CR2 – Center Rating – Taking Faceoffs Matters

While writing an article on Nick Suzuki considering whether he is a #1 center (spoiler alert: he is a #1 center), I reviewed the Center Rating system (CR) I had. It was clear to me that the CR system did not adequately value the taking of faceoffs.

With Center Rating 2 (CR2), that problem has been rectified. For me, anyway. It turns out that there is no hard and fast definition of "center," and putting a high value on faceoff results is upsetting to some.

Before I get into a discussion of CR2, I need to make a confession.

A Confession

I introduced CR2 in the Nick Suzuki (MTL) article, in which I said I'd write an article explaining the CR2 system.

As I was gathering player data for this article to explain the ratings, I noticed that CR2 was also not functioning as well as it should: lower-ranked players were, frankly, in the wrong order. Having found this error, I made the cardinal sin of changing the CR2 system after having written an article using an earlier version of it. The only good news is that Nick Suzuki is still a #1 center, so the basic point of that article stands.

Using a rating system in one article and then changing it in the next article would be near the top of the list of "Thou Shalt Nots" for hockey analytic writers if there was such a list.

The reason I rushed to print with the new CR2 was that I was trying to put something together quickly in response to a Reddit post. I should have known better. 99.87% of Reddit posts are made with as much thought given to the message as a cow gives thought to eating grass. STTB articles require thought, statistical analysis must be done, assumptions must be tested, and sections are moved, rewritten, or deleted. By the time an article is in acceptable shape, any interest in the original post is long gone, even if I rush.

For penance, I will do an extra set of exercises later today. My muscles, such as they are, will be sore tomorrow.

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The Problem with the Center Rating (CR) System

Here are the top fifteen ranked centers from 2022-23, according to CR. All players were rated #1 centers. The bold-highlighted cells point out data that I now find problematic.

Name	Team	G	A	Pts	FOW/ GP	FO% Shift	LG Rank	CR
Connor McDavid	EDM	64	89	153	6.40	**55%**	1	#1
Leon Draisaitl	EDM	52	76	128	10.09	81%	2	#1
Nathan MacKinnon	COL	42	69	111	7.31	**64%**	3	#1
Elias Pettersson	VAN	39	63	102	**5.53**	**60%**	4	#1
Aleksander Barkov	FLA	23	55	78	10.75	80%	5	#1
Auston Matthews	TOR	40	45	85	7.43	73%	6	#1
Sidney Crosby	PIT	33	60	93	11.93	96%	7	#1
Nico Hischier	N.J	31	49	80	11.00	90%	8	#1
Ryan Nugent-Hopkins	EDM	37	67	104	**3.76**	**39%**	9	#1
Mika Zibanejad	NYR	39	52	91	8.44	79%	10	#1
Mikko Rantanen	COL	55	50	105	**2.71**	**22%**	11	#1
Anze Kopitar	L.A	28	46	74	10.96	96%	12	#1
Bo Horvat	NYI, VAN	38	32	70	12.13	98%	13	#1
J.T. Miller	VAN	32	50	82	6.01	**51%**	14	#1
Tim Stutzle	OTT	39	51	90	**2.59**	**28%**	15	#1

The problem with the highlighted numbers is that those aren't the numbers of a #1 center, in my mind. Rantanen and Stutzle, in particular, took faceoffs less than one-third of the time they were on the ice for faceoffs. CR did not produce a list of #1 centers so much as it produced a list of high-scoring forwards who took some faceoffs.

CR2 – Score and Category Details

As with most of the rating systems at Stapled to the Bench (STTB), CR2 is a season-level statistic with a numeric score (CR2-Score) which is then used to place players in categories (CR2 Rating). The 32 players with the highest CR2-Scores will be #1 centers, the next 32 centers will be #2 centers, and so on.

Each level of a center rank has three sub-levels: upper (A – top ten in a group of 32), middle (11th to 22nd) and lower (23rd to 32nd). These sub-levels are slightly different than those used in the Nick Suzuki article (1st to 8th, 9th to 24th, 25th to 32nd).

Using this categorization approach, each season will see 32 #1 centers, 32 #2 centers and so on. A player with a certain CR-Score could be a #1 center one season and a #2 center the next, just as a player with 100 points could be in the top 10 in scoring one season and not be in the top 10 in another season.

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CR2 – Handling Missed Games

A prime design feature of CR2 is that injured players should not be penalized. A center who plays 80 games is not necessarily a better center than one who plays 60 games. The solution is to translate player data from counts (525 faceoffs won) to per-game rates (6.4 faceoffs won per game played).

To ensure that one-game wonders will not be listed as the best of centers there will be a minimum time played requirement to qualify for evaluation: 820 minutes will be the minimum, which is 10 minutes per scheduled game.

CR2 – Who Qualifies as a Center?

I knew that I couldn't rely on a player's position recorded in the data. Nick Paul is a left winger who took almost 1,000 faceoffs in 2023-24, while Jake Guentzel was a center who took fewer than 25 faceoffs that season.

It was decided that only players who took at least one faceoff per game played would qualify for CR2 evaluation. For CR2 Nick Paul is a center while Jake Guentzel is not a center.

CR2–Score Formulas

As my sports jersey number has always been 46, be it for hockey, football or baseball, the example for the CR2 Formulas will be the 46th-ranked NHL center from 2023-24.

Jean-Gabriel Pageau, NYI, 46th, C #2B				
Statistic	Formula	Max Points	Value	Points
FOW/GP	7 times FOW	100	8.3	58
FOT/GP	4 times FOT	100	14.9	60
Pts/GP	50 times Pts	75	0.4	20
TOI/GP	1.5 times TOI	35	15.9	24
PKTOI/GP	6 times PKTOI	25	1.90	11
BTG/GP	20 times BTG	35	0.9	18
TRC/GP	2 times (7 + TRCOR)	25	-2.1	10
DZS/GP	1.5 times DZStart	20	8.21	12
PRSc	3 times PRScore	40	5.47	16
			CR2-Score:	229

Some of those initialisms might be unfamiliar: PKTOI stands for Penalty Kill Time On Ice; BTG stands for Blocks + Takeaways – Giveaways; TRC is Team-Relative Corsi; DZS is Defensive Zone Starts and PRSc is PR-Score.

The first step of the process is to convert all of the statistics (except PR-Score) from counts to per-game-played rates. Multiply each statistic by its factor (7 for FOW, 20 for BTG) and then add all of the products together to produce the player's CR2-Score. Pageau was 46th in the league with a CR2-Score of 229.

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CR2 – 2022-23 Rankings Revisited

The table below shows the top 15 centers from 2022-23 based on CR2.

2022-23 Centers	Team	G	A	Pts	FOW /GP	FOT /GP	LG Rank	LG RTNG
Patrice Bergeron	BOS	27	31	58	13.4	21.9	1	C #1A
Aleksander Barkov	FLA	23	55	78	10.8	19.6	2	C #1A
Nico Hischier	N.J	31	49	80	11.0	20.4	3	C #1A
Leon Draisaitl	EDM	52	76	128	10.1	18.4	3	C #1A
Sidney Crosby	PIT	33	60	93	11.9	22.5	5	C #1A
Bo Horvat	NYI, VAN	38	32	70	12.1	21.3	6	C #1A
Anze Kopitar	L.A	28	46	74	11.0	19.6	7	C #1A
Connor McDavid	EDM	64	89	153	6.4	12.3	8	C #1A
Boone Jenner	CBJ	26	19	45	11.1	20.4	9	C #1A
Nathan MacKinnon	COL	42	69	111	7.3	16.5	10	C #1A
Elias Lindholm	CGY	22	42	64	10.7	19.2	10	C #1A
J.T. Compher	COL	17	35	52	9.9	20.3	12	C #1B
Mika Zibanejad	NYR	39	52	91	8.4	17.0	13	C #1B
Joel Eriksson Ek	MIN	23	38	61	8.8	17.8	14	C #1B
Dylan Larkin	DET	32	47	79	9.2	16.9	15	C #1B

That Patrice Bergeron was not in the top 15 in the CR system in 2022-23 is almost proof positive of CR's inadequacy.

Draisaitl, McDavid and MacKinnon are all very high-scoring forwards who are rated C #1A. Only Draisaitl would have been in the top 10 if they "only" scored as frequently as Crosby.

It is possible to be tied at CR2-Score. Hischier and Draisaitl tied for 3rd, and MacKinnon and Lindholm tied for 10th. Lindholm has a C #1A rating as, by design, the top ten players are rated C #1A: both are in the top 10.

So, where did the guys who dropped out of the top 15 end up?

2022-23 Centers	Team	G	A	Pts	FOW /GP	FOT /GP	LG Rank	LG RTNG
Elias Pettersson	VAN	39	63	102	5.5	12.5	18	C #1B
Auston Matthews	TOR	40	45	85	7.4	14.2	20	C #1B
J.T. Miller	VAN	32	50	82	6.0	10.9	33	C #2A
Ryan Nugent-Hopkins	EDM	37	67	104	3.8	8.3	40	C #2A
Tim Stutzle	OTT	39	51	90	2.6	6.2	68	C #3A
Mikko Rantanen	COL	55	50	105	2.7	5.5	69	C #3A

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Pettersson and Matthews moved from the elite area of #1 centers (top ten) to the middle group of #1 centers. Miller and the Nuge are just outside the top 32, while Stutzle and Rantanen are in the top 75.

The CR2 top fifteen much better reflect the classical understanding of what a center should be. CR2 highly values the taking of faceoffs, it values offense and it respects players with good defensive data.

Boone Jenner scored only 45 points but did other things well. Compared to Mikko Rantanen, Jenner had 15 more faceoffs per game, played 45 more minutes of PK over the season, was better with the puck and had 3 more shift starts per game in the defensive zone.

In CR2, offense is important but taking faceoffs is more important. Rantanen is a great forward, he's just not a great center.

CR2 – Trivia – Best Career Centers (2007-08 to 2023-24)

CR2 can be used to identify the best centers of all time, provided time started in 2007-08 (which was the first season for which detailed player data is freely available). Players whose careers span 2007-08 will not have their talents fully recognized, while players whose careers ended before 2007-08 will not have their talents recognized at all. Such is life in statistics: one can't count what isn't there.

Name	Qual Ssns	Last Qual	C #1A	C #1B	C #1C	C #2A	C #2B	C #2C	Career CR2
Sidney Crosby	16	2023	16	0	0	0	0	0	320
Patrice Bergeron	15	2022	14	0	0	1	0	0	285
Anze Kopitar	17	2023	11	5	0	1	0	0	285
Jonathan Toews	15	2022	11	1	2	1	0	0	253
Mikko Koivu	13	2019	10	2	0	0	1	0	227
Claude Giroux	15	2023	5	7	2	0	0	0	200
Ryan O'Reilly	15	2023	7	3	2	0	1	1	197
Paul Stastny	16	2022	4	6	3	0	0	0	176
Jordan Staal	17	2023	1	8	6	1	1	0	172
John Tavares	15	2023	2	8	4	0	0	1	170
Nicklas Backstrom	14	2021	3	5	4	0	0	1	154
Ryan Kesler	10	2018	5	4	0	1	0	0	153
Aleksander Barkov	11	2023	5	3	1	0	0	2	148
Bo Horvat	10	2023	5	4	0	0	0	0	148
Ryan Getzlaf	15	2021	1	6	6	1	1	0	148

Inactive players' rows are shaded in a lovely light green.

Crosby is undoubtedly the best center in the NHL since 2007-08. Bergeron and Kopitar are a step behind, but clearly well ahead of anybody else. Kopitar will pass Bergeron this season

but will not catch Crosby. Toews is fourth best, and he would still have been fourth best had he not missed a season due to injury.

No active player on the list is likely to break into the top four. Bo Horvat would require six C #1A seasons to pass Toews, and seven to pass Bergeron. There may be active players who will eventually challenge the top four, but that is more than a decade away.

True elite centers are unicorns.

Summary

Before the first article on STTB was posted, I thought about what should be done if an existing rating system's formula had a problem: should the system be changed? My thoughts then were that I would never do it trivially, and those are still my thoughts.

On reviewing the CR system, I found that it wasn't trivially inaccurate. It was putting players in the top 20 that didn't belong in the top 50. It was significantly inaccurate. CR2 was not a trivial change, it was a necessary change.

Also Summary

CR2 ranks players using a classical understanding of what a center should be. If you are of the opinion that players can be great centers even though they don't take a lot of faceoffs, I respect your opinion.

The only question that would remain is how to identify whether a player is a center or a winger. I need to find a statistical answer to that question, and I have no idea where to look.

The son tells me that Tim Stutzle (OTT) plays center after faceoffs taken by Claude Giroux (OTT). In the last good game that Ottawa played (beating Toronto 3-0), the third wheel on their line was Drake Batherson (OTT). How does the data show that Stutzle took over at the center and not Batherson? You tell me because I don't see it.

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