

Analysis: Liverpool FC

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1. INTRO

1. Motivation

This project is an analysis of Liverpool FC in the champions League final of the 2004/2005 season. Using data visualization, this project aims to provide more insight into the victory. Using various visualization techniques to showcase team statistics, individual player statistics along with some performance metrics should tell us how Liverpool pulled off such a comeback.

The world of sports analytics is very young but still has already achieved so much. The use of data analytics has improved sports in so many aspects. It has helped teams and players alike to gain insights into the game like never before. It has allowed teams to improve and figure out key insights that could allow them to improve their performances and results.

The miracle of Istanbul is one such fixture which can teach a lot of teams and players so much. How can a team step up when it matters the most. How can a team rise from the depths of despair to climb the zenith of glory, all in just about an hour.

Analysis of this champions League, the biggest club competition in the world's final can tell us how Liverpool beat the star studded squad of A.C Milan despite being three goals down at halftime. This study provides an in depth analysis of the game that can bring out underlying insights which might not be obvious by seeing just the summary statistics of the match.

2. Existing Work

Most of the work related to the match is restricted to the general statistics of the fixture and the summary of the events that took place. [ESPN](#)^[9] shows only the penalty kick scorers along with the general summary statistics of the match. [Theanalyst.com](#)^[3] has a neat visualization of the probability of the two teams winning for the 120 minutes of football played. What makes this comeback even more historic is that the graph shows at half time Liverpool had 0 probability of winning. [Liverpoolfcanalysis's](#)^[6]

passing graph which visualized all the passes that Liverpool attempted in a recent champions league group stage match against Rangers. A similar visualization can be used to showcase how the passing changed in the two halves for Liverpool. This will give us an insight if Liverpool targets a specific side of the pitch during the second half. [Liverpoolfcanalysis's](#)^[8] visualizations provided a lot of really good information. Although some of their graphs were a little bit misleading, for instance the expected goal timeline's line graph shows that Liverpool's opponent didn't have any expected goals until the 50th minute even though they had created chances before in the match. The timeline shown is not uniform, the first half is not equal to the second half, which can mislead viewers into believing that the second half was more happening than the first. Also, a lot of their visualizations are not catered to the general audience who consume sports related analysis, as the graphs are not that straightforward to understand.

3. Contribution

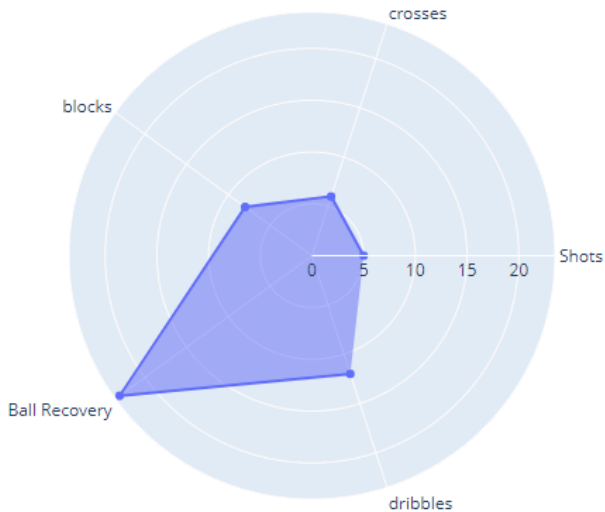
While most of the analysis is limited to a high level analysis of the game, this study provides a deep dive into the historic comeback. The study provides an explanation of what went down as Liverpool pulled off an insane comeback against a star studded AC Milan squad. This study explains the tactical changes that Liverpool made to overcome the three goal deficit, the changes which are not obvious for an average viewer. The visualizations explain what changes Liverpool made in terms of formations, individual roles, tactics that helped them to win the tie.

2. Data & Methods

1. Ideas, sketches & prototypes:

The idea was to provide an in depth analysis of the game and not showcase just the summary statistics. The analysis would showcase the difference of the game Liverpool played in the first half of the match compared to the second half, where they turned it all around. The idea was to showcase heat maps to show the difference in player positioning in both the halves, a pass map to showcase if any side of the pitch was preferred or attacked specifically. Radar plots to tell the overall statistics of the team.

This is a radar plot showcasing Liverpool's statistics in the first half of the match. This makes it easy to give an overall view of Liverpool's performance by using summary statistics. This along with another radar plot for the second half performance was first chosen to show the difference in performance between the two halves. Ultimately a combined radar plot was chosen over this.



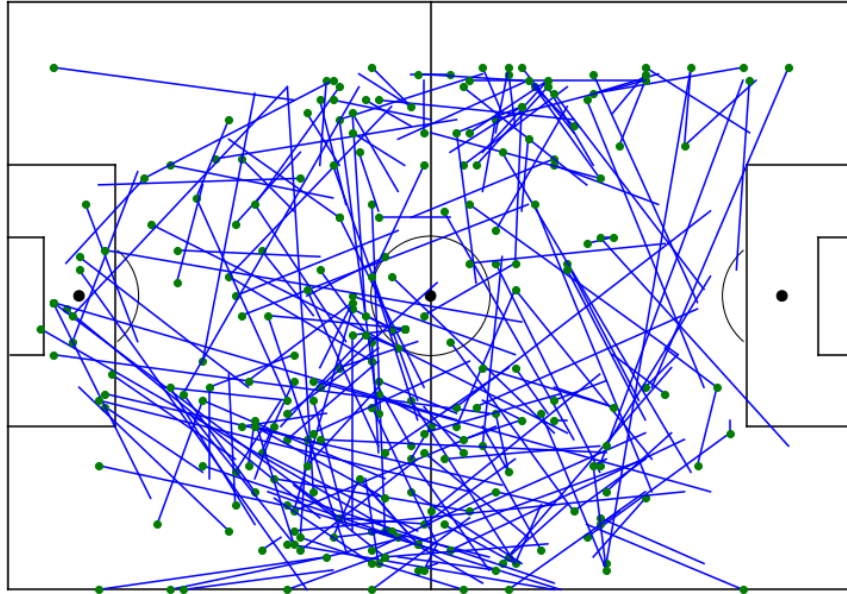
2. VISUALIZATION SELECTION:

The potential plots that could have been used were, line plots to show the progress of the game and the attacking chances that Liverpool created with the timeline of the match as the axis. Ultimately the chosen methods were decided to be the most effective way of conveying the information the data has to offer. The Heat maps are a very efficient way to showcase the positioning of the player over the 90 minutes of the match as it can tell where the player spent most of their time on the pitch and how stretched they were. It can tell us if the manager told one player to sit deep in the field and stop incoming counter attacks, or to exert more control on the pitch by running up and down more, or defend one flank more than the other.

The pass plot is similar to the heat map in that aspect, it shows how progressive Liverpool were in the build up play and how differently they played in the second half.

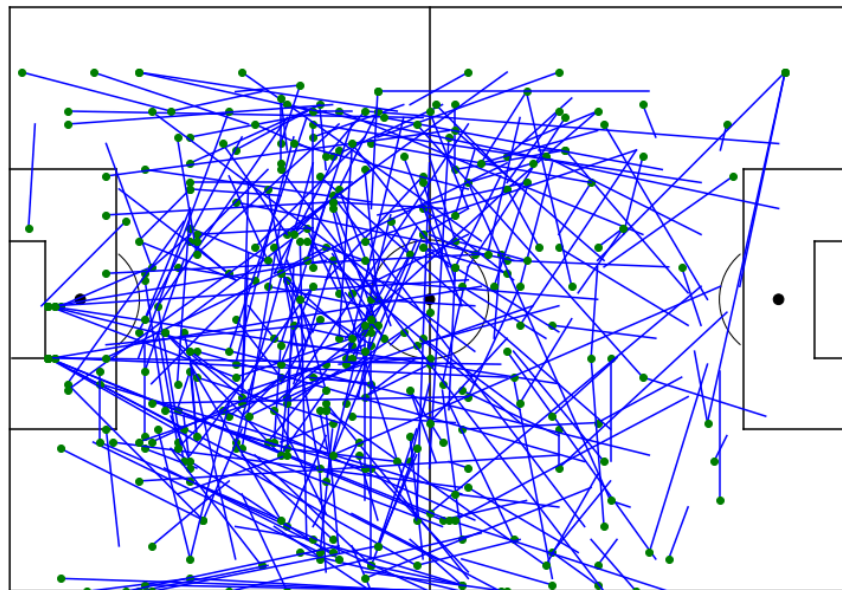
3. Results

1. Visualizations:



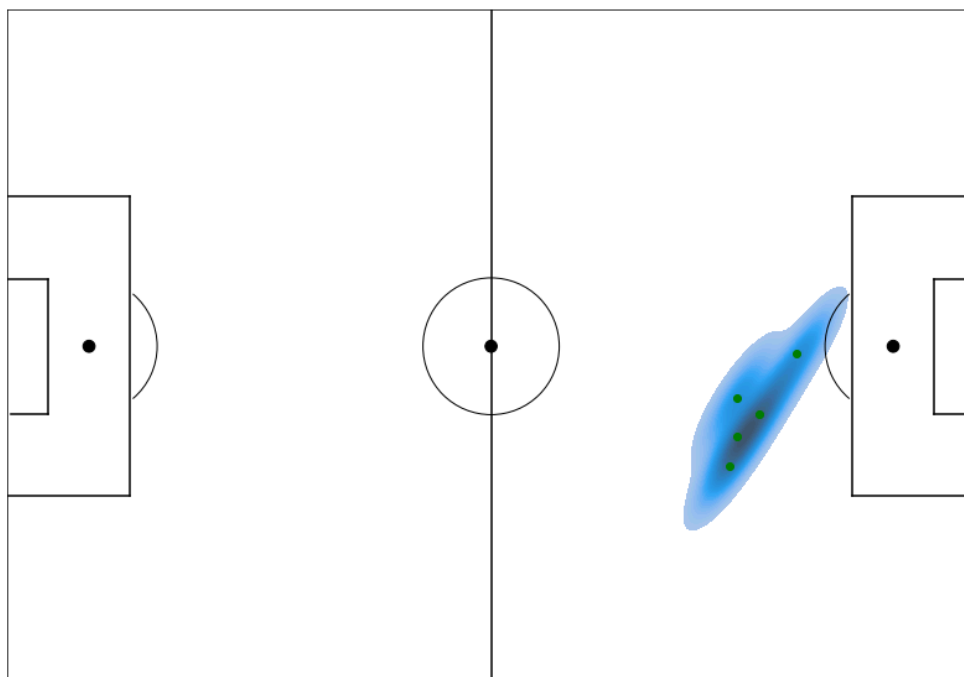
Liverpool First Half Passes

Liverpool passed the ball a lot more on the right flank than the left flank. The majority of the attack for Liverpool came from this side of the pitch. AC Milan dealt with this with ease as all attacks were defended with aplomb. This changed in the second half however.



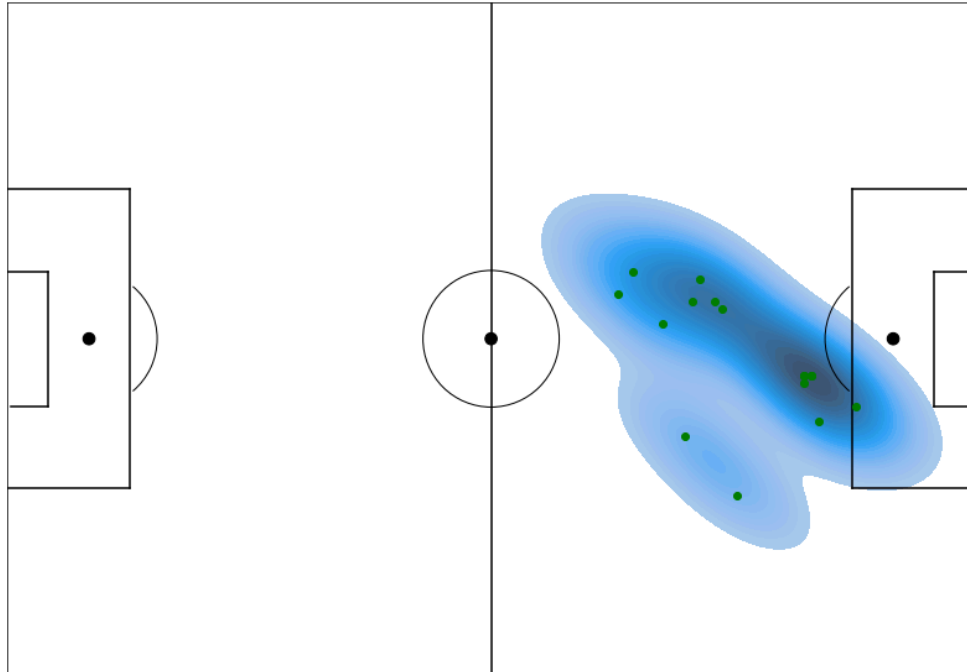
Liverpool second half passes

In the second half Liverpool sat back more than they did in the first half. They were a lot more compressed at the back. The tactic for the second half was clear as inferable from the difference in the two pass graphs. Liverpool were uniform across the pitch in the second half. Attacking from both sides of the pitch and distributing the ball through the middle of the pitch to get through the AC Milan pressure.



Liverpool First Half Shots

As Liverpool sat back they could control the match a lot more. Consequently they could attack more, they had only five shots in the first half as compared to 13 in the second half. As Liverpool no longer attacked from just the right flank, they took shots from both sides of the pitch.

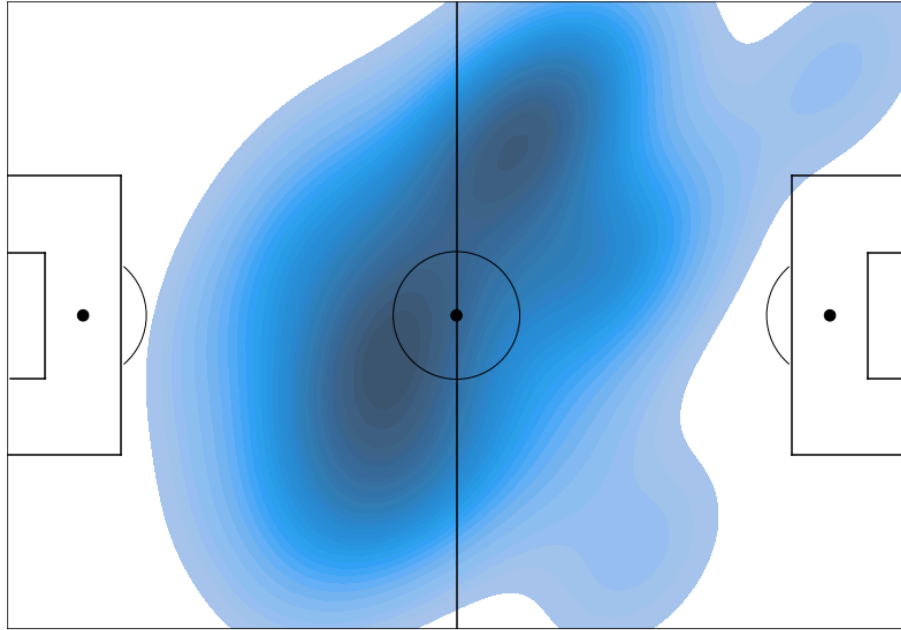


Liverpool second half shots

The plot shows that Liverpool took shots from both sides and were not restricted to just one side. The green dots in the heat map are the specific locations from where the shots were taken.

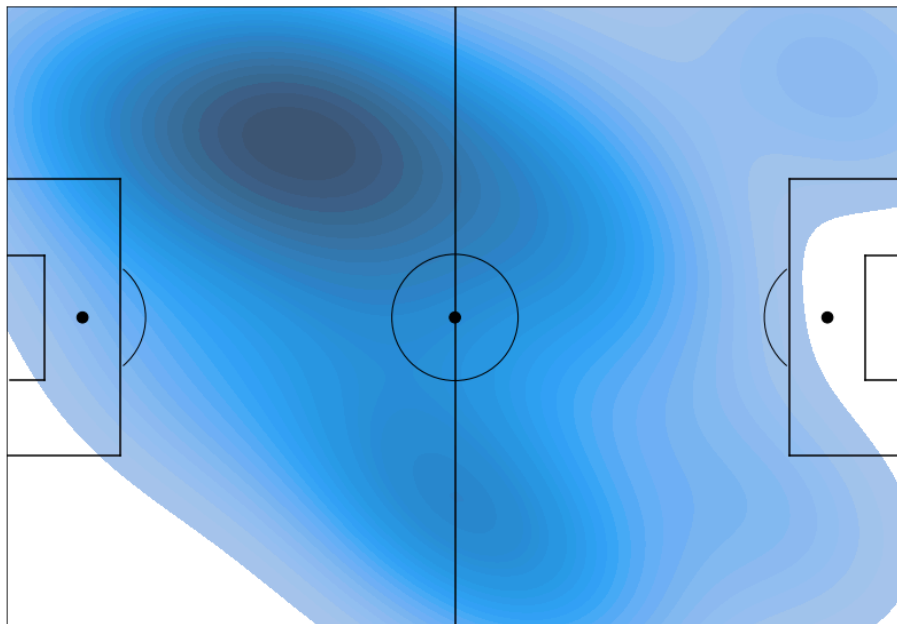
Steven Gerrard

Steven Gerrard, Liverpool's star player and captain, was the instigator for the comeback.



Steven Gerrard First half heat map

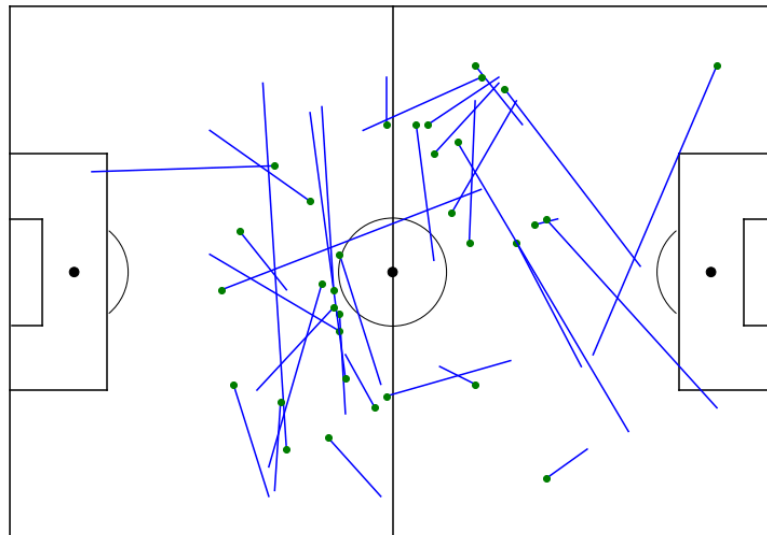
In the first half gerrard played as a typical box to box midfielder. We can see from the heat map that his position was just around the center circle.



Steven Gerrard second half heat map

In the second half Gerrard's average position was in the left rear of the pitch. It becomes easy to infer that he was told to defend more towards the left flank and to attack by sitting deep.

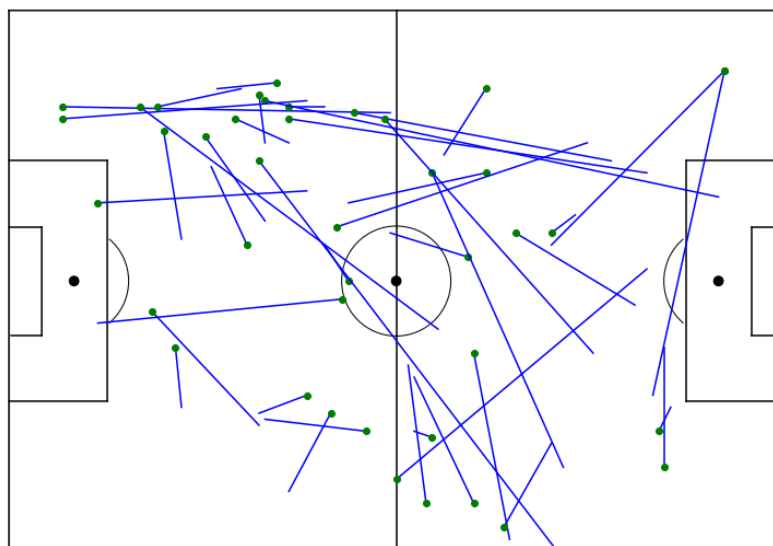
Rafa Benitez, Liverpool coach must have said to Gerrard to sit deep on the left side of the pitch and to ping balls forward. This is corroborated by the pass map of Gerrard in the first half and the second half.



Steven Gerrard First half Passes

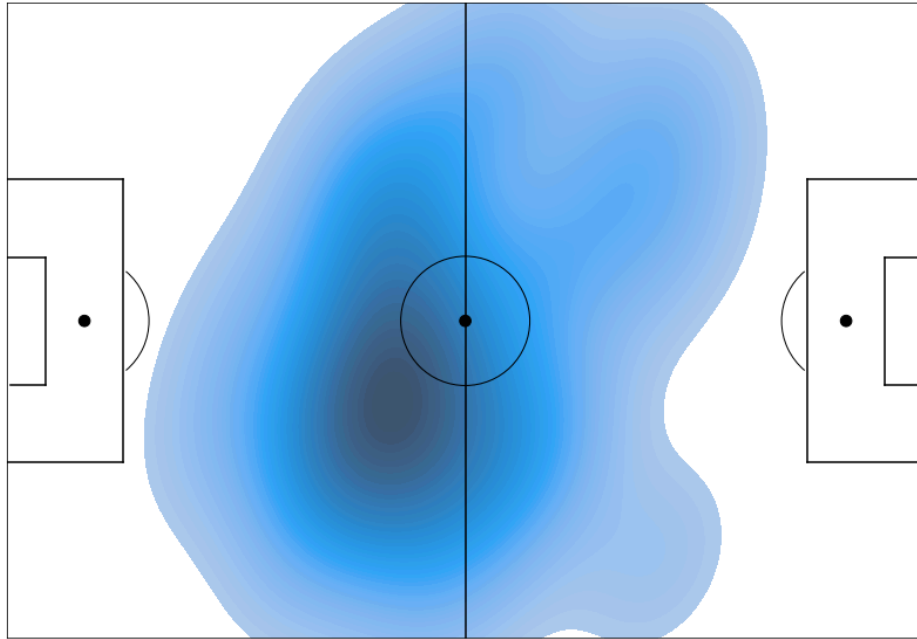
In the first half of the match Gerrard did not target any of the sides, his passes were all over the pitch, in all directions alike.

In the second half however, it can be seen that the passes along the left touchline have increased. The long lines in the upper region of the plot shows the long balls Gerrard played along the left side of the pitch all while sitting deep in his own half.



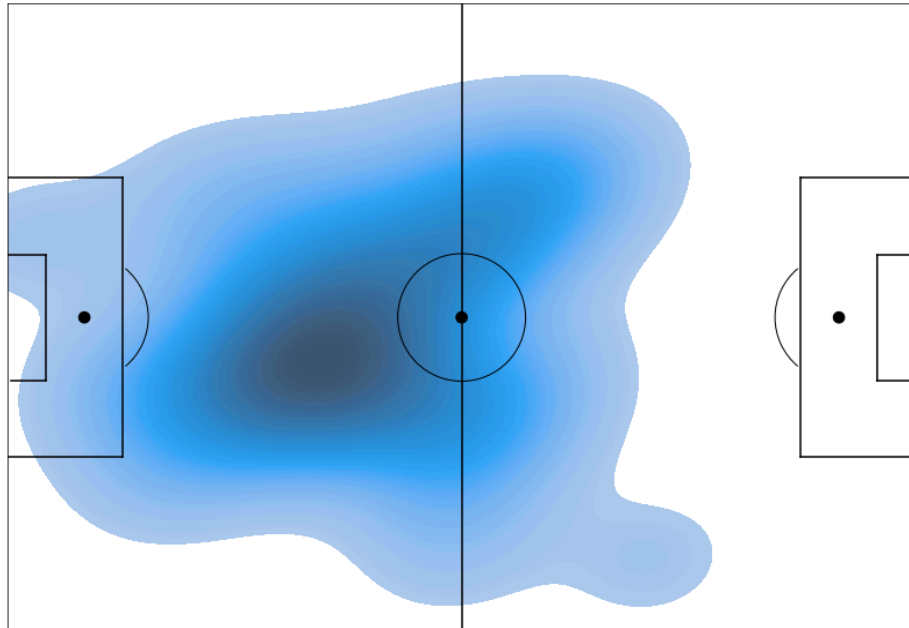
Steven Gerrard second half Passes

Xabi Alonso

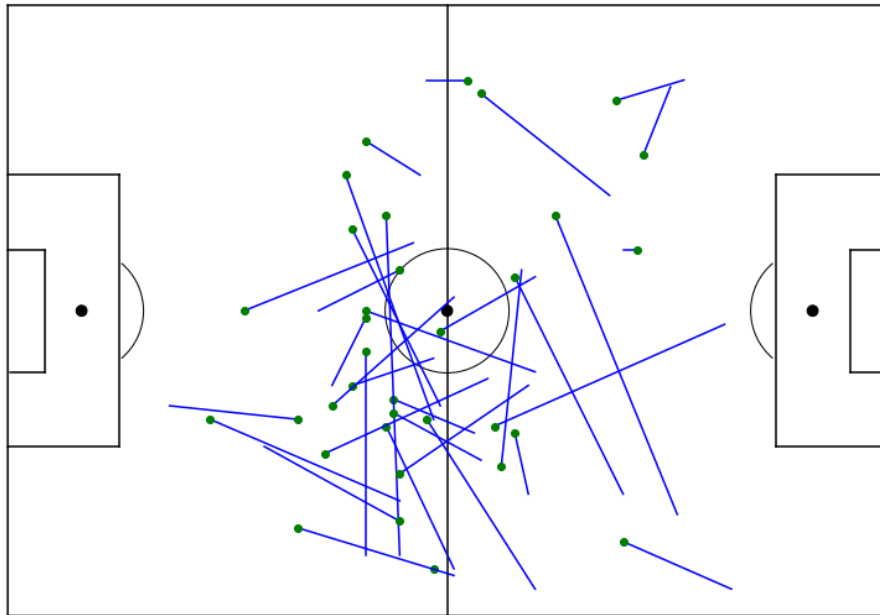


Xabi Alonso First Half heat map

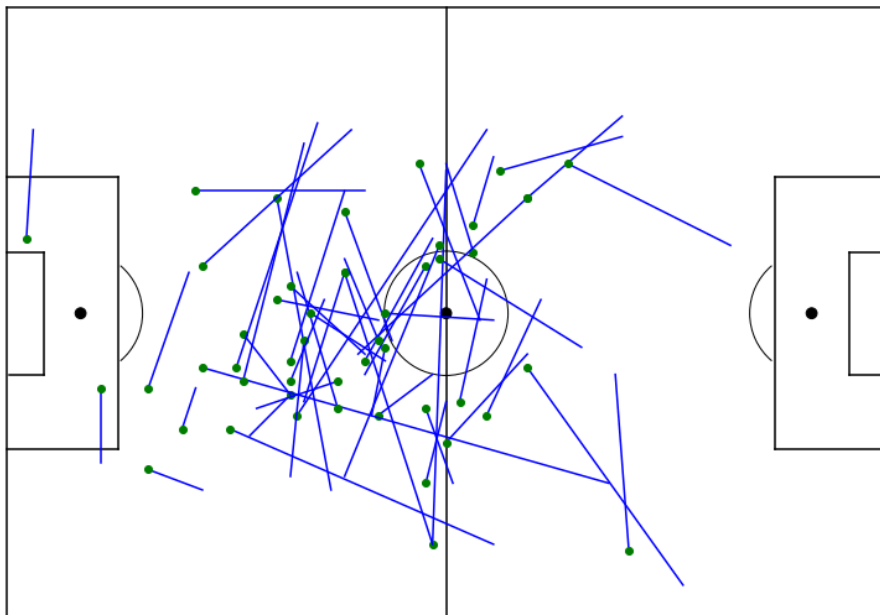
Similarly with Xabi Alonso, Liverpool's holding midfielder, His positioning in the first half of the match was near the center circle but slightly towards the right side of the pitch. By looking at his second half positioning it can be said that he was ordered to sit deeper than his first half position and defend incoming attacks.



Xabi Alonso Second Half heat map



Xabi Alonso First Half Passes

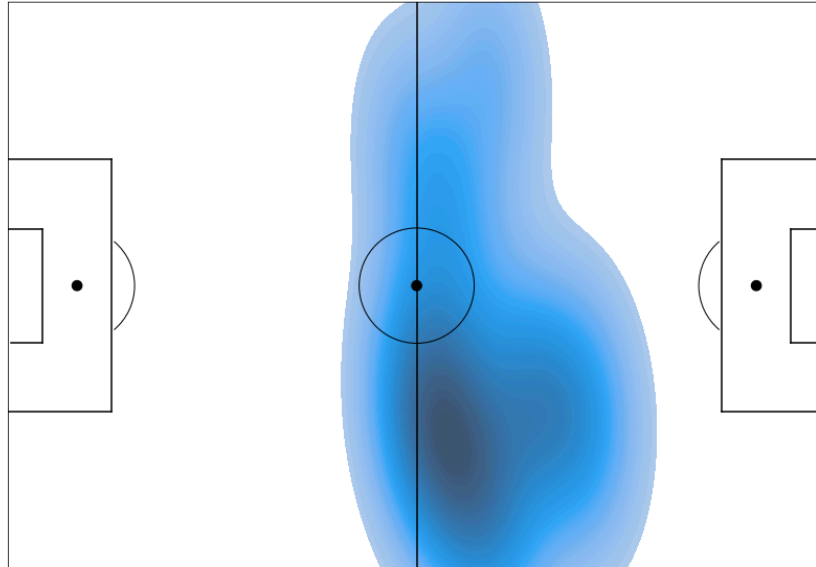


Xabi Alonso Second Half Passes

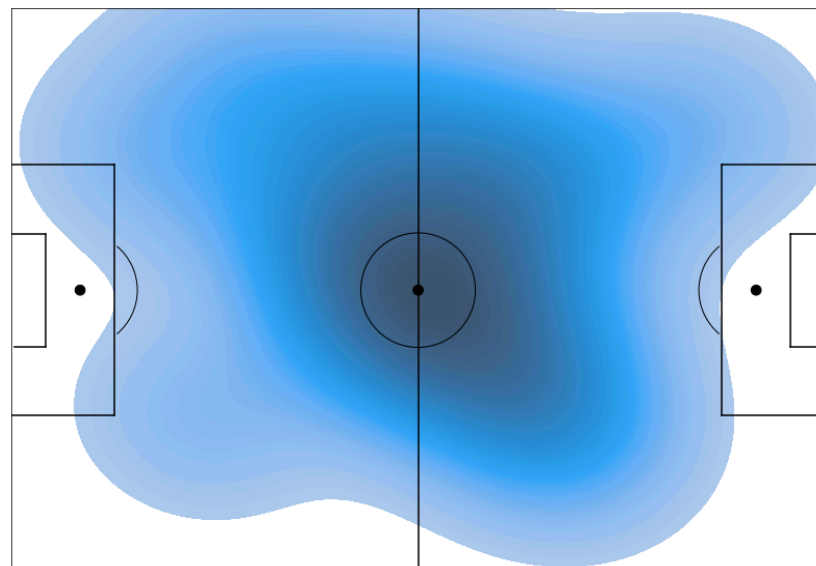
By looking at his passes in the second half it is clear that he sat deep and relieved pressure on the team by passing the ball around the opponent's attack.

Luis Garcia

Possibly the biggest change in the midfield was Luis Garcia's instructions. In the first half he hovered in front of Steven Gerrard and Xabi Alonso, Liverpool's two holding midfielders. In the second half however he played like a number 8 instead of a number 10. He ran up and down the pitch to help the team defend and transition from defending to attacking. This allowed Liverpool to have more options in the midfield and gave them an additional defensive helper which was not present in the first half. This was essential as the last thing they wanted was to concede more goals.



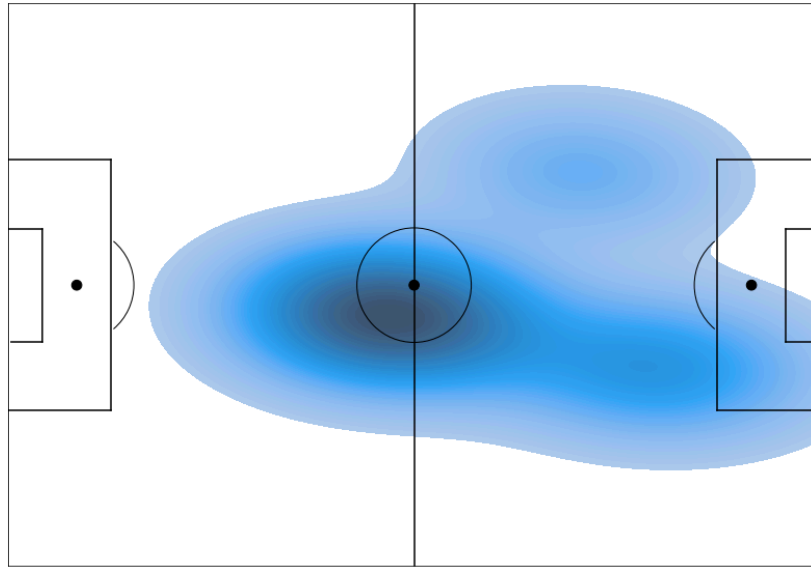
Luis Garcia First half heat map



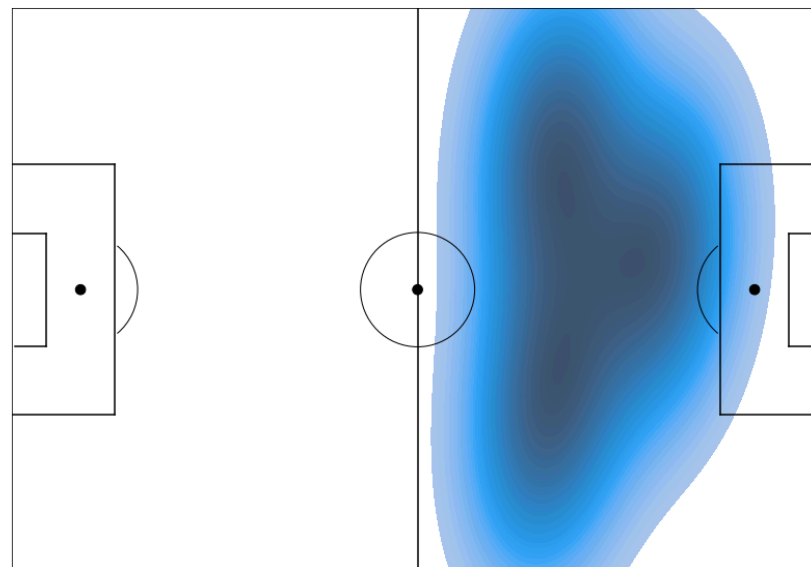
Luis Garcia First second heat map

Milan Barros

Another tactical change Liverpool made was to keep the strikers upfront. As seen from the difference in Milan Barros's positioning. In the first half he played as a supporting striker often interchanging roles with Luis Garcia. In the second half however he remained upfront waiting for the midfielders to play through balls for him to run at.



Milan Baros First Half heat map

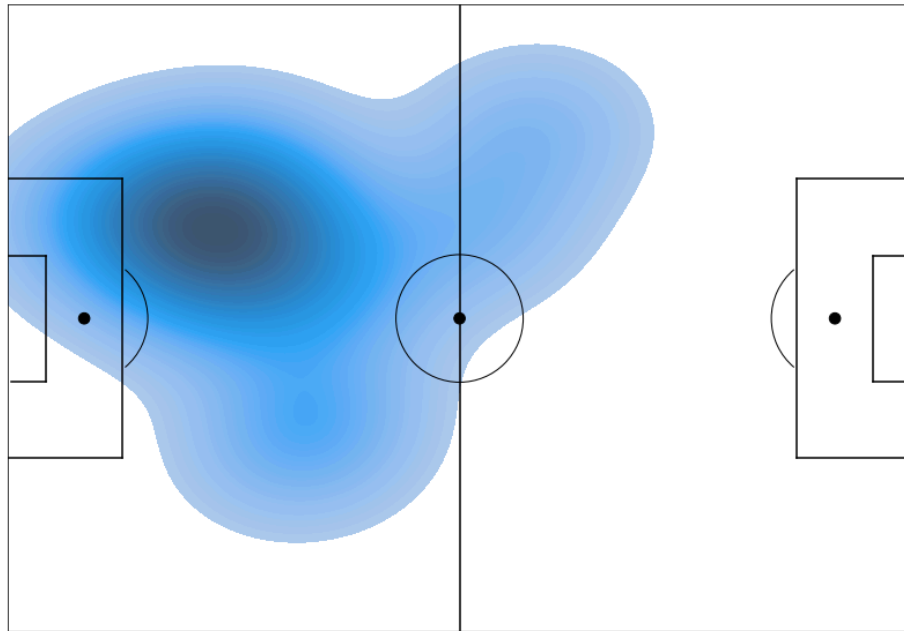


Milan Baros second half heat map

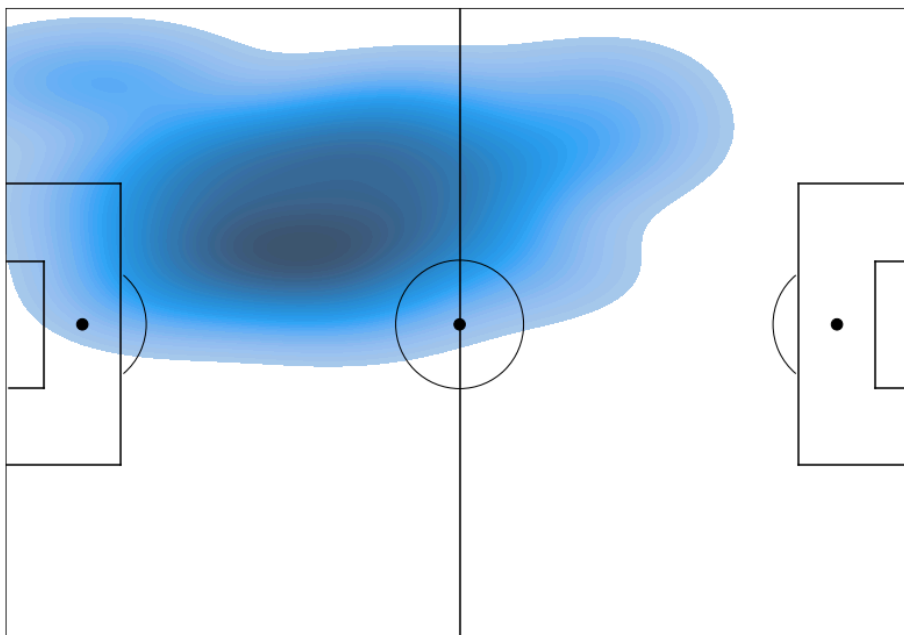
This worked well for Liverpool as they used Barros's physique to hold up the ball and then play it in the channels for either Gerrard or Garcia to cross it in the box or create chances by playing it back again.

Jamie Carragher

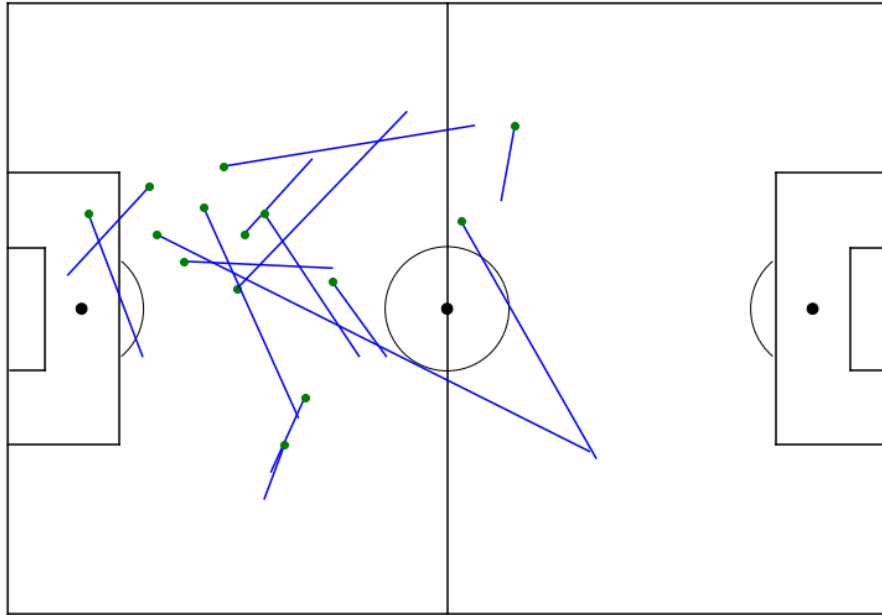
All in all It is clear that Liverpool favored the left flank. This is confirmed by Jamie Carragher's positioning in the second half. He hugged the left side in the second half, and by looking at his passing in the second half as compared to the first half, it is clear that he was told to take charge of the left flank and play balls to Steven Gerrard or Vladimir Scimcer to run at.



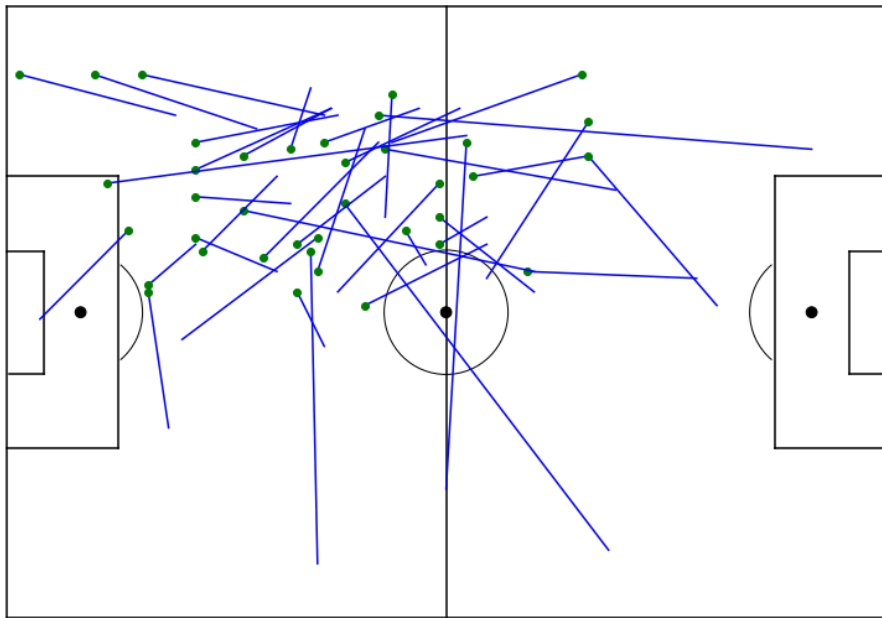
Jamie Carragher First Half heat map



Jamie Carragher Second Half heat map



Jamie Carragher First Half passes

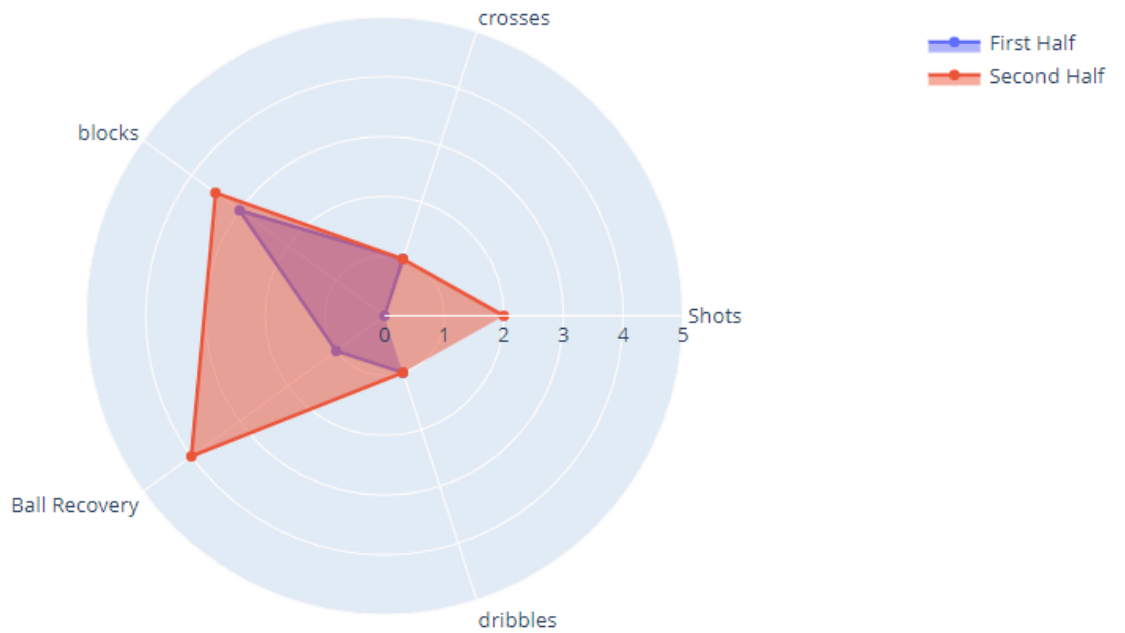


Jamie Carragher Second Half Passes

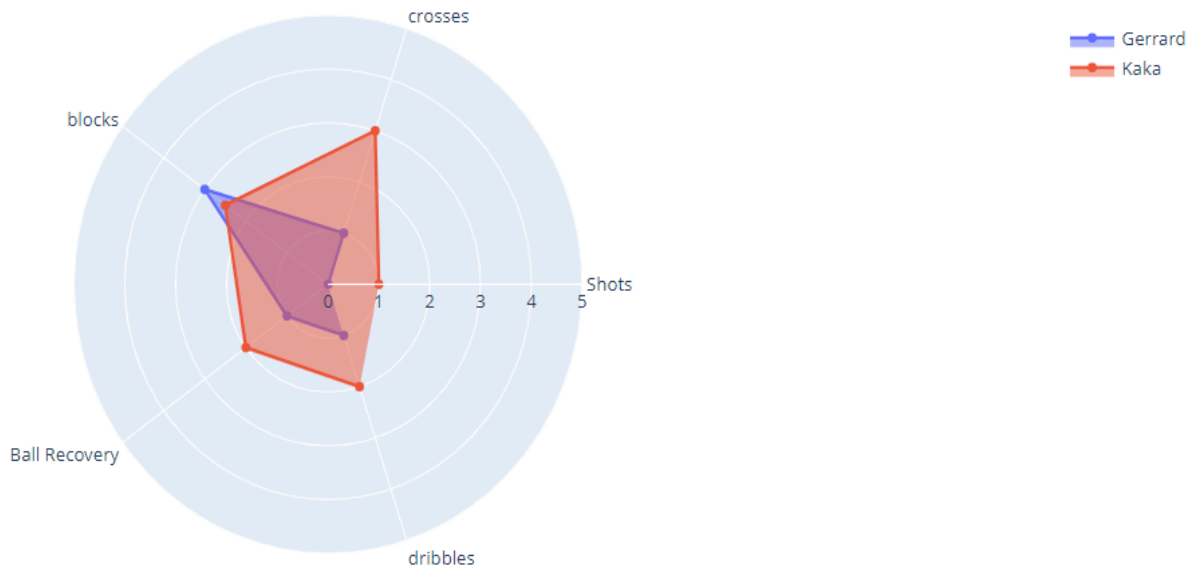
The long blue lines in the upper part of the pitch in the second half plot shows that he played more passes along that channel to feed either Gerrard or Smicer.

Gerrard vs Kaka

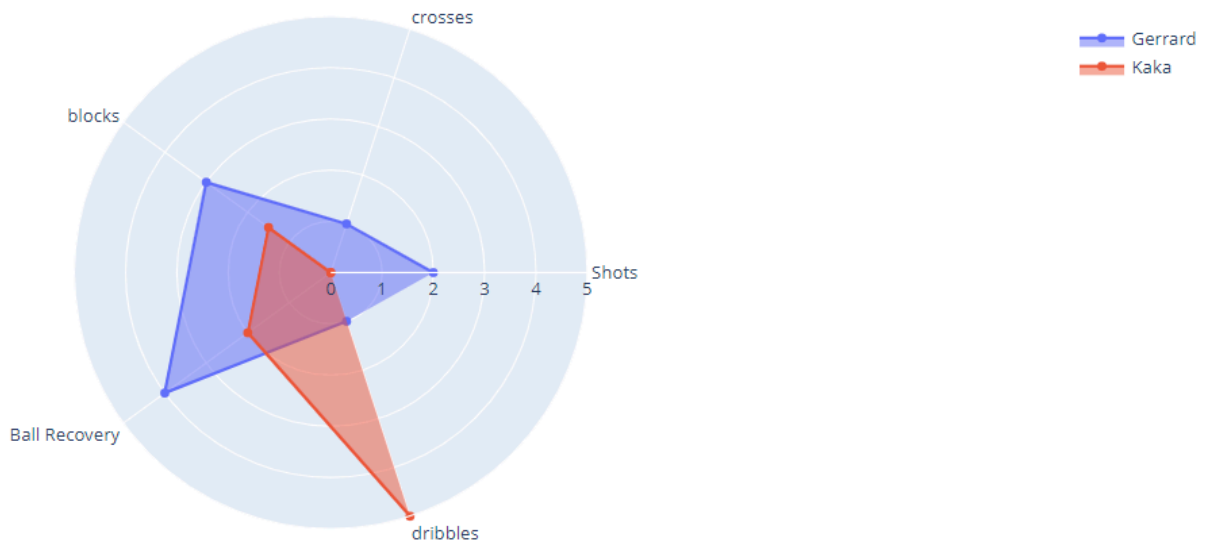
A comeback of this degree doesn't come down to just tactical changes, players have to step up to the task as well and Gerrard did just that. He improved or equalled every stat in the second half, having more shots, more blocks, more ball recoveries. As the captain of the team, he led by example by getting Liverpool's first goal of the match in the 54th minute to mark the beginning of the Remontada now known as the miracle of Istanbul.



Steven Gerrard First half vs Second half Radar chart



Steven Gerrard vs Ricardo Kaka First Half Radar chart

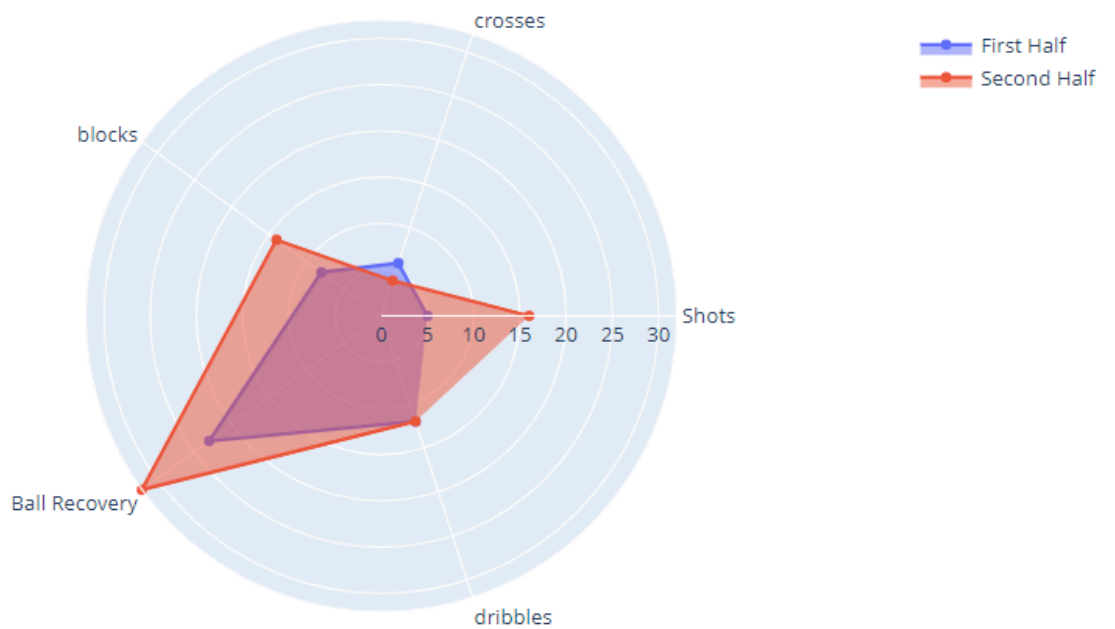


Steven Gerrard vs Ricardo Kaka Second Half Radar chart

Gerrard not only improved on himself he also bettered AC Milan's star player, Ricardo Kaka. While Kaka dominated the first half, it was Gerrard who led in the second half.

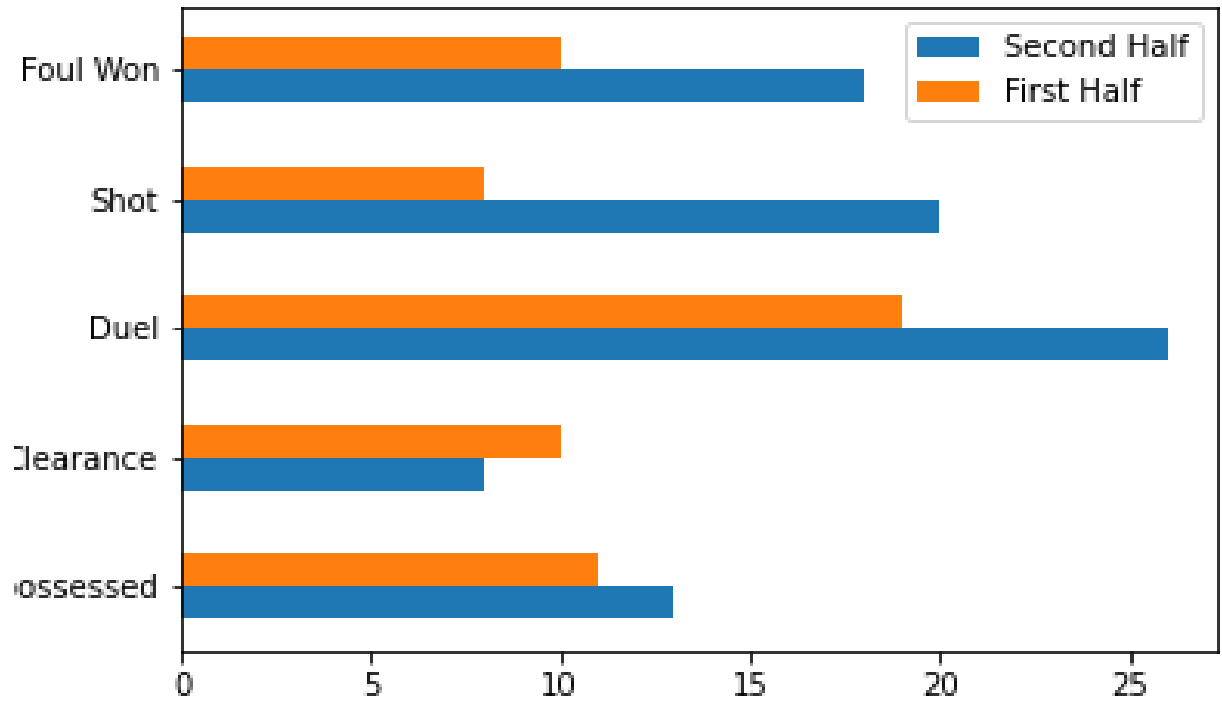
Liverpool

All in all Liverpool were the better team in the second half, they had more blocks, ball recoveries, more shots. It was a completely different side which showed up in the second half. They dominated the game and showed great character to still fight and score three goals to equalize such a deficit against a team of the likes of AC Milan.



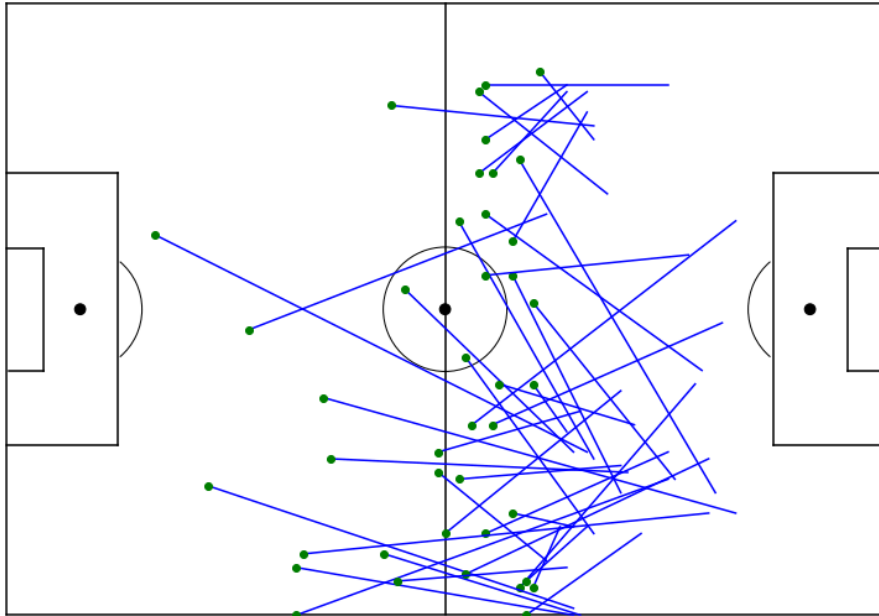
Liverpool First half vs second half Radar chart

Liverpool were defensively solid, they contested the ball more in the midfield winning the midfield battle which was crucial for them to take control of the match, this can be seen by the improved numbers in the second half. The double bar graph gives a great comparison of the statistics of the two halves. Liverpool had more shots, won more fouls, won more duels, dispossessed the opponent more in the second half.

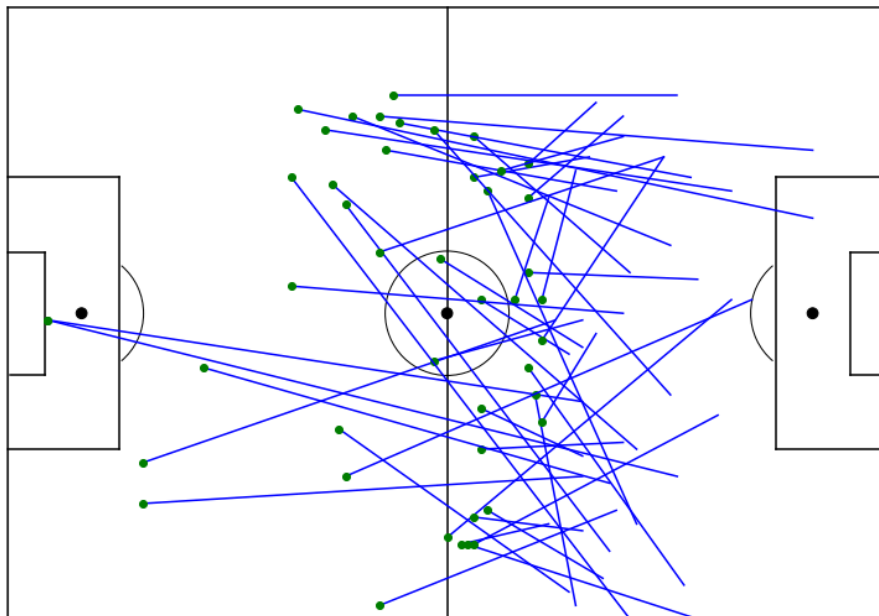


Liverpool First Half vs Second Half

Liverpool played a lot of balls into the final third in turn creating more chances, that did not go in vain as they scored three goals in quick succession to level themselves and with momentum gave themselves a good chance of winning the match. As can be seen from the plots below, Liverpool played a lot more from the left side of the pitch as made evident by the long blue lines in the upper region of the second half plot.



Liverpool First Half passes in the final third



Liverpool second half passes into the final third

Conclusion:

It can be said that Liverpool were obviously the better team in the second half. The heat maps of Steven Gerrard, Xabi Alonso, Luis Garcia, the midfield three for Liverpool showed that the tactic Liverpool used in the second half was to sit back deep and hit the opponent on counter attacks. The Pass graph showed that Liverpool favored the left side of the pitch in the second half, they attacked the left flank particularly as corroborated by Jamie Carragher's position change shown by his heat map and the increase in passes down the left side as shown in the pass graph. A comeback of this degree doesn't come down to just tactical changes, players have to step up to the task as well and Gerrard and co. did just that. The radar plots show just how much better Gerrard was in the second half not only than his first half showing but also better than his AC Milan counterpart Ricardo Kaka. Liverpool in general were a lot better in the second half made evident by the radar plot comparing Liverpool in the two halves. The study was limited however due lack of more detailed data, the study also lacks explanations of the substitutions that Liverpool made. Since data on individual players are not readily available, the historic record of players could not be used to explain why one player was preferred over the other in specific situations.

References :

- [1] [What was the Miracle of Istanbul? Liverpool's 2005 Champions League final comeback explained | Goal.com US](#)
- [2] [Forensic analysis: 2005 Champions League Final – Blog of the Net](#)
- [3] [About That Game: Liverpool 3-3 Milan \(2005\) | The Analyst](#)
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