Introduction

The pitcher is widely considered to be the most valuable position within Major League Baseball (MLB). In a sport where it is almost impossible for one player to control the destiny of a team's success, the pitcher's position touches the ball on every single pitch during the season. Due to the high importance associated with the position, MLB teams are constantly attempting to find different ways to leverage their pitching talents to benefit the team in a variety of ways. Through this, there has been an assortment of labels attached to different pitchers: starter, reliever, and closer. However, as pitchers continue to throw at higher speeds to combine with larger use of breaking pitches, an increase in injuries and fatigue has led teams to use different strategies to get the most out of their pitchers.

One of the main strategies this has brought about is the creation of a new pitcher role - the opener. The main idea behind the opener was for teams to be able to use a primary relief pitcher as the "starter" for a game to get through the top of the lineup in the first inning before the primary starting pitcher came in to pitch for an extended outing. Teams were hoping to create an advantage by having a high-value reliever face in most cases the best players in an opponent's lineup before the starter came in to get settled into the game.

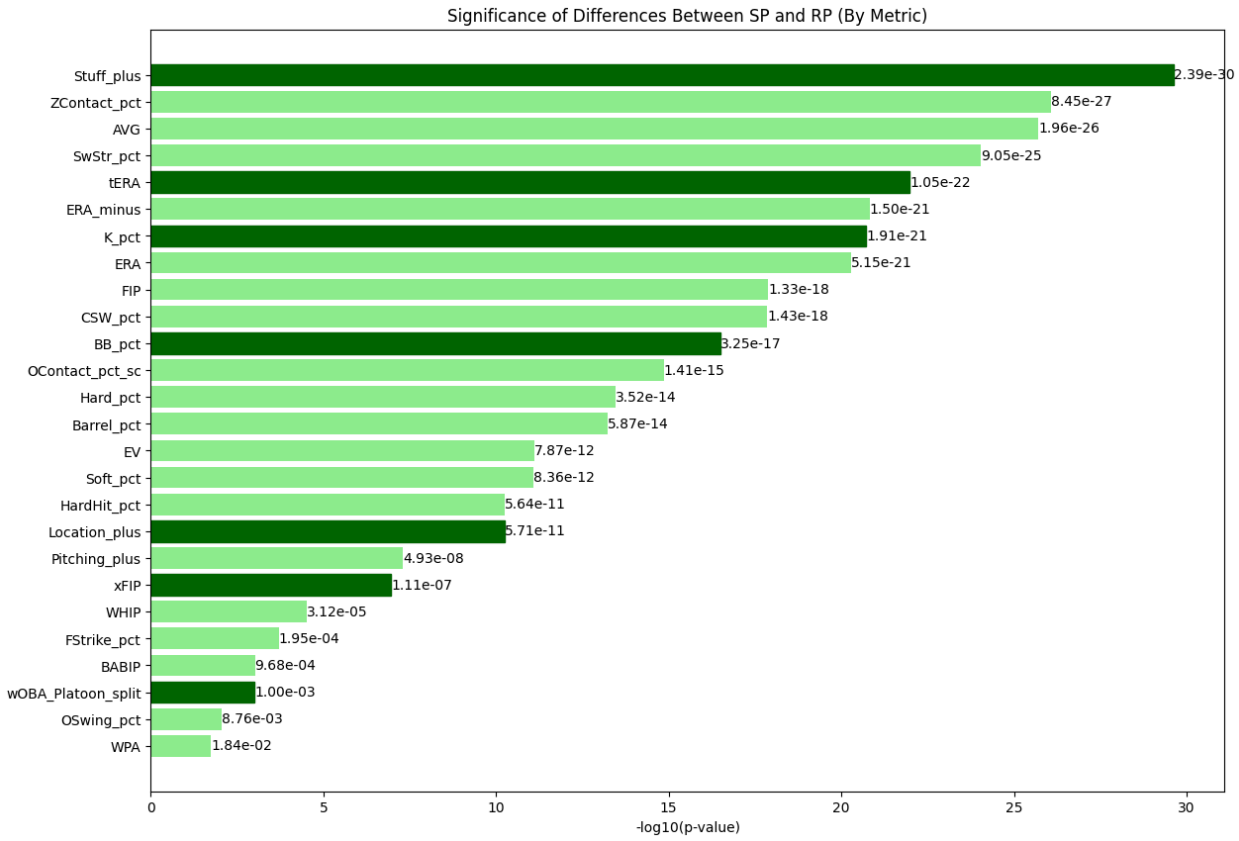
Taking a separate spin on this idea, we approached the data with the plan of finding relief pitchers with qualities of starting pitchers and vice versa to find players who could become more valuable in a new role. The focus will be on moving relief pitchers who have a high amount of starter qualities into a flex starter, a pitcher who opens the game but typically lasts longer than an opener but shorter than the average starter, and starting pitchers with a high amount of relief qualities into a reliever role.

Methodology

To create an overall plan of progression for the project, the team started by familiarizing itself with both the Baseball Savant as well as the Fangraphs data. After sorting through the datasets and understanding what each included, specific criteria were established that would be beneficial for a variety of pitcher roles that could be used for the analysis. The focus was on establishing starter and reliever criteria before pinpointing the exact roles to focus on.

For a good starting pitcher, the criteria we believe to be important are terrific command, established longevity, three or more high-value pitches, symmetric platoon splits, and the ability to succeed second and third time through the order. For a good relief pitcher, the focus was on pitchers with a higher strikeout percentage, low walk rate, pitchers who perform exceptionally well against one side of the plate, a high left-on-base percentage, and a low barrel percentage. With this original thought process, adjustments were made to the criteria based on quick research of the data due to consistent values in most starters and relievers respectively.

To establish which metrics could specifically be focused on, the data was split completely by relief pitchers and starting pitchers. The starting pitchers were filtered to include the top 150 pitchers by innings pitched, and the relief pitchers were filtered to include the top 250 pitchers by innings pitched. Once filtered, the average values for the pre-selected metrics were found, and an ANOVA test was run to compare the average values between roles and establish a ranking based on the respective p-values.



Note: The p-values were transformed using a negative log function to show significance values as larger instead of smaller.

Through the Anova tests and further evaluation, it was determined that Stuff+, true ERA (or tERA), strikeout percent, walk percent, Location+, xFIP, and difference in wOBA by Platoon Split were key metrics due to their high significance of difference and what we believe is contextually appropriate in making these two pitcher groups different. Moving forward, these key metrics will provide quantitative criteria that will aid in setting the standard for starters and relievers.

For relief pitchers, the data was filtered down to include pitchers with at least three high-value pitches (three pitches having a Pitching + Overall Grade over 100) that they used at a rate of at least fifteen percent or more. Additionally, to eliminate pitchers that rely heavily on one to two pitches, pitchers were filtered down to have no pitch used at a rate higher than fifty

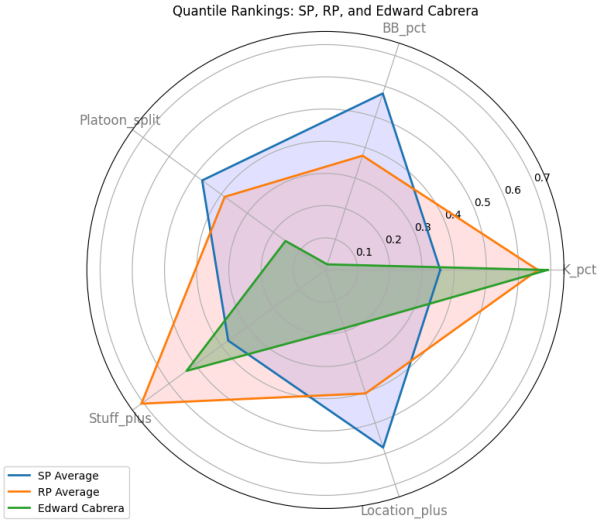
percent. It was then filtered down further to only include pitchers with Location+ greater than the qualifying SP average, a wOBA platoon split difference less than the qualifying SP average, and a better walk percentage than the SP average. Since we believe the command is one of the most important characteristics of a starting pitcher and is easily quantifiable, we sorted the data by increasing Location+, creating a list of potential relievers that could transition to a semi-starter role.

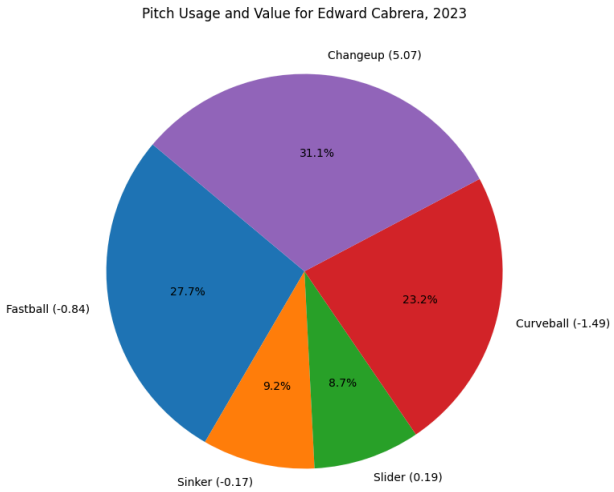
For starting pitchers, the data was manipulated to find players with innings pitched less than the average starting pitcher but greater than the average relief pitcher, Stuff_plus better than the average starting pitcher, Location_Plus worse than the average starting pitcher, strikeout percent better than the average relief pitcher, walk percent worse than the average starting pitcher. The data was additionally filtered down to include pitchers with a platoon split wOBA difference greater than average RP to indicate worse platoon splits. This model provides a list of potential options for future analysis in their move from starter to reliever.

Analysis

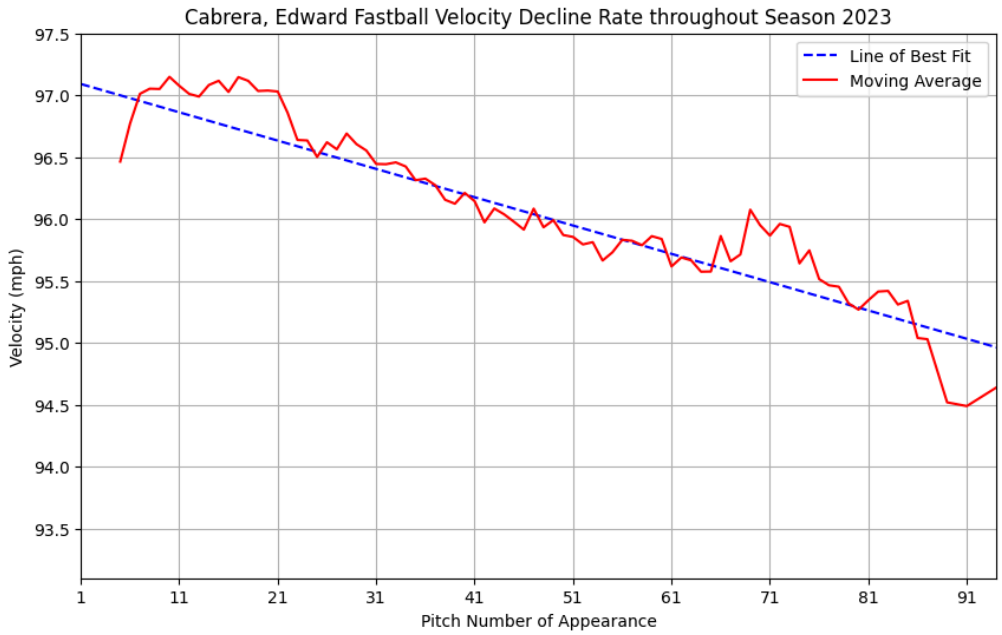
By using our model for initial suggestions, we did further research for candidates to decide if they were suitable for a role change. After gathering context, conducting a quantitative review, and deliberating over how realistic these moves would be, Edward Cabrera, Taj Bradley, and Raisel Iglesias each stood out as potential candidates for a role change as pitchers.

Edward Cabrera could potentially be better suited as a relief pitcher. He struggles with command, with a Location + far under average and a walk percentage almost double the starting pitcher's average; however, he has a high strikeout percentage.





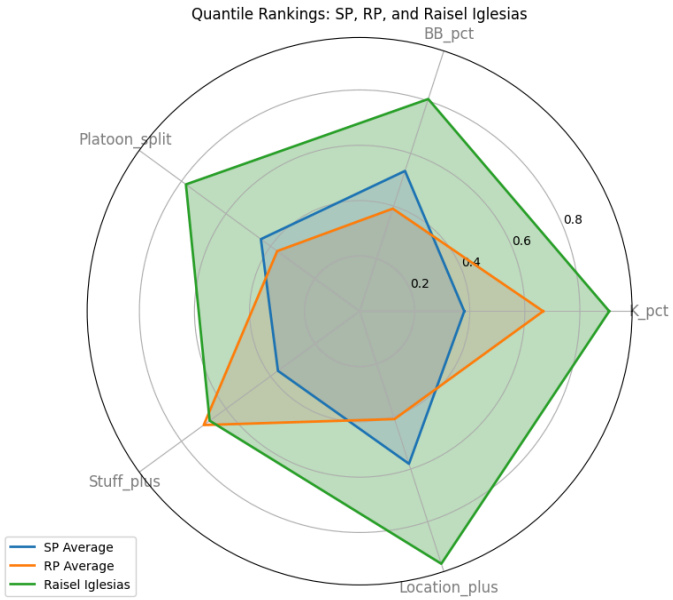
A big contributor to his high strikeout percentage is his changeup with a pitch-value of 5.07, which he throws 39% of the time. Being in a reliever role would allow him to lean more on his changeup and potentially add value to his high-velocity fastball. Cabrera's fastball velocity is well above average, especially in the first 30 pitches, but quickly falls off as the game goes on.



His wOBA difference via platoon splits is much higher than average, with a 70-point difference in his splits. Bringing him in favored matchups against left-handed batters could be beneficial.

Taj Bradley could also be a good option to transition to reliever. Bradley struggled all around in 2023, throwing only 104.2 innings over 21 starts, and allowing a 5.52 ERA, a wOBA of .344, and a bWAR of -0.4. Despite his poor results, he was well above average with a 110 Stuff + and a 28% strikeout rate. We assume that in a relief role, his Stuff + could jump up even further, making him even more of a strikeout threat to batters. Bradley also had an extremely skewed difference in wOBA from each side of the plate with a .100 gap between both sides. Like Cabrera, Bradley could benefit heavily from being a platoon pitcher and facing more left-handed batters over a shorter period.

Raisel Iglesias is one of the most consistent and best relievers in the MLB; however, he could increase his value for a needy roster in a (flex) starting role. He is well-molded for our starting pitcher criteria.



With an extremely balanced pitch repertoire, well above-average command (based on Location +), a low walk rate, relatively symmetric platoon splits, and consistency over multiple years we believe he could succeed in a starting role. Although he did not qualify for our criteria in 2023, it is important to consider that a shoulder injury limited his performance earlier in the year, and his performance quickly returned to normal as the season progressed. With good bullpen depth, we believe Iglesias could add value in a short-outing starting role, compared to a below-average starter.

Conclusion

In conclusion, this paper delves into the shifting landscape of pitcher roles in the MLB and suggests potential role transitions to optimize player performance and team success. By analyzing key metrics and criteria, we identified opportunities for certain pitchers to excel in alternative roles, such as flex starters or high-impact relievers. Case studies of pitchers like Edward Cabrera, Taj Bradley, and Raisel Iglesias illustrate the potential benefits of strategic realignment. While acknowledging the limitations of our analysis, including the uncertainty of player performance and lack of data on relief pitcher longevity, we emphasize the value of data-driven insights in adapting to the evolving demands of the game. Overall, this paper provides a framework for teams to strategically allocate pitching resources, enhancing their competitive edge in MLB.