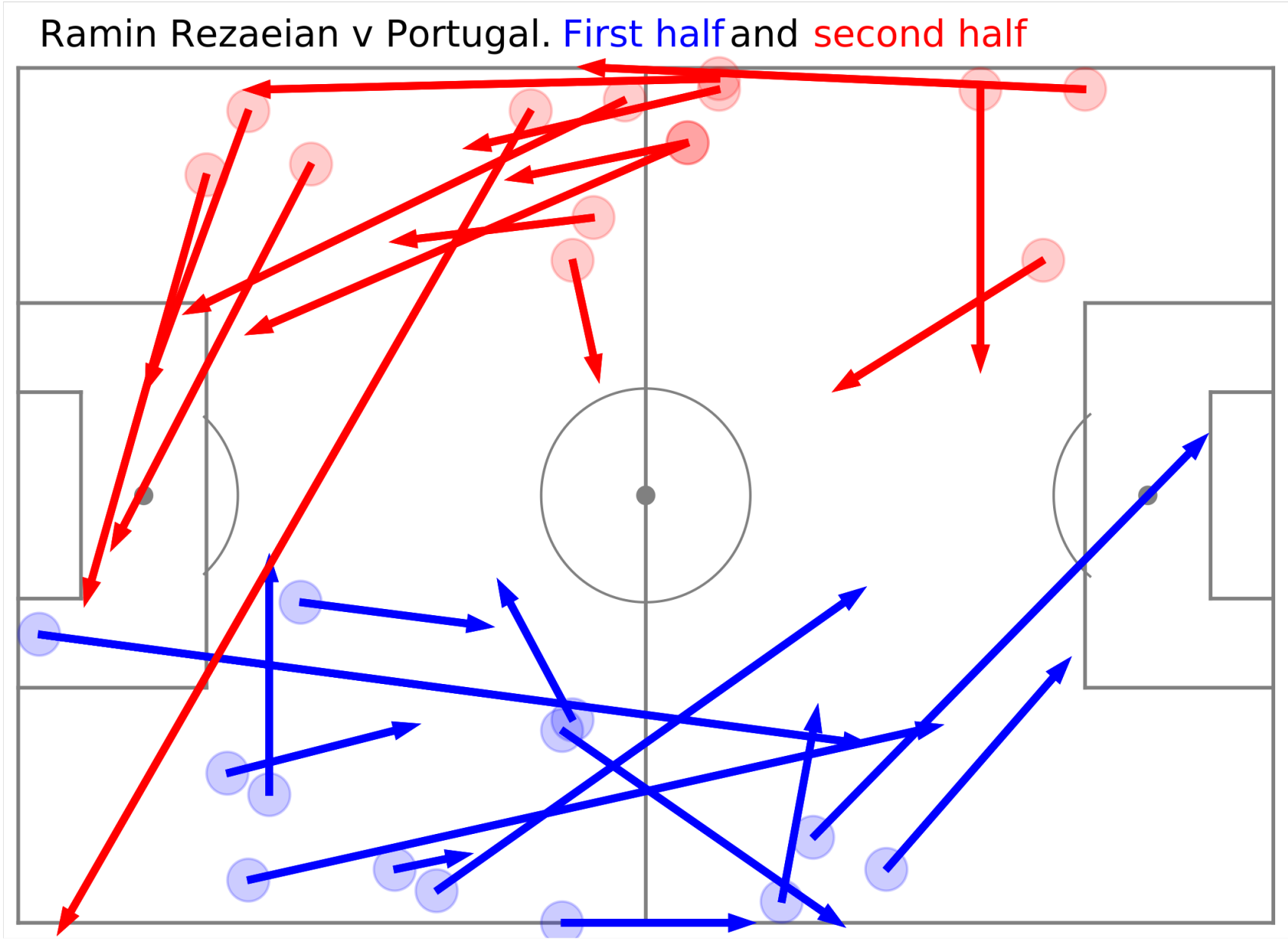

xT between Players
A. Robertson 0.0 0.3 0.5 0.0 0.5 3.5 0.7 0.8 0.1 0.7
Fabinho 0.5 0.0 1.1 0.6 0.4 0.6 1.9 0.3 2.0 0.6
H. Elliott 0.8 0.8 0.0 0.3 0.5 1.2 2.2 0.9 1.6 0.0
J. Gomez 0.6 0.5 1.2 0.0 0.8 0.9 2.1 1.1 2.1 1.7
J. Henderson 1.1 0.3 0.7 0.5 0.0 2.7 2.0 0.7 0.8 0.5
L. Díaz 1.5 0.4 0.6 0.1 0.5 0.0 0.9 1.0 0.0 0.2
Mohamed Salah 0.1 0.5 1.4 0.1 0.5 1.4 0.0 1.6 2.2 0.0
Roberto Firmino 0.5 0.2 0.9 0.2 0.5 1.6 2.4 0.0 0.4 0.0
T. Alexander-Arnold 2.0 1.1 1.8 0.5 0.9 1.8 4.4 1.3 0.0 0.6
V. van Dijk 2.2 1.1 0.2 1.6 0.7 1.5 1.8 0.5 1.7 0.0
Passer
A. Robertson
Fabinho
H. Elliott
J. Gomez
J. Henderson
L. Díaz
Mohamed Salah
Roberto Firmino
T. Alexander-Arnold
V. van Dijk
Recipient


TWELVE
Everton 0-0 Liverpool
Liverpool Passing Network
Tsimikas
Núñez
Díaz
Dijk
Fabinho
Alisson
Gomez
Firmino
Elliott
Alexander-Arnold
Salah
Average location as passer


TWELVE
Manchester United 2-1 Liverpool
Liverpool Passing Network
Robertson
Díaz
Dijk
Milner
Henderson
Firmino
Alisson
Gomez
Elliott
Salah
Alexander-Arnold
Average location as passer

Example Assignment 1


Ramin Rezaeian v Portugal. First half and second half

Mini-challenge: plotting actions

Philip Winchester

September 6, 2020

For this mini-challenge I decided to look at teams who played counter attacking football during the 2018 World Cup. As a true data scientists, we look at the data to decide which these teams were and the players who helped them do it.

What is counter attacking football?
Good question. In general we are looking for teams who sit with a low defensive line and are quick on the break. A measure which looks at this for us is the following: The mean time taken for a possession which starts within the first third of the pitch to reach the final third. Basically, if a team wins the ball in their defensive third, how quickly can they get it to their striker? I calculated this mean quantity for all teams and the results for the top four teams are presented in the top of the two tables below. Interestingly, the host nation Russia seems to have been particularly strong on the break. Unsurprisingly, possession loving Spain took the longest time to progress into the final third with a mean time of 23.8s.

How to play counter attacking football?
Hmm, another one to think about! As soon as we win the ball back, I guess we want players who are going to hit long forward passes towards the opposition goal. In this instance, we are not interested in passes across the pitch to switch the side of play, so we only consider the mean passing distance (PD) in the x direction. In the bottom of the two tables below, I have listed the top four (outfield) players who had the longest mean pass in the x direction. I have not considered throw-ins, kick-offs and corners or players who placed less than 40 passes throughout the tournament. Iran who, according to my analysis, were the third fastest team on the break have two players on the list. In particular, it seems to be right back Ramin Rezaeian who contributed with a significant number of forward passes. This is especially noteworthy since the other players on the list are all centre backs, which seems to be a general trend.

Ramin Rezaeian: a counter attacking genius
Ramin Rezaeian helped Iran be deadly on the break and they would have topped their group had they only snuck another goal past Portugal in what was a very tight final game. The figure below displays all of Ramins passes versus Portugal. As an attacking minded full-back, his style of play is very clear. Ramin will either look for a forward pass down the wing or a cross towards the opposite side of the box where Irans star striker Sardar Azmoun and 6 ft 3 Mehdi Taremi will be waiting. Ramin will often cross the ball early which is reminiscent of how Trent Alexander-Arnold plays for Liverpool another team very strong on the break.

Team	Mean Time Taken (s)
Russia	9.1
Senegal	9.4
Iran	9.6
Iceland	10.2

Player	Team	Mean x PD (m)
R Rezaeian	Iran	18.8
K Árnason	Iceland	18.0
S Ignashevich	Russia	17.2
S Hosseini	Iran	15.9