Package 'nflfastR'

July 25, 2020

Type Package

Title Functions to Efficiently Scrape NFL Play by Play Data

Version 2.1.2

Description A set of functions to efficiently scrape NFL play-by-play data.

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URL <https://mrcaseb.github.io/nflfastR/>, <https://github.com/mrcaseb/nflfastR>

BugReports <https://github.com/mrcaseb/nflfastR/issues>

Depends R (>= 3.5.0)

Imports dplyr,
 glue,
 httr,
 janitor,
 jsonlite,
 lubridate,
 magrittr,
 mgcv,
 progressr (>= 0.6.0),
 purrr (>= 0.3.0),
 stats,
 rlang,
 stringr (>= 1.3.0),
 tibble (>= 3.0),
 tidyr (>= 1.0.0),
 tidyselect (>= 1.1.0),
 xgboost (>= 1.1)

Suggests DBI,
 furrr,
 future,
 rmarkdown,
 RSQLite

Encoding UTF-8

LazyData true

RoxygenNote 7.1.1

R topics documented:

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add_qb_epa   *Compute QB epa*

Description

Compute QB epa

Usage

```
add_qb_epa(d)
```

Arguments

d   is a Data frame of play-by-play data scraped using [fast_scraper](#).

Details

Add the variable 'qb_epa', which gives QB credit for EPA for up to the point where a receiver lost a fumble after a completed catch and makes EPA work more like passing yards on plays with fumbles

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calculate_expected_points
                          Compute expected points

Description

for provided plays. Returns the data with probabilities of each scoring event and EP added. The following columns must be present: season, home_team, posteam, roof (coded as 'open', 'closed', or 'retractable'), half_seconds_remaining, yardline_100, ydstogo, posteam_timeouts_remaining, defteam_timeouts_remaining

Usage

```
calculate_expected_points(pbp_data)
```

Arguments

pbp_data   Play-by-play dataset to estimate expected points for.

Details

Computes expected points for provided plays. Returns the data with probabilities of each scoring event and EP added. The following columns must be present:

- season
- home_team
- posteam
- roof (coded as 'outdoors', 'dome', or 'open' / 'closed' / NA (retractable))
- half_seconds_remaining
- yardline_100
- down
- ydstogo
- posteam_timeouts_remaining
- defteam_timeouts_remaining

Value

The original pbp_data with the following columns appended to it:

ep expected points.

no_score_prob probability of no more scoring this half.

opp_fg_prob probability next score opponent field goal this half.

opp_safety_prob probability next score opponent safety this half.

opp_td_prob probability of next score opponent touchdown this half.

fg_prob probability next score field goal this half.

safety_prob probability next score safety this half.

td_prob probability text score touchdown this half.

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calculate_win_probability

Compute win probability

Description

for provided plays. Returns the data with probabilities of winning the game. The following columns must be present: receive_h2_ko (1 if game is in 1st half and possession team will receive 2nd half kickoff, 0 otherwise), ep (expected points), home_team, posteam, half_seconds_remaining, game_seconds_remaining, spread_line (how many points home team was favored by), down, ydstogo, posteam_timeouts_remaining, defteam_timeouts_remaining

Usage

```
calculate_win_probability(pbp_data)
```

Arguments

pbp_data   Play-by-play dataset to estimate win probability for.

Details

Computes win probability for provided plays. Returns the data with probabilities of each scoring event and EP added. The following columns must be present:

- receive_2h_ko (1 if game is in 1st half and possession team will receive 2nd half kickoff, 0 otherwise)
- ep (expected points)
- score_differential
- home_team
- posteam
- half_seconds_remaining
- game_seconds_remaining
- spread_line (how many points home team was favored by)
- down
- ydstogo
- posteam_timeouts_remaining
- defteam_timeouts_remaining

Value

The original pbp_data with the following columns appended to it:

wp win probability.

vegas_wp win probability taking into account pre-game spread.

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clean_pbp   *Clean Play by Play Data*

Description

Clean Play by Play Data

Usage

```
clean_pbp(pbp)
```

Arguments

pbp   is a Data frame of play-by-play data scraped using fast_scraper.

Details

Build columns that capture what happens on all plays, including penalties, using string extraction from play description. Loosely based on Ben's nflfastR guide (https://mrcaseb.github.io/nflfastR/articles/beginners_guide.html) but updated to work with the RS data, which has a different player format in the play description; e.g. 24-M.Lynch instead of M.Lynch. The function also standardizes team abbreviations so that, for example, the Chargers are always represented by 'LAC' regardless of which year it was. The function also standardizes player IDs for players appearing in both the older era (1999-2010) and the new era (2011+).

Value

The input Data Frame of the paramter 'pbp' with the following columns added:

success Binary indicator wheter epa > 0 in the given play.

passer Name of the dropback player (scrambles included) including plays with penalties.

rusher Name of the rusher (no scrambles) including plays with penalties.

receiver Name of the receiver including plays with penalties.

pass Binary indicator if the play was a pass play (sacks and scrambles included).

rush Binary indicator if the play was a rushing play.

special Binary indicator if the play was a special teams play.

first_down Binary indicator if the play ended in a first down.

aborted_play Binary indicator if the play description indicates "Aborted".

play Binary indicator: 1 if the play was a 'normal' play (including penalties), 0 otherwise.

passer_id ID of the player in the 'passer' column (NOTE: ids vary pre and post 2011)

rusher_id ID of the player in the 'rusher' column (NOTE: ids vary pre and post 2011)

receiver_id ID of the player in the 'receiver' column (NOTE: ids vary pre and post 2011)

name Name of the 'passer' if it is not 'NA', or name of the 'rusher' otherwise.

id ID of the player in the 'name' column.

qb_epa Gives QB credit for EPA for up to the point where a receiver lost a fumble after a completed catch and makes EPA work more like passing yards on plays with fumbles.

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fast_scraper *Get NFL Play by Play Data*

Description

Get NFL Play by Play Data

Usage

```
fast_scraper(game_ids, source = "nfl", pp = FALSE, ...)
```

Arguments

game_ids	Vector of character ids (see details for further information)
source	Character - must now be nfl or unspecified (see details for further information)
pp	Logical - either TRUE or FALSE (see details for further information)
...	Additional arguments passed to the scraping functions (for internal use)

Details

To load valid game_ids please use the package function fast_scraper_schedules.

The source parameter controls from which source the data is being scraped. The old parameters rs as well as gc are not valid anymore. Please use nfl or leave unspecified. The pp parameter controls if the scraper should use parallel processing. Please note that the initiating process takes a few seconds which means it may be better to set pp = FALSE if you are scraping just a few games.

Value

Data frame where each individual row represents a single play for all passed game_ids containing the following detailed information (description partly extracted from nflscrapR):

play_id Numeric play id that when used with game_id and drive provides the unique identifier for a single play.

game_id Ten digit identifier for NFL game.

old_game_id Legacy NFL game ID.

home_team String abbreviation for the home team.

away_team String abbreviation for the away team.

season_type 'REG' or 'POST' indicating if the game belongs to regular or post season.

week Season week.

posteam String abbreviation for the team with possession.

posteam_type String indicating whether the posteam team is home or away.

defteam String abbreviation for the team on defense.

side_of_field String abbreviation for which team's side of the field the team with possession is currently on.

yardline_100 Numeric distance in the number of yards from the opponent's endzone for the posteam.

game_date Date of the game.

quarter_seconds_remaining Numeric seconds remaining in the quarter.

half_seconds_remaining Numeric seconds remaining in the half.

game_seconds_remaining Numeric seconds remaining in the game.

game_half String indicating which half the play is in, either Half1, Half2, or Overtime.

quarter_end Binary indicator for whether or not the row of the data is marking the end of a quarter.

drive Numeric drive number in the game.

sp Binary indicator for whether or not a score occurred on the play.

qtr Quarter of the game (5 is overtime).

down The down for the given play.

goal_to_go Binary indicator for whether or not the posteam is in a goal down situation.

time Time at start of play provided in string format as minutes:seconds remaining in the quarter.

yrdln String indicating the current field position for a given play.

ydstogo Numeric yards in distance from either the first down marker or the endzone in goal down situations.

ydsnet Numeric value for total yards gained on the given drive.

desc Detailed string description for the given play.

play_type String indicating the type of play: pass (includes sacks), run (includes scrambles), punt, field_goal, kickoff, extra_point, qb_kneel, qb_spike, no_play (timeouts and penalties), and missing for rows indicating end of play.

yards_gained Numeric yards gained (or lost) by the possessing team, excluding yards gained via fumble recoveries and laterals.

shotgun Binary indicator for whether or not the play was in shotgun formation.

no_huddle Binary indicator for whether or not the play was in no_huddle formation.

qb_dropback Binary indicator for whether or not the QB dropped back on the play (pass attempt, sack, or scrambled).

qb_kneel Binary indicator for whether or not the QB took a knee.

qb_spike Binary indicator for whether or not the QB spiked the ball.

qb_scramble Binary indicator for whether or not the QB scrambled.

pass_length String indicator for pass length: short or deep.

pass_location String indicator for pass location: left, middle, or right.

air_yards Numeric value for distance in yards perpendicular to the line of scrimmage at where the targeted receiver either caught or didn't catch the ball.

yards_after_catch Numeric value for distance in yards perpendicular to the yard line where the receiver made the reception to where the play ended.

run_location String indicator for location of run: left, middle, or right.

run_gap String indicator for line gap of run: end, guard, or tackle

field_goal_result String indicator for result of field goal attempt: made, missed, or blocked.

kick_distance Numeric distance in yards for kickoffs, field goals, and punts.

extra_point_result String indicator for the result of the extra point attempt: good, failed, blocked, safety (touchback in defensive endzone is 1 point apparently), or aborted.

two_point_conv_result String indicator for result of two point conversion attempt: success, failure, safety (touchback in defensive endzone is 1 point apparently), or return.

home_timeouts_remaining Numeric timeouts remaining in the half for the home team.

away_timeouts_remaining Numeric timeouts remaining in the half for the away team.

timeout Binary indicator for whether or not a timeout was called by either team.

timeout_team String abbreviation for which team called the timeout.

td_team String abbreviation for which team scored the touchdown.

posteam_timeouts_remaining Number of timeouts remaining for the possession team.

defteam_timeouts_remaining Number of timeouts remaining for the team on defense.

total_home_score Score for the home team at the start of the play.

total_away_score Score for the away team at the start of the play.

posteam_score Score the posteam at the start of the play.

defteam_score Score the defteam at the start of the play.

score_differential Score differential between the posteam and defteam at the start of the play.

posteam_score_post Score for the posteam at the end of the play.

defteam_score_post Score for the defteam at the end of the play.

score_differential_post Score differential between the posteam and defteam at the end of the play.

no_score_prob Predicted probability of no score occurring for the rest of the half based on the expected points model.

opp_fg_prob Predicted probability of the defteam scoring a FG next.

opp_safety_prob Predicted probability of the defteam scoring a safety next.

opp_td_prob Predicted probability of the defteam scoring a TD next.

fg_prob Predicted probability of the posteam scoring a FG next.

safety_prob Predicted probability of the posteam scoring a safety next.

td_prob Predicted probability of the posteam scoring a TD next.

extra_point_prob Predicted probability of the posteam scoring an extra point.

two_point_conversion_prob Predicted probability of the posteam scoring the two point conversion.

ep Using the scoring event probabilities, the estimated expected points with respect to the possession team for the given play.

epa Expected points added (EPA) by the posteam for the given play.

total_home_epa Cumulative total EPA for the home team in the game so far.

total_away_epa Cumulative total EPA for the away team in the game so far.

total_home_rush_epa Cumulative total rushing EPA for the home team in the game so far.

total_away_rush_epa Cumulative total rushing EPA for the away team in the game so far.

total_home_pass_epa Cumulative total passing EPA for the home team in the game so far.

total_away_pass_epa Cumulative total passing EPA for the away team in the game so far.

air_epa EPA from the air yards alone. For completions this represents the actual value provided through the air. For incompletions this represents the hypothetical value that could've been added through the air if the pass was completed.

yac_epa EPA from the yards after catch alone. For completions this represents the actual value provided after the catch. For incompletions this represents the difference between the hypothetical air_epa and the play's raw observed EPA (how much the incomplete pass cost the posteam).

comp_air_epa EPA from the air yards alone only for completions.

comp_yac_epa EPA from the yards after catch alone only for completions.

total_home_comp_air_epa Cumulative total completions air EPA for the home team in the game so far.

total_away_comp_air_epa Cumulative total completions air EPA for the away team in the game so far.

total_home_comp_yac_epa Cumulative total completions yac EPA for the home team in the game so far.

total_away_comp_yac_epa Cumulative total completions yac EPA for the away team in the game so far.

total_home_raw_air_epa Cumulative total raw air EPA for the home team in the game so far.

total_away_raw_air_epa Cumulative total raw air EPA for the away team in the game so far.

total_home_raw_yac_epa Cumulative total raw yac EPA for the home team in the game so far.

total_away_raw_yac_epa Cumulative total raw yac EPA for the away team in the game so far.

wp Estimated win probabiity for the posteam given the current situation at the start of the given play.

def_wp Estimated win probability for the defteam.

home_wp Estimated win probability for the home team.

away_wp Estimated win probability for the away team.

wpa Win probability added (WPA) for the posteam.

home_wp_post Estimated win probability for the home team at the end of the play.

away_wp_post Estimated win probability for the away team at the end of the play.

vegas_wp Estimated win probabiity for the posteam given the current situation at the start of the given play, incorporating pre-game Vegas line.

vegas_home_wp Estimated win probability for the home team incorporating pre-game Vegas line.

total_home_rush_wpa Cumulative total rushing WPA for the home team in the game so far.

total_away_rush_wpa Cumulative total rushing WPA for the away team in the game so far.

total_home_pass_wpa Cumulative total passing WPA for the home team in the game so far.

total_away_pass_wpa Cumulative total passing WPA for the away team in the game so far.

air_wpa WPA through the air (same logic as air_epa).

yac_wpa WPA from yards after the catch (same logic as yac_epa).

comp_air_wpa The air_wpa for completions only.

comp_yac_wpa The yac_wpa for completions only.

total_home_comp_air_wpa Cumulative total completions air WPA for the home team in the game so far.

total_away_comp_air_wpa Cumulative total completions air WPA for the away team in the game so far.

total_home_comp_yac_wpa Cumulative total completions yac WPA for the home team in the game so far.

total_away_comp_yac_wpa Cumulative total completions yac WPA for the away team in the game so far.

total_home_raw_air_wpa Cumulative total raw air WPA for the home team in the game so far.

total_away_raw_air_wpa Cumulative total raw air WPA for the away team in the game so far.

total_home_raw_yac_wpa Cumulative total raw yac WPA for the home team in the game so far.

total_away_raw_yac_wpa Cumulative total raw yac WPA for the away team in the game so far.

punt_blocked Binary indicator for if the punt was blocked.

first_down_rush Binary indicator for if a running play converted the first down.

first_down_pass Binary indicator for if a passing play converted the first down.

first_down_penalty Binary indicator for if a penalty converted the first down.

third_down_converted Binary indicator for if the first down was converted on third down.

third_down_failed Binary indicator for if the posteam failed to convert first down on third down.

fourth_down_converted Binary indicator for if the first down was converted on fourth down.

fourth_down_failed Binary indicator for if the posteam failed to convert first down on fourth down.

incomplete_pass Binary indicator for if the pass was incomplete.

touchback Binary indicator for if a touchback occurred on the play.

interception Binary indicator for if the pass was intercepted.

punt_inside_twenty Binary indicator for if the punt ended inside the twenty yard line.

punt_in_endzone Binary indicator for if the punt was in the endzone.

punt_out_of_bounds Binary indicator for if the punt went out of bounds.

punt_downed Binary indicator for if the punt was downed.

punt_fair_catch Binary indicator for if the punt was caught with a fair catch.

kickoff_inside_twenty Binary indicator for if the kickoff ended inside the twenty yard line.

kickoff_in_endzone Binary indicator for if the kickoff was in the endzone.

kickoff_out_of_bounds Binary indicator for if the kickoff went out of bounds.

kickoff_downed Binary indicator for if the kickoff was downed.

kickoff_fair_catch Binary indicator for if the kickoff was caught with a fair catch.

fumble_forced Binary indicator for if the fumble was forced.

fumble_not_forced Binary indicator for if the fumble was not forced.

fumble_out_of_bounds Binary indicator for if the fumble went out of bounds.

solo_tackle Binary indicator if the play had a solo tackle (could be multiple due to fumbles).

safety Binary indicator for whether or not a safety occurred.

penalty Binary indicator for whether or not a penalty occurred.

tackled_for_loss Binary indicator for whether or not a tackle for loss occurred.

fumble_lost Binary indicator for if the fumble was lost.

own_kickoff_recovery Binary indicator for if the kicking team recovered the kickoff.

own_kickoff_recovery_td Binary indicator for if the kicking team recovered the kickoff and scored a TD.

qb_hit Binary indicator if the QB was hit on the play.

rush_attempt Binary indicator for if the play was a run.

pass_attempt Binary indicator for if the play was a pass attempt (includes sacks).

sack Binary indicator for if the play ended in a sack.

touchdown Binary indicator for if the play resulted in a TD.

pass_touchdown Binary indicator for if the play resulted in a passing TD.

rush_touchdown Binary indicator for if the play resulted in a rushing TD.

return_touchdown Binary indicator for if the play resulted in a return TD.

extra_point_attempt Binary indicator for extra point attempt.

two_point_attempt Binary indicator for two point conversion attempt.

field_goal_attempt Binary indicator for field goal attempt.

kickoff_attempt Binary indicator for kickoff.

punt_attempt Binary indicator for punts.

fumble Binary indicator for if a fumble occurred.

complete_pass Binary indicator for if the pass was completed.

assist_tackle Binary indicator for if an assist tackle occurred.

lateral_reception Binary indicator for if a lateral occurred on the reception.

lateral_rush Binary indicator for if a lateral occurred on a run.

lateral_return Binary indicator for if a lateral occurred on a return.

lateral_recovery Binary indicator for if a lateral occurred on a fumble recovery.

passer_player_id Unique identifier for the player that attempted the pass.

passer_player_name String name for the player that attempted the pass.

receiver_player_id Unique identifier for the receiver that was targeted on the pass.

receiver_player_name String name for the targeted receiver.

rusher_player_id Unique identifier for the player that attempted the run.

rusher_player_name String name for the player that attempted the run.

lateral_receiver_player_id Unique identifier for the player that received the lateral on a reception.

lateral_receiver_player_name String name for the player that received the lateral on a reception.

lateral_rusher_player_id Unique identifier for the player that received the lateral on a run.

lateral_rusher_player_name String name for the player that received the lateral on a run.

lateral_sack_player_id Unique identifier for the player that received the lateral on a sack.

lateral_sack_player_name String name for the player that received the lateral on a sack.

interception_player_id Unique identifier for the player that intercepted the pass.

interception_player_name String name for the player that intercepted the pass.

lateral_interception_player_id Unique indentifier for the player that received the lateral on an interception.

lateral_interception_player_name String name for the player that received the lateral on an interception.

punt_returner_player_id Unique identifier for the punt returner.

punt_returner_player_name String name for the punt returner.

lateral_punt_returner_player_id Unique identifier for the player that received the lateral on a punt return.

lateral_punt_returner_player_name String name for the player that received the lateral on a punt return.

kickoff_returner_player_name String name for the kickoff returner.

kickoff_returner_player_id Unique identifier for the kickoff returner.

lateral_kickoff_returner_player_id Unique identifier for the player that received the lateral on a kickoff return.

lateral_kickoff_returner_player_name String name for the player that received the lateral on a kickoff return.

punter_player_id Unique identifier for the punter.

punter_player_name String name for the punter.

kicker_player_name String name for the kicker on FG or kickoff.

kicker_player_id Unique identifier for the kicker on FG or kickoff.

own_kickoff_recovery_player_id Unique identifier for the player that recovered their own kickoff.

own_kickoff_recovery_player_name String name for the player that recovered their own kickoff.

blocked_player_id Unique identifier for the player that blocked the punt or FG.

blocked_player_name String name for the player that blocked the punt or FG.

tackle_for_loss_1_player_id Unique identifier for one of the potential players with the tackle for loss.

tackle_for_loss_1_player_name String name for one of the potential players with the tackle for loss.

tackle_for_loss_2_player_id Unique identifier for one of the potential players with the tackle for loss.

tackle_for_loss_2_player_name String name for one of the potential players with the tackle for loss.

qb_hit_1_player_id Unique identifier for one of the potential players that hit the QB.

qb_hit_1_player_name String name for one of the potential players that hit the QB.

qb_hit_2_player_id Unique identifier for one of the potential players that hit the QB.

qb_hit_2_player_name String name for one of the potential players that hit the QB.

forced_fumble_player_1_team Team of one of the players with a forced fumble.

forced_fumble_player_1_player_id Unique identifier of one of the players with a forced fumble.

forced_fumble_player_1_player_name String name of one of the players with a forced fumble.

forced_fumble_player_2_team Team of one of the players with a forced fumble.

forced_fumble_player_2_player_id Unique identifier of one of the players with a forced fumble.

forced_fumble_player_2_player_name String name of one of the players with a forced fumble.

solo_tackle_1_team Team of one of the players with a solo tackle.

solo_tackle_2_team Team of one of the players with a solo tackle.

solo_tackle_1_player_id Unique identifier of one of the players with a solo tackle.

solo_tackle_2_player_id Unique identifier of one of the players with a solo tackle.

solo_tackle_1_player_name String name of one of the players with a solo tackle.

solo_tackle_2_player_name String name of one of the players with a solo tackle.

assist_tackle_1_player_id Unique identifier of one of the players with a tackle assist.

assist_tackle_1_player_name String name of one of the players with a tackle assist.

assist_tackle_1_team Team of one of the players with a tackle assist.

assist_tackle_2_player_id Unique identifier of one of the players with a tackle assist.

assist_tackle_2_player_name String name of one of the players with a tackle assist.

assist_tackle_2_team Team of one of the players with a tackle assist.

assist_tackle_3_player_id Unique identifier of one of the players with a tackle assist.

assist_tackle_3_player_name String name of one of the players with a tackle assist.

assist_tackle_3_team Team of one of the players with a tackle assist.

assist_tackle_4_player_id Unique identifier of one of the players with a tackle assist.

assist_tackle_4_player_name String name of one of the players with a tackle assist.

assist_tackle_4_team Team of one of the players with a tackle assist.

pass_defense_1_player_id Unique identifier of one of the players with a pass defense.

pass_defense_1_player_name String name of one of the players with a pass defense.

pass_defense_2_player_id Unique identifier of one of the players with a pass defense.

pass_defense_2_player_name String name of one of the players with a pass defense.

fumbled_1_team Team of one of the players with a fumble.

fumbled_1_player_id Unique identifier of one of the players with a fumble.

fumbled_1_player_name String name of one of the players with a fumble.

fumbled_2_player_id Unique identifier of one of the players with a fumble.

fumbled_2_player_name String name of one of the players with a fumble.

fumbled_2_team Team of one of the players with a fumble.

fumble_recovery_1_team Team of one of the players with a fumble recovery.

fumble_recovery_1_yards Yards gained by one of the players with a fumble recovery.

fumble_recovery_1_player_id Unique identifier of one of the players with a fumble recovery.

fumble_recovery_1_player_name String name of one of the players with a fumble recovery.

fumble_recovery_2_team Team of one of the players with a fumble recovery.

fumble_recovery_2_yards Yards gained by one of the players with a fumble recovery.

fumble_recovery_2_player_id Unique identifier of one of the players with a fumble recovery.

fumble_recovery_2_player_name String name of one of the players with a fumble recovery.

return_team String abbreviation of the return team.

return_yards Yards gained by the return team.

penalty_team String abbreviation of the team with the penalty.

penalty_player_id Unique identifier for the player with the penalty.

penalty_player_name String name for the player with the penalty.

penalty_yards Yards gained (or lost) by the posteam from the penalty.

replay_or_challenge Binary indicator for whether or not a replay or challenge.

replay_or_challenge_result String indicating the result of the replay or challenge.

penalty_type String indicating the penalty type.

defensive_two_point_attempt Binary indicator whether or not the defense was able to have an attempt on a two point conversion, this results following a turnover.

defensive_two_point_conv Binary indicator whether or not the defense successfully scored on the two point conversion.

defensive_extra_point_attempt Binary indicator whether or not the defense was able to have an attempt on an extra point attempt, this results following a blocked attempt that the defense recovers the ball.

defensive_extra_point_conv Binary indicator whether or not the defense successfully scored on an extra point attempt.

season 4 digit number indicating to which season the game belongs to.

cp Numeric value indicating the probability for a complete pass based on comparable game situations.

cpoe For a single pass play this is 1 - cp when the pass was completed or 0 - cp when the pass was incomplete. Analyzed for a whole game or season an indicator for the passer how much over or under expectation his completion percentage was.

series Starts at 1, each new first down increments, numbers shared across both teams NA: kickoffs, extra point/two point conversion attempts, non-plays, no posteam

series_success 1: scored touchdown, gained enough yards for first down 0: punt, interception, fumble lost, turnover on downs, FG attempt NA: series is NA, series contains QB spike/kneel

start_time Kickoff time in eastern time zone.

order_sequence Column provided by NFL to fix out-of-order plays. Available 2011 and beyond.

time_of_day Time of day of play in UTC "HH:MM:SS" format. Available 2011 and beyond.

stadium Game site name.

weather String describing the weather including temperature, humidity and wind (direction and speed). Doesn't change during the game!

nfl_api_id UUID of the game in the new NFL API.

play_clock Time on the playclock when the ball was snapped.

play_deleted Binary indicator for deleted plays.

play_type_nfl Play type as listed in the NFL source. Slightly different to the regular play_type variable.

special_teams_play Binary indicator for whether play is special teams play from NFL source. Available 2011 and beyond.

st_play_type Type of special teams play from NFL source. Available 2011 and beyond.

end_clock_time Game time at the end of a given play.

end_yard_line String indicating the yardline at the end of the given play consisting of team half and yard line number.

drive_real_start_time Local day time when the drive started (currently not used by the NFL and therefore mostly 'NA').

drive_play_count Numeric value of how many regular plays happened in a given drive.

drive_time_of_possession Time of possession in a given drive.

drive_first_downs Number of forst downs in a given drive.

drive_inside20 Binary indicator if the offense was able to get inside the opponents 20 yard line.

drive_ended_with_score Binary indicator the drive ended with a score.

drive_quarter_start Numeric value indicating in which quarter the given drive has started.

drive_quarter_end Numeric value indicating in which quarter the given drive has ended.

drive_yards_penalized Numeric value of how many yards the offense gained or lost through penalties in the given drive.

drive_start_transition String indicating how the offense got the ball.

drive_end_transition String indicating how the offense lost the ball.

drive_game_clock_start Game time at the beginning of a given drive.

drive_game_clock_end Game time at the end of a given drive.

drive_start_yard_line String indicating where a given drive started consisting of team half and yard line number.

drive_end_yard_line String indicating where a given drive ended consisting of team half and yard line number.

drive_play_id_started Play_id of the first play in the given drive.

drive_play_id_ended Play_id of the last play in the given drive.

away_score Total points scored by the away team.

home_score Total points scored by the home team.

location Either 'Home' o 'Neutral' indicating if the home team played at home or at a neutral site.

result Equals home_score - away_score and means the game outcome from the perspective of the home team.

total Equals home_score + away_score and means the total points scored in the given game.

spread_line The closing spread line for the game. A positive number means the home team was favored by that many points, a negative number means the away team was favored by that many points. (Source: Pro-Football-Reference)

total_line The closing total line for the game. (Source: Pro-Football-Reference)

div_game Binary indicator for if the given game was a division game.

roof One of 'dome', 'outdoors', 'closed', 'open' indicating indicating the roof status of the stadium the game was played in. (Source: Pro-Football-Reference)

surface What type of ground the game was played on. (Source: Pro-Football-Reference)

temp The temperature at the stadium only for 'roof' = 'outdoors' or 'open'.(Source: Pro-Football-Reference)

wind The speed of the wind in miles/hour only for 'roof' = 'outdoors' or 'open'. (Source: Pro-Football-Reference)

home_coach First and last name of the home team coach. (Source: Pro-Football-Reference)

away_coach First and last name of the away team coach. (Source: Pro-Football-Reference)

stadium_id ID of the stadium the game was played in. (Source: Pro-Football-Reference)

game_stadium Name of the stadium the game was played in. (Source: Pro-Football-Reference)

Examples

```
## Not run:
# Get pbp data for two games using parallel processing
game_ids <- c("2019_01_GB_CHI", "2013_21_SEA_DEN")
pbp <- fast_scraper(game_ids, pp = TRUE)

## End(Not run)
```

---

fast_scraper_schedules

Get NFL Season Schedules

Description

Get NFL Season Schedules

Usage

```
fast_scraper_schedules(seasons, pp = FALSE)
```

Arguments

seasons	Vector of numeric or character 4 digit seasons
pp	Logical - either TRUE or FALSE (see details for further information)

Details

This functions now incorporates the games file provided and maintained by Lee Sharpe.

The pp parameter controls if the scraper should use parallel processing. Please note that the initiating process takes a few seconds which means it may be better to set pp = FALSE if you are scraping less than 10 seasons.

Value

Data frame containing the following detailed game information:

game_id Character identifier including season, week, away team and home team

season 4 digit season year.

game_type One of 'REG', 'WC', 'DIV', 'CON', 'SB' indicating if a game was a regular season game or one of the playoff rounds.

week Numeric week number.

gameday Game date in format yyyy/mm/dd.

weekday The day of the week on which the game occcured.

gametime The kickoff time of the game. This is represented in 24-hour time and the Eastern time zone, regardless of what time zone the game was being played in.

away_team Away team abbreviation.

home_team Home team abbreviation.

away_score The number of points the away team scored. Is 'NA' for games which haven't yet been played.

home_score The number of points the home team scored. Is 'NA' for games which haven't yet been played.

home_result Equals home_score - away_score and means the game outcome from the perspective of the home team.

stadium Name of the stadium the game was or will be played in. (Source: Pro-Football-Reference)

location Either 'Home' o 'Neutral' indicating if the home team played at home or at a neutral site.

roof One of 'dome', 'outdoors', 'closed', 'open' indicating indicating the roof status of the stadium the game was played in. (Source: Pro-Football-Reference)

surface What type of ground the game was played on. (Source: Pro-Football-Reference)

old_game_id Unique game identifier of the old NFL API.

Examples

```
## Not run:
# Get schedules for the whole 2015 - 2018 seasons
seasons <- 2015:2018
schedules <- fast_scraper_schedules(seasons)

## End(Not run)
```

---

teams_colors_logos   *NFL Team names, colors and logo urls.*

Description

NFL Team names, colors and logo urls.

Usage

```
teams_colors_logos
```

Format

A data frame with 36 rows and 10 variables containing NFL team level information, including franchises in multiple cities:

team_abbr Team abbreviation

team_name Complete Team name

team_id Team id used in the roster function

team_nick Nickname

team_color Primary color

team_color2 Secondary color

team_color3 Tertiary color

team_color4 Quaternary color

team_logo_wikipedia Url to Team logo on wikipedia

team_logo_espn Url to higher quality logo on espn

The colors are taken from Lee Sharpe's teamcolors.csv who has taken them from the 'teamcolors' package created by Ben Baumer and Gregory Matthews. The Wikipeadia logo urls are taken from Lee Sharpe's logos.csv

update_db   *Update or create a nflfastR play by play database*

Description

update_db updates or creates a SQLite database with nflfastR play by play data of all completed games since 1999.

Usage

```
update_db(
  dbdir = ".",
  dbname = "pbp_db",
  tblname = "nflfastR_pbp",
  force_rebuild = FALSE
)
```

Arguments

dbdir	Directory in which the database is or shall be located
dbname	File name of an existing or desired SQLite database within dbdir
tblname	The name of the play by play data table within the database
force_rebuild	Logical parameter to rebuild the play by play data table within the database from scratch in case the cleaned data were updated

Details

This function creates and updates a data table with the name tblname within a SQLite database located in dbdir and named dbname. The data table combines all play by play data for every available game back to the 1999 season and adds the most recent completed games as soon as they are available for nflfastR. The force_rebuild parameter controls if the data table within the database (not the database itself because there might be other data in it) should be removed and rebuilt from scratch (mostly because of bugfixes in nflfastR or its underlying data)

Index