



Hockey Faceoff Analysis and Scouting Framework

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Objective

- The main goal was to create a framework for center scouting that can be used by coaching staffs
- Due to sample size, overall trends about impact on game outcome could not be analyzed
- Using the tracking data, centers' tendencies can be well defined and used by coaches in gameplans





Data

- Stathletes Big Data Cup publicly provides detailed puck and events tracking data for 10 games.
- The 'Puck Recovery' event tag notes the location, team, and player of any change in possession.
- The 'Faceoff Win' event provides the location of the faceoff, the winner and loser, and how they won the faceoff (forehand, backhand, feet)
- Each game was reduced to contain only the faceoffs and their corresponding puck recovery

STATHLETES



Schedule

Game	Date	Home Team	Away Team
1	10/11/2025	Team D	Team A
2	10/17/2025	Team L	Team F
3	10/24/2025	Team A	Team B
4	10/24/2025	Team D	Team E
5	10/28/2025	Team A	Team C
6	10/29/2025	Team L	Team G
7	11/02/2025	Team A	Team D
8	11/16/2025	Team K	Team H
9	11/19/2025	Team K	Team I
10	11/28/2025	Team K	Team J



Team Identities

- With research and cross-referencing, I was able to identify the league as the AHL and each of the 12 teams
- 8 of 12 teams only played 1 game

A	Abbotsford Canucks	4 Games
B	Ontario Reign	1 Game
C	Calgary Wranglers	1 Game
D	Henderson Silver Knights	3 Games
E	San Diego Gulls	1 Game
F	Providence Bruins	1 Game
G	Hershey Bears	1 Game
H	Texas Stars	1 Game
I	Grand Rapids Griffins	1 Game
J	Milwaukee Admirals	1 Game
K	Rockford Ice Hogs	3 Games
L	Bridgeport Islanders	2 Games

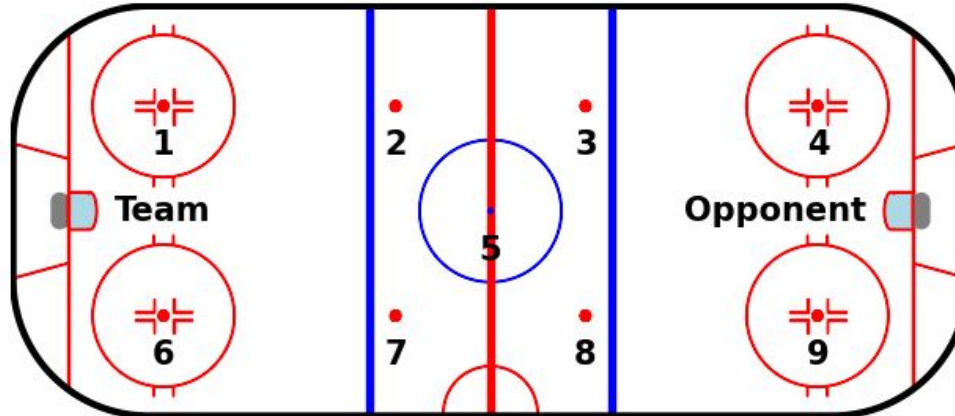


Calculations

- The 'Faceoff Win' definition was refined to include faceoffs where a team recovers the puck behind their center
- Using the coordinates from the faceoffs and recoveries, I calculated the simple 'Win_X' and 'Win_Y' distances, the difference between a faceoff and recovery locations
- The distances can be grouped by player, team, locations, matchups, and various different situations

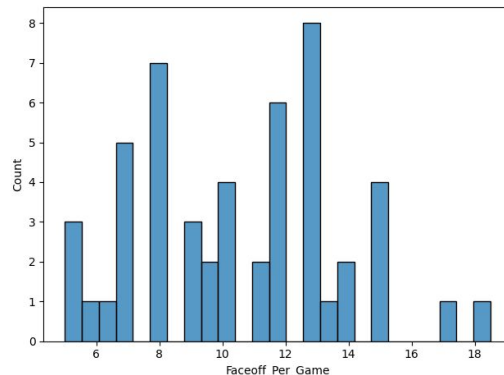
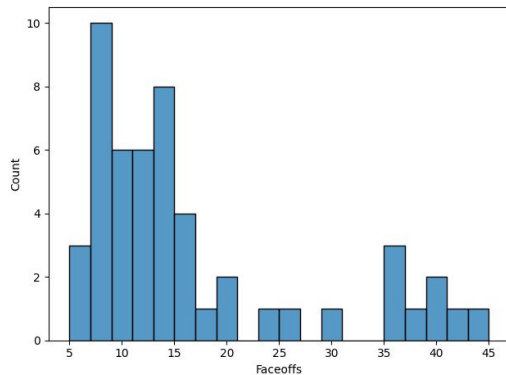
Faceoff Dot Map

- Center Ice is the Origin. +X goes towards the opponent. +Y goes up, to the left for the focus team. Faceoff wins go towards a team's own net.
- A win for the Team will have a negative change to the X-coordinate



Qualified Players

- Players must take 5 faceoffs per game played to be a qualifying center
- This 5 faceoff minimum narrows the player pool down to 3-4 players per team per game, matching the roster construction of 4 centers
- The faceoff log and player pool began at 502 faceoffs among 96 players
- When reducing to matchups among the 51 qualified players, the log becomes 424 faceoffs





Win Percentage

- Even with the minimum sample size, some players on the lower end of qualified players have a skewed win percentage due to a smaller sample size
- To adjust for this, Weighted Win Percentage was established to represent regression to the mean

$$AdjWinPct_i = \frac{Wins_i + \overline{WinPct}(Faceoffs_{Max} - Faceoffs_i)}{Faceoffs_{Max}}$$



Strength Of Record

- Strength of record weighted each win and loss by the opponents win percentage, but still used the binary counting of wins and losses

$$SOR_i = \sum_{j=1}^n AdjWinPct_{opp} - 1 + 1\{Win_j\}$$



Creating a Power System

- The system was centered around creating weights for wins and losses based on opponent and distance
- Outperforming the average in terms of win and loss distance is rewarded with this formula, and each outcome is treated differently based on difficulty of opponent

$$Power_{L,i} = \frac{LossDistX_i}{AvgWinDistX_{opp}} (1 - AdjWinPct_{opp})$$

$$Power_{W,i} = \frac{WinDistX_i}{|AvgLossDistX_{opp}|} (AdjWinPct_{opp})$$



Total Power

- The sum of a player or team's Power across all of their faceoffs yields total power
- Total Power accumulates as a counting stat and can be averaged to each faceoff, game, etc

$$Power_{L,i} = \frac{LossDistX_i}{AvgWinDistX_{Opp}} (1 - AdjWinPct_{Opp})$$

$$Power_{W,i} = \frac{WinDistX_i}{|AvgLossDistX_{Opp}|} (AdjWinPct_{Opp})$$

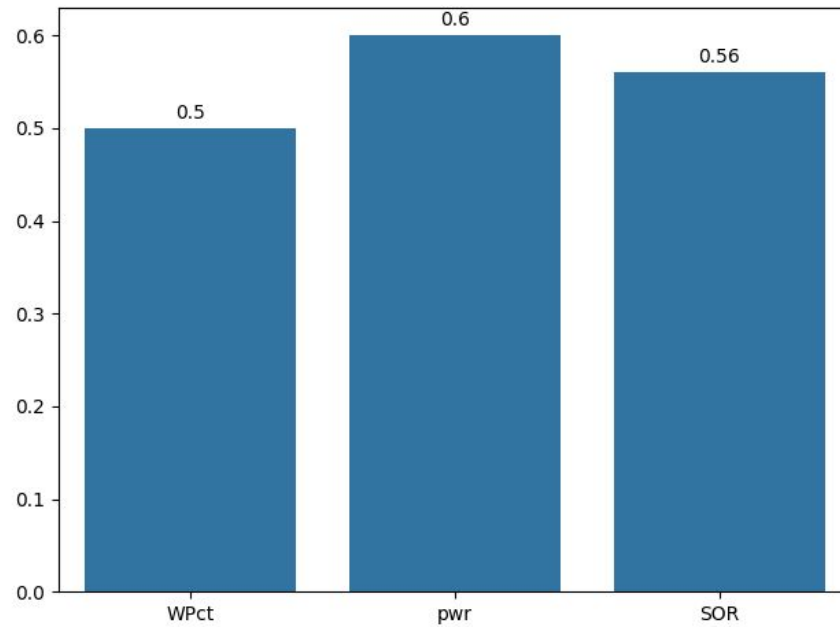


Sticks First

- On each faceoff, the team in the defensive zone, or the away team in neutral zone faceoffs, gets to put their stick down first
- This rule was implemented to give offensive centers a slight advantage by allowing them to see their opponent's alignment
- Stick Second wins 52.3% of the time



Predicting





Conclusion/Outlook Part 1

- Due to the limited sample size, this data can not be used to absolutely study overall trends for players
- This also does not account for players' intentions or teams' setup plays
- Faceoffs have shown little to no correlation with winning across the full season, but this is likely skewed by blowouts where one team is so dominant that faceoffs do not matter
- Mathematically, Michael Schuckers found that 76.5 faceoff wins yields a single goal



Conclusion/Outlook Continued

- While faceoffs have not been quantitatively valued in the grand scheme of an 82-game season, they still play a crucial role in single-games, clutch situations, and special teams
- This analysis can be expanded to specific player matchups for teams to use when planning set plays, etc
- Using the Y-Coordinate instead of the X-Coordinate, coaches can scout players for their tendencies to win or lose faceoffs to the left or right, and can set up accordingly