Matchmaking Through The Years

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2024-07-19

Background

Starting May 14, 2020 and last updated July 10, 2023, a total of 1256 Counter-Strike:Global Offensive matchmaking games have been played.

Maps

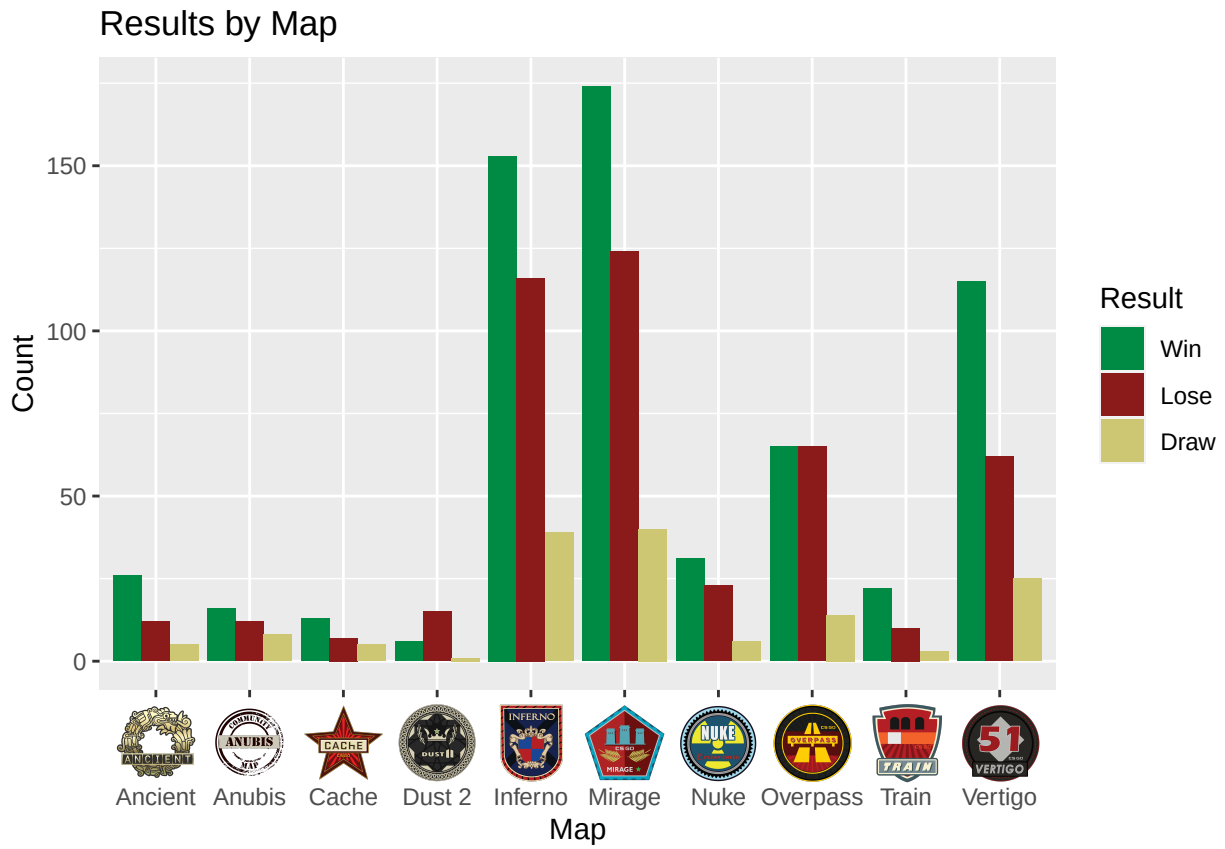
Numerous updates and changes have been made to the game over the 1152 days, some of those being the playable maps. There exists a staple of maps that are played much more than others, some are barely touched.

Total Maps Recorded
May 14, 2020 - July 10, 2023

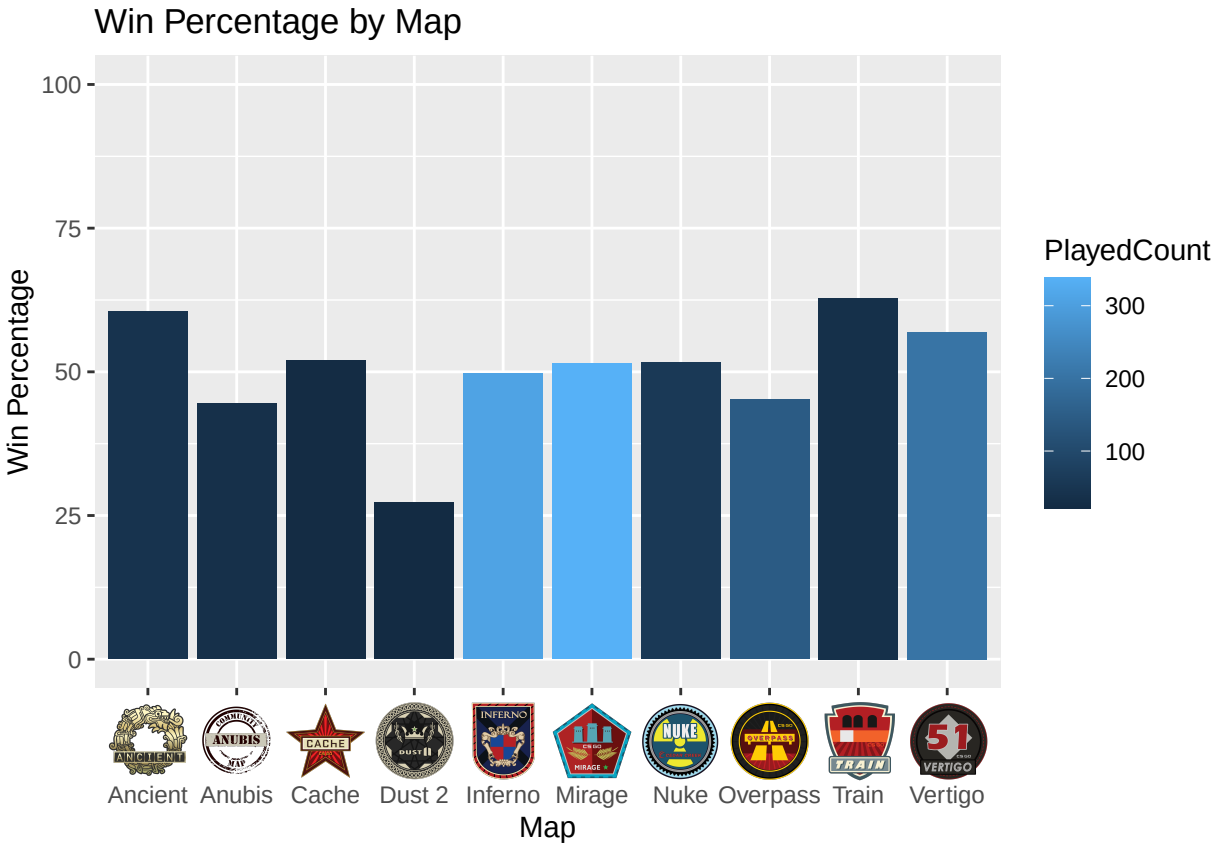
Map	Count
Mirage	355
Inferno	315
Vertigo	203
Overpass	146
Nuke	60
Ancient	44
Anubis	36
Train	35
Cache	25
Dust2	24
Basalt	5
Office	5
Agency	1
Dust	1
Insertion	1

As they have both been core Counter-Strike maps for a long time, there is no surprise that Mirage and Inferno are significantly the most played. Similarly, maps like Insertion and Agency are not in the game for long stretches are are barely played. Due to their small playtime, the bottom 5 maps (Basalt down to Insertion) will be excluded from further analysis. This is fitting as these remaining maps were all ones that have been around for a while and will be referred to as the "core maps". Additionally, games that ended due to a forefit were omitted.

Overall, my record is 621 wins, 446 losses, and 146 draws. That results in a 51.2% win percentage As a whole am winning more games than not, however the map does play a factor. The following figure shows the amount of wins, losses, and draws have had over this course of time, divided out by map.

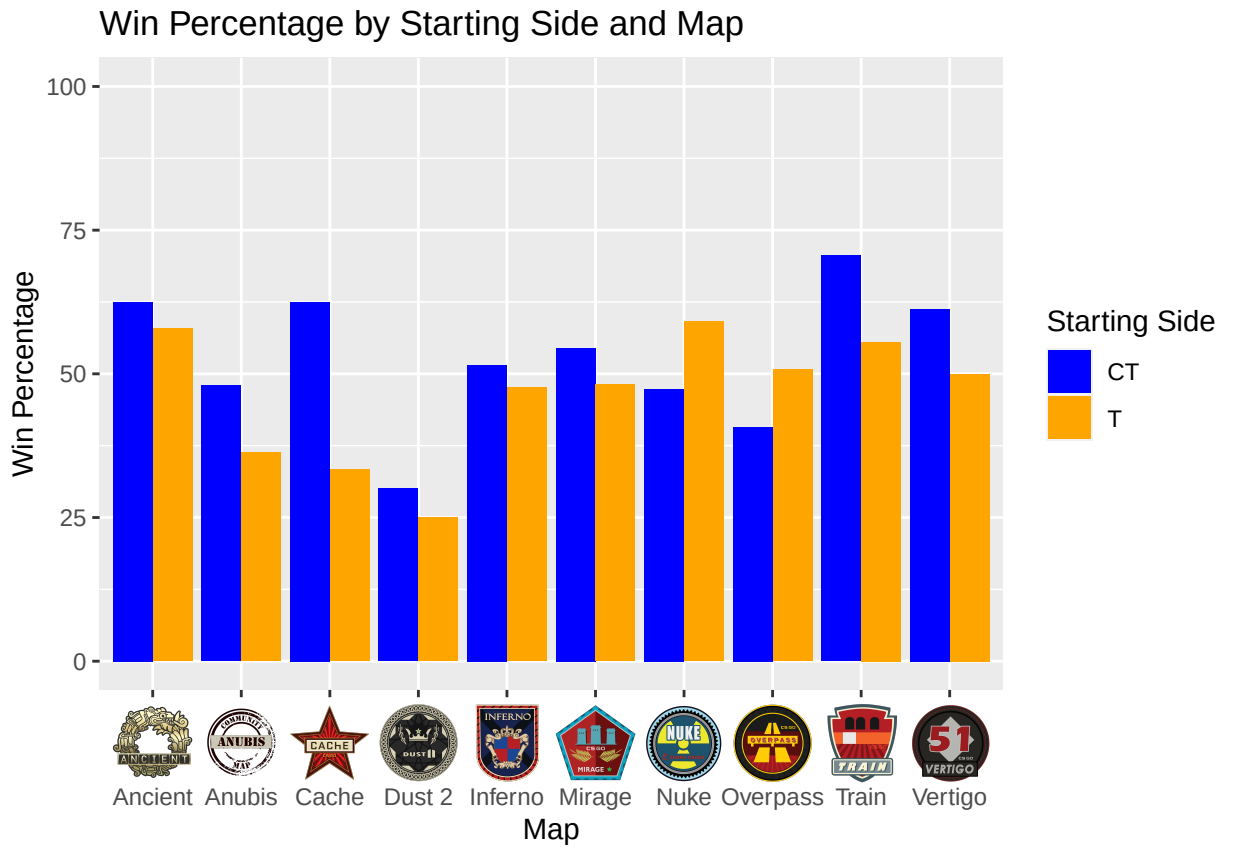


Wins are most important and draws often feel like losses. Win percentage is lumps draws and losses together such that it is strictly the percentage of wins over total map played count. Mirage and Inferno, the maps that have been played by far the most, are fittingly super close to 50%. Vertigo on the other hand is the third most played map and has one of the highest overall win percentages.



Effects of Starting Side on Different Maps

While one does have to play on both sides regardless of the score, there is a conception that the CT side is favored for starting. Therefore, if one can start CT and take an early lead, they should have an easier job carrying that momentum forward and getting a win. Keeping with the theme of win percentage, the following demonstrates how starting CT may in fact lead to a better end result.

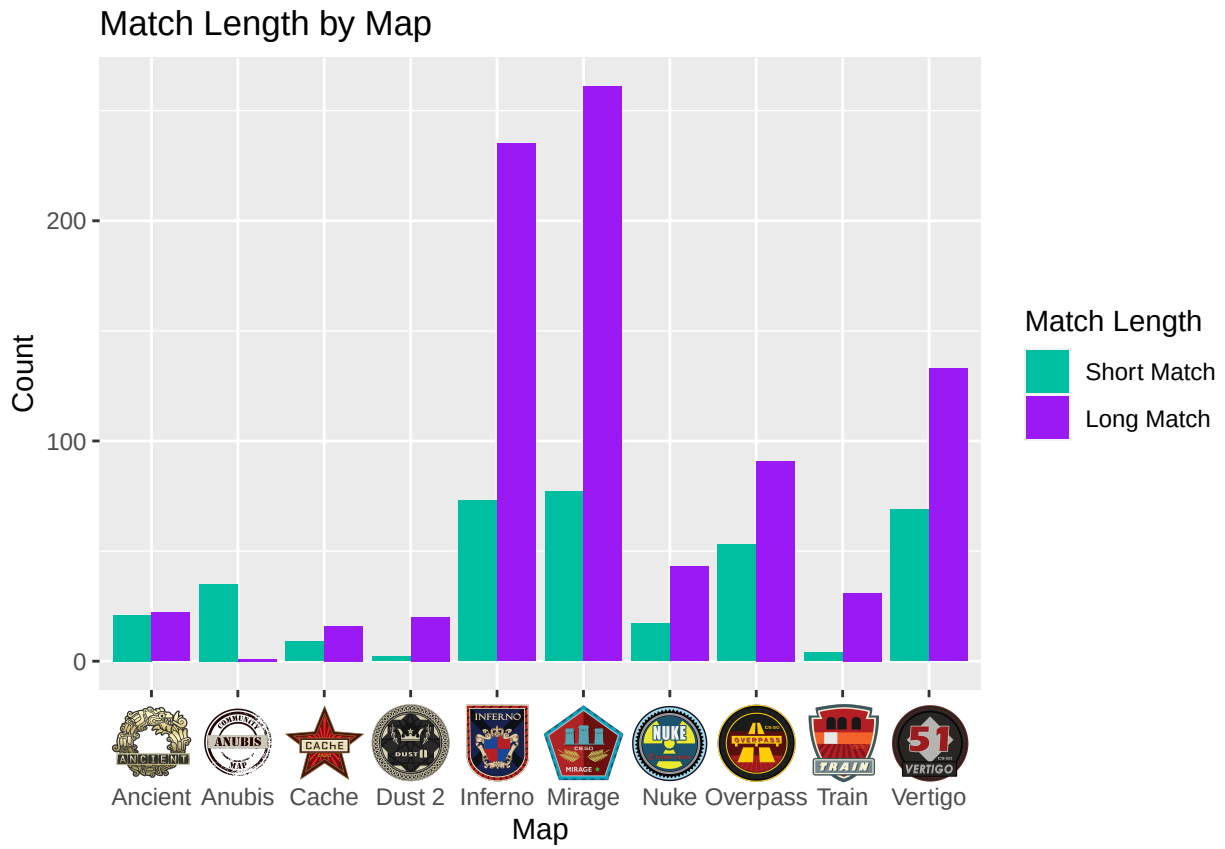


Mirage and Inferno having the largest sample size makes them the most intriguing to look at. In the professional play, these maps are seen as even too, such that there is not a massive advantage to starting CT as some other maps. Through my playing experience, there is a similar trend. Starting CT gives a slight increase in win percentage.

However starting side is not the end all be all. Dust2 as a whole is the lowest win percentage map and when further broken down into starting side, both sides have a lower percentage than any other side on any other map. Similarly, Train has one of the highest win percentages and both starting sides offer a winning percentage value higher than most other sides on maps. Train is notoriously CT sided, despite this, my overall high winning percentage translates to being a greater winning percentage than most other maps on both starting sides.

Match Length

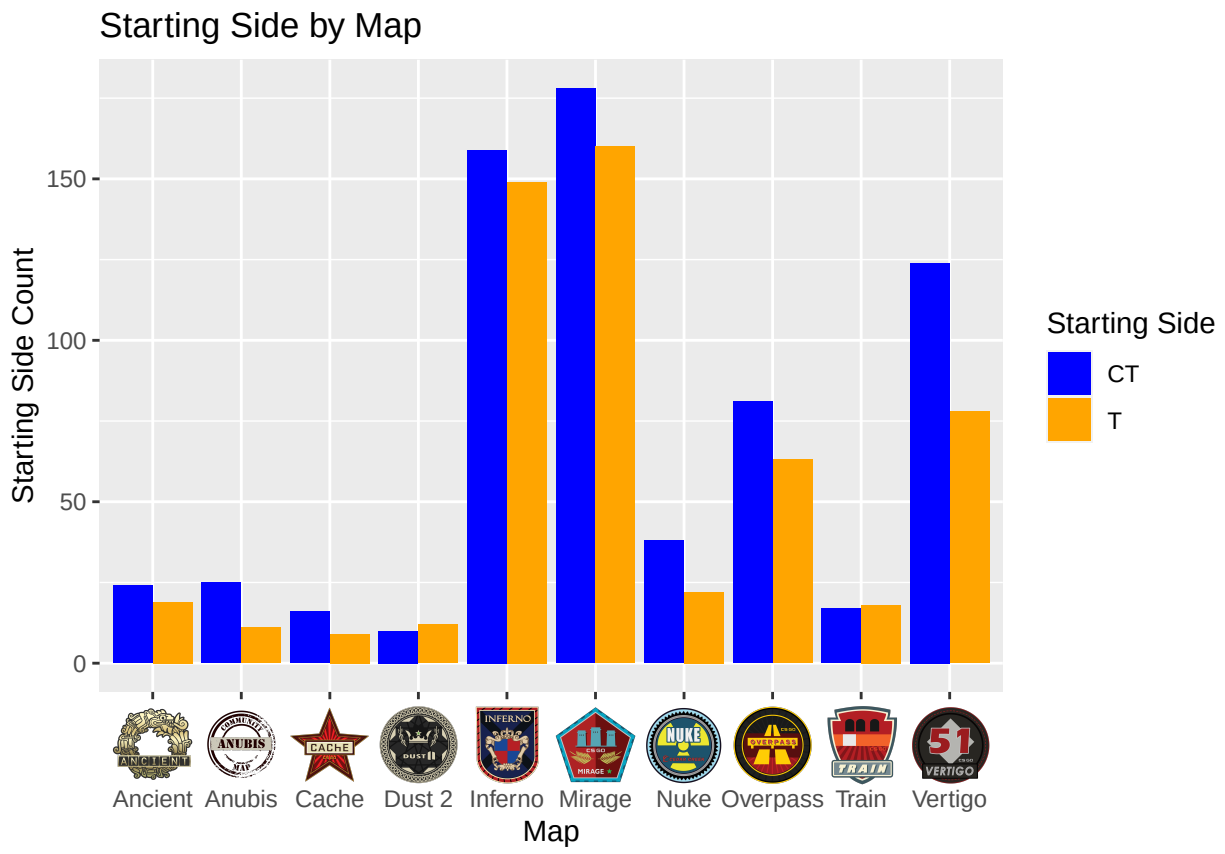
Traditionally, games were first to 16 with the possibility to tie. However on September 21, 2021, short games got introduced to which it became first to 9 with the chance to tie remaining. Because of that vast difference, a lot of the collected data is split into long games and short games. Within the 1256 games, there were 853 long games and 360. The map breakdown between the two types of games is as follows:



Maps that have been around for a long time, such as Train, have a high long match count but a low short match count. This is because it was played during a time when short games weren't an option. On the contrary, Anubis is the newest map and due to it existing solely after short games were introduced, it is played significantly more times in a short match game opposed to a long match.

Starting Side

Another data point that was measured during each game is the starting side. The starting side is randomly determined and is split into attacking ("T") and defending ("CT"). Match length has no effect on what the starting side in a given game would be.



Despite what should be about 50-50 split in starting side, there is a tendency to start on the CT side (672 CT starts versus 541 T starts). Especially on certain maps such as Vertigo, despite its large play count its far from an even split.

Vertigo Anomaly

For a stretch starting in November 2022 and ending in February 2023, there was 20 CT starts in a row on Vertigo.

Span of 20 Consecutive Vertigo CT Start

November 9 - February 20

Date	Map	Rounds Won	Rounds Lost	Starting Side	Rank
2022-11-09	Vertigo	16	14	CT	LEM
2022-11-10	Vertigo	16	3	CT	LEM
2022-11-10	Vertigo	16	14	CT	LEM
2022-11-10	Vertigo	16	10	CT	LEM
2022-11-11	Vertigo	7	16	CT	LEM
2022-11-11	Vertigo	16	10	CT	LEM
2022-11-11	Vertigo	16	9	CT	LEM
2022-11-12	Vertigo	16	7	CT	LEM
2022-11-12	Vertigo	9	16	CT	LEM
2022-11-12	Vertigo	14	16	CT	LEM
2022-11-13	Vertigo	16	7	CT	LEM
2022-11-13	Vertigo	13	16	CT	LEM

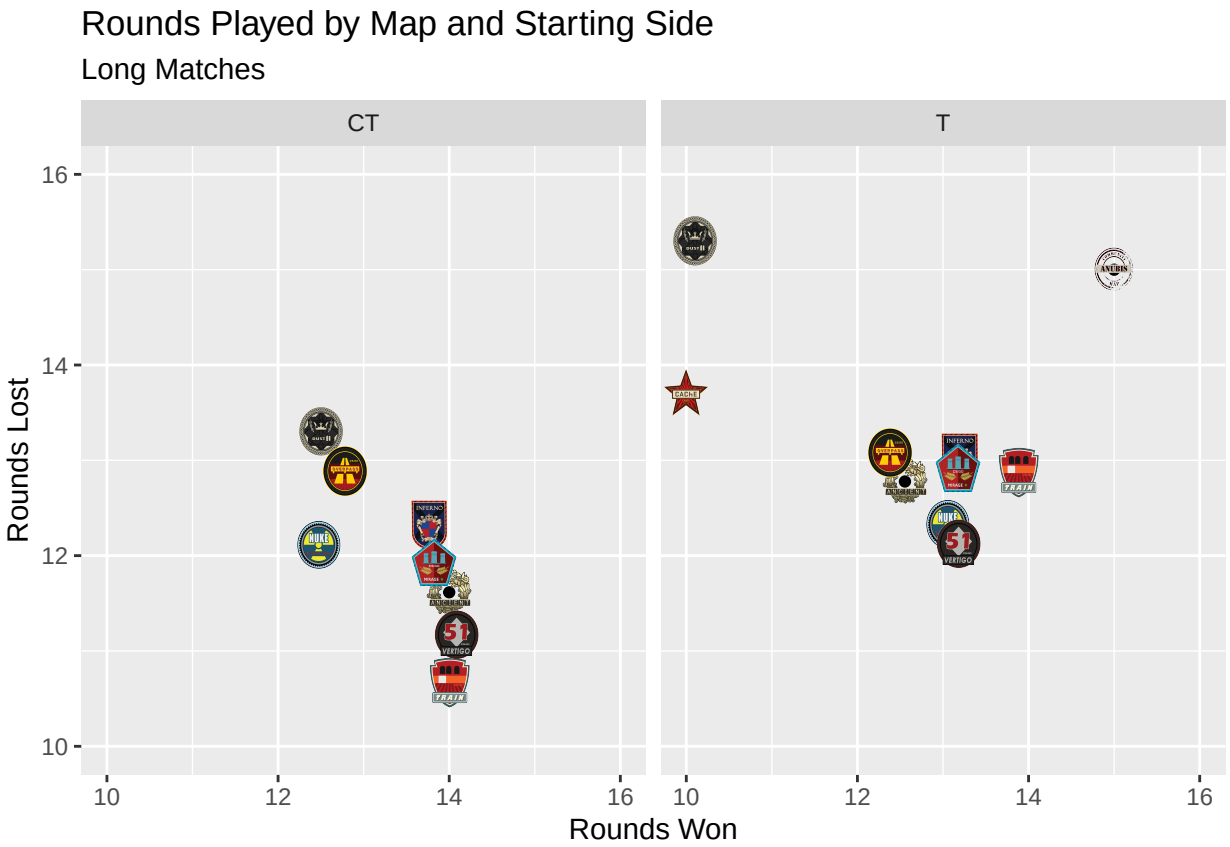
2023-01-01	Vertigo	3	9	CT	LE
2023-01-01	Vertigo	9	4	CT	LE
2023-01-29	Vertigo	9	4	CT	LE
2023-01-30	Vertigo	9	7	CT	LEM
2023-02-01	Vertigo	9	3	CT	LEM
2023-02-16	Vertigo	8	8	CT	LEM
2023-02-17	Vertigo	9	2	CT	LEM
2023-02-20	Vertigo	9	5	CT	LEM

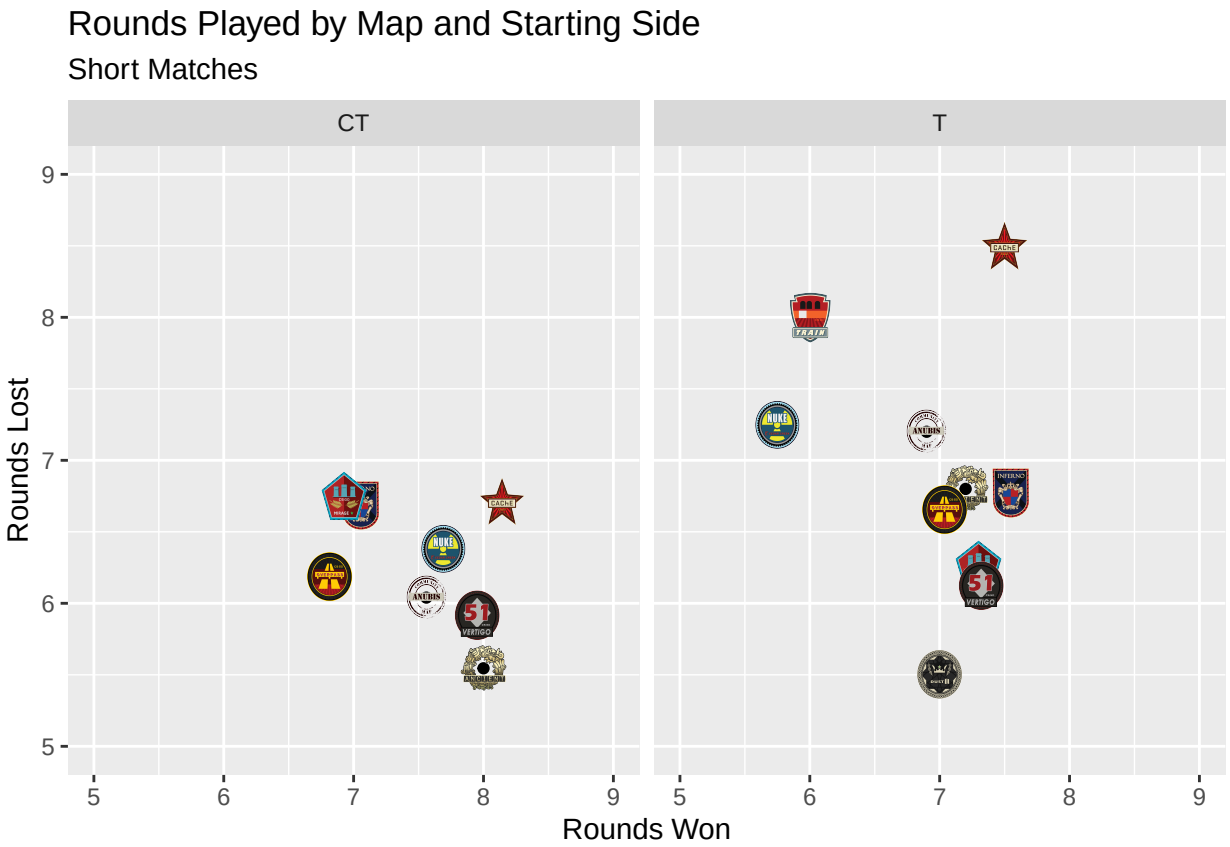
Since I was unable to find an official note regarding how starting side is determined, believe it's logical to believe that is done via an internal coin flip - there are two options with a supposed equal chance to get either. Therefore, it is a $\frac{1}{2^n}$ probability of getting a given side, where n is the amount of times. Getting the same side 20 times in a row is equivalent to 1 in 1,048,576 (or 0.00009537%). Ended up taking advantage of getting the favored side by winning 14 out of the 20

How Starting Side Matters

Each map is played differently and has a favored side. While the preferred side is almost always defending (CT), some maps are more CT-sided than others. Meaning that it is not expected for the attacking (T) team to not get many rounds and dropping too many on CT will be detrimental. During long games, if I were to start on CT, would then win on average 1.74 more rounds than lost. In contrast, the difference is only 0.06 when starting on T. For short games, the difference when starting on CT is 1.08 versus 0.66 when starting T. Regardless of starting side, still tend to win more rounds than lose, but starting on CT is key to getting a good start and getting some distance from the opposition.

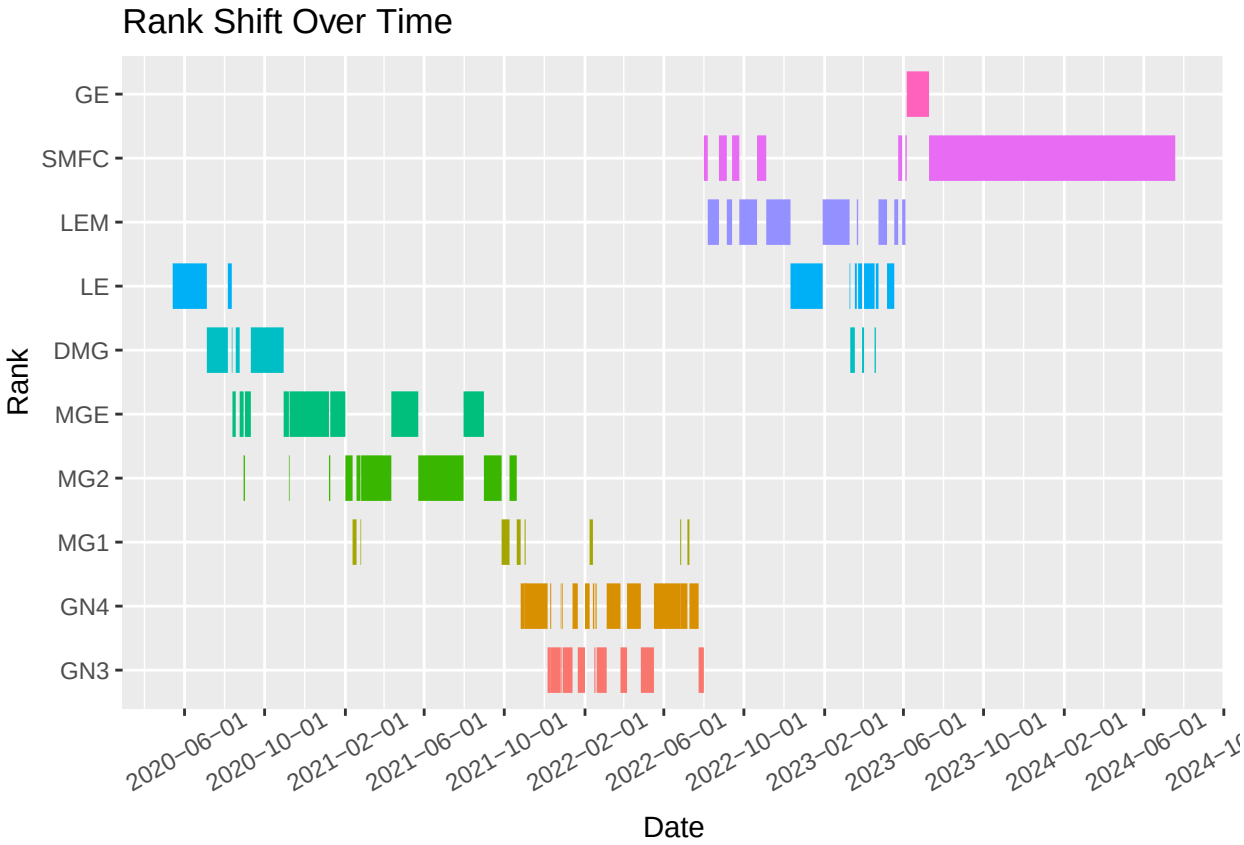
As alluded to earlier, some maps favor the CT side more than others. The following two displays show the map-by-map difference of the effect of starting side. The more bottom right a map is, the greater the win difference is.


Rounds Played by Map and Starting Side
Long Matches
CT
T
Rounds Lost
Rounds Won
16
14
12
10
10
12
14
16



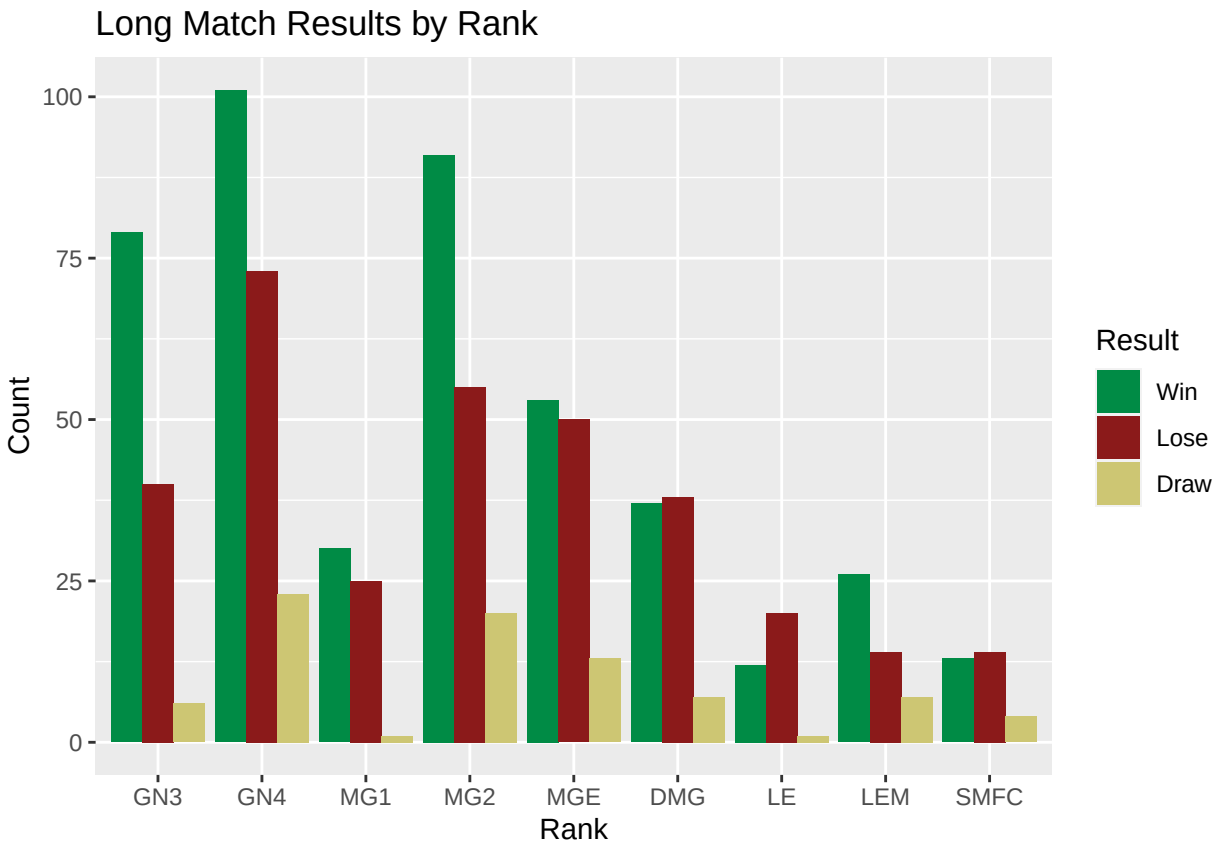
Ranks

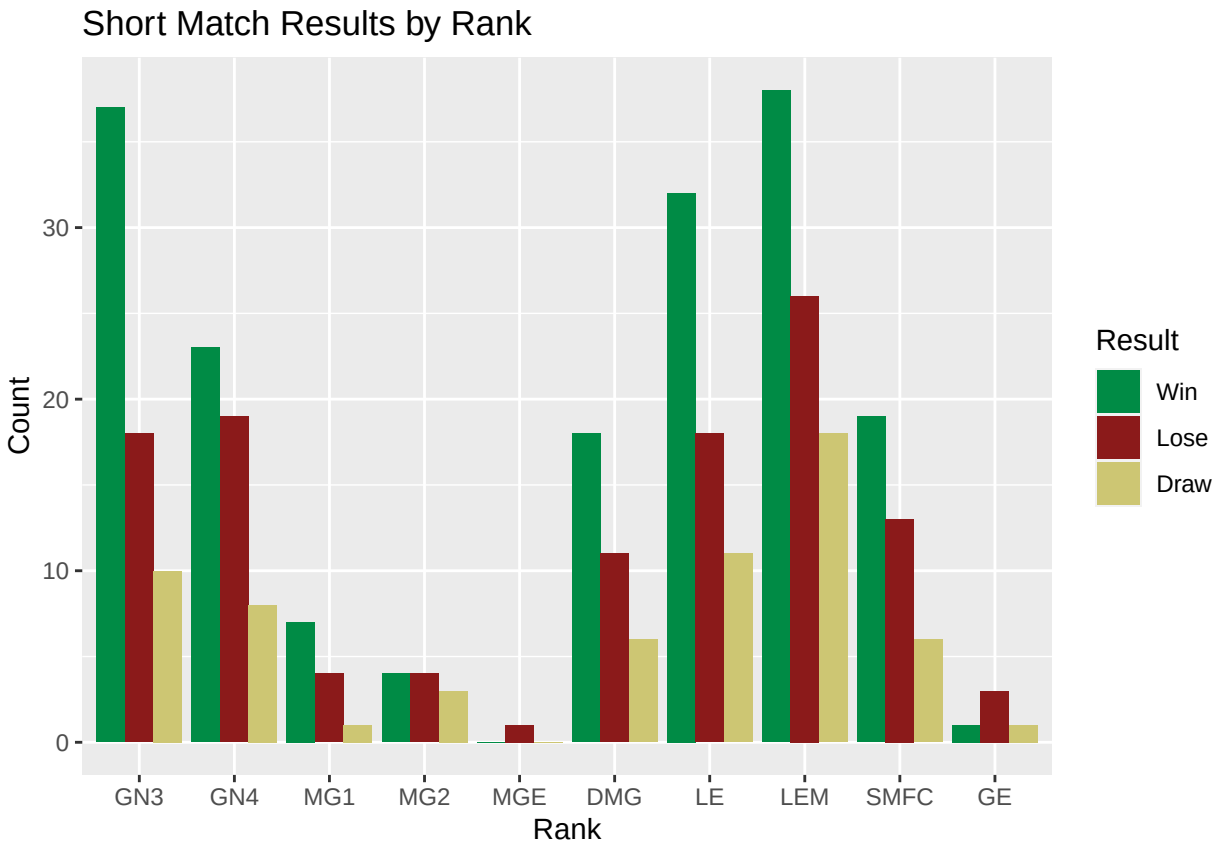
Another aspect of recorded data is the rank I was during the game. Within Counter-Strike:Global Offensive, there are 18 total ranks. Ranks represent a skill group such that the matchmaking system can do its best to create balanced teams of people with equal ranks. Out of the 18 ranks, I only moved between a subset of 10 ranks, but a total of 85 rank changes.



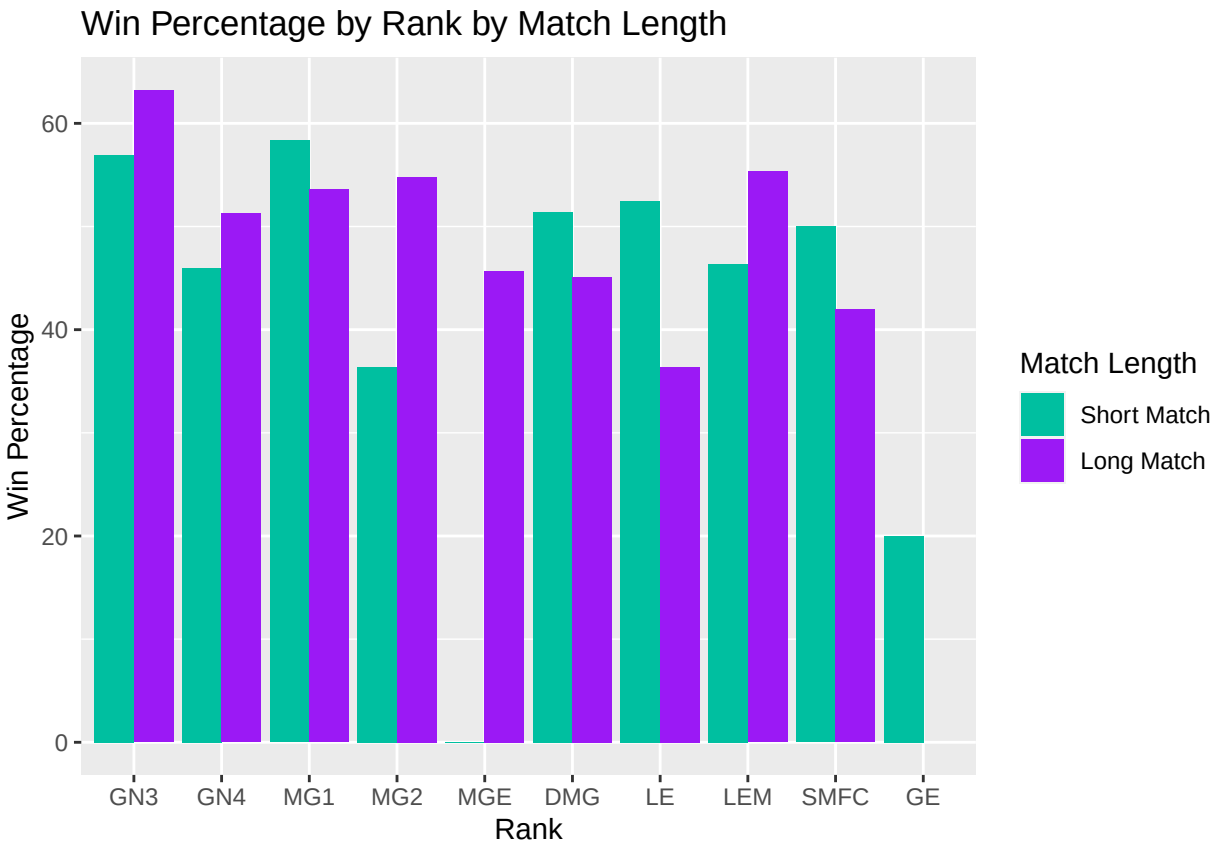
On August 1st, 2022 there was a massive change to the ranking system. According to a Counter-Strike blogpost, the rank algorithm was recalibrated for accuracy, which is the reason for the abrupt jump from GN3 to SMFC

During different time periods, had preferences as to whether rather play short or long matches exclusively. This is the reason there is no data for the "GE" rank for long matches as well as only 1 short match on record for the "MGE" rank. While acheiving those ranks, was almost solely playing one type of match. Because of this, despite being "LE" in 2020 and again in 2023, it is very likely that the long match results for that rank are the games played in 2020 while the games played in 2023 would be displayed in the short match graphs. Regardless, thought it would be interesting to visualize the performance at different ranks, split across the different match lengths (and in a way, over a large time gap).


Long Match Results by Rank
Count
100
75
50
25
0
GN3
GN4
MG1
MG2
MGE
DMG
LE
LEM
SMFC
Rank
Result
Win
Lose
Draw



Out of curiosity, combined the long and short match data into one visual to see how they directly compare at a given rank. There is not anything new gathered from this, but it does seem that the win percentage as a whole is higher at the lower ranks. This would make sense as that is playing in matches below the rank should be playing at, so would expect to win more. Similarly, at the highest ranks is when the win percentage starts to dip to at or below 50% across both match lengths.


Win Percentage by Rank by Match Length
Win Percentage
60
40
20
0
GN3
GN4
MG1
MG2
MGE
DMG
LE
LEM
SMFC
GE
Rank
Match Length
Short Match
Long Match