



Analysis and Improvement of Fantasy Football Team Management Software

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Overview

- Fantasy Football
- Advanced Sports Logic
- The Season Calculator
- Backup Player Valuation
- Playoff Seeding Approaches
- Recommendations
- Conclusion

Fantasy Football

- Estimated over 18 million players
- Varying league types, each with their own set of rules
- Hosted on a variety of sites: NFL.com, Yahoo! Sports, CBSSports, etc.



Advanced Sports Logic

- Small, New Hampshire-based company
- Season Calculator: Simulates entire fantasy football season and generates probability that you will make it to and win the playoffs

The screenshot shows the 'My League League Projection Details' page. At the top, there is a navigation bar with links for Home, Player Projections, League Setup, Preseason Actions, Regular Season Actions, and League Details. The main content area features a 'Team Projection Data (Regular Season and Playoffs)' table and a 'Team Projection Data (by week)' graph.

Team Projection Data (Regular Season and Playoffs)

Show by: **Win Probabilities**

| Team | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Leopard Einsteinium | 0.907 | 0.706 | 0.911 | 0.834 | 0.691 | 0.751 | 0.597 | 0.302 | 0.673 | 0.569 | 0.556 |
| Get Money Crew | 0.576 | 0.684 | 0.775 | 0.575 | 0.775 | 0.840 | 0.750 | 0.349 | 0.615 | 0.570 | 0.440 |
| Sgt. Schultz | 0.522 | 0.682 | 0.547 | 0.469 | 0.224 | 0.390 | 0.398 | 0.326 | 0.570 | 0.430 | 0.563 |
| Water Buffalo | 0.409 | 0.625 | 0.572 | 0.530 | 0.835 | 0.433 | 0.342 | 0.474 | 0.326 | 0.429 | 0.504 |
| Chick'n Hawk | 0.426 | 0.605 | 0.427 | 0.424 | 0.421 | 0.556 | 0.394 | 0.697 | 0.429 | 0.221 | 0.562 |
| The Riders | 0.407 | 0.394 | 0.452 | 0.733 | 0.759 | 0.480 | 0.402 | 0.525 | 0.384 | 0.450 | 0.526 |
| Omega Men | 0.592 | 0.374 | 0.224 | 0.402 | 0.248 | 0.248 | 0.605 | 0.673 | 0.649 | 0.618 | 0.508 |
| Oshawa Eskimos | 0.573 | 0.317 | 0.619 | 0.478 | 0.308 | 0.519 | 0.657 | 0.650 | 0.501 | 0.426 | 0.491 |
| Langers Rangers | 0.590 | 0.315 | 0.445 | 0.165 | 0.751 | 0.443 | 0.601 | 0.578 | 0.829 | 0.573 | 0.473 |
| Sparta | 0.477 | 0.612 | 0.088 | 0.521 | 0.240 | 0.566 | 0.249 | 0.416 | 0.170 | 0.381 | 0.437 |
| Stinky Rotten Tomatoes | 0.423 | 0.293 | 0.554 | 0.597 | 0.578 | 0.609 | 0.917 | 0.583 | 0.498 | 0.549 | 0.495 |
| The Trucker | 0.092 | 0.387 | 0.380 | 0.266 | 0.164 | 0.159 | 0.082 | 0.421 | 0.350 | 0.778 | 0.438 |

Team Projection Data (by week) Week: 4

View all team score probability curves for selected week

View all play-off seeding probabilities

View assumed starters for all match-ups of the selected week

View assumed starters and back-ups for a single match-up of the selected week

Input data from Accuscore, league specific scoring rules, weekly matchups, divisions (if any)

Develop FP distribution for each player for each future week

Develop FP distribution for each starting position for each future week

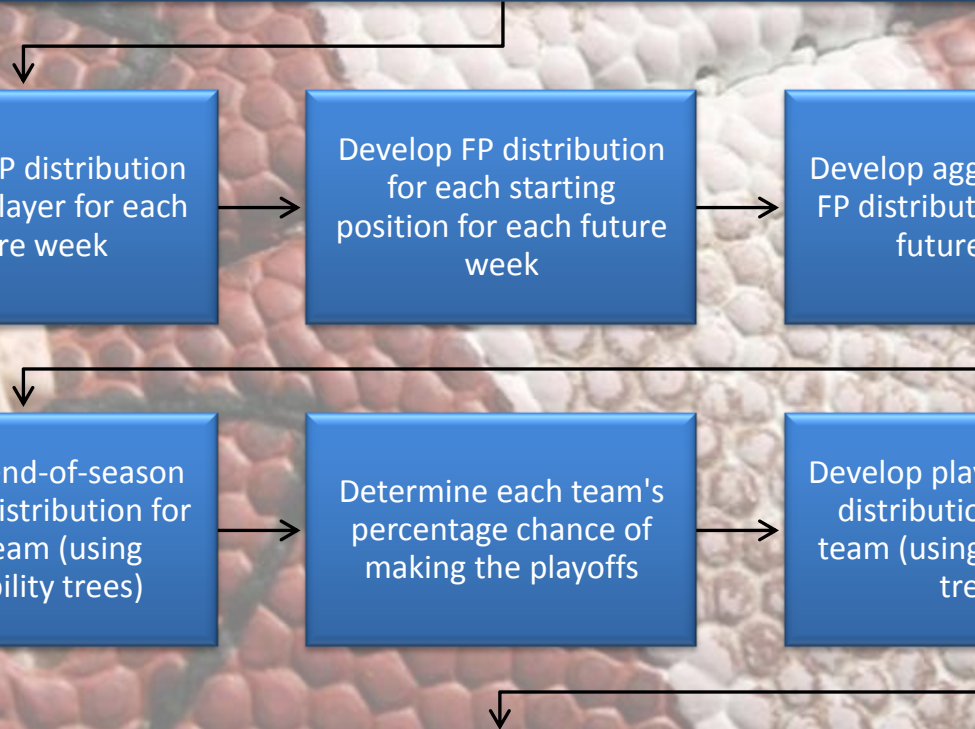
Develop aggregate team FP distribution for each future week

Develop end-of-season win/loss distribution for each team (using probability trees)

Determine each team's percentage chance of making the playoffs

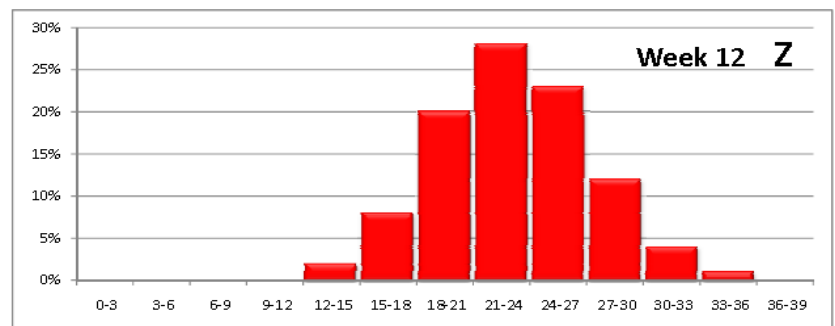
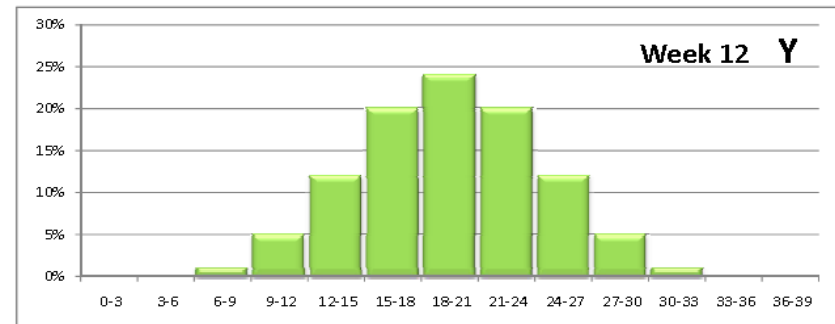
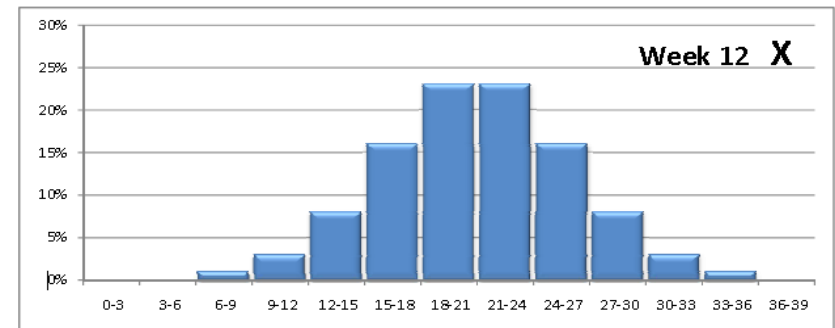
Develop playoff win/loss distribution for each team (using probability trees)

Output percentage chance of winning the championship



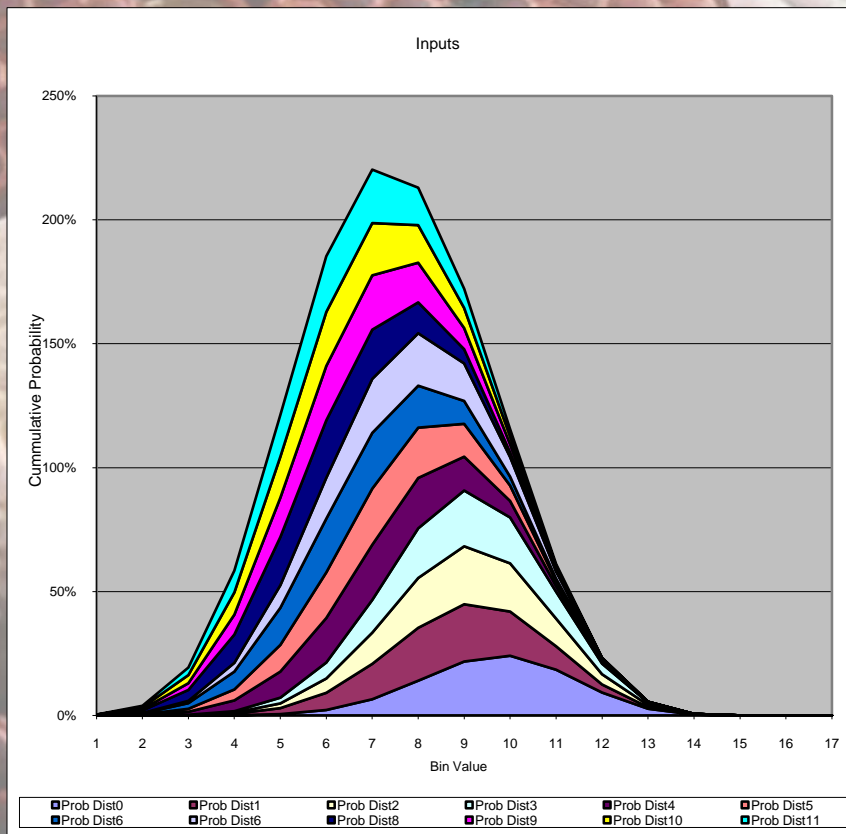
Backup Player Valuation

- ASL's iterative method vs. our proposed alternative method

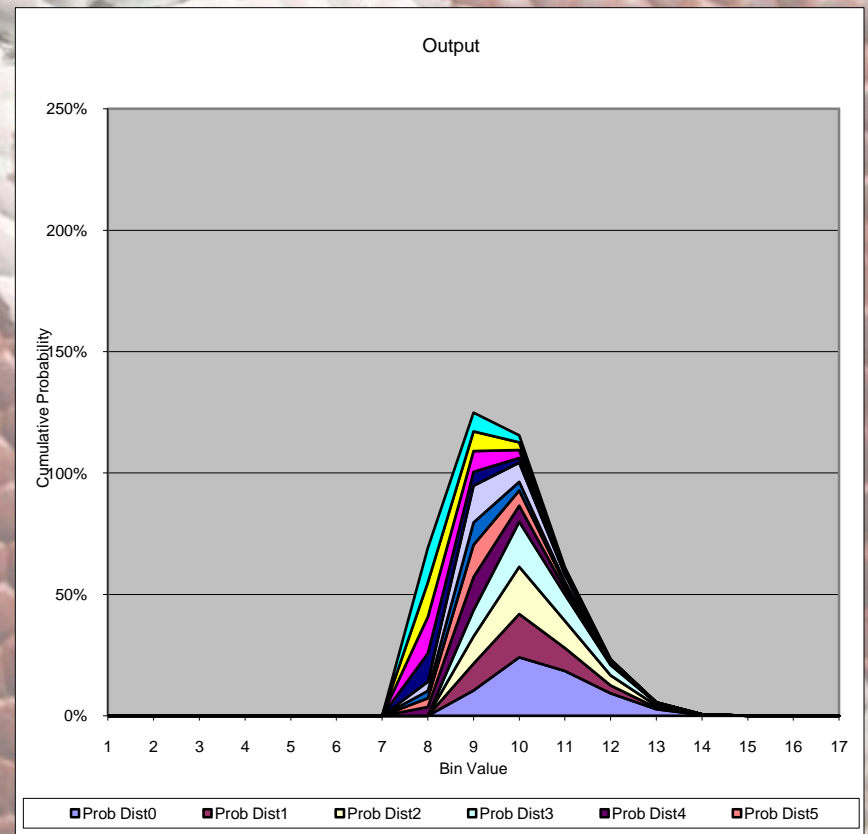


ASL's Playoff Seeding Method

Before Truncation



After Truncation



Our Playoff Seeding Method

| Wk 1 | Wk 2 | Wk 3 | Wk 4 | Wk 5 | Wk 6 | Wk 7 |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| AvB | AvC | AvD | AvE | AvF | AvG | AvH |
| CvD | BvD | BvC | BvF | BvG | BvH | BvE |
| EvF | EvG | EvH | CvG | CvH | CvE | CvF |
| GvH | FvH | FvG | DvH | DvE | DvF | DvG |
| ABCDEFGH 10101010 | ABCDEFGH 11001100 | ABCDEFGH 11001100 | ABCDEFGH 11110000 | ABCDEFGH 11110000 | ABCDEFGH 11110000 | ABCDEFGH 11110000 |
| ... | ... | ... | ... | ... | ... | ... |
| ABCDEFGH 01010101 | ABCDEFGH 00110011 | ABCDEFGH 00110011 | ABCDEFGH 00001111 | ABCDEFGH 00001111 | ABCDEFGH 00001111 | ABCDEFGH 00001111 |

Recommendations

- Using Non-Normal Fantasy Point Distributions
- Obtaining Projections from Other Sources
- Treating Wins/Losses as Dependent Events
- Partnerships with Fantasy Football Companies

Conclusion

- Separated the steps of the Season Calculator into phases
- Described each phase in mathematical terms
- Proposed changes to the current methods
- Provided recommendations
- Special thanks to Leonard LaPadula and Professor Jon Abraham

A close-up photograph of a football with a pebbled texture. The ball is primarily reddish-brown with a prominent white stripe running diagonally across it. A wooden kicking tee is visible on the left side, and a dark green laces are partially visible. The word "Questions?" is overlaid in the center of the image.

Questions?