Expected Net Points | Different Methods

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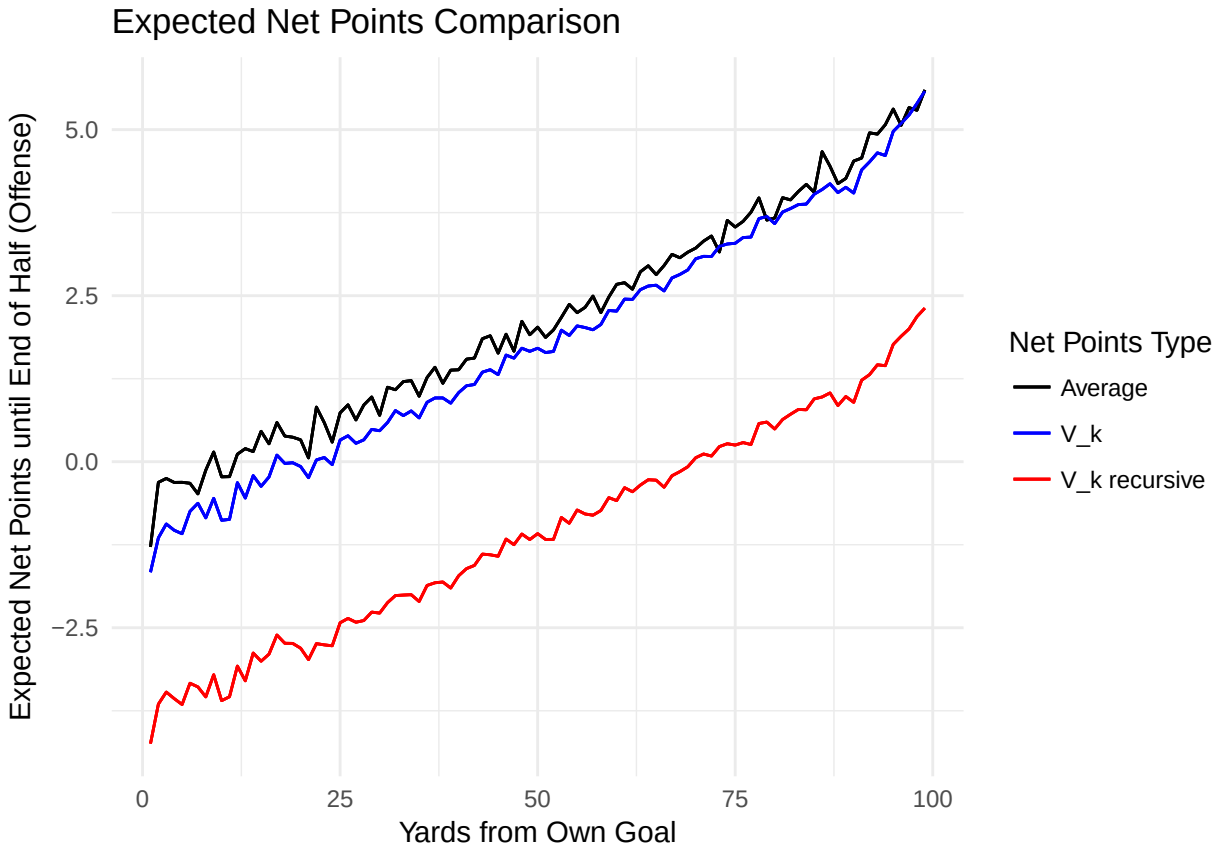
June 25, 2017

Contents

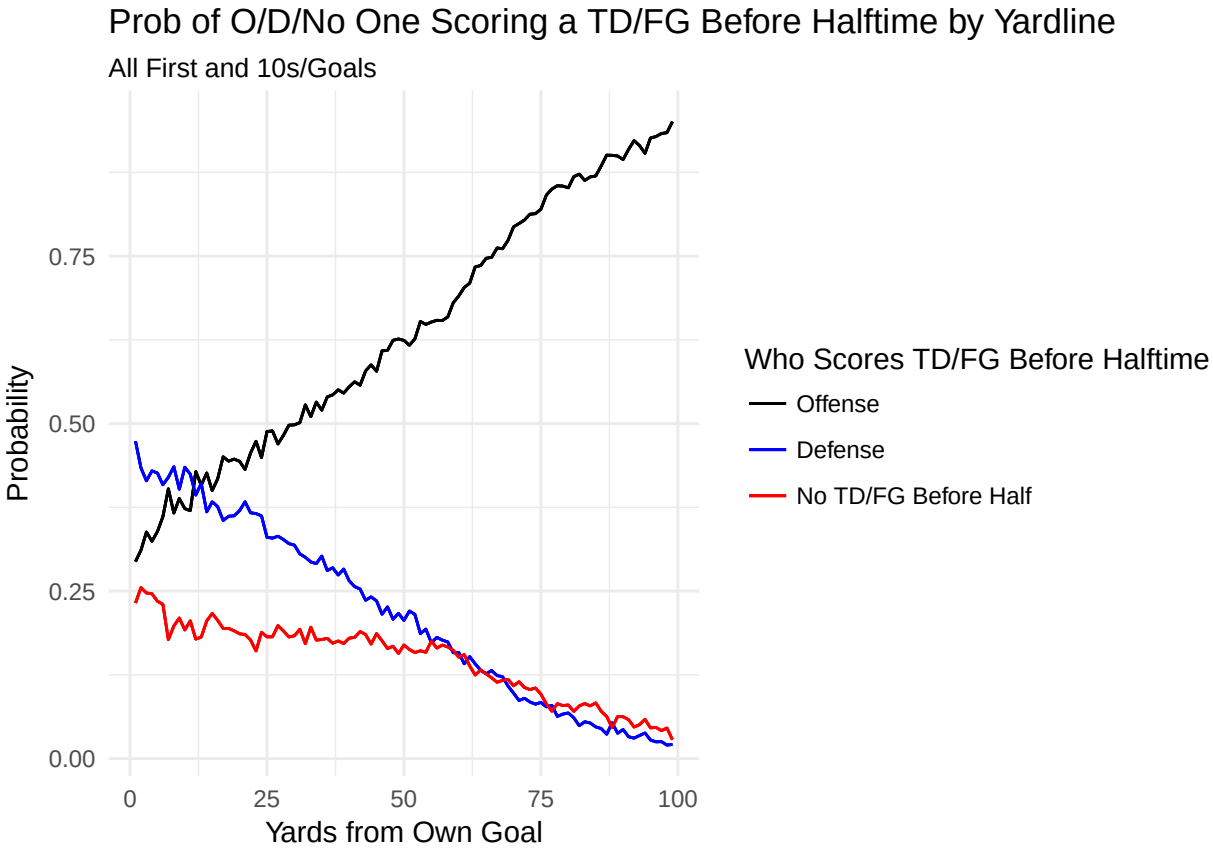
Scalar Variables Table

Variable	Value
$P(O \parallel KO\ 1stDown)$	0.4740599
$P(D \parallel KO\ 1stDown)$	0.347779
$(ExpPTS_O \parallel O, KO)$	5.4574732
$(ExpPTS_O \parallel D, KO)$	-5.4283255
$(ExpPTS_O \parallel No\ TD/FG, KO)$	0.003102
V_k	0.6124301
V_k^{rec}	3.9737687

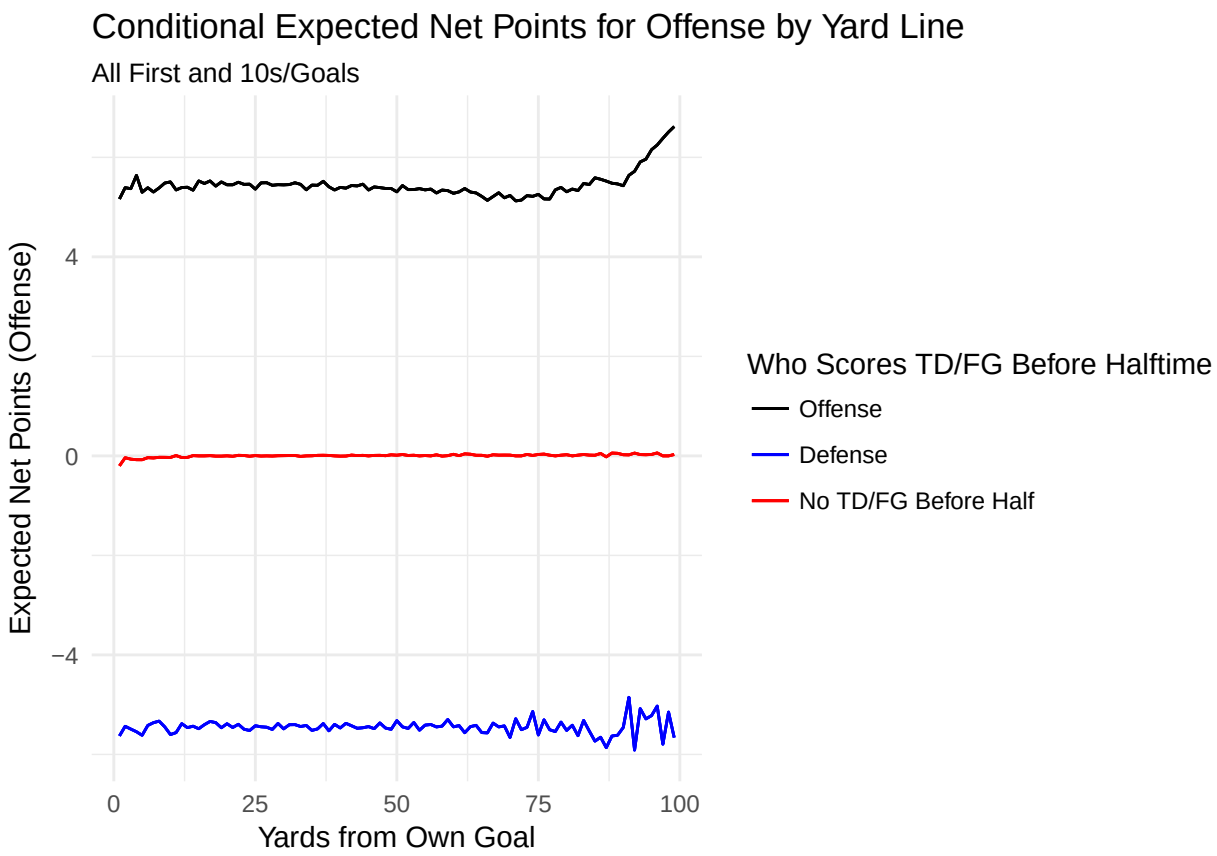
Expected Net Points Until End of Half



Probability of Offense/Defense/No One Scoring a TD/FG Before Halftime by Yardline



Expected Net Points Conditional



Appendix: Variable Construction Formulas

$$V_k^{rec} = \frac{Prob(O \mid KO) * ExpPTS_O + Prob(D \mid KO) * (-ExpPTS_O) + [1 - Prob(O \mid KO) - Prob(D \mid KO)] * ExpNetPTS}{1 + Prob(O \mid KO) - Prob(D \mid KO)}$$

$$ENP(yrdline = x) = Prob(O \mid yrdline = x) * [(ExpNetPTS_O \mid O\ Score, yrdline = x) - V_k] -$$
$$Prob(D|yrdline = x) * [(-ExpPTS_O \mid D\ Score, yrdline = x) - V_k] +$$
$$[1 - Prob(O|yrdline = x) - Prob(D|yrdline = x)] * (ExpNetPts_O|Not\ TD,\ Not\ FG, yrdline = x)$$

Similarly except replace V_k with $V_k^r ec$.