



# THE CPT SPOT

NFL Showdown DFS Strategy Guide

**JUSTIN FREEMAN**

Host of "The CPT Spot" Podcast  
Contributor at NumberBall.com

**BRIAN JESTER**

Millionaire Maker Champion  
Co-founder of Occupy Fantasy

Featuring Chris Rooney

Edited by Eric Ellis



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# Contributors



**Justin Freeman** is a former offensive lineman at Duke University and is now the host of The CPT Spot podcast and an NFL contributor at NumberBall.com. With a background in projections and statistical modeling, Justin possesses a keen understanding of sticky metrics and how to apply them in a variety of DFS formats. With a simulation approach built on the back of his RangeFinder projection model, Justin has focused his efforts on creating predictive metrics around single game DFS.

**Brian Jester** is the co-founder of Occupy Fantasy and \$1 million winner of the 2019 Patriots-Rams single game DraftKings Super Bowl GPP. Also \$250,000 runner-up finisher in FanDuel's 2019 World Fantasy Football Championship, Brian brings a different approach to daily fantasy sports with his focus on contest selection, lineup construction, and specifically uniqueness in single game contests.



**Chris Rooney** is a multiple time DFS participation trophy winner. A staff member at OccupyFantasy.com, Chris has been playing DFS as a hobby since 2015 – and is a profitable NFL Showdown cash game player. He's a lifelong Massachusetts resident and Red Sox aficionado. He's a proud MBA graduate of the D'Amore-McKim School of Business at Northeastern University.



# Introduction

**By Justin Freeman**

For most people, it's just another Monday night in October. But not for me – I'm in midseason fantasy form. My wife is asleep in the bed beside me with a t-shirt over her face as I watch ESPN's coverage of Monday Night Football with the sound on mute. I know, I know – what wife wouldn't want to fall asleep to the dulcet tones of Booger McFarland's can't-miss commentary? But for now, we sit in silence, as I watch the final minutes of the Los Angeles Chargers versus the New Orleans Saints. The game is a blowout – there is no real reason why any sane person would still be watching.

The Saints are nursing a three-touchdown lead with two minutes on the clock. The Chargers are out of timeouts. Drew Brees is three kneeldowns away from putting his Saints in the driver's seat of the NFC South. But my heart is racing. Eyes bouncing back and forth between the (lack of) action on the screen and the fantasy score on my phone, I'm on the verge of something big. I'm in 5th place in a DraftKings showdown contest and the four players above me all have the same identical lineup as one another. Two tenths of a fantasy point separate me from turning a \$10 entry fee into a \$100,000 top prize. But for now, I'm on the outside looking in.

Brees takes his first knee for a two-yard-loss. He takes a second knee. He takes a third. The Saints win easily. Unfortunately, Drew Brees was in my lineup. He had a great game but those six negative yards surely couldn't have helped me. But I glance at my phone. My eyelids flicker in disbelief before looking again – I'm sitting in first place. I'm somehow the sole winner of \$100,000. I spring from the bed, let out a loud scream, put my hands on my hips, and do my best rendition of Apache's "Jump On It!" – one that would make The Fresh Prince blush. I'm a six-figure winner all because of some... kneeldowns?

You see, while I had Drew Brees in my lineup, the four lineups above me had him in "The CPT Spot" and each of those kneeldowns hurt them 50% more than they hurt me. So, while I lost 0.6 fantasy points in garbage time, their lineups lost 0.9 fantasy points, making me the champ – by 0.1 points. Incredible.

These are the razor thin margins of showdown slates, the fastest growing contests in daily fantasy sports. While "Showdown" is technically a DraftKings marketing term for their single-game contests, the term has been commoditized (like Band-Aid or Kleenex) by those in the fantasy industry to apply to the single-game salary cap format on all platforms, to most notably include FanDuel. The FanDuel MVP mode and the DraftKings CPT mode are similar in many ways but with enough differences to bring on massive changes in strategy. The format itself is only two seasons old as we enter the 2020 campaign and we know that new game formats tend to bring larger edges for the most well-prepared players.



This eBook aims to make you a well-prepared and profitable showdown player. We will dive into the finer points of this volatile game, covering basic and advanced items alike (and everything in between). We will go through the rules governing gameplay on each major platform with the basic nuts and bolts. We will jump into deeper considerations like contest selection and projecting game scripts. We will also traverse the more nuanced waters of correlation and game theory, plus much more. So, if you'll be my Rocky Balboa, I'll be your Mickey. Lace up your gloves, step through the ropes, and in the words of Apollo Creed, "Ding. Ding."



# Managing Expectations – A Healthy Approach to DFS

By Justin Freeman

Okay, I have a confession. I've already told you a lie. I get it – not the best way to start our relationship but hear me out. The story about me winning \$100,000 thanks to three Drew Brees kneeldowns was a bit of an intentional charade. It didn't actually happen. The point of my matador routine was to excite you about the possibilities of showdown DFS that lure us all in and then bring you crashing back down to earth with a reality check. While I know similar experiences happen to DFS players nearly every day, the odds are overwhelming that you will NOT be taking down a six-figure prize playing showdown in 2020, no matter the strength of your strategy. "You can't win, Rock!"

Believe me, I can hear your train of thought. "So, wait – no matter what I do, I still have very little chance at winning big money? Why did I buy this book again?" Don't get too down and out just yet – I don't mean to dash your hopes and dreams. After all, I've teamed up to write this book with Brian Jester, a guy who has won a large field showdown tournament. In fact, he didn't just take home \$100,000, he shipped a cool million during the 2019 Super Bowl. So, if your goal is to learn how to be a big game hunter, we will put you in the best possible place to succeed there as well. Just remember to have realistic expectations. After all, there is a lot of green grass between the breakeven of profitability and shipping a millionaire maker. I want to teach you to be okay living in the black – profitable, happy, and enjoying the process. Large prize pools allow our imaginations to run wild with possibilities filled with false confidence and a misunderstanding of probabilities. DFS players can take on this same overconfidence bias by overattributing the impact of their own skill. It's a tough mental reconciliation when you can so clearly envision your username on the top of the leaderboard.

Like more conventional DFS formats, there are plenty of contest types across the showdown products. There are large field GPPs, 50/50s, double-ups, multipliers, qualifiers, head-to-heads, three-mans, small field tournaments, and more. There are cheap and expensive versions of each of these contest types. The cheaper games can be as affordable as ten cents per entry. The more expensive games can be north of \$10,000. There are many ways to skin this cat, but before we do, let's talk bankroll.

You need to have a real honest discussion with yourself about how deep in your pocketbook you feel comfortable reaching to play this game. This book is not here to build up your confidence so that you end up playing beyond your means. While DFS is most assuredly a skill game, it is important to realize two key things in managing your bankroll. First, it takes a lot longer than



you might think to even begin realizing a true expected value in DFS that represents your actual skill level. In other words, the results of simply playing seventeen NFL showdown slates in a year will not be the best indicator of your skill. It may take one hundred slates or more before you can glean even a slight indication of an actualized return on investment (ROI). Second, you may not be as good as you think you are. It is a humbling thing to take into consideration and it is a principle that I struggle with personally. We will go over evaluation techniques toward the end of our lesson but don't consider it a foregone conclusion that you are the sharpest player in the lobby. Odds are, there are users who would be giddy to see your name as an entrant in their contest. And I don't say that to insult you – these soft skills are not built overnight. The bottom line is simple enough but easier said than done – PLAY WITHIN YOUR MEANS. Never play with a single dollar that you cannot afford to lose.

While I believe it is important to discuss bankroll, this book is not an attempt to exhaustively describe every core DFS skill for successful players. I want us to focus on the single-game contest format specifically. For additional information on the other soft skills relevant to DFS at large, there are plenty of helpful resources. Co-author Brian Jester's eBook "The Ultimate Guide to Becoming a Profitable DFS Player," contains lessons on many functional concepts such as contrarian tournament approaches, opponent selection, contest selection, and developing processes that fit your skillset. If audiobooks are more your speed, you'll have a hard time topping "The Theory of Daily Fantasy Sports – How to Think Like a Professional DFS Player," an audiobook by Jordan Cooper and James McCool. In that masterclass, Cooper and McCool exhaustively cover the core functions of DFS play across all sports. Having a strong grip on DFS game theory is a foundational piece for successful showdown players. Okay, enough housekeeping. Let's dig into these contests.





# Nuts and Bolts: DraftKings NFL Showdown Captain Mode

**By Justin Freeman**

I don't mean to insult your intelligence but it's important that I don't assume you know anything at all when it comes to showdown. So, let's start by going over the rules and format of the DraftKings Captain Mode product. Contest participants are given a \$50,000 artificial salary cap to field a six-player team consisting of five FLEX players and one CPT. Players in any of these six slots can be quarterbacks, running backs, wide receivers, tight ends, kickers, or defenses/special teams. The player or unit in the CPT spot will earn you 1.5 times the fantasy points but will also cost you 1.5 times the salary. For example, if it costs \$10,000 to play Matthew Stafford as a FLEX, it would cost \$15,000 to play him as your CPT. Player salaries are as low as \$200 and can be well into the \$14,000 range for superstar players like Lamar Jackson.

The wide range of salaries is a key differentiator for DraftKings. It really brings more options into consideration. In combination with the extra roster spot (compared to FanDuel), this format allows for MANY more viable roster combinations and reduces duplication. While the players down in the sub-\$1,000 range are not likely to return significant production, occasionally you will find players who are inheriting an enhanced workload thanks to recent events such as an injury to a starter. Even players without a path to viable volume can be considered in top-heavy tournaments since a single play (such as a touchdown from a fullback, a punt return touchdown from a number four wide receiver, or a mid-game injury to a starting running back) can swing the slate. These bargain bin options allow you to fit the maximum quantity of high-priced producers.

Unlike traditional full-roster DFS formats, showdown has no positional limitations. You are not required to start one quarterback or two running backs or any variation of positional requirements. You have complete flexibility with only one goal in mind – outscore your opponents. Sometimes that means that you will be playing the starting quarterback from each team. Sometimes that means that you will be playing no quarterbacks at all. Heck, you can even play both kickers if you want. We will get into roster construction and optimization a bit later.

As you consider how to build your lineups, understanding the DraftKings scoring system is imperative. In addition to very traditional fantasy scoring principles (0.1 points per rush/receiving yards, 0.04 points per pass yard, 6 points per rushing/receiving/DST touchdown, 4 points per passing touchdown, etc.), DraftKings utilizes full point-per-reception (PPR) scoring. On top of that,



DraftKings awards bonuses for three key statistical thresholds. For 100 yards rushing, 100 yards receiving, and 300 yards passing, players earn three points for each accomplishment. With full PPR and bonus scoring, the fantasy point outcomes for each player can be significantly higher on DraftKings than competitor sites such as FanDuel.

Let's go through a few quick examples so that we can see how site-by-site scoring variations can end up being quite important. Here are three New Orleans Saints for us to examine:

- ▶ Drew Brees (QB) – 20/30 passing, 325 passing yards, 2 passing TDs, 1 interception, 15 rushing yards
  - DraftKings – 24.5 points: 13.0 for passing yards, 3.0 for 300+ yard passing bonus, 8.0 for passing touchdowns, -1.0 for interception, 1.5 for rushing yards
  - FanDuel – 21.5 points: 13.0 for passing yards, 8.0 for passing touchdowns, -1.0 for interception, 1.5 for rushing yards
- ▶ Alvin Kamara (RB) – 13 rushes, 75 rush yards, 1 rushing touchdown, 6 targets, 5 receptions, 25 receiving yards
  - DraftKings – 21.0 points: 7.5 for rushing yards, 6.0 for rushing touchdowns, 5.0 for receptions, 2.5 for receiving yards
  - FanDuel – 18.5 points: 7.5 for rushing yards, 6.0 for rushing touchdowns, 2.5 for receptions, 2.5 for receiving yards
- ▶ Michael Thomas (WR) – 10 targets, 8 receptions, 110 yards, 1 receiving touchdown
  - DraftKings – 28.0 points: 8.0 for receptions, 11.0 for receiving yards, 3.0 for 100+ yard receiving bonus, 6.0 for receiving touchdown
  - FanDuel – 21.0 points: 4.0 for receptions, 11.0 for receiving yards, 6.0 for receiving touchdown

Overall, you'll notice that DraftKings' scoring can be significantly higher than FanDuel's. The milestone bonuses and the full PPR can really add up in certain instances. This will prove to be quite significant when making CPT/MVP decisions. Let's compare Drew Brees and Michael Thomas. For the sake of our discussion, let's assume they have identical salaries. Given the game that each player had, you would likely need to have each player in your lineup to win. However, the optimal MVP/CPT would be different on each site. On DraftKings, Thomas comfortably outscores Brees by 3.5 points. On FanDuel, Brees edges out Thomas by 0.5 points. The scoring variation means that we must have separate considerations on each platform for what makes an ideal MVP/CPT. Pass-catchers are huge beneficiaries on DraftKings. If a quarterback produces a 100-yard receiver who also finds the endzone, the odds are that the receiver will outscore his own quarterback. In



2019, pass catchers (wide receivers and tight ends) who eclipsed 100 yards receiving with at least one touchdown outscored their quarterbacks in 73.2% of contests (90 of 123). This compares to a rate of just 54.5% on FanDuel (67 of 123). If we eliminate the touchdown requirement, we get 200 instances of 100-yard pass catchers. On DraftKings, the pass catcher outscored the quarterback in 144 contests (72.0%) compared to just 95 (47.5%) on FanDuel.

Overall, DraftKings offers the superior product for skilled players. In DFS, the availability of more options leads to more opportunities to display skill. With a more accessible player pool, an additional roster spot, and a pricing variation for the CPT spot, DraftKings showdown creates a much more complex puzzle. More decision-making opportunities equals less variance, making DraftKings the better home for skilled players, especially in cash games.



# Nuts and Bolts: FanDuel NFL Single Game MVP Mode

**By Justin Freeman**

The FanDuel MVP product is similar to the DraftKings CPT product but with a few notable changeups. The most glaring difference is that FanDuel's product does not have a pricing variation on its MVP spot (which multiplies fantasy production by 1.5 times). This means that it won't cost you any additional salary cap to put a stud in the MVP. There are pros and cons to that rule variation that we will cover shortly. Also, we have a slightly larger salary cap here on FanDuel with \$60,000 available to field just five positions – four FLEX and one MVP. Just like DraftKings, you can play any position in any spot in your lineup including quarterback, running back, wide receiver, tight end, and kicker. Take note, defense/special teams (DST) is NOT an option on FanDuel. The omission of DST in this format reduces some variance but also limits some of the correlation plays that we will discuss later. The player salaries range from a floor of \$5,000 to a ceiling north of \$16,000. As an example, Patrick Mahomes opens the 2020 season against the Texans with a price tag of \$16,500.

The high floor cost of \$5,000 per player limits the relevant player pool right away, which stifles a bit of creativity. With an average salary of \$12,000 available per player, the cheaper options aren't as enticing because they aren't all that cheap. Think of it this way – on DraftKings, you have \$50,000 to fund the equivalent of 6.5 positions for an average of roughly \$7,700 per player. Even though salaries aren't apples to apples between the two sites, you have less cap to fill more positions on DraftKings, making cheaper options inherently more viable. On top of that, the range in pricing among viable options is significantly narrower on FanDuel. Comparatively, that means that the elite expensive options are much easier to accommodate on FanDuel without wrecking the rest of your team.

I mentioned that there are pros and cons with the consistent pricing of the MVP spot. Since it costs nothing extra to upgrade a player in your lineup to MVP, cash game strategy becomes extremely straightforward. You put the best player in your lineup in the MVP spot and never look back. But this isn't exactly top-secret information. Since most showdown players would also realize that, you're provided even fewer opportunities to showcase your skill. It's the DFS equivalent of "FREE SPACE" on a Bingo card. On the other hand, there are players in the lobby who insist on not using the free space. When we can systematically identify these weak competitors and book their action, our ROI changes dramatically. We will go more in depth in the chapter titled "Cash Games & the State of the Lobby."



A major benefit to playing on FanDuel is the opportunity to generate leverage in tournaments. We just talked about how there is no secret that strong players should be in a team's MVP spot. On FanDuel, "strong player" is almost synonymous with quarterback, so we see a lot of clustering around quarterbacks in the MVP spot. But when there is more MVP ownership on the quarterbacks than what we expect to be a fair representation of their actual likelihood of being optimal, we have a tailor-made opportunity to get contrarian. Let's use the 2020 season opener between Houston and Kansas City as an example. Imagine that we predict that there is a 25% chance that Patrick Mahomes will be the contest-winning MVP. Similarly, we predict that Deshaun Watson has a 20% chance of being the correct MVP. Now that we have projected the real odds, let's predict contest ownership. In this example, we project 50% of the field will have Mahomes at MVP plus another 30% will choose Watson. Combined, we project 80% of the field (50% + 30%) will be utilizing a quarterback at MVP, yet they only have a 45% (25% + 20%) chance to be optimal. When we pivot to other MVP options, we gain tremendous leverage by taking on a riskier proposition, but one that disproportionately punishes the field while boosting our lineup. We will discuss leverage and contrarian MVP strategies in greater detail in the "Guaranteed Prize Pool (GPP) Strategy" chapter.



# 2019: A Year in Review

**By Justin Freeman**

A glance in the rear-view mirror can inform our lineup building moving forward, so let's look at successful lineups from a year ago. While single-game DFS got its start in 2018, we saw it hit relative scale in 2019 in terms of total number of slates offered. By October, both DraftKings and FanDuel were offering up to eight slates per week. The salary kinks from year one have been largely solved and standardized by each major platform. The available data is not only more robust, but it is amazingly relevant for our 2020 process and beyond. The same might not have been true just a year ago.

Let's dive into the successful lineups from last year. With over 130 full game showdown slates per platform, we can glean a lot of information on positional tendency, roster breakdowns, and salary usage. We will focus more on GPP results here by looking at each slate's largest prize pool tournament. While a classic 9-player main slate Sunday afternoon Millionaire Maker does not require that a player hit the "nuts" (that is the single most optimal roster combination possible), showdown is quite different. In large field showdown GPPs, it almost always takes the nuts to win – and even then, you might be splitting top prize with a number of other people. We will come across some very unique-looking outcomes and some very chalky ones as well.

## DraftKings

I was able to collect data on 142 DraftKings showdown slates. The large-field \$10 GPP saw a median of 130,719 entrants on Thursday nights, 104,576 on Sunday nights, and 143,132 on Monday nights. With fields this large, it further emphasizes the need to hit the absolute optimal lineup and to be as unique as possible to avoid chopping top prize with hundreds of other entrants. The optimal is much less necessary on the smaller 1:00 and 4:00 (EST) slates because there are obviously fewer entrants but also the max entry limits are cut in half or smaller. So be sure you are considering contest size when making your decisions. For now, we will look at the champion lineups across every available slate from 2019.

Let's take a look at how these tournament winning lineups tend to play out by first examining optimal CPT usage. On DraftKings, running back was the most popular position in the CPT spot for GPP winners at 32.4%. With many paths to fantasy success, running backs possess significant touchdown equity and more commonly in today's NFL they also possess PPR upside through the passing game. Here is how CPT usage plays out for all positions:



CPT Spot Usage	Count	Percentage
Running Back	46	32.4%
Wide Receiver	41	28.9%
Quarterback	31	21.8%
Defense/Special Teams	12	8.5%
Tight End	10	7.0%
Kicker	2	1.4%

What you'll notice is that while quarterbacks tend to consistently project for more fantasy points than their peers at other positions, they are quite frequently outscored by at least one teammate in the scope of a single game. Further, there are salary constraints that frequently prevent the high-scoring quarterback position from being the CPT in the optimal lineup. As an example, Dallas Cowboy quarterback Dak Prescott would almost always be projected to score more fantasy points than Amari Cooper, his starting ace wide receiver. In fact, if it were a Vegas line, Prescott would be a pretty heavy favorite against Cooper head-to-head. However, Prescott is not competing against just Amari Cooper for CPT spot duties, but the entire field of players on his team (and the other team!). So while Cooper alone wouldn't be favored against Prescott, the entire Dallas arsenal collectively dwarfs Prescott individually. This incentivizes us as players to consider plenty of different options at CPT. However, allow me to add a layer of nuance.

It might be misleading to present this information by position. After all, some of these positions contain a multitude of player considerations. While we are only considering two quarterbacks at CPT (the starter for each team), we might be considering as many as six wide receivers (the starting three-wide set for each team) or four running backs (two from each team). So let's make a few assumptions and say that for each team there are one quarterback, two running backs, three wide receivers, two tight ends, one kicker, and one defense that could be in consideration. I've taken some personal discretion in defining which players are WR1s, WR2s, and WR3s (and same for RB and TE), but let's see how that changes the revised outlook.

CPT Spot Usage	Count	Percentage
Running Back 1	36	25.4%
Quarterback 1	31	21.8%
Wide Receiver 1	28	19.7%
Defense/Special Teams 1	12	8.5%
Wide Receiver 2	11	7.7%
Running Back 2	10	7.0%
Tight End 1	8	5.6%
Tight End 2	2	1.4%
Wide Receiver 3	2	1.4%
Kicker 1	2	1.4%



Now perhaps we have a better understanding of the individuals based on their respective roles on the team. Again, a starting running back is the clear favorite but notably, over two thirds of CPT outcomes include the RB1, QB1, or WR1 (66.9% combined). If playing single entry or three-max is more your speed than mass multi-entry (MME), you might find success in limiting your CPT player pool to those three positions. Notice that you'd be dropping a lot of money every week chasing TE2s, WR3s, and kickers as your CPTs.

One important note from the above graph is to remember that there are two teams involved in each showdown – duh, right? But if the game is Cowboys vs. Eagles, we should not assume that Dak Prescott has a 21.8% chance of being the optimal CPT. Instead, all else being equal, Prescott and Carson Wentz share a 21.8% chance of being the optimal CPT, making each of their individual probabilities closer to the 10.9% average. For players looking to build bankroll, find smaller tournaments and consider limiting your CPT considerations to the six individuals that are their respective team's QB1, RB1, and WR1.

Next, let's dig a little deeper into the five FLEX spots that accompany the CPT on DraftKings. How many players from each position group do we tend to see in optimal lineups? What should our finished lineup look like in terms of positional allocation, team-stacking, and favorites? As we go through this portion of analysis, keep in mind that with CPT allocations, our numbers always sum to 100% but with FLEX allocation, our numbers will always sum to 500% because there are five such roster spots. For that reason, I'll convert these percentages into decimals to avoid confusion.

FLEX Spot Usage	Count	FLEX Allocation	CPT + FLEX
Wide Receiver	218	1.54	1.82
Running Back	157	1.11	1.43
Quarterback	149	1.05	1.27
Tight End	73	0.51	0.58
Defense/Sp. Teams	52	0.37	0.45
Kicker	61	0.43	0.44

Notice that the FLEX Allocation column above sums to 5.0 while the CPT + FLEX column represents the entire lineup and sums to 6.0. This gives us a glimpse into how aggressive or conservative to be with positions at large. While we noticed that kickers are almost never in the optimal CPT spot, they do have a role in filling out your FLEX spots in many weeks. Next, let's take a look at how often we see various counts of each position grouping among these GPP winning lineups, including both the CPT and FLEX positions.





Position	0	1	2	3	4
Defense/ST	80 (56.7%)	59 (41.8%)	2 (1.4%)	0 (0%)	0 (0%)
Kicker	82 (58.2%)	56 (39.7%)	3 (2.1%)	0 (0%)	0 (0%)
Quarterback	12 (8.5%)	80 (56.7%)	49 (34.8%)	0 (0%)	0 (0%)
Running Back	18 (12.8%)	63 (44.7%)	44 (31.2%)	16 (11.3%)	0 (0%)
Tight End	67 (47.5%)	65 (46.1%)	9 (6.4%)	0 (0%)	0 (0%)
Wide Receiver	9 (6.4%)	48 (34.0%)	53 (37.6%)	23 (16.3%)	8 (5.7%)

Just to take you through an example of how to interpret the table above, there were only nine occasions out of 142 in 2019 where two tight ends were in the winning lineup (6.4%). Similarly, there were zero quarterbacks in the optimal in twelve contests (8.5%). Of the numbers above, there are a few that really jump out to me. First, you don't need two quarterbacks in your lineup. While this is a terrifically viable cash game strategy, going with two quarterbacks is only the right move 34.8% of the time. A better strategy is to play a single quarterback. Similarly, you can find the most value at the wide receiver position. Two or more wide receivers account for nearly 60% of optimal lineups. Also, don't play two defenses. This can be a popular strategy in games where a slugfest is anticipated but it rarely works out (just 1.4% of the time). Rather than walking you through each cell in the table, I'd encourage studying the table and contemplating why certain strategies are more/less viable.

Digging a little deeper, we know that both teams are not created equal heading into a game. Instead, the Vegas line gives us a lot of information as to what to expect. Of the six available roster spots in showdown, favorites accounted for 3.36 spots on average, compared to 2.64 spots for underdogs. Further, teams that went on to win the game accounted for 3.58 roster spots, compared to 2.42 for the losing team. What are the most popular mixes of favorites and underdogs among tournament winners?

Favorites - Dogs	Count	Percentage
5 Favs – 1 Dog	27	19.0%
4 Favs – 2 Dogs	35	24.6%
3 Favs – 3 Dogs	48	33.8%
2 Favs – 4 Dogs	26	18.3%
1 Fav – 5 Dogs	6	4.2%



Remember that DraftKings requires us to have at least one player from each team, so a max of five players is what we can have from the favorite or the underdog. The most common mix is a balanced 3-3 approach in terms of favorites and underdogs. However, the data skews heavily toward the favorite as you approach unbalanced lineups. Proceed with caution when picking a lineup with five members of the underdog team. Let's drill down one more layer to conclude our discussion about DraftKings winners by examining the role of position mixed with the Vegas line.

Position	CPT	FLEX	CPT + FLEX
Favored Wide Receiver	0.20	0.79	0.99
Underdog Wide Receiver	0.09	0.75	0.84
Favored Running Back	0.14	0.65	0.80
Favored Quarterback	0.13	0.58	0.70
Underdog Running Back	0.18	0.45	0.63
Underdog Quarterback	0.09	0.47	0.56
Underdog Tight End	0.03	0.27	0.30
Favored Defense/Sp. Teams	0.07	0.23	0.30
Favored Tight End	0.04	0.25	0.29
Favored Kicker	0.00	0.29	0.29
Underdog Defense/Sp. Teams	0.01	0.14	0.15
Underdog Kicker	0.01	0.14	0.15
Sum	1.00	5.00	6.00

Notice that at defense and kicker, the favorite appears in the lineup twice as often as the underdog at each position. This makes sense intuitively as both positions benefit from positive game scripts. Also, notice that favored wide receivers are the most profitable CPT choice. A bit surprising, underdog running backs have actually been more bankable CPT selections than favored running backs. This could perhaps be explained by price differences but it's also worth noting that PPR points for running backs can be accumulated in bulk on teams that find themselves behind on the scoreboard.

## FanDuel

I was able to collect data on 134 FanDuel single-game slates. The large-field \$9 (or sometimes \$9.99) GPP saw a median of 105,820 entrants on Thursday nights, 73,412 on Sunday nights, and 105,820 on Monday nights. As mentioned in the DraftKings section earlier, the larger the field, the more necessary it becomes to hit the absolute optimal lineup. In this section, we will break down some key details from champion lineups in the largest prize pool contests on each slate throughout 2019.



As we dissect the tournament winners together, let's begin our focus on the MVP spot. Unlike DraftKings where the running back position was the most popular CPT, it is the quarterback position that is most likely to reign supreme on FanDuel. Quarterbacks checked in as the winning MVP on 41% of slates in 2019 and the rationale is relatively straight forward. Recall that on FanDuel, there is no additional cost for selecting one player over another as your MVP. With cost no longer a factor, there is no puzzle to be solved in terms of how it affects the rest of your lineup. Instead, the process is to select the five best scorers that fit under the salary cap, then simply slide the highest scorer from that lineup in the MVP spot. That may sound very similar to the DraftKings format, but it could not be more different. On the DraftKings platform, there is opportunity cost associated with the CPT designation. In other words, placing expensive players into CPT limits how else you can build. It also means that you don't necessarily need the highest-scoring player in your CPT. It may instead mean that you need the highest scoring CPT that ALSO allows you to fit in the remaining necessary pieces. On FanDuel, the MVP is much more likely to be the highest scoring player on the slate.

Beyond the fact that MVP costs no additional salary, you must also consider that the scoring differences between FanDuel and DraftKings are massively important. The lack of threshold bonuses as well as half-point PPR (instead of full-point PPR) means that quarterbacks will tend to project higher and also finish higher than their skill position brethren. Wide receivers are particularly limited compared to quarterbacks, especially since their own production also boosts that of their own signal-caller much more directly than the full-point PPR and bonus scoring on DraftKings. Here is how MVP usage plays out for all positions:

MVP Spot Usage	Count	Percentage
Quarterback	55	41.0%
Running Back	49	36.6%
Wide Receiver	24	17.9%
Tight End	5	3.7%
Kicker	2	0.7%

You'll notice that tight ends and kickers were practically never involved as the MVP in optimal lineups. Tight ends face similar problems as wide receivers when it comes to overtaking their team's quarterback for MVP honors. On top of that, tight ends rarely possess the volume of higher end wide receivers. The five tight end MVPs in 2019 were all superstars at the position – George Kittle (twice), Zach Ertz (twice), and Travis Kelce. You don't have to worry about fringe quality tight ends in your MVP spot.

As we discussed earlier, it can be misleading to look at positions as a whole when some positions contain multiple viable options. Once again, let's make the assumption that each team has one quarterback, two running backs, three wide receivers, two tight ends, and one kicker that could be in consideration. What changes?



MVP Spot Usage	Count	Percentage
Quarterback 1	55	41.0%
Running Back 1	43	32.1%
Wide Receiver 1	15	11.2%
Wide Receiver 2	8	6.0%
Running Back 2	6	4.5%
Tight End 1	5	3.7%
Kicker 1	1	0.7%
Wide Receiver 3	1	0.7%
Tight End 2	0	0.0%

The quarterback position of course remains unchanged with its 41.0% MVP rate. In fact, each of running back, wide receiver, and tight end lost fewer MVP nods to second and non-primary players at the position (compared to the same analysis on DraftKings). Once again, this makes sense under a similar rationale to one that we have used before regarding scoring system and salary. We are not incentivized in the FanDuel format to “get cute” by throwing the team’s WR3 into the MVP spot because there are no salary savings. On top of that, we know it typically takes more predictable volume to beat out the quarterback for MVP duties. Similarly, a third-down specialist running back could be a threat for CPT consideration on DraftKings, but has neither the volume nor the salary incentive to be a viable MVP on FanDuel. I noted before that DraftKings’ format features 66.9% of winning CPTs as either QB1s, RB1s, or WR1s. But on FanDuel, the correlation is even stronger as these three positions account for a whopping 84.3% of MVPs. While you can still get creative in your MME builds, look no further than these three positions in your primary tournament lineups.

Now, let’s talk about FLEX baby. We only get four FLEX spots on FanDuel which limits a little bit of creativity. But let’s see if we can dig into anything revealing related to positional deployment throughout the bulk of our roster.

FLEX Spot Usage	Count	FLEX Allocation	MVP + FLEX
Wide Receiver	183	1.37	1.54
Running Back	127	0.95	1.31
Quarterback	115	0.86	1.27
Tight End	60	0.45	0.49
Kicker	51	0.38	0.39



Notice that the FLEX Allocation column above sums to 4.0 while the MVP + FLEX column represents the entire lineup and sums to 5.0. Wide receiver is the most frequented FLEX position. Despite being MVP in a mere 11.2% of lineups, it takes an average of 1.37 wide receivers to fill out a tournament-winning lineup. They are crucial lineup fillers. Similarly, while kickers do not have a prominent role as MVP, they are quite useful in lineup building with 0.38 kickers on average in winning lineups. To flesh this picture out a bit further, let's examine how often various positional combinations appear in winning lineups.

Position	0	1	2	3	4
Kicker	86 (64.2%)	44 (32.8%)	4 (3.0%)	0 (0%)	0 (0%)
Quarterback	9 (6.7%)	81 (60.4%)	43 (32.1%)	1 (0.7%)	0 (0%)
Running Back	21 (15.7%)	61 (45.5%)	41 (30.6%)	11 (8.2%)	0 (0%)
Tight End	71 (53.0%)	61 (45.5%)	2 (1.5%)	0 (0.0%)	0 (0%)
Wide Receiver	11 (8.2%)	53 (39.6%)	56 (41.8%)	14 (10.4%)	0 (0%)
Wide Receiver	9 (6.4%)	48 (34.0%)	53 (37.6%)	23 (16.3%)	8 (5.7%)

Most lineups (64.2%) contained zero golden-toed kickers and hardly any contained both kickers (3.0%). At quarterback, one is the most optimal choice for your lineup (60.4%). Thank Swiss-army-knife gadget QB Taysom Hill for contributing to the lone three-QB winning lineup. For running backs, it typically takes one to get the job done (45.5%) but a pair (30.6%) is still well within consideration. Don't go crazy with tight ends as over 98% of lineups have one or fewer at the position. Like running back, try to keep a tight range of one to two wide receivers in your lineup.

Next, let's take a look at the Vegas trends that impact winning rosters. Of course, we don't fully know how a game will play out before it begins, but betting markets can give us our best indicator regarding favorites and underdogs. Of the five available roster spots on FanDuel, favorites accounted for 2.73 spots on average, compared to 2.27 spots for underdogs. Let's see how various favorite vs. underdog combinations played out among the tournament winners.

Favorites - Dogs	Count	Percentage
4 Favs – 1 Dog	29	21.6%
3 Favs – 2 Dogs	53	39.6%
2 Favs – 3 Dogs	38	28.4%
1 Favs – 4 Dogs	13	9.7%

Like DraftKings, FanDuel requires us to have at least one player from each team, so a max of four players is what we can have from the favorite or the underdog. The most common mix is a 3-2 approach in terms of favorites and underdogs. Since it seems clear that we should lean towards favorites, let's look at how this favorite/underdog designation impacts various positions on our team.



Position	MVP	FLEX	MVP + FLEX
Favored Wide Receiver	0.10	0.75	0.85
Favored Quarterback	0.26	0.48	0.74
Favored Running Back	0.17	0.53	0.70
Underdog Wide Receiver	0.07	0.62	0.69
Underdog Running Back	0.19	0.42	0.61
Underdog Quarterback	0.15	0.38	0.53
Favored Tight End	0.02	0.22	0.25
Underdog Tight End	0.01	0.22	0.24
Favored Kicker	0.00	0.19	0.19
Underdog Kicker	0.01	0.19	0.19
Sum	1.00	4.00	5.00

Having a favored wide receiver on roster (and most likely in the FLEX) is the most important consideration in betting-market based positional analysis. You'll see that there are hardly any differences among tight ends and kickers when it comes to the favorite/underdog distinction. The difference is notable however among quarterbacks (0.21 more favorites than underdogs), wide receivers (0.16 more favorites than underdogs), and running backs (0.09 more favorites than underdogs). Overall, there is a significant preference toward betting market favorites in championship-winning lineup builds.

Before we close the chapter on FanDuel, I wanted to share an additional nugget from Brandon Gdula's "How to Dominate Single-Game Daily Fantasy Football with Perfect Lineup Analysis," which is published at [numberfire.com](http://numberfire.com). Gdula examined 124 available slates for the perfect lineup and organized the amount of salary used to create these lineups throughout 2019. Keep in mind that his study examined perfect lineups while the information I've presented up to this point has been on winning lineups (which aren't always 100% optimal). His analysis yielded the following results:

Salary Used in Optimal Lineup	Frequency	Percentage
\$60,000	7	5.6%
\$59,500	12	9.7%
\$59,000	16	12.9%
\$58,500	10	8.1%
\$58,000	14	11.3%
\$57,500	13	10.5%
\$57,000	12	9.7%
\$56,500	11	8.9%
\$56,000	5	4.0%
\$55,500	1	0.8%
\$55,000 or Less	23	18.5%



On FanDuel, salaries are doled out in \$500 increments as opposed to \$100 increments on DraftKings. This leads to many users spending every possible dollar of their \$60,000 cap. After all, there is no sense in leaving money unspent, right? That would be like going to the pizza buffet and only having four slices when you could opt for a coma-inducing eight slices! While four slices may leave you feeling adequately full and able to continue the rest of your day without an emergency trip to the bathroom, eight slices gives you that dollar-to-pizza ratio that you require as an American. Eight slices means you squeezed all the value you could out of that buffet line. So, it's tempting to take this same mentality into DFS. The salary is there, so why not spend it? There are two big reasons – uniqueness and randomness. Uniqueness means that we are less likely to run into duplicated lineups. Randomness means that we often fail to account for the proper likelihood of unlikely events. We'll discuss both of these core principles in much greater detail later. For now, let's hop into our pre-game research process.



# Research: Understanding Game Scripts

**By Justin Freeman**

It's Tuesday morning, the start of the NFL fantasy week. Monday Night Football is in the rear view and we set our sights on the Thursday Night Football slate that is freshly posted in the lobby. We click into the contest and scan the player pricing, eyeballing for interesting names at unexpected prices. We might even hand-build a few sample lineups just to get a feel for how the pricing fits together. For many showdown enthusiasts, this is really the end of the process. They find the plays they like, jam them into a single lineup, and click submit. It doesn't have to be much more complicated than that right? Play the best players! In the words of Lee Corso, "not so fast, my friend."

We have a number of additional steps of research in order to elevate our chances of shipping a large-field GPP. As we will discuss in depth later, a hodgepodge of players who all project to be strong plays individually can actually make for a weak lineup in a large field tournament. Single-game DFS is played in a perfectly closed system, meaning that nothing else matters outside of the correlated events that happen inside the game at hand. Said differently, there is a massive difference between picking the most highly projected players that fit under our salary cap across a 13-game NFL Sunday main slate versus a single-game DFS contest. Across the 13-game slate, your lineup full of strong players can all thrive without impacting each other if they are all playing in different games. But in showdown, every play outcome impacts every other single play on the slate. A touchdown on the opening drive of the game fundamentally changes how the remainder of the game will be played – not just by that offense, but by both teams – offensively and defensively. So, we must shift our thinking collectively from playing "the best plays" to playing the ones that fit best together. It's a bit of cliché at this point, but your lineup should "tell a story" as to how a game might potentially play out. More traditionally, we refer to the description of a game condition as a "game script." A game script illustrates the projected run-pass split, scoring opportunities, and pace of each team in the game. Let's walk through an example.

The Texans are playing the Chiefs in the season opener. The Chiefs receive the opening kickoff in the back of the endzone for a touchback, bringing out Patrick Mahomes and company for the game's first series. After picking up a first down on 3rd and 5 with a 13-yard option route pass to Travis Kelce, Mahomes' next pass is intercepted by Bradley Roby and returned forty yards for a Texans touchdown – the extra point is good. On the ensuing kickoff, Chiefs' return man Mecole Hardman gets rocked by a Houston special teamer and coughs up a fumble. Houston hops on it. On the second play of the Texans' drive, David Johnson takes an inside delayed handoff through





a wide-open hole and scampers untouched into the endzone. The score is now 14-0 Texans, and nobody saw this coming. We are only four minutes into this game, and we have two touchdowns on the board and neither quarterback has any fantasy production to speak of. At this point, the Chiefs find themselves needing to kick their offense into high gear. Andy Reid looks at his Waffle House menu, errrr.... I mean play-call sheet to find his best pass plays. Meanwhile, the Texans' sideline is preaching ball security, pounding the rock, and dialing up their bend-but-don't-break defensive strategy to protect the lead.

But before this game, Chiefs' running back Clyde Edwards-Helaire and Texans' wide receiver Will Fuller looked like severely underpriced options compared to their respective roles in each offense. Now, neither figures to be an integral part of the game plan moving forward. We are in store for heavy doses of the Chiefs' passing game and the Texans' running game as each team adjusts to the scoreboard. Those median projections from pre-game now mean nothing. Correlation means everything.

Granted, this example is a bit of an exaggerated game script to make a point about correlation. More typically, the impacts of the scoreboard and other in-game events aren't so extreme. Correlation is usually much more subtle, and the impact of the scoreboard is not typically so pronounced until the fourth quarter of games. More common examples of correlation might have to do with a single offense's scoring opportunities. Since touchdowns are such an integral part of fantasy scoring and since scoring opportunities are limited over the course of a single game, teammates can often negatively impact each other's scoring upside when they score touchdowns themselves. In other words, a David Johnson rushing touchdown for Houston comes at the expense of a scoring opportunity for Houston wide receiver Will Fuller and quarterback Deshaun Watson. That does not mean that each player can't rally for a scoring opportunity later in the game, but it means they missed out on one of (typically) very few scoring chances. We'll go over these correlations in depth shortly.



# Research: Understanding Betting Markets

**By Justin Freeman**

Since game conditions will dictate how player scoring interacts with each other, nailing the projected game script is a critical part of our process. To begin our research, we need to have an understanding of the most likely ways that the game can play out. Rather than re-inventing the wheel, utilizing betting markets is a great way to understand the likelihood of various game scripts. Let's talk about four important numbers: the point spread, the total, the implied team total, and the moneyline (and its implied odds). These figures are readily accessible by pulling up any sportsbook along with an ounce of additional legwork.

## The Point Spread

The point spread is a betting line that indicates which team in a contest is most likely to win and by how many points. Teams with a negative point spread (-3.5, -10.0, etc.) are considered the favorites. Conversely, teams with a positive point spread (+7.0, +13.5, etc.) are underdogs. The utility of a point spread is that it provides a relatively efficient understanding of a median outcome. For example, if the Chiefs are -9.5 against the Texans, then the market of bettors has determined that approximately half of all game outcomes should happen on either side of that line. In other words, roughly 50% of the time we would expect the Chiefs to beat the Texans by ten or more points. In the other 50% of outcomes, the Chiefs win by nine or fewer points OR the Texans win outright. As wagers come in heavily on one side or another of an initial line (especially from sharp bettors), bookmakers will begin to amend the line to avoid being over-exposed on any one side. For example, if the Chiefs-Texans line opens at Chiefs -9.5 and 80% of bettors start hammering the Kansas City side, the bookmakers will move the line to Chiefs -10.0 and then continue upward until the action begins to balance out. This line movement is what offers us an efficient look at the median outcome.

The spread gives us a great indicator of the likelihood of one-sided games. A one-sided game can offer a relatively exploitable game script. Not only can we lean on running game options for the team projected to win big (and passing game options for the losing team), but we can also amend our lineup to include an unbalanced split of players between the two teams. For example, in this Texans-Chiefs game with a 9.5-point spread in favor of Kansas City, we likely would want a 4-2 stack or 5-1 stack in favor of the Chiefs on DraftKings (3-2 or 4-1 on FanDuel). There are multiple ways that we can attack through the point spread.



One quick word of caution before we proceed is to not get too locked in on the run-pass differential that tends to happen late in lopsided games. We've all seen the fourth quarter of a blowout where the winning team's running back gets a dozen carries, trying to salt away the clock. But also ask yourself, how did the winning team get their lead in the first place? They likely had some high-quality passing efficiency in those first three quarters. So, while we don't expect a ton of fourth quarter passing from that team, the production from the first three quarters may make the lack of fourth quarter opportunities irrelevant.

## The Total

The next key piece of betting information is the game's total. The total refers to the number of combined points expected to be scored in the game. For example, a final score of Chiefs 24, Texans 17 would result in a total of 41 points ( $24+17=41$ ). The betting total gives us a tremendous indication of offensive firepower expected throughout the game. NFL totals are typically in the mid-40s. A quick look at week one 2020 betting totals shows an average game total of 46.6 points and median of 46.5. Occasionally, betting totals will fly above the 50-point threshold or under 40. Each of those thresholds would represent a pretty significant outlier in either direction. Like the point spread, the totals market will rise and fall to account for sharp betting action on either side. The total gets efficiently hammered into place by the end of the week and once again we can expect approximately 50% of game outcomes to occur on either side of the total line.

To attack the total with our showdown lineups, we can make assumptions about what the total suggests regarding the likelihood of the game being more offensively or defensively oriented. The total also provides some indication not only of scoring upside but also the yardage expectations of a particular game. With that information in our research toolkit, we can adjust our assumptions for what a winning lineup is most likely to look like. For example, low scoring games can often lead to pass catchers outscoring their own quarterbacks. Let's imagine a 10-7 final score where the quarterback from either team throws for 225 yards and zero touchdowns with one interception and ten rushing yards. In that game, he will earn eleven fantasy points. Multiple pass catchers might have six grabs for sixty yards which converts into twelve DraftKings fantasy points. For a quarterback who manages to not throw for a single touchdown, he can often be surpassed by his pass-catching teammates. The total is a great leading indicator for how a game might unfold.

## Implied Team Totals

The byproduct of the point spread and the total is an implied total for each team. Identifying the implied totals for a matchup is a crucial step for showdown players. Imagine that this Texans-Chiefs game has the Chiefs at -9.5 and the game total at 51.0. With those two numbers we can make assumptions about what each team's median score looks like. To run the math here, we simply need to divide each number in half. Half of the point spread is 4.75 and half of the total is 25.5. So, if the point spread were zero, we could assume that each team would be projected



to score 25.5 points based on the total. That number serves as our baseline. Next, we add half the point spread to the total of the favorite. We subtract half the point spread from the total of the underdog. So, the Chiefs implied team total would be  $25.5 + 4.75 = 30.25$  while the Texans implied team total would be  $25.5 - 4.75 = 20.75$ . So, the implied score of the game is Chiefs 30.25, Texans 20.75. Does this pass the test? We can double-check by summing the numbers to see if they match the total and subtracting the two numbers to see if they match the point spread. Fortunately,  $30.25 + 20.75 = 51.0$  and  $30.25 - 20.75 = 9.5$ . We are all good!

With implied team totals, we can more accurately make assumptions about offensive expectations for each team. While the game total tells us about the offensive expectations of entire contest, the implied team total drills down a step further to allow us to make assumptions about each team's unique role in this game. Implied team totals are most frequently in the low-20s. A sub-20 implied total would be exceptionally low while a 25-plus team total would be exceptionally high.

## The Moneyline and Implied Odds

The moneyline is another betting market that references each team's unique odds to win the game outright. You'll often see numbers such as -115 or +140 in reference to a team's moneyline. Like the point spread, negative numbers provide reference to favorites while positive numbers refer to underdogs. There is a pretty straightforward to read these "American odds" which is all based on a \$100 central value. For negative numbers (favorites), a -115 line would mean that a bettor must wager \$115 in order to win \$100. This ratio holds true for any bet amount (\$20 bet would win \$17.39). For positive numbers (underdogs), a +140 line would mean that a bettor who wagers \$100 would win \$140, so the direction of the bet changes but the \$100 assumption holds true. Again, the ratio holds true for any bet amount (\$20 bet would win \$28).

A great thing about the moneyline is that it gives us the truest indicator of how likely either team is to win the game. While identifying the winning team isn't a must for showdown players, it helps us to understand the likelihood of games going in certain directions. In conjunction with the other betting markets that we have discussed, we can begin to understand various likelihoods of game flows. To convert a moneyline into something more helpful we can use a relatively simple formula  $= \text{WAGER} / (\text{WINNINGS} + \text{WAGER})$ . In our -115 example, we would wager \$115 to win \$100. The formula becomes  $115 / (115 + 100)$  which equals 53.5%. In our +140 example, the formula becomes  $100 / (140 + 100)$  which equals 41.7%. These odds reflect the likelihood of each respective team winning the game outright. Of course, we must also account for the vig – that is the sportsbook's cut of the action. I won't dive into the math on that here, but depending on how granular you get in your process, it could potentially be worth taking into account.



## Getting Contrarian with Betting Markets

Betting markets give us a great indicator of how the consensus feels about the likelihood of certain events. Tailoring a gameplan around these various likelihoods can be hugely profitable. However, realize that you are not the only person building lineups with this information. In tournament settings, it can be helpful to understand that building around a less likely game outcome can come with disproportionately advantageous results. In other words, in our Kansas City – Houston example, we would assume that we should be heavily exposed to the Kansas City offense. In cash games and other less-risky formats it makes sense to play it straight according to the betting markets. However, we must recognize that simply because a team is favored does not mean that they are guaranteed to win. If stacking the Houston side of this game is something that only 10% of the field is doing but has a 40% chance of being optimal, we can gain tremendous leverage in tournaments. We will go over more tournament strategy later, but I wanted you to understand the problems associated with relying too heavily on Vegas lines as a lineup building strategy.



# Research: Understanding Correlation

The entire reason that projecting a game script is important is that within the context of a single game, each play has a direct impact on every subsequent play. This means that one player's fantasy output can be directly tied to another player's outcome. For that reason, certain positions tend to be positively and negatively correlated with one another. For example, we know that passing production has a direct positive impact on two players – the quarterback and the pass catcher. Therefore, a strong game for a team's alpha wide receiver can quite often mean a strong game for his own quarterback. In other words, a quarterback and his team's primary wide receiver tend to exceed expectations together. They also tend to fail to meet expectations together. Notice the italics around the operative phrase "tend to." While quarterbacks and primary wide outs are positively correlated with one another, that doesn't mean it's impossible for one to have a great game while the other posts a stinker. Think of correlation less as a rule and more as a tendency.

It is helpful to understand the many ways in which correlations can appear. Pairing primary pass catchers with quarterbacks from the same team seems a bit obvious but have you considered running backs and their own defense/special teams (DST) unit? What about one team's wide receivers with another team's running back? What about negative correlations? Is a kicker more likely to appear in a winning lineup without his own quarterback because the offense consistently failed to score touchdowns? Could a pick-six be both a good thing for the defensive unit who picks up the big score and the quarterback who threw the misfired pass?

The beauty of correlation is that it allows us to reduce the number of things that must break a certain way for our lineup to rise to the top. Instead of needing to hit on several independent events (six on DraftKings, five on FanDuel), understanding how a specific game script correlates the various players in that game allows us to really limit our possible options. This gets back to the earlier point about your lineup "telling a story." Sometimes, that story may be very easy to foresee and sometimes it may take a bit more imagination. But overall, we want to reduce the number of assumptions it takes for our lineup to win. Take away as much variance as you can by picking a game script and stacking the pieces that all mutually benefit together.

Correlations can be positive or negative and correlations can exist across teams, not just within a single offense. A negative correlation refers to players or positions who tend to perform in opposite directions above and below expectation. When one player thrives, the other tends to fail – and vice versa. A multi-team correlation can come into play especially late in blowouts. When one team is up big, they'll rely heavily on their running back while the other team leans desperately on their passing game options.



A helpful way to understand these correlations is to create a matrix of player options – listing each key player across both the horizontal and vertical axes. Look back at their past ten games together. In how many of those games did they both beat their median fantasy score? Look for players who tend to go off together and they will make for natural stacking options in your showdown lineups. 4for4.com published an article titled, “The Definitive Guide to Stacking on FanDuel” where they published the following correlation matrix:

	DST	K	QB	RB1	RB2	TE1	WR1	WR2	WR3	Opp DST	Opp K	Opp QB	Opp RB1	Opp RB2	Opp TE1	Opp WR1	Opp WR2	Opp WR3
Opp WR3	-.06	.02	.13	.03	.00	.03	.07	.04	.09	-.08	.06	.27	-.06	-.01	.00	-.01	.00	1
Opp WR2	-.14	.00	.06	.00	-.03	.04	.03	.00	.04	.01	.06	.32	-.02	-.06	-.06	.04	1	.00
Opp WR1	-.19	-.03	.09	.01	-.03	.02	.07	.03	.07	-.05	.12	.45	.02	-.02	-.04	1	.04	-.01
Opp TE1	-.11	.03	.09	.03	.00	.04	.02	.04	.03	-.07	.07	.33	-.06	.04	1	-.04	-.06	.00
Opp RB2	-.15	-.10	-.02	-.06	-.05	.00	-.03	-.03	.00	.05	.12	.08	-.11	1	.04	-.02	-.06	-.01
Opp RB1	-.26	-.12	.01	-.01	-.06	.03	.01	.00	.03	.12	.17	.09	1	-.11	-.06	.02	-.02	-.06
Opp QB	-.45	-.07	.17	.01	-.02	.09	.09	.06	.13	-.04	.20	1	.09	.08	.33	.45	.32	.27
Opp K	-.43	-.28	-.07	-.12	-.10	.03	-.03	.00	.02	.29	1	.20	.17	.12	.07	.12	.06	.06
Opp DST	-.24	-.43	-.45	-.26	-.15	-.11	-.19	-.14	-.06	1	.29	-.04	.12	.05	-.07	-.05	.01	-.08
WR3	-.08	.06	.27	-.06	-.01	.00	-.01	.00	1	-.06	.02	.13	.03	.00	.03	.07	.04	.09
WR2	.01	.06	.32	-.02	-.06	-.06	.04	1	.00	-.14	.00	.06	.00	-.03	.04	.03	.00	.04
WR1	-.05	.12	.45	.02	-.02	-.04	1	.04	-.01	-.19	-.03	.09	.01	-.03	.02	.07	.03	.07
TE1	-.07	.07	.33	-.06	.04	1	-.04	-.06	.00	-.11	.03	.09	.03	.00	.04	.02	.04	.03
RB2	.05	.12	.08	-.11	1	.04	-.02	-.06	-.01	-.15	-.10	-.02	-.06	-.05	.00	-.03	-.03	.00
RB1	.12	.17	.09	1	-.11	-.06	.02	-.02	-.06	-.26	-.12	.01	-.01	-.06	-.03	.01	.00	.03
QB	-.04	.20	1	.09	.08	.33	.45	.32	.27	-.45	-.07	.17	.01	-.02	.09	.09	.06	.13
K	.29	1	.20	.17	.12	.07	.12	.06	.06	-.43	-.28	-.07	-.12	-.10	.03	-.03	.00	.02
DST	1	.29	-.04	.12	.05	-.07	-.05	.01	-.08	-.24	-.43	-.45	-.26	-.15	-.11	-.19	-.14	-.06





# Utilizing Projections

**By Justin Freeman**

We have discussed the importance of correlation which is the tendency for certain players to score in tandem with one another. But how do we reconcile this with projections? After all, projections give us a great insight into the median outcome of a player's expectations. Unfortunately, as somewhat of a projections nerd myself, it pains me to say that projections have nearly no part to play in showdown – at least in the most common tournament formats. However, there are a few twisted individuals who prefer to play cash contests for single-game DFS. You'll read more later on the pros and cons of cash gameplay.

While correlation is still important in cash games, projections do have a role here. More specifically, it is important to utilize projections built on a range of outcomes. Having the ability to pull on 25th percentile projections, median projections and 75th percentile projections is a helpful way to build a cash lineup in showdown. Simply using median projections does not offer enough context. Let's compare a kicker and a wide receiver who both have a median projection of 10.0 fantasy points. A median projection of course references the 50th percentile of player outcomes, but just how wide is their range? For the kicker, a 25th percentile outcome might be 7.0 points while a 75th percentile outcome might be 13.0 points. That leaves us with a pretty tight 6.0 fantasy point interquartile range. For the wide receiver, the 25th percentile may be 4.0 fantasy points while the 75th percentile may be 20.0 fantasy points. The wide out has a 16.0 fantasy point interquartile range. So, completely different players with completely different ranges can have identical median projections. Even your cash lineups should strive to inject some balance of both floor and ceiling plays. This is a helpful approach not only in showdown but in DFS at large – emphasize interquartile range and floor/ceiling diversity in your cash game lineups.





# Utilizing Monte Carlo Simulations

By Justin Freeman

This chapter may be a touch on the nerdy side for many readers but if you're interested in simulation, you'll find this topic intriguing. With a solid projection system, we can build out a range of outcomes for each individual fantasy option. In our Chiefs-Texans example, we can determine that in this matchup, Patrick Mahomes has a five percent chance to score fewer than ten fantasy points, a two percent chance to score between ten and twelve, and so on throughout his entire distribution of potential outcomes. We can then simulate a game by randomly sampling from each player's distribution outcome with a random number generator (that is the Monte Carlo reference).

In simulation number one, Patrick Mahomes has 20.5 fantasy points, Tyreek Hill has 18.7, and so on. In simulation number two, Patrick Mahomes has 24.4 fantasy points, Tyreek Hill has 27.2, and so on. Repeat, repeat, repeat and you will get a great understanding of how often each player passes certain fantasy point thresholds, how often they are in the optimal lineup, how often they would be the preferred CPT/MVP, etc. However, there is one major problem. Randomly sampling individual players does not account for what we know about correlation. Random samples can be a great way to build lineups on a multi-game slate where outcomes from one game do not have any impact on another game, but showdown is all about correlation, so it must find its way into our Monte Carlo simulations.

Introducing correlation is a bit of an artform. It allows the simulator to alter the projected range of outcomes for a player based on either a known game condition or another player's fantasy output. It bears repeating that correlation is not a rule but a tendency. While a DST and the opponent quarterback tend to not score well relative to one another, it doesn't mean that it can never happen. So, the correlation function within the Monte Carlo simulator alters the range of outcomes slightly to make it more likely for the known correlation event to connect, but not impossible for the opposite outcome.

The Holy Grail in showdown simulations goes a step further with a full-blown play-by-play simulator that would accurately account for coaching decisions, player outcomes, and game script. This goes beyond Monte Carlo simulation which keeps things on the player level and dives ten feet deeper. Building out a true play-by-play simulator requires a lot of assumptions and can result in massive operator error if even one tiny detail is not included. It is the equivalent of playing the game out on Madden with all the known relative inputs regarding volume distribution throughout the offense, player efficiency, and coaching tendencies. These are all multiple ways to arrive at an answer to the same problem which is how to create the optimal lineup based on all the information we have available to us.



# Guaranteed Prize Pool (GPP) Strategy

**By Brian Jester**

Dreaming of winning a big GPP prize is the reason most of us play DFS. However, as discussed later in the Contest Selection Overview chapter, GPPs are big bankroll drainers with their top-heavy payout structures. But, if you have a high-risk mentality and can stomach the long losing streaks while chasing a big win, there are still edges to be found if we enter the maximum amount of lineups allowed in an NFL Showdown GPP.

Let's first start with the most realistic situation for most of you -- single entry, 3-max entry, or leagues (less than 500 player high-risk contests). You can build your lineups by hand and not worry about professional DFS players having more lineups than you in a particular contest. The concepts for building a high-risk lineup are similar whether you are building one lineup or 150.

## Telling a Story

In our high-risk lineups, we need to tell a story about how this specific game will unfold, then create our lineups using that story. Fortunately, if we're creating just one high-risk lineup in a single-entry contest (or a couple of lineups in a 3-Max contest), it's easy to develop and adhere to these stories when building manually. Here are some various scenarios to consider when telling a story for your lineups:

- ▶ What happens if the game scores above or below the Vegas total?
- ▶ What happens if a game is closer (or more of a blowout) than the Vegas spread suggests?
- ▶ What happens if a popular player fails? Who benefits? Who is also more likely to fail?
- ▶ If one player exceeds value, who on his team is less likely (or more likely) to hit value as a result?
- ▶ If a player is benched or injured, who will see more opportunity?

In most high-risk scenarios, we want to avoid what is most likely to happen and instead focus on outcomes that are disregarded by the general public. Think about what can happen, not what should happen. Start by taking a look at your projections or models of choice, analyze the game from a betting market perspective, then decide where outlier scenarios can develop.



## CPT/MVP Usage

When hand-building NFL showdown lineups, you're almost always going to start at the CPT/MVP spot. Once this roster spot is filled, you'll have an idea of how much leverage you'll need in the rest of your lineup and how much salary you need to use in order to have a high-upside, differentiated roster.

There are three main factors when determining who to select as your CPT/MVP in a GPP setting: ability to be the highest scoring player on the slate, projected CPT/MVP ownership, and site (FanDuel or DraftKings).

The first step is narrowing down the player pool to players (or defenses) who have the ability to be the optimal CPT/MVP. On FanDuel, this means they must be the highest scoring player, period. On DraftKings due to the CPT salary multiplier, we must also consider lower-priced players who can score well enough for us to fit in multiple high-scoring studs in our FLEX spots.

The methodology isn't too important here -- you can use ceiling projections, look at a player's historical game logs, simulate the entire game 10,000 times, etc. You just want to get a sense of who is on the list.

Next, find your most trusted source of projected ownership and compare your CPT/MVP list to who the highest projected owned CPT/MVPs are expected to be. Pinpoint the biggest differences -- therein lies your CPT/MVP choices.

Because of the scoring, quarterbacks are far more likely to be an optimal MVP on FanDuel. If we look at how often each position featured the highest scoring player for a team's game last year (2019 regular season only), the breakdown looks like this:

**QB:** 38% (38 percent of the time, a quarterback was the highest scoring fantasy player on his team in a single game)

**RB:** 29%

**WR:** 24%

Now compare that to DraftKings:

**WR:** 35%

**QB:** 29%

**RB:** 28%



It should be no surprise to see QB with a significant edge in FanDuel's scoring while the highest scoring positions are more evenly distributed on DraftKings.

Understand that you will be using QBs more often on FanDuel at MVP while rarely using them at CPT on DraftKings.

## Finding Leverage in Projected Ownership

Similar to how you made comparisons at the CPT/MVP spot, we must next look to compare all of our FLEX players with their projected ownership. So take your projections, model, tout rankings -- whatever it may be -- and compare it to the slate's projected ownership.

Most of the plays will line up similarly, or at least come close. But it's the outliers -- players that you rank much higher than their projected ownership, and vice versa -- that should catch your attention. See where the leverage lies, then begin telling your story and filling out your lineup based on who benefits (or doesn't) given the story you're telling with your CPT/MVP and leverage plays.

## Salary Usage

No matter which site you play on, and no matter which CPT/MVP you select, you can be sure that your lineup will be shared by a high percentage of other users if you use the entire salary cap. It's an extreme example, but in a 39,000 entry FanDuel GPP during the Ravens-Titans playoff game in 2020, a Lamar Jackson MVP lineup that used the entire salary cap was duplicated by 719 other users.

Fortunately, however, we don't need to be too concerned with duplication in limited entry GPPs. For one, our investment is so much smaller than if we were 20- or 150-maxing, so the ROI is still high in the event of a duplicated GPP win. Secondly, because of the limited number of maximum entries, contest sizes are generally smaller, leading to less lineup overlap.

Still, we don't want to be splitting a GPP with 719 internet strangers. We'll get deeper into uniqueness rules in the next chapter on mass multi-entering, but here are some simple salary rules to utilize when creating limited entry GPP lineups:

On FanDuel, QB MVP: Use at most \$59,000 of the \$60,000 salary cap. For cheat code QBs like Lamar Jackson and Patrick Mahomes where their MVP percentages exceed 40 percent, use at most \$58,500.

On FanDuel, non-QB MVP: Use at most \$59,500 of the \$60,000 salary cap. For unpopular MVPs that are rostered at less than 5 percent, you can use the entire salary cap.



On DraftKings, any CPT: The only time you should be selecting a QB CPT is when he is projected to be rostered in the CPT spot at less than 10 percent. Use at most \$49,500 of the \$50,000 salary cap (except for unpopular CPTs -- 1 percent or less -- which you can use the entire salary cap).

By adhering to these simple salary rules, you can create high-upside lineups without the worry of being tied with hundreds of other users in limited entry GPPs.

## Utilizing Cheap Plays

When filling out the last spot in our lineup, especially if we've already rostered a few expensive players, we'll inevitably look to the bottom of the salary pool. However, depending on whether we're playing on FanDuel or DraftKings, we'll use these cheaper players very differently.

On FanDuel, the minimum salary is \$5,000, and that price is mostly reserved for backup RBs, WRs, and TEs. While you shouldn't be excited to roster the Kalif Raymond's of the world, they provide a useful edge given FanDuel's single game setup. Generally, these players end up being rostered at less than 1 percent (a more involved player may get up to 5 percent), so they can instantly provide a unique element to your lineup.

Thanks to FanDuel's touchdown-heavy scoring, these min-price players can easily sneak into the optimal lineup if they land in the end zone. Consider using these players either when you have a QB MVP to save salary (for uniqueness) or when you roster three or more expensive players overall. One touchdown can allow them to outscore all of the players priced \$2,000 to \$2,500 higher -- which obviously helps -- or they can at least come close enough so that they help fit four expensive high-scorers together in a single lineup.

Because of the PPR scoring on DraftKings, we only want to consider these cheap players -- defined as less than \$2,000 salary on DK -- in the event of a major role change or if they have the ability to outscore players in the \$4,000 to \$5,000 price range. Due to the scoring and extra roster spot, very rarely will a cheap player who scores single digit DraftKings points end up in the optimal lineup.

If you use a cheap player on DK, you'll have to leave a little bit of salary leftover. No matter how unpopular you think a cheap play is and you roster him in a lineup that hits the \$50,000 salary cap, it will always be duplicated (sometimes heavily).

## Reviewing Your Lineup

As with every DFS contest, it's incredibly important to review your work once the slate begins/ends. How do we know if we had the right process and created an edge? If we just rely on where we finish in the standings, our work becomes purely results-oriented.



Fortunately, when you have a limited number of lineups, you don't need scripts or extensive CSV work to review your process. Here are your checks for after a slate locks:

CPT/MVP roster percentages: Did you predict the most popular CPTs/MVPs? Were there any surprises?

Overall roster percentages: Was your leverage, in fact, leverage? Were popular plays that you faded actually popular? Were your under-the-radar plays actually unpopular? Being able to predict the field accurately is the first step in single game success.

Lineup duplication: How many other users had your lineup? On DraftKings, you can download the CSV once the game ends, find your name, and see if anyone with the same lineup tied with you. On FanDuel, you'll have to scroll to your spot on the leaderboard and check ties.

This isn't a one-time occurrence either -- you should be doing this for every single game slate you play. Inevitably, as more information becomes available about single game contests -- and as more people read this book! -- the playing field will become a bit sharper. Be sure to monitor your process as often as possible.



# Mass Multi-Entry (MME) Strategy

By Brian Jester

If you have a larger bankroll, a high-risk approach, and/or an appetite for the largest DFS paydays, you're probably attempting mass multi-entry (MME) in some form. The most common entry limits in this range are 20-max and 150-max, both of which offer huge pay days relative to your initial investments.

Unfortunately, DFS isn't easy, and you can't just load up your favorite lineup builder/optimizer, spit out 150 lineups, and print money in NFL single game GPPs (or any GPPs for that matter). If it were that simple, you wouldn't need to read this book.

While the same principles still apply from the previous chapter on GPP strategy, we need to fine tune them when using a lineup builder to MME.

## Correlations, Rules

When hand-building lineups, it's easy to tell a story and avoid rosters that don't make sense. However, most, if not all, lineup builders don't have intuitive sport-specific storytelling rules built into their algorithms. So when you ask it to create 150 lineups without many inputs, you'll often find that many of the lineups it creates have zero chance of winning an NFL single game GPP.

Fortunately, many lineup builders also give you the ability to create "rules" to help guide the builder in its lineup creation decisions (e.g. in a single lineup, use either Player A or Player B, but not both). Before you ask the builder to spit out your lineups, you'll want to create these rules that are similar to the "rules" you create when you're telling a story while hand building a lineup. Here are some example rules to set:

**Use a max of 1 for players who share the same role.** We're sacrificing a valuable roster spot if we utilize two players who cannibalize each other's playing time and opportunity. This is especially true when both players have significant salaries.

Example: use Aaron Jones OR Jamaal Williams (or neither), but not both together.



**Use a max of 2-4 pass catchers from the same team.** There's only so much opportunity to go around. Optimizers get weird sometimes (they don't know any better) and put three or four receiving options from the same team in the same lineup.

Example: use maximum 3 of the following group -- Deebo Samuel, Emmanuel Sanders, George Kittle, Kendrick Bourne, Trent Taylor

**Use a max of 1 defense.** Over the past 105 single game slates, only two featured winning GPP lineups with both defenses. Both of those NFL games combined to score 21 points.

**Use a max of 1 kicker.** This is slightly more likely to be optimal than a defense, occurring in five of the last 105 winning GPP lineups.

**Use/don't use X players for CPT/MVP Y.** This goes back to telling a story. If a pocket QB is the optimal MVP, then his pass-catchers must contribute, so you'll need at least one in your flex spots. If a player does well enough to be the optimal CPT/MVP, by default, other players will not have good games so we need to exclude them from our lineups with those CPT/MVPs.

Example: use minimum 2 of the following group if Tom Brady is MVP -- Mike Evans, Chris Godwin, Rob Gronkowski, OJ Howard

Example: exclude opposing defense if Derrick Henry is CPT.

There are certainly more rules -- and some are slate-dependent -- but you need to always think about: if this happens, what is less/more likely to happen as a result?

## CPT Usage

We get this question all the time: "how many CPTs/MVPs should I use if I'm maxing 20 or 150 lineups?" The answer depends on the slate, but here's a general rule of thumb: **have leverage on every CPT/MVP you include in your player pool.**

If you like a few of the less popular CPT/MVP choices (think 10 percent or less field exposure), it's fine to double the field's exposure on each one and have six to 10 CPT/MVPs. If you really like a popular CPT/MVP (usually, QBs on FD), go really heavy on them (more than the field's projected exposure) and only have two to four CPT/MVPs. **Your goal with your CPT/MVP selections is to be ahead of the field** if one of your choices ends up as the optimal CPT/MVP.





## Using Leverage, Exposures vs Projected Ownership

Some 150-maxers let their projections determine their exposures to players with no manual suggestions or restrictions. While this can be a fine approach if your projections are built for GPPs (and you trust them), you should be looking to manually tweak your player exposures for a portion, if not all, of your player pool.

Similar to finding and exploiting leverage for our hand-built GPP lineups, we need to identify those outliers in our MME builds.

For the players we like more than the field, we should set their minimum exposure to 1.5X-3X (or higher!) their projected roster percentages so that we truly benefit when they outperform expectations.

**Should I ever go 100 percent exposure on a player?** Maybe in 20-max with a smaller player pool, but due to the event-driven nature of NFL DFS scoring, there are only rare cases when you should do this (cheat code QBs, mostly on FanDuel).

For players you like less than the field, you should still have some exposure if they're a key player in 150 lineups. Ideally, you should have at least 50 percent of the field's exposure on every player in your player pool (e.g. if Marquise Brown is on 30 percent of rosters, you should have minimum 15 percent exposure).

For 20 lineups, role players/backups, or if you have an extreme risk tolerance, you can fade some players entirely. At least then you can go to bed after that player rips off a 60-yard touchdown in the first quarter.

## Cheap Play Exposure

"Cheap plays" (defined as \$5500 or less on FanDuel or less than \$2,000 on DraftKings) require their own set of exposure rules. Almost always, these players will be rostered at 10 percent or less, so it doesn't take a lot of exposure to be overweight on the field.

For these players, you'll want to cap your exposure to 2-5X their projected roster percentages -- they're cheap and low-owned for a reason, so don't go crazy. Unless you have the absolute best projections in the world (you don't) or inside information that lets you know an under-the-radar player will vastly outperform his expected role (you should be betting instead), it's dangerous to utilize a cheap player in half of your lineups.

As discussed in the GPP chapter, these cheap players play a specific role in your single game lineups, so you can't just blindly throw them into your 20- or 150-lineup build. Rules must be created.



Your cheap, low-owned FanDuel plays are only necessary when a) you use the entire salary cap and need to differentiate, or b) when you use a popular QB MVP and need to save salary. Thus, you should create a rule to only include cheap players when you have a popular MVP (e.g. in a Chiefs vs Ravens single game contest: if a lineup rosters Nick Boyle, it must also include MVP Patrick Mahomes or MVP Lamar Jackson). There's no need to randomly use a cheap player in an already unique lineup.

On DraftKings, cheap players are way more sensitive to total salary used in a lineup. It's pretty much impossible for a cheap player to be in a GPP-winning lineup that leaves \$3,000 or more in salary on the table. Sure, a cheap player can outscore all the other cheap players, kickers, and defenses, but they also probably won't be able to outscore all of the players in the next salary tier too. Most lineup builders don't offer total salary + player rules, so you'll have to manually check this in the post-lineup building process.

## Salary Floor/Ceilings

Dating back to the beginning of the 2018 season, just 45 percent of winning lineups in the big DraftKings single game GPPs have used \$49,500 or more salary. On average, nearly 90 percent of lineups entered into a single game GPP use \$49,500 or more salary. See the edge?

Just about 70 percent of all winning GPP lineups during that time were duplicated (more than one user entered the same lineup). In those duplicated lineups, the median salary usage was ... \$49,500.

It's pretty clear that when building single game DraftKings GPP lineups, the number one rule is to set your max salary at \$49,500. You'll instantly reduce the chances of splitting with 100 other people in a win. While splitting is okay for limited entry lineups, a 100-way tie for 1st place is disastrous and likely doesn't even return your initial investment if you enter 150 lineups.

On FanDuel, salary is important, but it's more a function of MVP plus salary. For QB MVPs, you either need to leave a ton of salary leftover (\$2,500 or more) and/or utilize a 1 percent rostered player. For non-QB MVPs, the ideal salary usage is \$59,000 or less. Unfortunately, a majority of lineup builders on the market don't offer flexibility and salary rules based on who your MVP is, so it takes a lot more fine tuning after lineups are built.

For minimum salary, there's no clear-cut rule, so you have to do a bit of work. Build some lineups by hand and try to figure out the lineup with the least amount of salary that could actually win. In 2018, the OAK/SF showdown featured a winning DraftKings lineup using just \$38,600. This is an anomaly, but it goes to show that low salary lineups can win. Most DFS pros limit their minimum salary to \$1,000-\$2,000 less than their max salary, and it depends on your comfortability with creating ultrahigh-risk lineups whether or not you want a lower salary floor.

Just remember -- the lower salary floor you create, the more fine tuning you'll need to do after your lineups are built.



## Fine Tuning

Say it with me one more time: most lineup builders are not smart. No matter how many rules you create and settings you optimize before you run lineups, the lineup builder will inevitably give you some “bad” lineups. It’s your job to take the time to tweak them. Again, it’s not easy being a winning 150-max player, you have to put in the effort.

Here are some issues to look for after you receive the “Lineups Built!” message:

**Look for weird lineups.** Do you end up with 4 tight ends in a lineup? Did a kicker CPT sneak in there? Why is CHI DST the only Chicago player in this one lineup? Perhaps you forgot to implement a rule (many times you didn’t even think to consider this rule!) and it’s an easy fix. Maybe the optimizer went off the rails, and it’s just a one lineup manual fix. Potentially, you may even have to go back to the drawing board if a good chunk of your lineups are dumb.

**Check your exposures.** Depending on how picky you were when setting exposures and creating rules, there’s a good chance the lineup builder couldn’t adhere to all of your stringent requirements. As a result, sometimes you end up with way more or way less of a player than you intended. Figure out why this may be the case. You can change some settings and attempt to re-run it, or sometimes, you have to give up your exposure desires for 1-2 players in order to create smart lineups given your constraints.

**Investigate lineups near the minimum and maximum salary thresholds.** Do they make sense? For lineups that are near or at your salary ceiling, are they too chalky? Make some manual swaps to create more differentiated lineups since they’re likelier to be duplicated with a higher salary usage. For lineups near the salary floor, do they even make sense? Is it actually possible for that lineup to be optimal? Using kickers and defenses and third string tight ends but no quarterbacks in a lineup will certainly be different, but it basically has no chance of winning -- fix those dead lineups.

**Check your player pairs.** Not all lineup builders have this capability, but you need to ensure that some players aren’t randomly paired together in a majority of lineups. For example: why the hell do 90 percent of my lineups with Demarcus Robinson also have Jordan Akins? If you find that there are too many uncorrelated player pairings with high lineup exposures, crank up the “randomness” setting in the lineup builder to achieve more randomized player distributions.

This isn’t a comprehensive list, but the point remains: investigate your lineups thoroughly and never fully trust the lineup builder.



## Metrics to Consider Post-Lock

The slate has locked and now all you have to do is sweat the game! Wrong. Perhaps the most important part of the single game MME process is reviewing your lineups. This requires a bit more effort than hand-built lineups, but these are important metrics to consider when evaluating your process for a particular slate:

**Uniqueness.** How many of your lineups were unique (no other user had the same lineup)? For maximum ROI potential, we want maximum unique lineups to have as many swings as possible at a solo first place prize.

**Duplication.** It's not feasible to have 150 unique lineups, especially as the field continues to get sharper. But you don't want lineups that are shared by tons of users. How many of your lineups were slightly duplicated (5 or less)? Acceptably duplicated (10 or less)? How many lineups were incredibly popular (100 or more)? If you end up with any super popular lineups, evaluate why they're popular and how you can avoid them in the future.

**Top 0.1 percent finishes.** As stated in the last chapter, we can't judge our lineups purely by profit/loss. With the limited number of slates and the variance involved in NFL games, we may not recognize a true return on investment over the course of a season. Instead, check to see how often you get close to the top. If you finish in the top 0.1% of a contest (e.g. 100,000 entries, you finish top 100), you're insanely close to the top prize -- it's just a catch or ball bounce one way or the other. We can't control those bounces of the ball, but we can control how often we get near the top. Get near the top often enough, and eventually a big pay day is coming.



# Cash Game Strategy & The State of the Lobby

**By Chris Rooney**

We're going to go back and forth between two different terms in this section - "cash" and "low-risk" lineups refers to building for any contest format where roughly half the field wins. Realistically, most of you are going to be playing single entry double ups, small stakes head-to-head contests, leagues, etc.

Big picture, our strategy in these games is nearly the exact opposite of what it is for GPPs. For low-risk contests, think not only about what can happen, focus on what should. The most probable game script outcome is the one we want to plan for in these contest types.

While you'll find several multi entry contests posted as 50-50s and double-ups, most likely, you'll stick with one cash game lineup on any given single game slate. Much like high-risk lineups, the concepts for creating ideal low-risk lineups will be the same no matter how many different lineups you're looking to build.

## Telling a Story

We still want to tell ourselves a story about a game; for these contests, we want to focus on the most probable outcome implied by the betting odds. Is Kansas City favored by 10 points over Houston with a 55 point over/under total? New England favored by 3 over Buffalo with a total of 36.5? No matter who the teams are, what the spread, or what the total is, we want to think about the game environment those spreads and totals imply and build our low-risk lineups for it.

Simply put, the higher the game total, the higher the total fantasy points your lineup will need. Here's the min-cash lines for DraftKings showdown contests since the start of the 2018 NFL season on main slates (Thursday night, Sunday night, Monday night football games, playoffs):



Game Total	Cash Line
Over 47	95.63
Under 47	85.97

Notice there's a massive, ~10 point difference in the average minimum required score. This should intuitively make sense - higher scoring games will have more fantasy point production. General principles to be aware of:

- ▶ The higher the total, the more points scored = the more viable kickers become. More points = more field goals and extra points, after all.
- ▶ The bigger the spread, the more likely we want the favored defense (DraftKings only) somewhere in our build.
- ▶ The lower the total, less points scored = more viable both defenses become (DraftKings only).

What's the line movement? Does a team open -10 and "move" dramatically to -14? We probably want to prioritize them in our lineups. Does the line move dramatically in favor of the underdog? We should think about what that means for the players on the teams involved.

While we know that not every game is going to follow its "most likely" script - we won't know that until post-hoc, aka, when the game is already over. Our best guide for every showdown slate to start thinking about the story, therefore, is the line and line movement. Luckily, there's one place to start with low-risk lineup building that applies to both FanDuel and DraftKings - and it allows us to maximize our exposure to all the potential offensive touchdowns in a game.

## 2 QB, 2 RB Focus

It's important to not have hard and fast rules for yourself in DFS. You don't want to become less analytical and fall into the trap of building "the same" way without considering the context of the slate.

That being said, we actually can count on the QB1 and RB1 to have a hand in nearly all the offensive touchdown scoring in any given game - no matter what the spread and the total is. Look at the following tables. This is representative of all the offensive touchdowns that were scored in the 2019 regular season - 796 passing, 447 rushing:



## Passing/Receiving Touchdowns

Position	Pass TDs	%
QB	787	98.87%
RB	0	0.00%
WR	9	1.13%
TE	0	0.00%
Other	0	0.00%

The overwhelming majority of passing touchdowns are thrown by quarterbacks (cool, thanks guy). It's pretty clear to almost any football fan with a brain that the performance of the quarterback is the most important component of a "real" team's success on offense - it should come as no surprise, therefore, that the quarterback's performance is going to be key in single-game contest formats. You'll want to jam in both QBs in your lineups in low-risk contests virtually 100% of the time.

This data is the main reason we want to operate with the default mindset of wanting both starting QBs in our single game lineups. It's hard to think of the exceptions to this, although they will come up. Potential exceptions would be:

Is the QB on a team with a laughably low implied team total? (i.e., 14 points or less). If they are, we should at least take pause and think about why.

Split reps. Does more than one QB play? As things develop and change in the NFL, it's not unreasonable to see a future where multiple teams use more than one QB in a game regularly (think openers being a thing in MLB, just an NFL version). If and when we encounter such a team on an NFL single game slate, we'll have a choice to make about which QB(s) to roster.

For GPP lineups, we often think about stacking. We know that QBs have favorite targets in the passing game - and we want to maximize our exposure to those potential touchdown connections for tournament upside.

While we can't discount the impact that can have on your low-risk contests, we do have to think about how often we're likely to be correct about the "other" player involved in that score in our lineups:

Position	Receiving Touchdowns	Percentage
Running Back	103	12.94%
Wide Receiver	480	60.30%
Tight End	199	25.00%
Other	14	1.76%



The overwhelming majority of teams are going to use the 11 personnel base set most often - 1 RB, 1 TE, 3 WRs if you're not hip to the lingo. So while we can see it's "more" likely any WR will be on the receiving end of a passing touchdown, remember that typically more WRs are on the field at any given time. On the high-end, most pass catchers will top out with a 20% touchdown rate.

For low-risk, instead of focusing on that roughly 1 in 5 chance (best case scenario) that we nail the QB-pass catcher stack correctly, it may make sense to focus on the other touchdown type - those that come on the ground.

## Rushing Touchdowns

First and foremost, QBs have the 2nd highest probability of being the ball carrier for a rushing touchdown. When we layer that on top of their virtual 100% ownership of all passing scores, it's nearly impossible to see many scenarios where we won't want QB exposure in low-risk (keep this in mind for CPT/MVP usage below).

Virtually 100% of the other rushing touchdowns? RBs earn them:

Position	Rushing Touchdowns	Percentage
Quarterback	80	17.90%
Running Back	352	78.75%
Wide Receiver	14	3.13%
Tight End	1	0.22%
Other	0	0.00%

We do see some teams creatively using WRs on jet sweeps and other designed runs (Rams with Kupp and Woods, Titans with AJ Brown, 49ers with Deebo Samuel come to mind from 2019), but not nearly enough for us to worry about as a touchdown scoring trend league-wide yet.

While three-down backs are dropping like flies in the modern NFL, most teams typically have a preferred RB for scoring situations, especially in the red zone.

As an NFL season marches on, we can examine red zone play calling data to identify which RBs are the most probable touchdown scorers for any specific team - those are the guys we want in our low-risk lineups. And as you saw above, there's an added chance an individual RB might catch a touchdown pass - giving these players a far higher touchdown probability than individual WRs at any given time.





## CPT/MVP Usage

QBs will be the most heavily owned players at MVP/CPT - and a lot of it has to do with the data referenced above. Touchdowns are king in fantasy football - and these are the players who score the most of them, after all.

### DraftKings Showdown

No matter what CPT you use, you should make a strong effort to play both QB1s in these contest types. Your CPT pool in low-risk will vary based on the slate and the conditions of the games, but you can bucket those out into a few categories:

- ▶ Cheat code QBs - dual threats, high volume, “air raid” offense passers - they should probably be your CPT - especially when their team is favored. These high floor/ceiling plays likely dominate the fantasy scoring.
- ▶ Bell cow RBs, 7+ point favorites - RB1s are acceptable at CPT if you can swing it in these builds.
- ▶ Game Total over 47, high priced QBs - CPT the favorite’s kicker, follow the 2 QB/2 RB strategy.
- ▶ Game Total under 47, 7+ point favorite - CPT the favorite’s defense (lower scoring after all), as the implied team total for the underdog is starting to look dicey - especially if we have a turnover prone QB against the defense.
- ▶ Game Total under 47, general - CPT either K or DST.

### FanDuel Single Game

Brandon Gdula of numberFire has an awesome article out about FanDuel single game data, you should check it out - FanDuel doesn’t make their data publicly accessible like DraftKings does, so this is a phenomenal resource. Breaking down “optimal” or “perfect” lineups is a bit different than building a high-floor lineup for cash game formats, but the key takeaway about the MVP spot is universal:

Position	Optimal Frequency
Running Back	37.10%
Quarterback	33.90%
Wide Receiver	24.20%
Tight End	4.80%
Kicker	0.00%



In 124 optimal lineups in the 2019 NFL season, the K was never optimal. Ks have a very tight range of outcomes, and their scoring performance is wholly dependent on team performance, after all. Simply put, don't MVP Ks.

Since there's no 1.5x salary multiplier on FanDuel to worry about, we want to focus on QBs/RBs as our cash game MVPs pretty much exclusively - we want high probability touchdown exposure in that MVP spot, after all.

FanDuel's 0.5 PPR scoring format makes it far less desirable to MVP WRs in low-risk formats. Unless we're looking at a situation where one WR just dominates opportunities (2019 Davante Adams on GB, anyone?), we should only use those high-floor WRs as UTIL plays.

## Using “non-traditional” CPTs on DraftKings

In cash game formats, we're less worried about our CPT being the highest scoring player, or having the highest ceiling. The 1.5x salary multiplier makes it harder for us to field the “best” players in a valid lineup.

Using a K or DST CPT on DraftKings in order to open up our ability to roster high floor QBs and RBs is the best way to get around this. Remember that our only goal in these formats is to beat the cash line (or our H2H opponent) - not reach the top of the table.

## Leveraging Projected Ownership

Most people might tell you that projected ownership “doesn't matter” for cash games. Au contraire! DFS games like golf and NFL give players the benefit of a full week to analyze a matchup, to utilize projections, to use monte carlo simulations, etc. - pretty much all the things you've read about up to this point in our Guide.

There is one very simple way we should leverage ownership projections in cash games - and that is to pay attention to the wisdom of the crowds. Sharp players have all week to figure out the best way to attack these contests and build optimally - any ownership projections you have access to that are worth their salt will be very precise, and you should weigh them heavily for this format.

The quick and dirty secret to low-risk contests? Players who project for the highest ownership % on slates, end up in your winning cash game builds the most often. First, this makes some intuitive sense - if Tom Brady projects for the highest overall ownership on a Bucs/Saints slate, then you can feel confident that he's going to be a necessary part of your build.

If you're using a player who projects for 10% or less ownership in your cash lineup(s), like Scotty Miller as a WR3/4, then there better be a good slate-dependent reason you landed on that play - otherwise, probably should head back to the drawing board.



# Contest Selection Overview

By Chris Rooney

## What Is Contest Selection?

Million dollar showdown winner Brian Jester has written about this extensively in the past; the [Occupy Fantasy Ultimate Guide](#) is a great place for a more thorough run down. Most DFS players who haven't read this guide (congratulations on joining the elite) have no idea what to take into consideration while finding contests to enter.

The variety of options in the lobby can be overwhelming, with dozens of sports and multiple tabs of contests at different field sizes, prize pools, and competition levels. As a DFS player, you often hear content providers (all of us do this) refer to two categories of contests - "cash" vs. "GPP". If you've made it this far into this guide, you should already understand the fundamental difference between these contest types.

**Just so it is explicitly clear, however:**

**Cash** - Low-Risk, Head-to-head (H2H), 50-50, Double Ups - these are contests where roughly half the field wins... you guessed it, cash. Payout structures are flat, with every "winner" in the larger field sizes winning the same amount.

**GPP** - Tournaments, multipliers, satellites, qualifiers - these are high-risk contests. Often 20-25% of the field (or less) wins, with the top ten finishers often receiving 30-40% of the entire prize pool in the super large field contests (think millionaire makers).

What type of DFS player - and more specifically, NFL single game/showdown DFS player are you? You need to understand yourself and your goals playing these contests before you start spending your hard earned bankroll dollars on entry fees.

## What type of player are you?

The vast majority of DFS players do this as a hobby - it's fun! We like sports, we like analyzing sports, and we like the opportunity to profit off of our hobby. A simple way to try and answer this question:

Are you good at thinking about off-the-wall game scripts and lineup constructions? Do you like to think about the contrarian potential outcomes of games? You might be well on your way to being a high-risk, tournament player.



Do you feel like you have a strong handle on how each NFL team prefers to utilize their personnel in different game scripts? Do you feel confident in your ability to predict which players will benefit the most from the conditions that an upcoming matchup most likely presents? You're likely to be better suited for low-risk, cash games then.

**Build your lineup(s) first, then enter contests. Not the other way around.**

You should be able to take a step back from your completed build(s) and ask yourself what kind of build you've put together. Always remember the buckets of contest types that are available to you (in DFS in general, not just single game/showdown):

Contest Type	Margin	ROI	Cash Line
H2H	6.5% - 10%	1.8x	50%
50/50s, Double Ups	9% - 13%	1.8x - 2.0x	43% - 50%
Triple Ups, 3x	11% - 13%	3.0x	28% - 33%
Quintuple Ups, 5x	9% - 13%	5.0x	17% - 18%
Leagues/Contests	9% - 15%	2.0x - 25.0x	12% - 17%
GPPs	10% - 15%	2.0x - >1,000x	18% - 25%

**Margin** - this is the % of overall contest entry fees that goes to the contest operator. "Paying the rake", so to speak. When you and your opponent both enter a \$1 H2H, each of you pays \$0.10 to the operator, and the winner gets the rest. As you can see, margin varies by contest type dramatically.

**ROI** - your ceiling outcome. The lower the risk, the lower your potential return on investment.

**Cash Line** - as the top prize amount increases in a contest type, the percent of the field that wins decreases.

Everyone loves the idea of chasing GPPs - who doesn't want to win a 6-7 figure payday, after all? If your goal is to try and grow your bankroll without having to deposit repeatedly, you should be focusing on contest types at the upper end of this table.

Compare your completed lineup to the factors discussed both in the MME and Cash Game Strategy chapters, then decide where your lineup fits better - that's the type of contest you should play with that build.



# Positional Analysis – Floor vs. Ceiling

By Chris Rooney

A fantasy player's floor/ceiling combination represents a range of point production outcomes we can realistically expect them to achieve based on a.) their role in their offense and b.) recent performance.

It's actually quite easy to calculate some of this yourself if you want to understand how it works. What you can do is take a football player's game log from one of many publicly available resources, then calculate their fantasy points in each game using the relevant scoring system - 0, 0.5, 1 PPR.

**Then, you need to calculate two specific numbers:**

- ▶ Their average fantasy points per game.
- ▶ The standard deviation (oh, big scary math word guy is here now... time to skip to the next section! Please don't do this) of their fantasy point totals in the sample.
- ▶ We can then multiply that standard deviation by 1.5.
- ▶ Subtracting the product of a player's standard deviation and 1.5 from their average fantasy points per game is a player's floor.
- ▶ A player's ceiling is when you add that same number to their average fantasy points per game.

Why multiply standard deviation by 1.5? Put simply, the range of outcomes between a player's floor and ceiling by doing this represents ~94% of their expected production - it gives us a really high chance of forecasting the right range for a player.

Here's some QB data from 2019, using DraftKings scoring to illustrate this for you:



Player	Pos	Avg FPPG	St. Dev	Floor	Ceiling
Lamar Jackson	QB	30.08	6.80	19.88	40.28
Patrick Mahomes	QB	24.45	9.48	10.24	38.67
Drew Brees	QB	24.32	9.30	10.37	38.28
DeShaun Watson	QB	23.98	9.94	9.06	38.89
Jameis Winston	QB	23.85	8.99	10.37	37.33
Dak Prescott	QB	22.48	8.76	9.34	35.61
Ryan Tannehill	QB	22.15	7.34	11.14	33.17
Daniel Jones	QB	21.83	11.99	3.84	39.82
Matt Ryan	QB	21.63	7.75	10.01	33.25
Russell Wilson	QB	21.53	9.40	7.44	35.63
Josh Allen	QB	20.09	5.49	11.86	28.32
Kyler Murray	QB	19.68	7.41	8.57	30.79
Carson Wentz	QB	19.24	5.28	11.32	27.17
Ryan Fitzpatrick	QB	19.19	9.00	5.68	32.69
Aaron Rodgers	QB	18.68	10.34	3.17	34.20

What do you notice? The QBs with the highest ceilings tend to be those on high-powered, high-scoring offenses. The QBs with the highest floors (you see why we say Lamar is a cheat code)? They tend to have smaller standard deviations - this means there's a tighter range of outcomes in their performance on the field. Note: at this point, this data is merely descriptive. Unless we can project similar workloads (and with QBs, we often can, frankly), these floor/ceiling outcomes are likely to shift in 2020. Tracking this information during the season will help you uncover opportunities not just in single game DFS, but all fantasy contest types.

## Positional Averages

Pos	Avg St. Dev
QB	8.00
WR	8.77
RB	8.32
TE	6.74

Using DraftKings scoring for a sample of over 150 different fantasy-relevant players, we start to see high-level positional differences in scoring.



A low standard deviation isn't inherently good - while TEs have the lowest deviation, they also have the tightest range of outcomes, and therefore the lowest ceilings. Every rule has exceptions (looking at you, Travis Kelce) - more often than not, TEs are going to offer you relatively low projected fantasy point outcomes, and therefore lower ceilings.

A high standard deviation isn't inherently bad - the flipside here - the bigger the standard deviation, the higher the ceiling for a player. WRs lead the pack here - and if you think of the usage of the Will Fuller types, this will start to make a lot more sense. As far as single game/showdown contests are concerned, focus on the following:

- ▶ Cash Games - try and maximize your exposure to floor.
- ▶ GPP/Tournaments - be willing to sacrifice floor for access to a ceiling. Plain and simple.



# In-Game Contests – 2nd Half and 4th Quarter

**By Justin Freeman**

2019 was the debut year for in-game contests on DraftKings and FanDuel. In-game contests follow the same showdown single-game format from each site, but only account for specific periods of the game – either the second half or fourth quarter depending on which contest you enter. The prize pools in these contests continued to grow over the course of the year which does a lot to stabilize the future of both showdown and in-game showdown. People love the format and its casual nature. And if you think the showdown lobby is filled with casual degenerates, let me introduce you to the in-game showdown lobby – one made up of folks whose full-game showdown lineups are as dead as a doornail and are a few brewskis deep into their Monday Night Football routine as they jam in a lineup from their phone. As sharp DFS players in a peer-to-peer sport, we should be licking our chops for an opportunity to take on folks who are less prepared than ourselves. In-game showdown offers a great chance to exploit an edge through research.

The main thing to remember about in-game showdown is that it is the ultimate in small sample sizes. Think of it this way – you challenge Steph Curry to a three-point shooting contest. You compete in the best of 100 shots – what are your odds? Some number that asymptotically approaches zero. But what if it was the best of one shot? Now all of a sudden, you have a chance! Still you don't have a particularly great chance, maybe ten to twenty percent, but at least there is a chance. Weird things happen in small samples. Embrace this in your in-game showdown lineups. We know that Duke Johnson would not be a favorite to outscore Tyreek Hill over the course of a full fantasy season (barring injury). His odds of outscoring him in a single showdown slate are still relatively small. His odds of outscoring him in a single fourth quarter? Well that's a lot closer to a coin flip than most people would realize.

Also, unless either site makes a change this year, the salaries for in-game showdown are the exact same as the ones listed for full game showdown. What this means is that you don't have to wait until the slate is posted to start crafting your lineups. Do your homework in advance. Have some lineups queued up as you're watching the game to account for various game scripts that could unfold before lock. I can't emphasize how important it is to be watching the game. By watching the game, you'll gather key intel for building your second half and fourth quarter lineups. Maybe there was a first half injury to a team's wide receiver two. Maybe one team's left tackle simply CANNOT hold up in pass protection. Maybe one of the quarterbacks just simply doesn't have





what it takes that night. There are a lot of soft skills involved in in-game showdown. You'll want to also pay close attention to the scoreboard and the projected game script. Although game script doesn't typically have a massive influence until the fourth quarter, we still account for it when building our full-game showdown lineups. We **MUST** account for it during in-game because it makes a big deal.

I'll leave you with two big pieces of advice for in-game showdown: learn the scoring modifications for DST scoring (DraftKings only) and don't be afraid to leave massive amounts of salary on the table. Over the course of a full game, you probably won't feel comfortable leaving \$5,000 or more on the table, but don't be afraid to do so during in-game. Again, small samples are huge. Most contest entrants will feel compelled to spend toward the top of the allowable cap. By being more contrarian, there is a massive edge available during in-game contests. Regarding DST scoring, the biggest change is in reference to points allowed by the defense. A shutout during a full-game showdown earns 10 points. During second half showdown, a shutout earns 7 points. During fourth quarter showdown, a shutout earns 4 points. This can lead to some interesting outcomes for DST units. A DST score will almost certainly break the slate during in-game showdown. Be sure to sprinkle in exposure to these units across your portfolio of lineups to build in some floor considering there are only approximately thirty offensive plays run during a single quarter – fifteen per team.

The more thought you give to your in-game showdown lineups and the more you consider what the field is likely to do, you'll notice that it becomes one of the easier tournament formats to create leverage for yourself. Embrace the volatility and expect the unexpected and your rewards will be disproportionately favorable.



# Conclusion

**By Justin Freeman**

If you've made it all the way here, congratulations! You are now a certified NFL showdown expert. Better yet, I bestow on you the title of CPT (or MVP, your choice). While this guide may not answer every question you have about how to optimally approach showdown formats, our hope is that it gets you to consider a variety of questions throughout your lineup building and contest selection.

While building lineups and sweating the game can be loads of fun, be sure that you are also taking care to measure the results of your play. Learn your strengths and identify your weaknesses. Use that knowledge to enter more suitable contests and to correct your mistakes. If it matters – measure it.

While we've focused on the finer points of this game, keep in mind this parting advice. In the grand scheme of things, showdown is new and exciting. Have fun. Experiment with different strategies. Get weird. If you think you have an angle on a specific game, go for it. Give it a shot. If it works out, great. If it doesn't, then I guarantee that you will have learned something valuable. Drop your bankroll allocation and increase your volume. Fade the crowd. Trust your gut.

Hear now your Irish blessing – may your CPT be explosive, may your lineup be unique, may your game script be friendly, and may your bankroll run hotter than Saquon Barkley in the open field. Thanks for joining us on this ride. Good luck everyone.