

FROM THE BESTSELLING AUTHOR OF  
*NUMBERS RULE YOUR WORLD*

HOW TO USE **BIG DATA**  
TO YOUR ADVANTAGE

# NUMBER SENSE

KAISER FUNG

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HOW TO USE BIG DATA  
TO YOUR ADVANTAGE

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Excerpt from

PART 4

# SPORTING DATA

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Are You a Better Coach  
or Manager?

### 3. A First Look at Coaching

Search for “Coach’s Rating” on ESPN.com, and you will be served a weekly poll asking users to voice their approval or disapproval of each NFL head coach. In the FFL community, this style of rating, based on opinion rather than facts, makes few friends. Jay, Leonard, and many others spare no effort in their research, covering podcasts, TV shows, real-time chats, webcasts, Twitter feeds, Facebook messages, and so on. Also consulted are numerous websites catering to FFL players, such as ESPN, Yahoo!, Rotoworld.com, and FFLtoday.com, which carry news, statistics, commentary, and projections. With so much data so easily accessed, why judge subjectively? Fantasy fans banter about the numbers in the peanut gallery, or at the negotiating table.

Entering the final week of the 2011 season, Perry and Jean co-owned the worst record in the league, 3 wins and 9 losses; both were aware that soon there would only be one team standing—eh, stranded—at the bottom. Jean tinkered with his lineup: For the two WRs, he had been rotating between Eric Decker, Julio Jones, and Early Doucet, and he chose Decker and Doucet; for defense, he selected the New England Patriots who would be facing the doormat Indianapolis Colts at home, instead of the New York Jets, a unit he favored in the first half of the season. As usual, Jean started two QBs, one of whom was Matt Hasselbeck, a 36-year-old

veteran whose mediocre performance in 2011 unnerved Seattle Seahawks fans; the other QB was Carson Palmer.

By contrast, Perry activated the identical squad he had used in the previous three weeks; since he had lost three straight, this decision reflected either a white flag or a deep conviction. In the end, inaction brought victory. What doomed Jean was his unconditional trust in Hasselbeck. Needing only eight extra points to defeat Perry, if he had activated Jonathan Stewart as a second running back in place of the off-form Seattle QB, he would have won the last round with two points to spare; as it so happened Perry maxed out his points. Stewart is a competent back who scares fantasy coaches because he competes for playing time with several potent running threats on the Carolina Panthers and so his fantasy value is tied to the team's tactics, which vary from week to week. Jean gambled on Stewart during Week 11 and it paid off; he could have, and should have taken the same bet in Week 13.




The big idea is looking at what could have been in order to evaluate what was. Jean lost in Week 13 because he was outcoached. Perry played his best hand (74 points), but Jean could have scored 10 more points with just one swap—in fact, his maximum potential points were 86. (See Figure 8-2.)

In one sense, a good coach is able to pick out the nine players who would obtain the most fantasy points from the roster assembled by the manager. We can evaluate any selected squad by comparing it to the optimal squad. The points total relative to the attainable maximum for a given roster is what we call *Coach's Rating*. In Week 13, Jean was rated 78 percent, indicating his points total reached 78 percent of the potential; Perry scored a perfect 100, as he could not have done any better.

#### 4. Another Look at Coaching

Tony, one of the founders of the Tiffany Victoria Memorial FFL, scored 71 points in Week 3 and 104 points in Week 4.

FIGURE 8-2 Jean's Selected Squad, a Modified Squad, and the Optimal Squad for Week 13 in the Tiffany Victoria Memorial Fantasy Football League, 2011–2012: Boxed selections could have improved the points total.

<i>Position</i>	<b>Selected Squad</b>	<b>Modified Squad</b>	<b>Optimal Squad</b>
<i>QuarterBack</i>	Carson Palmer	-- same --	-- same --
<i>Running Back</i>	Arian Foster	-- same --	-- same --
<i>Wide Receiver 1</i>	Eric Decker	-- same --	-- same --
<i>Wide Receiver 2</i>	Early Doucet	-- same --	<b>Julio Jones</b>
<i>Tight End</i>	Ed Dickson	-- same --	-- same --
<i>Offense Wild Card</i>	Matt Hasselbeck	<b>Jonathan Stewart</b>	<b>Jonathan Stewart</b>
<i>Defense / Special Teams</i>	Patriots D/ST	-- same --	<b>Jets D/ST</b>
<i>Kicker</i>	Jason Hanson	-- same --	-- same --
<i>Head Coach</i>	Packers Coach	-- same --	-- same --
			
Fantasy Points	67	77	86

His Coach's Ratings were in the 70s for both weeks, making them two of his least effective selections in 2011. This metric implies that the coach performed equally well in either week but in fact, Tony activated a truly wretched squad in Week 3. How do I know? Based on the 14 players he owned, I computed every one of the 256 squads Tony could have fielded in Week 3: The points totals fell into a tight range between 54 and 99, with the 71-point squad ahead of only 29 percent of the possibilities. Statistically speaking, 71 points was at the 29th percentile. For comparison, in Week 4, Tony's lineup ranked at the 66th percentile, between the worst squad at 59 points and the best at 133.

I call this rating the *Coach's "Prafts"* (*Percentile rank among feasible squads*). The Coach's Rating is a serviceable first approximation, and it's easier to obtain than the Coach's



Prafs, as it considers only the *optimal* squad. The Coach's Prafs looks at every possible squad, and is thus more telling, but it requires manipulating much more data.

Since I'll refer to the Coach's Prafs throughout the chapter, it helps to define the metric officially:

Prafs is the percentile rank of the activated squad when compared to the range of points of all possible squads that can be constructed with the available roster. Its value is an integer between 0 and 100.

The coach who chooses the worst possible squad gets nada while the one who selects the optimal squad gets the maximum Coach's Prafs of 100. In the Tiffany Victoria Memorial FFL, the average weekly Coach's Prafs was 87 in 2011.

FIGURE 8-3 Coach's Prafs and Ranking in the Tiffany Victoria Memorial Fantasy Football League, 2011–2012: Cumulative Prafs takes values between 0 and 1,300. Five teams (inside the box) were bunched together when rated by coaching.

Total	Rank by Points		Coach's Rank by Prafs			
	Total			Prafs	Prafs	
1380	1	Corey	Leonard	1214	1	
1297	2	Leonard	Corey	1208	2	
1297	3	Jay	Bryan	1200	3	
1257	4	Harold	Chris	1182	4	
1251	5	Bryan	Jarrold	1157	5	
1244	6	Chris	Joe	1157	6	
1158	7	Tony	Perry	1148	7	
1148	8	Timothy	Stanley	1145	8	
1116	9	Jean	Jay	1141	9	
1114	10	Joe	Timothy	1120	10	
1112	11	Jeremy	Jean	1086	11	
1073	12	Jarrold	Tony	1064	12	
1063	13	Stanley	Jeremy	1018	13	
988	14	Perry	Harold	984	14	

Thus, the league-average coach picked a squad that beat 87 percent of feasible squads. That was quite a competitive league! Jay and I trust this data-driven rating much more than ESPN's approval rating.

According to the cumulative Coach's Prafts, computed as the sum of weekly Coach's Prafts, the league's top coaches in 2011 were Leonard, Corey, Bryan, and Chris while Harold did rather worse than most. Jay ranked ninth in coaching skill, but a mere 16 points separated him from the fifth-ranked Jarrod, as the cumulative Coach's Prafts of five teams bunched up at around 1,150.

While defining the Coach's Prafts, I sneaked in a very important conditional: *The roster decisions are taken out of the coach's hands*. Like the restaurant critic Bruni, I zoomed in on how well the chef handled preset ingredients. It's as if playing hosts of the popular foodie show *Chopped*, in which contestants are challenged with concocting meals out of incongruous produce revealed only at game time. In a recent show, the kitchens gamely cooked up main courses using peanut butter, pork tenderloin, okra, and canned shrimp. Fixing the ingredients allows us to separate the effect of coaching/cooking from that of managing/shopping. We next turn our attention to managerial acumen.

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