




NFL Punt Return Rule Proposal

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The Problem

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- The NFL has been making obvious strides to improve the health and safety of their players
 - First steps have been made to make plays safer, especially in respect to reducing incidences of concussions
 - For example, the NFL recently made changes to rules regarding 'Use of Helmet' and 'Kickoffs', which reflect their commitment to improve player safety and health
 - In an effort to reduce concussion rates further, they are looking to the outside analytics community for rule changes that can improve player safety during the **punt play**
 - The following slides outline a proposal to do just that


The Proposal



Proposed Rule changes include:

1. **Allowance of video review of plays where an injury occurs and to allow for subsequent calls of penalties directly related to the injury to be called. If injury isn't apparent immediately and a penalty is thus an unsuitable deterrent, a fine may be incurred on the perpetrator of the penalty after a confirmation later by video review (potential overlap with Rule 17 Section 2 Article 3).**
2. **Expanding the defenseless player status to punt team players who are within 5 yards of the PR and are running towards their own endzone (this would be similar to the afforded protection to the punter, Rule 12 Section 2 Article 7-a-8)**
3. **Restricted zone of 8 yards (by yardline) for the punt receiver during play.**
 - a. Return and punt team players may not be within 8 yards of the PR (by yardline distance) during a punt play unless the PR has signaled for a fair catch, the ball has been caught/muffed by the PR, or the ball has hit the ground.
 - b. **Penalty:** 10 yards from the PR and the play is called dead when infraction occurs.
 - c. The fair catch rule could also be removed similar to CFL punt return rules to increase the number of returns, but I believe the number of instances where a fair catch would be called is going to be severely reduced because of the restricted zones reward proposition for the punt returner.

Why any of the prior rule changes?

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- I believe any rule change is either going to be some structural change to the play (kickoff yardline, touchback yard reward, etc) or a behavioral deterrent (rules that warrant a penalty) so I focused on proposing rules that do just that.
 - I was particularly interested in reducing concussions by removing features I saw as prominent to the direct or indirect result of a concussion during the punt.
 - I also was not keen to reduce the number of concussions by reducing the number of punt returns because the punt is already a pretty uninteresting play with **55.4%** of punts resulting in some form of a fair catch, deadball, touchback, or just a kick out of bounds.
 - Because of this I was motivated to find a way to increase the number of punt returns, but also improve player safety


Why stricter enforcement of penalties?

1. Allowance of video review of plays where an injury occurs and to allow for subsequent calls of penalties directly related to the injury to be called. If injury isn't apparent immediately and a penalty is thus an unsuitable deterrent, a fine may be incurred on the perpetrator of the penalty after a confirmation later by video review (potential overlap with Rule 17 Section 2 Article 3).

- Punt plays can happen in a very bang-bang manner and many of the concussions **(19/37)** occurred where the concussed player had likely not anticipated the impact of the play
- **9 of 19 of these concussions** I would classify as illegal blocking either a blindside block or illegal block above the waist, which resulted in opposite force impacts or increased speed impacts that directly resulted in a concussion
- Enforcement of uncalled penalties during injury related plays acts as a deterrent to players who are not considering the potentially detrimental impact of their actions
- Impact of **proposed rule 1**:
 - There would easily be time for video review as, video replay would likely be played repeatedly during times of injury. Any resulting penalty would impact where the subsequent play will take place so certain returns may be negated.

Why stricter enforcement of penalties?

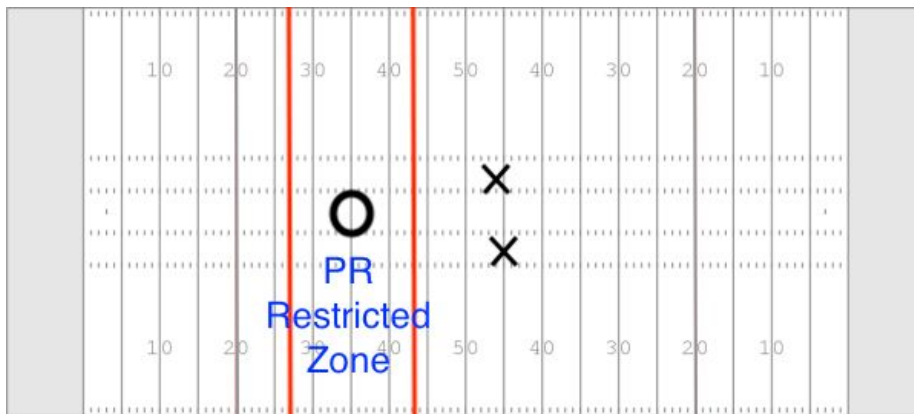
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- Another observation of the **9 concussions** that had uncalled penalties directly related to the concussion event was that every single one of them was **perpetrated by the return team and always towards their own endzone**
 - **8 of 9** of these events occurred less than 10 yards from the punt returner (PR)
 - As a result, I believe the punt team should be afforded extra protection on the punt play through proposed rule 2
 - Impact of **proposed rule 2**:
 - Behaviorally this would result in return team players having to shield the PR from behind by running with the PR and away from their endzone if they want to impede the pursuit of a nearby punt team player. Note that this rule would most often take effect when a punt team player is in pursuit from behind the PR (the whole aspect of running towards their own endzone).
 - This would essentially remove the vicious moving picks that seal the edge for punt returners (usually within 5 yards of the PR) unless the return team player that is blocking is facing away from their endzone.
 - ** The yardage gained or lost as a result of the proposed rule could not be thoroughly assessed without NGS data combined with tackling events

Why a punt returner (PR) restricted zone?

3. **Restricted zone of 8 yards (by yardline) for punt receiver during play.** Return and punt team players may not be within 8 yards of the PR (by yardline distance) during a punt play unless the PR has signaled for a fair catch, the ball has been caught/muffed by the PR or the ball has hit the ground. A 10 yard penalty is assessed from the spot of the PR and the play is called dead when the infraction occurs.

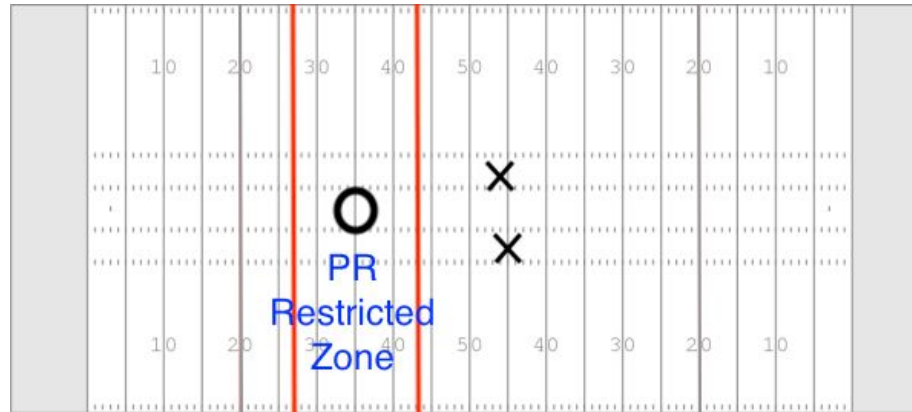
- **So why a PR restricted zone?** More than half of the concussions (**17 of 33**) that occur **after the ball has been punted** have the feature of the nearest punt team player is 8 yards or less by yardline distance from the PR at the time of the ball landing after the punt.
- This told me that maybe we need to give more time for players to react at the time of the catch.



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- By having this buffer not only could we have negated **17 of these concussion events** by calling the penalty, we ensure greater protection for the PR position which had the highest count of concussions by position (**5**)
- This buffer may also help players to better assess the play and to slow the speed of impacts as a punt team player will have reached this restricted zone greater than **50%** of the time before the catch

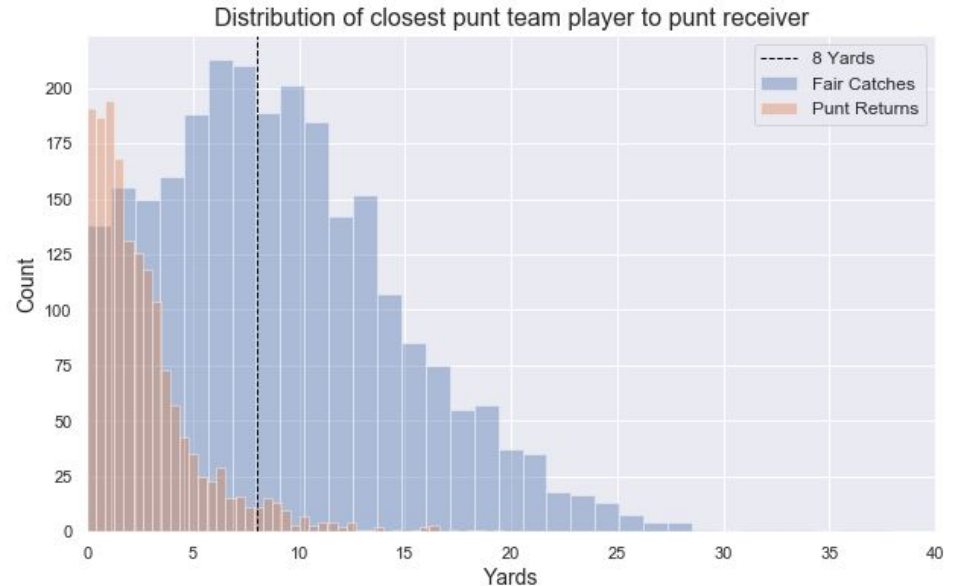


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Impact of proposed rule 3:

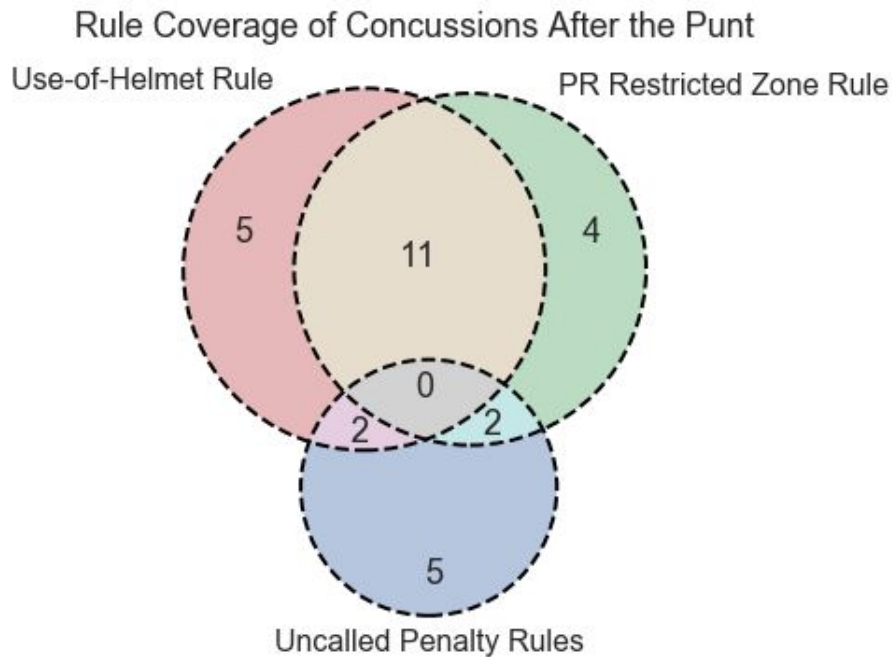
- Given the data of punt returns and fair catches from the 2016 and 2017 seasons:
 - **1216** punt returns would have been flagged and called dead
 - **3.7 more yards** would have been gained due to the penalty
 - **95% of fair catches (1552)** would be more likely to have resulted in a punt return
 - Net gain in punt returns: **336**
 - **49.6%** of total plays would be “interesting” up from **44.6%**



NFL (2018) Use-of-Helmet Rule

- It is a foul if a player lowers his head to initiate and make contact with his helmet against an opponent.

- I wanted to bring up and commend the 2018 use-of-helmet rule as it is very relevant to concussion related punt plays
- From my analysis, **18 concussions** could have been prevented by this rule being a deterrent
- This rule combined with the 3 proposed rules covers **29 of 33 (88%)** concussions that occur after the punt by acting as deterrents or structural changes that eliminate features related to concussion events



Thanks!



I want to say thank you for opening up your datasets and practical problems to the analytics community. I thoroughly enjoyed it and so much so that I now pause and rewind every punt I watch during an NFL game. It's far more interesting of a play when you're trying to solve a problem within it. Cheers!