

Playing Around with 2022 NFL Data

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A running R markdown looking at 2022 NFL data using the `nflfastR` package.

Loading packages and data

```
library(tidyverse)
library(ggplot2)
library(nflreadr)
library(nflplotR)
stats2022 <- load_player_stats(2022) %>%
  mutate(year = 2022)
pbp2022 <- load_pbp(2022) %>%
  mutate(year = 2022)
stats2021 <- load_player_stats(2021) %>%
  mutate(year = 2021)
pbp2021 <- load_pbp(2021) %>%
  mutate(year = 2021)
stats_21_22 <- rbind(stats2022, stats2021)
pbp_21_22 <- rbind(pbp2022, pbp2021)
```

2022 NFL Data Exploration

```
week12_carry_leaders <- stats2022 %>%
  filter(week == 12) %>%
  arrange(desc(carries)) %>%
  select(player_name, position, carries, rushing_yards, rushing_epa, rushing_tds)
week12_rb_target_leaders <- stats2022 %>%
  filter(week == 12, position == "RB") %>%
  arrange(desc(targets)) %>%
  select(player_name, position, targets, receptions, receiving_epa, target_share)
week12_wr_target_leaders <- stats2022 %>%
  filter(week == 12, position == "WR") %>%
  arrange(desc(targets)) %>%
  select(player_name, position, targets, receptions, receiving_epa, target_share)
week12_te_target_leaders <- stats2022 %>%
  filter(week == 12, position == "TE") %>%
  arrange(desc(targets), desc(target_share)) %>%
  select(player_name, position, targets, receptions, receiving_epa, target_share)
head(week12_carry_leaders, 20)
```

```
## # A tibble: 20 x 6
##   player_name position carries rushing_yards rushing_epa rushing_tds
##   <chr>         <chr>      <int>      <dbl>      <dbl>      <int>
## 1 J.Jacobs      RB          33        229        1.48         2
## 2 N.Chubb       RB          26        116        0.451        1
## 3 J.Conner      RB          25        120       -7.24         0
## 4 D.Foreman     RB          24        113       -0.636        0
## 5 D.Cook        RB          22         42       -8.02         0
## 6 I.Pacheco     RB          22         69       -2.11         1
## 7 M.Sanders     RB          21       143        6.72         2
## 8 J.Taylor      RB          20         86       -1.24         1
## 9 J.Williams    RB          18         66       -4.50         1
## 10 T.Pollard     RB          18         60       -3.63         0
## 11 B.Robinson   RB          18       105        5.64         0
## 12 D.Henry      RB          17         38       -5.68         0
## 13 S.Perine     RB          17         58       -0.938        1
## 14 J.Hurts      QB          17       157        9.65         0
## 15 C.Hubbard     RB          17         65       -1.74         0
## 16 E.Elliott    RB          16         92        0.638        1
## 17 G.Edwards    RB          16         52       -5.06         1
## 18 L.Jackson    QB          14         89        3.98         0
## 19 D.Singletary RB          14         72        1.92         0
## 20 D.Montgomery RB          14         79        3.12         0
```

```
head(week12_rb_target_leaders, 20)
```

```
## # A tibble: 20 x 6
##   player_name position targets receptions receiving_epa target_share
##   <chr>         <chr>      <int>      <int>      <dbl>      <dbl>
## 1 A.Ekeler      RB          15        11       -0.141      0.319
## 2 R.Stevenson   RB          10         9       -0.0114     0.286
## 3 R.White       RB           9         9        1.73       0.214
## 4 D.Swift       RB           8         4       -2.26       0.229
## 5 S.Perine     RB           7         4       -1.52       0.194
## 6 A.Kamara      RB           7         6       -5.15       0.233
## 7 J.Jacobs      RB           7         6        4.29       0.194
## 8 J.McKinnon   RB           6         3       -1.24       0.162
## 9 C.McCaffrey   RB           6         4       -2.28       0.162
## 10 S.Barkley    RB           6         4       -7.34       0.207
## 11 D.Pierce     RB           6         3       -7.71       0.158
## 12 C.Patterson  RB           5         3       -5.62       0.208
## 13 D.Cook       RB           5         4        0.736     0.135
## 14 J.Hasty      RB           5         5        7.27       0.135
## 15 J.Cook       RB           5         2      -0.813     0.128
## 16 A.Jones      RB           4         3        5.02       0.16
## 17 D.Montgomery RB           4         3        1.77       0.167
## 18 J.Taylor     RB           4         3      -0.540     0.125
## 19 A.Dillon     RB           4         3        0.591     0.16
## 20 A.Abdullah   RB           3         3        6.22      0.0833
```

```
head(week12_wr_target_leaders, 20)
```

```
## # A tibble: 20 x 6
```

```
##   player_name position targets receptions receiving_epa target_share
##   <chr>         <chr>      <int>      <int>         <dbl>         <dbl>
##  1 S.Diggs      WR          15          8          -5.14         0.385
##  2 D.Metcalf     WR          15         11           1.51         0.405
##  3 Z.Jones       WR          14         11          12.5         0.378
##  4 C.Godwin      WR          13         12           6.11         0.310
##  5 A.Cooper      WR          12          7          -0.0314       0.333
##  6 D.Adams       WR          11          7           0.729        0.306
##  7 M.Pittman     WR          11          7          -2.50         0.344
##  8 J.Jefferson   WR          11          9           9.30         0.297
##  9 C.Lamb        WR          11          6           4.44         0.379
## 10 A.Thielen     WR          10          9           2.52         0.270
## 11 D.Carter      WR          10          7           5.07         0.213
## 12 I.McKenzie    WR          10          6           5.00         0.256
## 13 J.Waddle      WR          10          5           2.52         0.263
## 14 A.St. Brown   WR          10          9          11.6         0.286
## 15 M.Evans       WR          9           2          -3.63         0.214
## 16 T.Hill        WR          9           6           4.97         0.237
## 17 C.Kirk        WR          9           4          -3.35         0.243
## 18 K.Hinton      WR          9           5          -4.22         0.281
## 19 T.Higgins     WR          9           7           9.01         0.25
## 20 N.Collins     WR          9           6          -1.35         0.237
```

```
head(week12_te_target_leaders, 20)
```

```
## # A tibble: 20 x 6
##   player_name position targets receptions receiving_epa target_share
##   <chr>         <chr>      <int>      <int>         <dbl>         <dbl>
##  1 J.Woods      TE          9          8           7.47         0.281
##  2 H.Hurst       TE          9          6           0.306        0.25
##  3 T.Kelce       TE          8          4          -1.93         0.216
##  4 M.Andrews     TE          7          4           0.749        0.233
##  5 D.Njoku       TE          7          5           2.98         0.194
##  6 F.Moreau      TE          7          3          -1.92         0.194
##  7 C.Kmet        TE          6          3          -6.10         0.25
##  8 J.Oliver      TE          6          4           6.50         0.2
##  9 T.Hockenson   TE          6          5           4.08         0.162
## 10 C.Okonkwo     TE          5          3          -0.348        0.147
## 11 H.Henry       TE          5          3           2.39         0.143
## 12 J.Akins       TE          5          5           0.634        0.132
## 13 C.Brake       TE          5          2          -2.90         0.119
## 14 J.Bates       TE          4          3           1.28         0.182
## 15 P.Freiermuth TE          4          3           4.10         0.143
## 16 D.Schultz     TE          4          4           5.02         0.138
## 17 A.Hooper      TE          4          3           2.39         0.118
## 18 G.Kittle      TE          4          3           0.559        0.108
## 19 G.Everett     TE          4          4          -1.44         0.0851
## 20 L.Thomas      TE          3          1          -1.07         0.136
```

```
week12_passing_leaders <- stats2022 %>%
  filter(week == 12, position == "QB") %>%
  arrange(desc(passing_epa)) %>%
  select(player_name, position, passing_epa, passing_yards, completions, passing_tds)
```

```

week12_rushing_leaders <- stats2022 %>%
  filter(week == 12, position == "RB") %>%
  arrange(desc(rushing_epa)) %>%
  select(player_name, position, rushing_epa, rushing_yards, carries, rushing_tds)
week12_receiving_leaders <- stats2022 %>%
  filter(week == 12) %>%
  arrange(desc(receiving_epa)) %>%
  select(player_name, position, receiving_epa, receiving_yards, targets, receptions, receiving_tds)
head(week12_passing_leaders, 20)

```

```

## # A tibble: 20 x 6
##   player_name position passing_epa passing_yards completions passing_tds
##   <chr>         <chr>         <dbl>         <dbl>         <int>         <int>
## 1 M.White      QB             17.5          315           22           3
## 2 T.Lawrence   QB             13.8          321           29           3
## 3 D.Carr       QB             13.6          295           25           3
## 4 D.Prescott   QB             11.7          261           21           2
## 5 K.Cousins    QB             11.6          299           30           3
## 6 T.Tagovailoa QB             8.29          299           22           1
## 7 G.Smith      QB             8.04          328           27           2
## 8 K.Murray     QB             7.68          191           18           2
## 9 P.Mahomes    QB             7.44          320           27           1
## 10 J.Love      QB             7.30          113           6            1
## 11 L.Jackson   QB             7.00          254           16           1
## 12 R.Tannehill QB             6.66          291           22           1
## 13 M.Jones     QB             5.80          382           28           2
## 14 J.Burrow    QB             5.72          270           22           1
## 15 J.Goff      QB             5.66          240           23           2
## 16 S.Darnold   QB             5.22          164           11           1
## 17 T.Heinicke  QB             2.37          138           14           2
## 18 J.Herbert   QB             2.11          274           35           3
## 19 J.Hurts     QB             1.66          153           16           2
## 20 J.Garoppolo QB             1.30          222           26           1

```

```

head(week12_rushing_leaders, 20)

```

```

## # A tibble: 20 x 6
##   player_name position rushing_epa rushing_yards carries rushing_tds
##   <chr>         <chr>         <dbl>         <dbl>         <int>         <int>
## 1 M.Sanders    RB             6.72          143           21           2
## 2 A.Dillon     RB             5.72           64            8           1
## 3 B.Robinson   RB             5.64          105           18           0
## 4 T.Johnson    RB             3.81           62            5           1
## 5 B.Snell      RB             3.70           62           12           1
## 6 D.Montgomery RB             3.12           79           14           0
## 7 K.Gainwell   RB             2.46           39            8           1
## 8 D.Evans      RB             2.11           34            9           0
## 9 T.Allgeier   RB             2.04           54           11           0
## 10 D.Singletary RB             1.92           72           14           0
## 11 Z.White     RB             1.71           28            2           0
## 12 K.Hunt      RB             1.51           15            5           0
## 13 J.Jacobs     RB             1.48          229           33           2

```

```
## 14 J.Williams    RB          1.34          22          4          0
## 15 D.Hilliard   RB          1.23          16          2          0
## 16 C.Huntley    RB          0.802         12          1          0
## 17 A.McFarland  RB          0.772         30          6          0
## 18 E.Elliott    RB          0.638         92         16          1
## 19 T.Williams   RB          0.619         18          2          0
## 20 D.Swift      RB          0.571         19          5          0
```

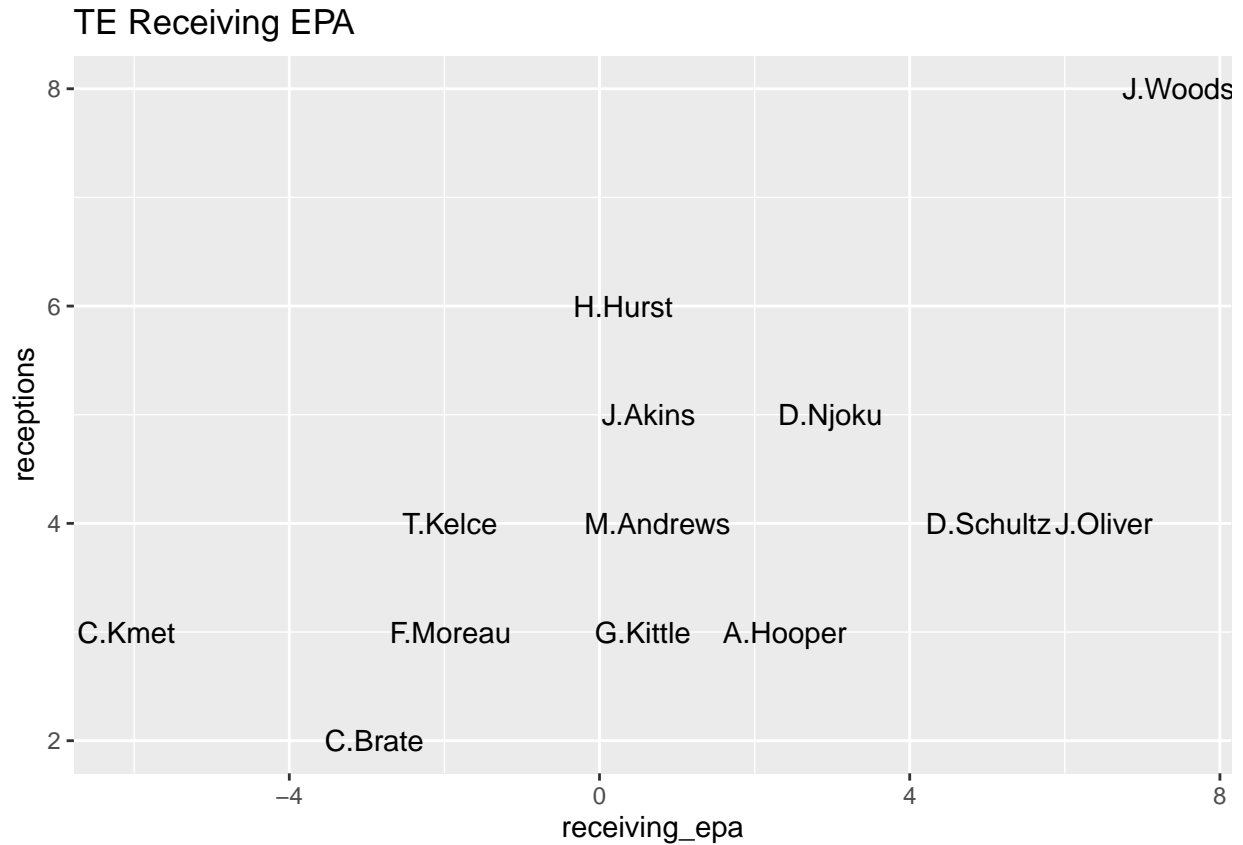
```
head(week12_receiving_leaders, 20)
```

```
## # A tibble: 20 x 7
##   player_name position receiving_epa receiving_yards targets receptions recei-1
##   <chr>         <chr>         <dbl>         <dbl>    <int>      <int>    <int>
## 1 Z.Jones       WR          12.5          145        14         11         0
## 2 A.St. Brown   WR          11.6          122        10          9         1
## 3 C.Watson      WR          10.5          110         6          4         1
## 4 J.Jefferson   WR           9.30          139        11          9         1
## 5 T.Higgins     WR           9.01          114         9          7         1
## 6 G.Wilson      WR           8.13           95         8          5         2
## 7 J.Woods       TE           7.47           98         9          8         0
## 8 J.Hasty       RB           7.27           67         5          5         1
## 9 D.Moore       WR           6.98          103         6          4         1
## 10 E.Moore      WR           6.59           64         2          2         1
## 11 J.Oliver     TE           6.50           76         6          4         1
## 12 J.Jennings   WR           6.23           49         7          6         1
## 13 A.Abdullah   RB           6.22           39         3          3         1
## 14 C.Godwin     WR           6.11          110        13         12         1
## 15 D.Parker     WR           5.89           80         4          4         0
## 16 D.Jackson    WR           5.84           74         3          2         0
## 17 D.Henry     RB           5.72           79         3          3         0
## 18 D.Carter     WR           5.07           73        10          7         1
## 19 A.Jones      RB           5.02           56         4          3         1
## 20 D.Schultz   TE           5.02           31         4          4         2
## # ... with abbreviated variable name 1: receiving_tds
```

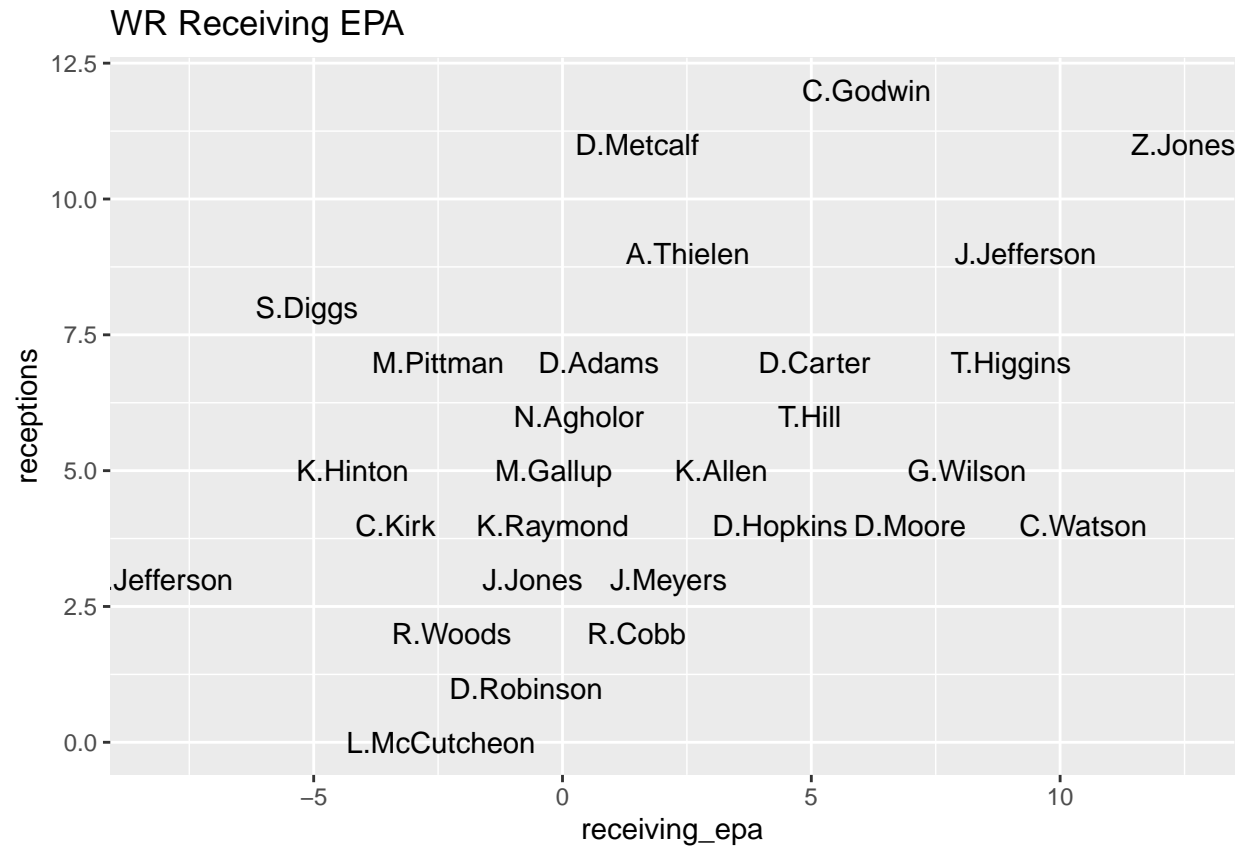
```
week12_pbp <- pbp2022 %>%
  filter(week == 12) %>%
  arrange(desc(yards_gained)) %>%
  select(yards_gained, posteam)
head(week12_pbp, 10)
```

```
## # A tibble: 10 x 2
##   yards_gained posteam
##   <dbl> <chr>
## 1      86 LV
## 2      69 TEN
## 3      63 GB
## 4      62 BAL
## 5      54 NYJ
## 6      52 DEN
## 7      52 CAR
## 8      51 TEN
## 9      45 ATL
## 10     45 CLE
```

```
stats2022 %>% filter(week == 12 & targets > 3 & position == "TE") %>%
  ggplot(aes(x = receiving_epa, y = receptions, label = player_name)) +
  geom_text(check_overlap = TRUE) +
  labs(title = "TE Receiving EPA ")
```

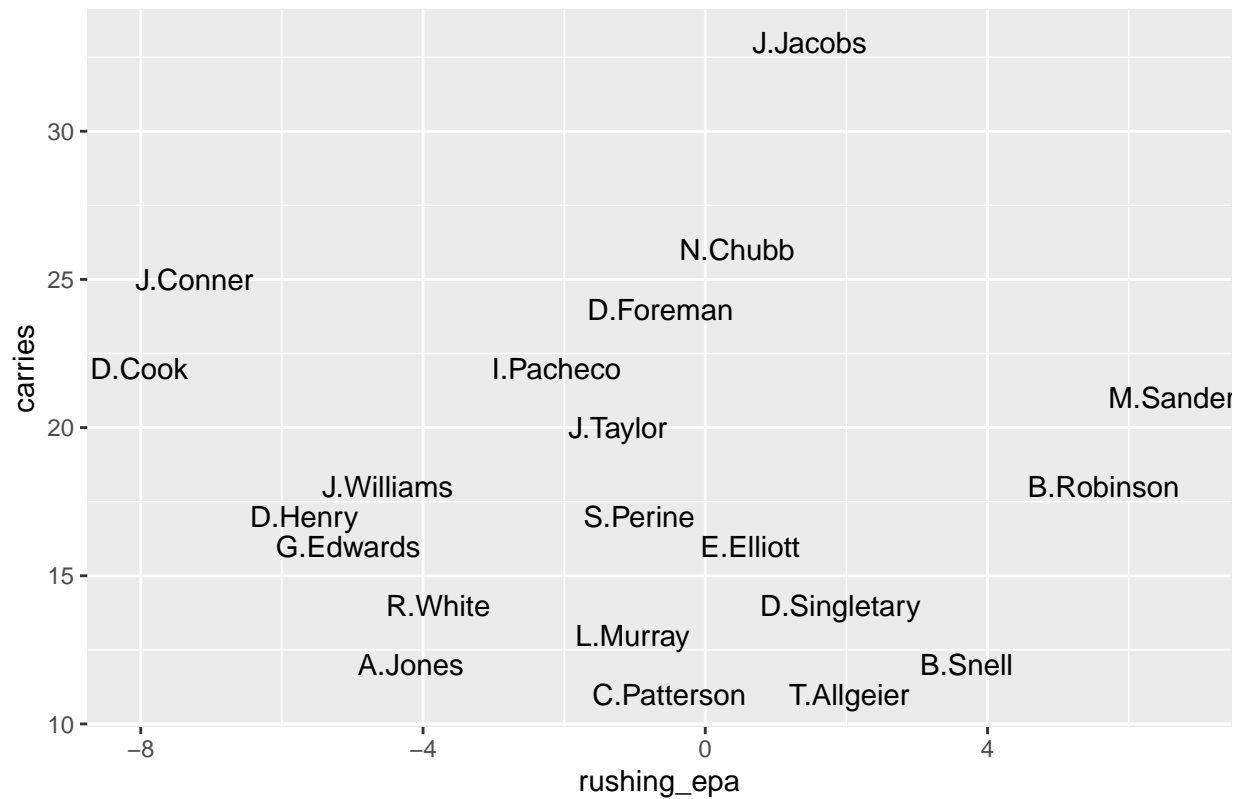


```
stats2022 %>% filter(week == 12 & targets > 3 & position == "WR") %>%
  ggplot(aes(x = receiving_epa, y = receptions, label = player_name)) +
  geom_text(check_overlap = TRUE) +
  labs(title = "WR Receiving EPA ")
```



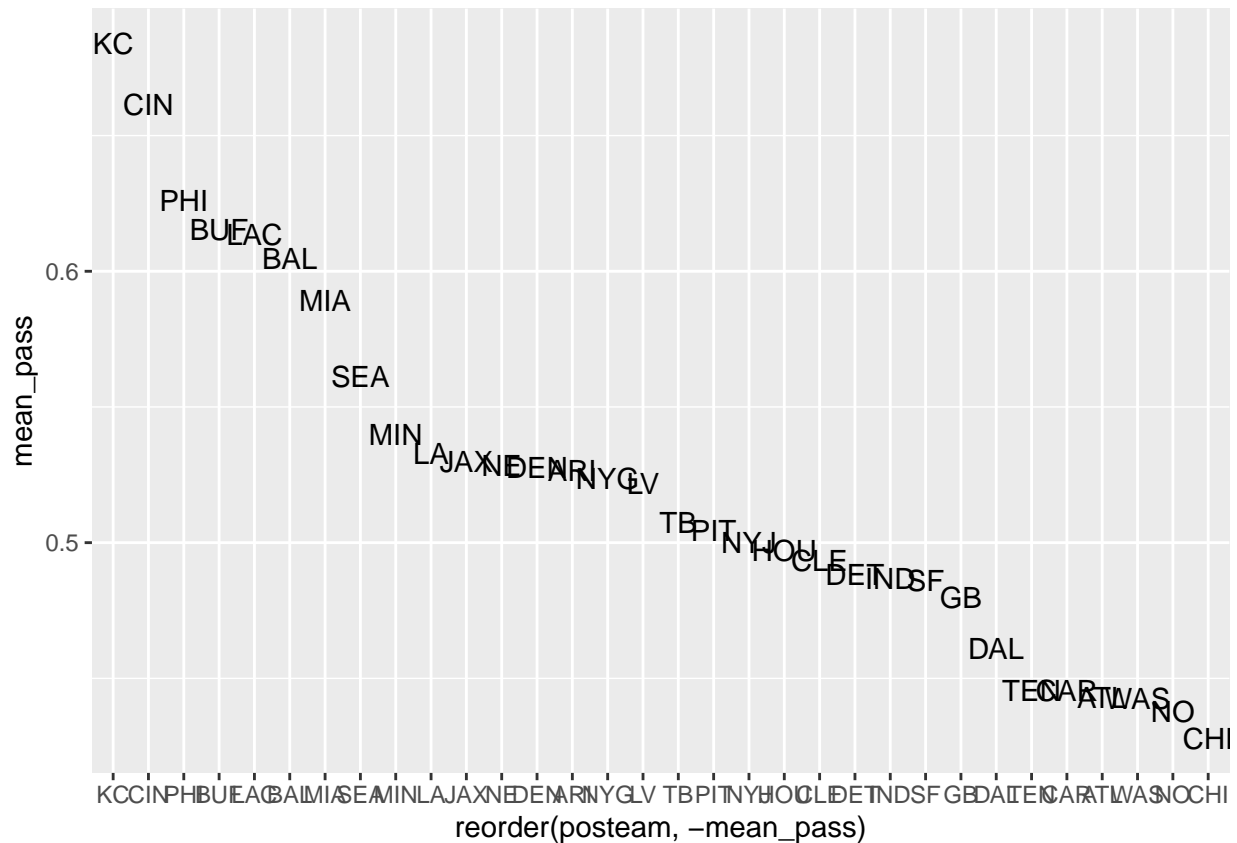
```
stats2022 %>% filter(week == 12 & carries > 10 & position == "RB") %>%
  ggplot(aes(x = rushing_epa, y = carries, label = player_name)) +
  geom_text(check_overlap = TRUE) +
  labs(title = "RB Rushing EPA ")
```

RB Rushing EPA



Mean Pass on Neutral Plays

```
pbp_rp <- pbp2022 %>%
  filter(rush == 1 | pass == 1, !is.na(epa))
schotty <- pbp_rp %>%
  filter(wp > .20 & wp < .80 & down <= 2 & qtr <= 2 &
    half_seconds_remaining > 120) %>%
  group_by(posteam) %>%
  summarize(mean_pass = mean(pass), plays = n()) %>%
  arrange(-mean_pass)
ggplot(schotty, aes(x=reorder(posteam,-mean_pass), y=mean_pass)) +
  geom_text(aes(label=posteam))
```

EPA Exploration

```
pbp2022 %>%
  filter(!is.na(epa)) %>%
  select(posteam, yardline_100, game_seconds_remaining, down, ydstogo, yards_gained, play_type, score_differential)
```

```
## # A tibble: 31,448 x 10
##   posteam yardli_100 game_seconds_remaining down ydstogo yards_gained play_type score_differential epa
##   <chr>      <dbl>      <dbl>      <dbl>      <dbl>      <dbl> <chr>      <dbl>      <dbl>      <dbl>
## 1 <NA>      NA        3600      NA         0         NA <NA>      NA        1.47      0
## 2 NYJ       35        3600      NA         0         0 kickoff  0        1.47     -0.444
## 3 NYJ       78        3596      1         10        19 run    0        1.03      1.47
## 4 NYJ       59        3569      1         10         0 pass    0        2.50     -0.492
## 5 NYJ       59        3565      2         10         5 run    0        2.01     -0.326
## 6 NYJ       54        3541      3          5         0 pass    0        1.68     -2.40
## 7 NYJ       64        3533      4         15         0 punt    0       -0.721    -0.232
## 8 BAL       72        3522      1         10         4 pass    0        0.953     0.0751
## 9 BAL       68        3501      2          6         4 pass    0        1.03     -0.105
## 10 BAL      64        3461      3          2         4 run    0        0.923     0.895
## # ... with 31,438 more rows, and abbreviated variable names 1: yardline_100,
## # 2: game_seconds_remaining, 3: yards_gained, 4: play_type,
## # 5: score_differential
```

2017-2021 QB EPA Example

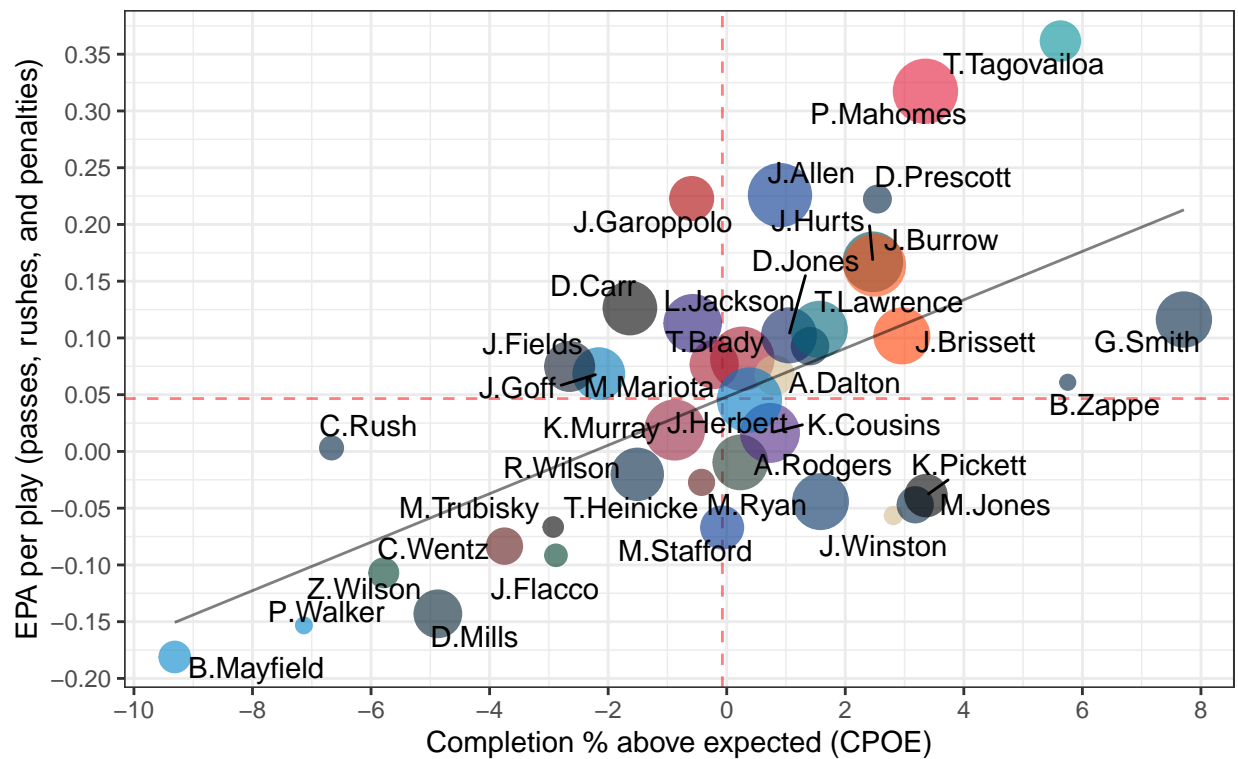
```
pbp <- load_pbp(2017:2021)
qbs <- pbp %>%
  filter(season_type == "REG", !is.na(epa)) %>%
  group_by(id, name) %>%
  summarize(
    epa = mean(qb_epa),
    cpoe = mean(cpoe, na.rm = T),
    n_dropbacks = sum(pass),
    n_plays = n(),
    team = last(posteam)
  ) %>%
  ungroup() %>%
  filter(n_dropbacks > 100 & n_plays > 1000) %>%
  left_join(load_teams(), by = c('team' = 'team_abbr'))
```

2022 NFL QB EPA

```
qb_2022 <- pbp2022 %>%
  filter(!is.na(epa)) %>%
  group_by(id, name) %>%
  summarize(
    epa = mean(qb_epa),
    cpoe = mean(cpoe, na.rm = T),
    n_dropbacks = sum(pass),
    n_plays = n(),
    team = last(posteam)
  ) %>%
  ungroup() %>%
  filter(n_dropbacks > 10 & n_plays > 100) %>%
  left_join(load_teams(), by = c('team' = 'team_abbr'))

qb_2022 %>%
  ggplot(aes(x = cpoe, y = epa)) +
  geom_hline(yintercept = mean(qb_2022$epa), color = "red", linetype = "dashed", alpha=0.5) +
  geom_vline(xintercept = mean(qb_2022$cpoe), color = "red", linetype = "dashed", alpha=0.5) +
  geom_point(color = qb_2022$team_color, cex=qb_2022$n_plays / 50, alpha = .6) +
  geom_text_repel(aes(label=name)) +
  stat_smooth(geom='line', alpha=0.5, se=FALSE, method='lm')+
  labs(x = "Completion % above expected (CPOE)",
       y = "EPA per play (passes, rushes, and penalties)",
       title = "Quarterback Efficiency, 2022 Season",
       caption = "Data: @nflfastR") +
  theme_bw() +
  theme(
    plot.title = element_text(size = 14, hjust = 0.5, face = "bold")
  ) +
  scale_y_continuous(breaks = scales::pretty_breaks(n = 10)) +
  scale_x_continuous(breaks = scales::pretty_breaks(n = 10))
```

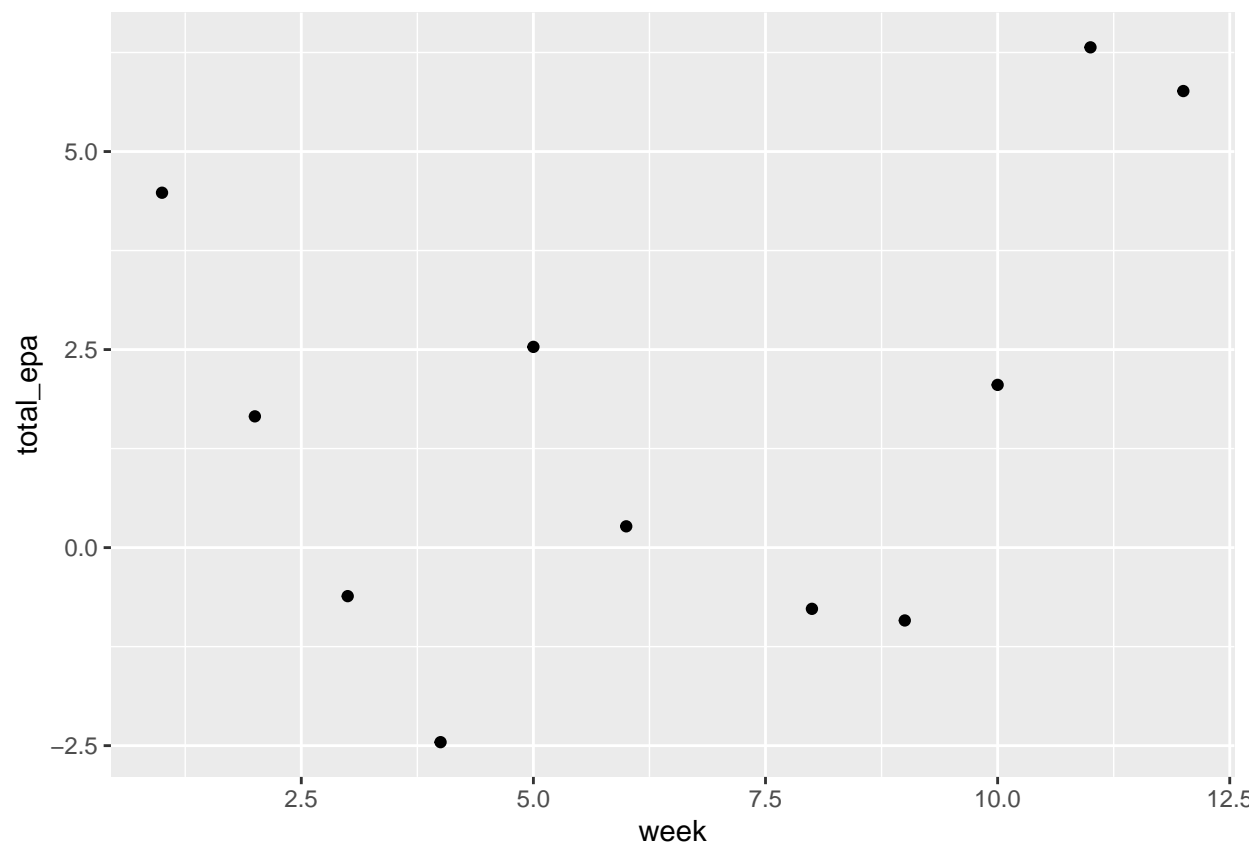
Quarterback Efficiency, 2022 Season



Data: @nflfastR

Week 11 Jalen Hurts

```
jalen_epa <- pbp2022 %>%
  filter(name == "J.Hurts" & play_type == c("run", "pass")) %>%
  group_by(week, play_type) %>%
  summarise(total_epa = sum(epa))
jalen_epa %>%
  filter(play_type == "run") %>%
  ggplot(aes(x = week, y = total_epa)) +
  geom_point()
```

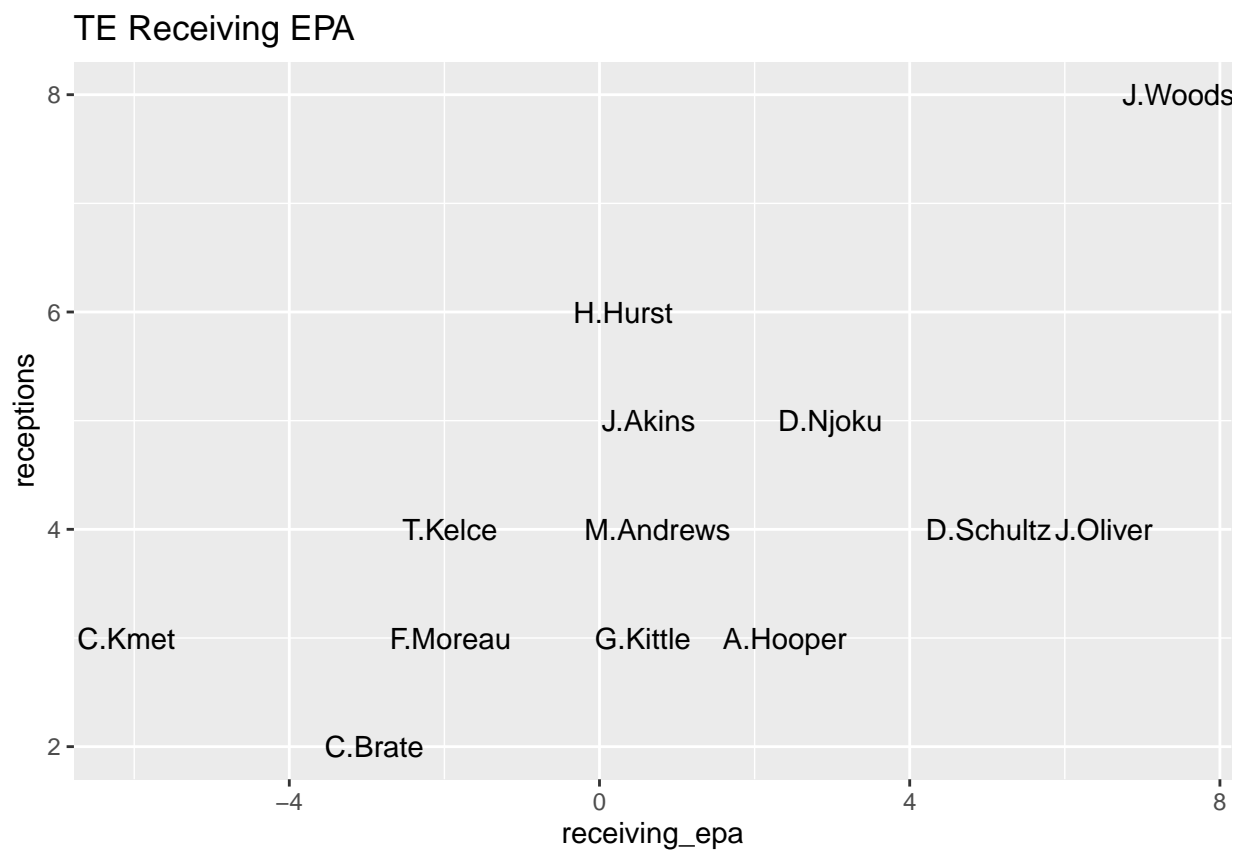


```
jalen_epa %>%
  filter(play_type == "pass") %>%
  arrange(desc(total_epa))
```

```
## # A tibble: 11 x 3
## # Groups:   week [11]
##   week play_type total_epa
##   <int> <chr>      <dbl>
## 1     9 pass        12.0
## 2     8 pass         8.76
## 3     3 pass         3.65
## 4     1 pass         2.07
## 5    10 pass         1.13
## 6     6 pass         0.976
## 7     5 pass        -2.81
## 8    12 pass        -3.95
## 9     4 pass        -4.41
## 10    2 pass        -4.46
## 11   11 pass        -4.83
```

Week 11 TE EPA

```
stats2022 %>% filter(week == 12 & targets > 3 & position == "TE") %>%
  ggplot(aes(x = receiving_epa, y = receptions, label = player_name)) +
  geom_text(check_overlap = TRUE) +
  labs(title = "TE Receiving EPA ")
```



4th Down

```
team_4th <- pbp2022 %>%
  filter(down == 4 & (play_type == "run" | play_type == "pass")) %>%
  filter(wp > 0.02 & wp < 0.98) %>%
  group_by(posteam) %>%
  summarise(avg_yds_to_go = mean(ydstogo),
            avg_field_pos = mean(yardline_100),
            count = n(),
            success_rate = sum(fourth_down_converted) / count,
            avg_gained = sum(yards_gained) / count) %>%
  arrange(desc(success_rate))
team_4th
```

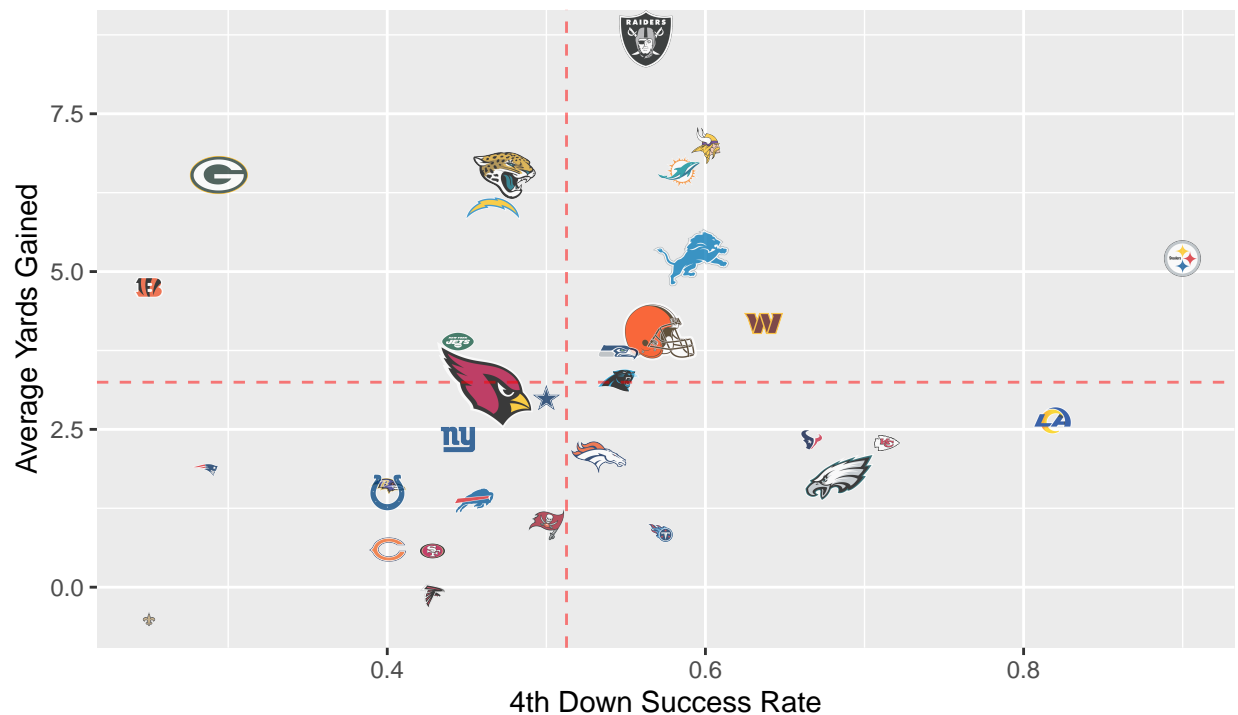
```
## # A tibble: 32 x 6
##   posteam avg_yds_to_go avg_field_pos count success_rate avg_gained
```

```
##      <chr>          <dbl>      <dbl> <int>      <dbl>      <dbl>
## 1 PIT             2.7         47.2   10        0.9         5.2
## 2 LA              2.64        46.9   11        0.818        2.64
## 3 KC              2.71        22.9    7        0.714        2.29
## 4 PHI             2.37        26.8   19        0.684        1.74
## 5 HOU             5          34.3    6        0.667        2.33
## 6 WAS             3          46       11        0.636        4.18
## 7 MIN             4.6         39.8   10        0.6          7
## 8 DET             2.41        34.1   22        0.591        5.23
## 9 MIA             2.67        39.8   12        0.583        6.58
## 10 CLE            2.62        36.1   21        0.571        4.05
## # ... with 22 more rows
```

```
ggplot(team_4th, aes(x = success_rate, y = avg_gained)) +
  geom_nfl_logos(aes(team_abbr = posteam), width = team_4th$count / 300, alpha = 0.75) +
  geom_hline(yintercept = mean(team_4th$avg_gained), color = "red", linetype = "dashed", alpha=0.5) +
  geom_vline(xintercept = mean(team_4th$success_rate), color = "red", linetype = "dashed", alpha=0.5) +
  labs(title = "4th Down Success vs. Average Yards Gained on 4th Down",
       subtitle = "2022 NFL Games, WP between 0.02 and 0.98, Logo Size = # Qualifying Plays",
       y = "Average Yards Gained", x = "4th Down Success Rate", caption = "Jack Miller | data: @nflfastR")
```

4th Down Success vs. Average Yards Gained on 4th Down

2022 NFL Games, WP between 0.02 and 0.98, Logo Size = # Qualifying Plays



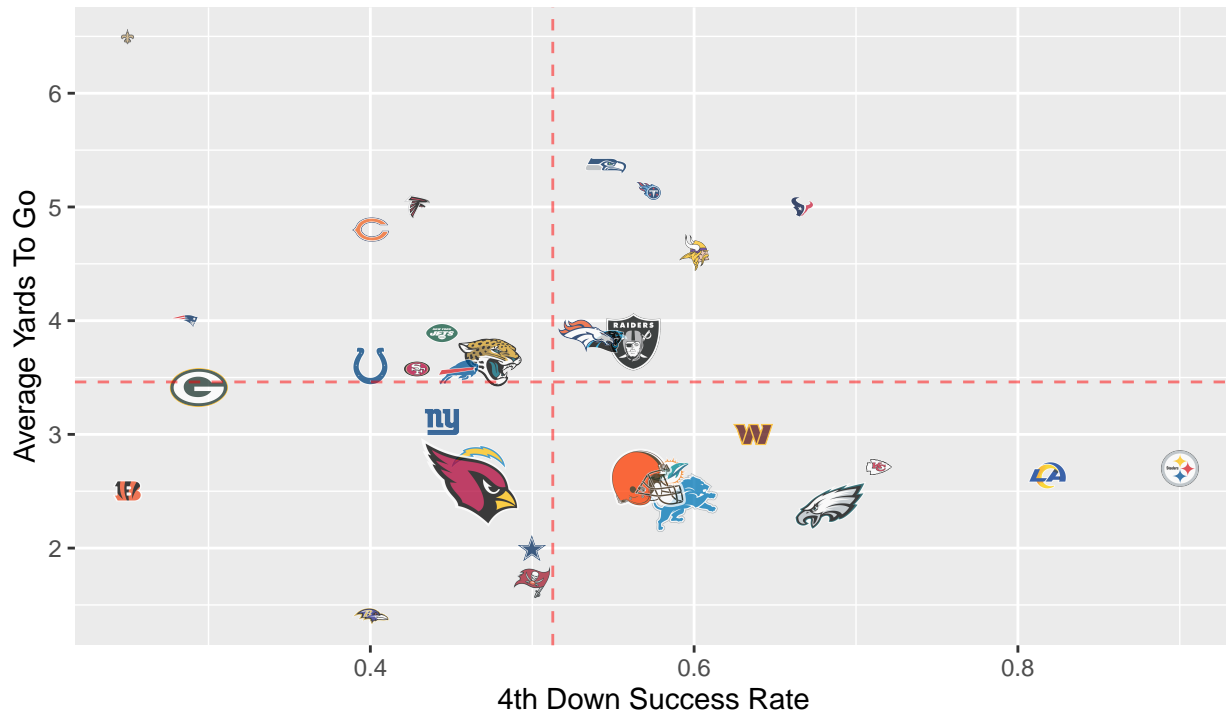
Jack Miller | data: @nflfastR

```
ggplot(team_4th, aes(x = success_rate, y = avg_yds_to_go)) +
  geom_nfl_logos(aes(team_abbr = posteam), width = team_4th$count / 300, alpha = 0.75) +
  geom_hline(yintercept = mean(team_4th$avg_yds_to_go), color = "red", linetype = "dashed", alpha=0.5) +
  geom_vline(xintercept = mean(team_4th$success_rate), color = "red", linetype = "dashed", alpha=0.5)
```

```
labs(title = "4th Down Success vs. Average Yards To Go on 4th Down",
      subtitle = "2022 NFL Games, WP between 0.02 and 0.98, Logo Size = # Qualifying Plays",
      y = "Average Yards To Go", x = "4th Down Success Rate", caption = "Jack Miller | data: @nflfastR")
```

4th Down Success vs. Average Yards To Go on 4th Down

2022 NFL Games, WP between 0.02 and 0.98, Logo Size = # Qualifying Plays



Jack Miller | data: @nflfastR

2022 Offense vs Defense EPA (Through Week 12)

```
pbp_2022_epa <- pbp2022 %>%
  filter(!is.na(posteam) & (rush == 1 | pass == 1)) %>%
  filter(wp > 0.02 & wp < 0.98)
offense_2022 <- pbp_2022_epa %>%
  dplyr::group_by(team = posteam) %>%
  dplyr::summarise(off_epa = mean(epa, na.rm = TRUE))
defense_2022 <- pbp_2022_epa %>%
  dplyr::group_by(team = defteam) %>%
  dplyr::summarise(def_epa = mean(epa, na.rm = TRUE))
offense_2022 %>%
  dplyr::inner_join(defense_2022, by = "team") %>%
  ggplot2::ggplot(aes(x = off_epa, y = def_epa)) +
  ggplot2::geom_abline(slope = -1.5, intercept = (4:-3)/10, alpha = .2) +
  nflplotR::geom_mean_lines(aes(h_var = off_epa, v_var = def_epa)) +
  geom_nfl_logos(aes(team_abbr = team), width = 0.05, alpha = 0.7) +
  labs(
```

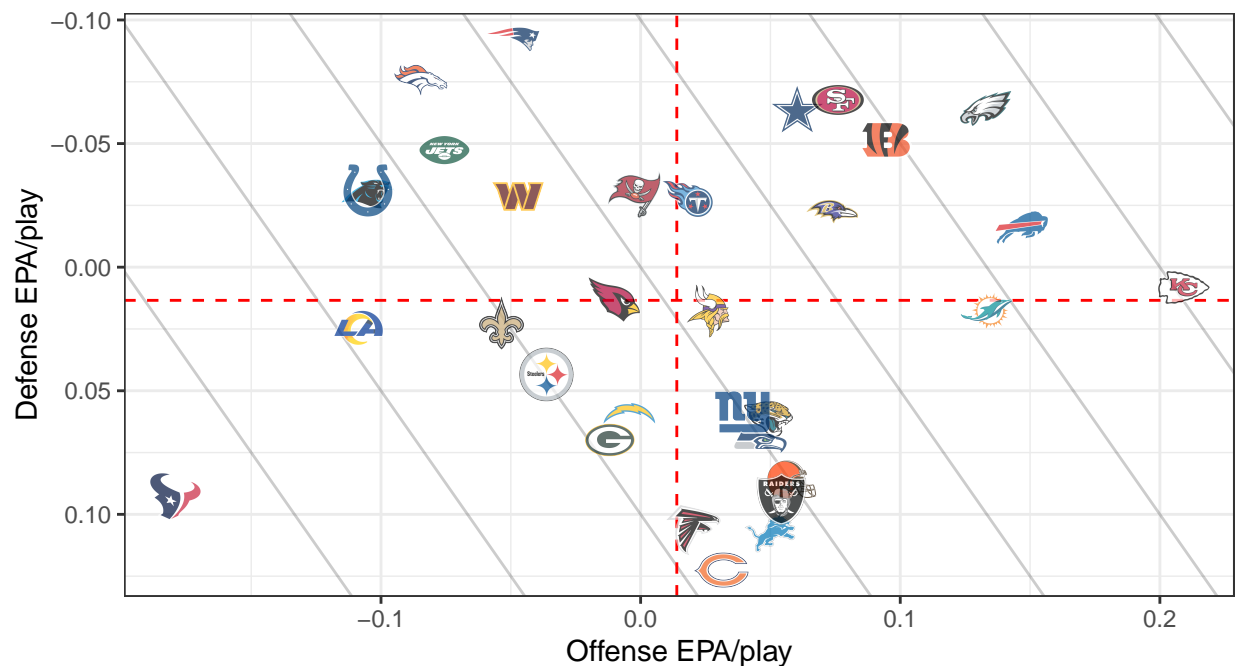
```

x = "Offense EPA/play",
y = "Defense EPA/play",
caption = "Jack Miller | Data: @nflfastR") +
ggtitle(expression(atop("2022 NFL Offensive and Defensive EPA per Play",
                        atop(italic("Win prob 2-98%; Downs: 1-4; Qtrs: all"), "")))) +
theme_bw() +
theme(
  plot.title = ggplot2::element_text(size = 16, hjust = 0.5, face = "bold")
) +
scale_y_reverse()

```

2022 NFL Offensive and Defensive EPA per Play

Win prob 2-98%; Downs: 1-4; Qtrs: all



Jack Miller | Data: @nflfastR

2022 Week 12 Team EPA

```

pbp_2022_w12_epa <- pbp2022 %>%
  filter(week == 12) %>%
  filter(!is.na(posteam) & (rush == 1 | pass == 1)) %>%
  filter(wp > 0.02 & wp < 0.98)
offense_w12 <- pbp_2022_w12_epa %>%
  group_by(team = posteam) %>%
  summarise(off_epa = mean(epa, na.rm = TRUE))
defense_w12 <- pbp_2022_epa %>%
  group_by(team = defteam) %>%

```



```

  summarise(def_epa = mean(epa, na.rm = TRUE))
offense_w12 %>%
  inner_join(defense_w12, by = "team") %>%
  ggplot(aes(x = off_epa, y = def_epa)) +
  geom_mean_lines(aes(h_var = off_epa, v_var = def_epa)) +
  geom_nfl_logos(aes(team_abbr = team), width = 0.05, alpha = 0.7) +
  labs(
    x = "Offense EPA/play",
    y = "Defense EPA/play",
    caption = "Jack Miller | Data: @nflfastR") +
  ggtitle(expression(atop("2022 Week 12 NFL Offensive and Defensive EPA per Play",
    atop(italic("Win prob 2-98%; Downs: 1-4; Qtrs: all"), "")))) +
  theme_bw() +
  theme(
    plot.title = ggplot2::element_text(size = 16, hjust = 0.5, face = "bold")
  ) +
  scale_y_reverse()

```

2022 Week 12 NFL Offensive and Defensive EPA per Play

Win prob 2-98%; Downs: 1-4; Qtrs: all

