

## The “SUV” Statistic for Baseball and Football – Situational Underlying Value

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### SUV Baseball

SUV – Situational Underlying Value – for professional baseball (MLB) is a concept based on the more traditional one of “run expectancy.” This is a statistical estimate of the number of runs expected to result from a base runner or multiple runners given his/their presence at a particular base, or bases, and the number of outs in an inning. Numerous baseball websites discuss this concept, e.g., [http://www.nssl.noaa.gov/users/brooks/public\\_html/feda/datasets/expectedruns.html](http://www.nssl.noaa.gov/users/brooks/public_html/feda/datasets/expectedruns.html), <http://www.tangotiger.net/re24.html>, <http://isaacmiller.co/mlb-data-2014-runs-expectancy/>, and <https://www.quora.com/In-baseball-how-many-runs-score-in-an-inning-with-bases-loaded-and-no-outs>. One can find dozens more with a simple internet search on “run expectancy.” For my development of the SUV statistic, I employ the first of the listed websites, since this provides the raw data from which the run expectancies were calculated:

#### **Expected Runs/Chance of Scoring Table**

The following table was produced from play-by-play data from every Major League baseball game played between 1984 and 1994. Shortened innings and extra innings are not included. The table gives the expected number of runs (column headed "Expected") that will score given a particular state in the inning, given by the number of outs ("Outs") and the runners on base ("Runners"). Numbers under the "Runners" column tell which bases are occupied. The column headed "Prob > 0" gives the probability that a team will score at least one run in that inning. Raw data used to produce the expected values are given in the final three columns. (Data from Project Scoresheet/Baseball Workshop, courtesy David Nichols)

Outs	Runners	Expected	Prob > 0	Count	Total Runs	Shutout
0	---	0.49	0.275	377390	186702	273565
0	1--	0.88	0.435	97684	85966	55235
0	-2-	1.13	0.633	29342	33131	10768
0	12-	1.50	0.636	21978	32895	7994
0	--3	1.37	0.837	5360	7333	871
0	1-3	1.75	0.870	9845	17210	1284
0	-23	1.98	0.860	5571	11011	781
0	123	2.37	0.882	5233	12419	617
1	---	0.26	0.159	270279	70996	227329
1	1--	0.52	0.276	112521	58731	81420
1	-2-	0.69	0.414	52502	36227	30789
1	12-	0.92	0.425	39375	36031	22649
1	--3	0.96	0.667	18798	18020	6257
1	1-3	1.17	0.653	19988	23348	6942
1	-23	1.40	0.686	14152	19800	4443
1	123	1.57	0.678	13474	21175	4339
2	---	0.10	0.067	215735	21306	201378
2	1--	0.23	0.128	113013	25469	98497
2	-2-	0.33	0.224	64639	21275	50176
2	12-	0.44	0.231	50463	22358	38792
2	--3	0.38	0.275	27006	10272	19583
2	1-3	0.50	0.286	25826	13007	18447
2	-23	0.61	0.277	15357	9304	11100
2	123	0.76	0.321	16281	12332	11060

The first three columns are the ones of interest, and I display them in a matrix format as follows, but to four significant figures given the raw data from the “count” and “total runs” columns:

base→ outs↓	3	2	1	0
0	1.3681	1.1291	0.8800	-0.4947
1	0.9586	0.6900	0.5220	-0.2627
2	0.3804	0.3291	0.2254	-0.0988

0.8800-  
0.4947 =  
0.3853)

bases→ outs↓	123	23	13	12
0	2.3732	1.9765	1.7481	1.4967
1	1.5715	1.3991	1.1681	0.9151
2	0.7574	0.6058	0.5036	0.4431

The first table lists the run expectancies for bases empty cases per number of outs. This implies that each inning is theoretically worth 0.4947 run (the [0, 0] entry in the first table), from which the incremental run expectancy, which we subsequently term the SUV, for each bases empty case becomes -0.2320, -0.1639 and -0.0988, respectively. For the remaining SUVs, I scale each to the run expectancy for its corresponding bases empty case to yield the following SUVs (e.g., for the runner on 1<sup>st</sup> with no out, the SUV = 0.08800-0.4947 = 0.3953):

base→ outs↓	3	2	1	0
0	0.8734	0.6344	0.3853	-0.2320
1	0.6959	0.4273	0.2593	-0.1639
2	0.2816	0.2304	0.1266	-0.0988

bases→ outs↓	123	23	13	12
0	1.8785	1.4818	1.2534	1.0020
1	1.3089	1.1364	0.9054	0.6524
2	0.6587	0.5071	0.4049	0.3443

This implies, e.g., that a leadoff single is worth 0.3853 run, while making the first out always deducts 0.2320 run (and maybe more if there are base runners). Ideally, the SUVs for individual bases would sum to their multi-base counterparts, e.g., with no outs and runners on 1<sup>st</sup> and 2<sup>nd</sup>, 0.3853 + 0.6344 = 1.0197 would equal 1.0020. In reality, this is not exactly the case, as shown in the following (based on sums of individual SUVs):

bases→ outs↓	123	23	13	12
0	1.8931	1.5078	1.2587	1.0197
1	1.3826	1.1233	0.9552	0.6866
2	0.6386	0.5120	0.4082	0.3570

However, the differences are uniformly small (none greater than ~6%, as shown below):

bases→ outs↓	123	23	13	12
0	0.78%	1.76%	0.42%	1.77%

<b>bases→ outs↓</b>	<b>123</b>	<b>23</b>	<b>13</b>	<b>12</b>
<b>1</b>	5.63%	-1.16%	5.50%	5.24%
<b>2</b>	-3.05%	0.96%	0.82%	3.68%

From here on, restrict all SUVs to just two significant figures, which reduces the two SUV matrices to the following:

<b>base→ outs↓</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
<b>0</b>	0.87	0.63	0.39	-0.23
<b>1</b>	0.70	0.43	0.26	-0.16
<b>2</b>	0.28	0.23	0.13	-0.10

<b>bases→ outs↓</b>	<b>123</b>	<b>23</b>	<b>13</b>	<b>12</b>
<b>0</b>	1.88	1.48	1.25	1.00
<b>1</b>	1.31	1.14	0.91	0.65
<b>2</b>	0.66	0.51	0.40	0.34

By adjusting the SUVs for the individual bases slightly as follows:

<b>base→ outs↓</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
<b>0</b>	<b>0.87</b>	<b>0.63</b>	<b>0.39</b>	<b>-0.23</b>
<b>1</b>	<b>0.68</b>	<b>0.44</b>	<b>0.22</b>	<b>-0.16</b>
<b>2</b>	<b>0.29</b>	<b>0.23</b>	<b>0.12</b>	<b>-0.10</b>

The differences with the multi-base SUVs becomes even smaller, no greater than ~3%.

<b>bases→ outs↓</b>	<b>123</b>	<b>23</b>	<b>13</b>	<b>12</b>
<b>0</b>	1.89	1.50	1.26	1.02
<b>1</b>	1.34	1.12	0.90	0.66
<b>2</b>	0.64	0.52	0.41	0.35

<b>bases→ outs↓</b>	<b>123</b>	<b>23</b>	<b>13</b>	<b>12</b>
<b>0</b>	0.53%	1.35%	0.80%	2.00%
<b>1</b>	2.29%	-1.75%	-1.10%	1.54%
<b>2</b>	-3.03%	1.96%	2.50%	2.94%

For example, the sum of the SUVs for 1<sup>st</sup> and 2<sup>nd</sup> separately with no outs = 0.39 + 0.63 = 1.02, which is only (1.02 – 1.00)/1.00 = 0.02 or 2.00% higher. On average, the difference (absolute values) is only 1.36%. Thus, the SUVs as slightly adjusted above are considered final.

The following are two examples of how the SUV works.

<b>Example 1</b>	<b>Earned</b>	<b>Unearned</b>	<b>Batter SUV</b>
Out	-0.23		-0.23

<u>Example 1</u>	<u>Earned</u>	<u>Unearned</u>	<u>Batter SUV</u>
1B	0.22		0.22
Sac	-0.15		-0.15
1B/RBI	0.89		0.89
Out	-0.22		-0.22
Sum	0.51	0	0.51
<b>Total</b>	<b>0.51</b>		

<u>Example 2</u>	<u>Earned</u>	<u>Unearned</u>	<u>Batter SUV</u>
E/Runner to 2B	0	0.63	0.00
Out	-0.42		-0.42
BB	0.22		0.22
GO/Runner to 3B	-0.41		-0.41
2B/2 RBI	1.82		1.82
WP/Runner to 3B	0.06		
HBP	0.12		0.12
SB	0.11		
E/1 Run/Runner to 3B	0	0.89	0.00
Out	-0.51		-0.51
Sum	0.99	1.52	0.99
<b>Total</b>	<b>2.51</b>		

GO = Ground out  
SB = Stolen base

In terms of the formulas:

<u>Example 1</u>	<u>Earned</u>	<u>Unearned</u>	<u>Batter SUV</u>
Out	-0.23		-0.23
1B	0.22		0.22
Sac	=0.23-0.22-0.16		-0.15
1B/RBI	=1.00-0.23+0.12		0.89
Out	=-0.12-0.10		-0.22
Sum	=SUM(above)	=SUM(above)	=SUM(above)
<b>Total</b>	<b>=Earned+Unearned</b>		

<u>Example 2</u>	<u>Earned</u>	<u>Unearned</u>	<u>Batter SUV</u>
E/Runner to 2B	0	=0.63	0.00
Out	=0.44-0.63-0.23		-0.42
BB	=0.22		0.22
<b>GO/Runner to 3B</b>	<b>=0.29+0.12-0.44-0.22-0.16</b>		<b>-0.41</b>
<b>2B/2 RBI</b>	<b>=0.23+2.00-0.29-0.12</b>		<b>1.82</b>
WP/Runner to 3B	=0.29-0.23		
HBP	=0.12		0.12
SB	=0.23-0.12		
E/1 Run/Runner to 3B	0	=1.00-0.29+0.29-0.23+0.12	0.00
Out	=-0.29-0.12-0.10		-0.51
Sum	=SUM(above)	=SUM(above)	=SUM(above)
<b>Total</b>	<b>=Earned+Unearned</b>		

For example, in Example 2, the *fourth batter* hit into a ground out with runners on 1<sup>st</sup> and 2<sup>nd</sup> with one out, forcing the runner going into 2<sup>nd</sup> for the second out. From the SUV matrix, runners at 1<sup>st</sup> and 3<sup>rd</sup> with two outs are worth 0.29 and 0.12, respectively. Eliminating a runner at 2<sup>nd</sup> with one out deducts 0.44 (thus, a net decrease in moving him from 2<sup>nd</sup> to 3<sup>rd</sup> at the expense of an out =  $0.44 - 0.29 = 0.15$ ). Eliminating a runner at 1<sup>st</sup> with one out deducts 0.22 (and, since he disappears entirely due to the force, this is the net decrease). Finally, adding the second out deducts 0.16. The net results of all of this is -0.41, as shown. The *fifth batter* doubled, driving in both runners, for 2.00 runs and an SUV for being on 2<sup>nd</sup> with two outs of 0.23. Eliminating the runners at 1<sup>st</sup> and 3<sup>rd</sup> with two outs deducted 0.29 and 0.12, respectively. Thus, this batter's total SUV became 1.82. Finally, in the first example, one run was scored, so the net SUV =  $1.00 - 0.49 = 0.51$ . In the second, three runs scored for a net of  $3.00 - 0.49 = 2.51$ , of which 1.52 was unearned. A run scored is always worth 1.00.

The following expanded box scores from two different games illustrates full use of the SUV statistic, including pitching. The first game was a Washington national 3-0 victory over the Chicago Cubs at Wrigley Field on May 27, 2015. The second was Game 7 of the 2016 World Series where the Cubs ended their 108-year drought with an 8-7 victory over the Cleveland Indians in 10 innings. For batters, the more positive the SUV, the better. For pitchers, the more negative, the better.

Team	Hitter	1		2		3		4		5		6		7		8		9		Total		
		AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB-R-H-RBI	SUV	
Washington	Span	out(K)	-0.23			1b	0.12			dp	-0.78			1b	0.22			reach 1st on error (Castro)	0	5-0-2-0	-0.67	
	Desmond	1b	0.22			out	-0.22			2b	0.23			out(K)	-0.26			1b	0.44	5-0-3-0	0.41	
	Escobar	out(K)	-0.26					1b	0.39	out	-0.33			out	-0.22			on after force out at 2nd	-0.41	5-1-1-0	-0.83	
	Harper	out(K)	-0.22					bb	0.63			hr	1	Russell pitching →	bb	0.39		out(K)	-0.51	3-1-2-1	1.29	
	Zimmerman			out(K)	-0.23			fielder's choice (force out at 2nd) + reach on throwing error (Russell, A) which allows run to score	-0.35			out(K)	-0.23		Motte pitching →	out	-0.4				4-0-0-0	-1.21
	Ramos			out	-0.16			bb	0.44			out(K)	-0.16			out(K)	-0.26				3-0-0-0	-0.14
	Ugla			out	-0.1			out(K)	-0.47			reach 1st on error (Castro)	0			out	-0.22				4-0-0-0	-0.79
	Grace (8)																					
	Janssen (8)																					
	Moore					out	-0.23	out(K)	-0.45			out	-0.22								3-0-0-0	-0.90
	Taylor (8)														Wood pitching →	out(K)	-0.23				1-0-0-0	-0.23
	Scherzer					out(K)	-0.16			1b	0.39			out	-0.23						3-0-1-0	0.00
	Espinosa (8)																	hr	1		1-1-1-1	1.00
	R-H-E & SUV	0-1-0	-0.49	0-0-0	-0.49	0-1-0	-0.49	1-1-2	-0.19	0-2-0	-0.49	1-1-1	0.39	0-1-0	-0.49	0-0-0	-0.49	1-2-1	0.29	37-3-9-2	-2.07	
							unearned	0.32			unearned	0.12					unearned	0.22	unearned	0.66		
							total	-0.51			total	0.51					total	0.51	total	-1.41		
Chicago	Coghlan	out(K)	-0.23			out(K)	-0.4			out(K)	-0.16									3-0-0-0	-0.79	
	Soler (8)												Grace pitching →	2b	0.63					1-0-1-0	0.63	
	Rizzo	out(K)	-0.16			1b	0.44			out	-0.1				hbp	0.39				3-0-1-0	0.57	
	Bryant	bb	0.12			out	-0.47					out(K)	-0.23	Janssen pitching →	out	-0.59				3-0-0-0	-1.17	
	Fowler	out(K)	-0.22			out(K)	-0.45					out(K)	-0.16		sac	-0.3				3-0-0-0	-1.13	
	Castro			1b	0.39			out(K)	-0.23			1b	0.12		out	-0.62				4-0-2-0	-0.34	
	Lake			out	-0.4			2b + SB (2 out)	0.5			out(K)	-0.22		Storen pitching →	out	-0.26			4-0-1-0	-0.38	
	Ross			out	-0.26			out(K)	-0.37					out	-0.23					3-0-0-0	-0.86	
	Montero (7)																	out(K)	-0.22	1-0-0-0	-0.22	
	Lester			out	-0.22			out(K)	-0.39											2-0-0-0	-0.61	
	Baxter (PH-7)													out(K)	-0.16					1-0-0-0	-0.16	
	Russell, J (8)																					
	Motte (8+)																					
	Wood (9)																					
Herrera (PH-9)																	1b	0.39	1-0-1-0	0.39		
Russell, A					1b	0.39				out(K)	-0.23			out(K)	-0.1			out	-0.4	4-0-1-0	-0.34	
R-H-E & SUV	0-0-0	-0.49	0-1-0	-0.49	0-2-0	-0.49	0-1-0	-0.49	0-0-0	-0.49	0-1-0	-0.49	0-0-0	-0.49	0-1-0	-0.49	0-1-0	-0.49	33-0-7-0	-4.41		
Team	Pitcher	IP	H	R	ER	BB	SO	SUV														
Washington	Scherzer (W)	7	6	0	0	1	13	-3.43														
	Grace	0	1	0	0	0	0	1.02														
	Janssen (H)	1	0	0	0	0	0	-1.51														
	Storen (S)	1	1	0	0	0	1	-0.49														
	Total	9	8	0	0	1	14	-4.41														
Chicago	Lester (L)	7	7	2	1	2	10	-1.87														
	Russell, J	0	0	0	0	1	0	0.39														
	Motte	1	0	0	0	0	1	-0.88														
	Wood	1	2	1	1	0	2	0.29														
	Unearned							0.66														
Total	9	9	3	2	3	13	-1.41															

See <http://espn.go.com/mlb/playbyplay?gameId=350527116> for complete play by play.

Team	Hitter	1		2		3		4		5		6		7		8		9		10		Total					
		AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB+FF+BB	SUV				
Chicago Cubs	Fowler	hr	1.00			out	-0.16	Miller pitching →		1b	0.39			1b	0.39			out	-0.39			5-1-3-1	1.23				
	Schwarber	1b (steals 2b w/2 outs)	0.50			1b (out @ 2b)	-0.10			dp	-0.78			out	-0.40					1b	0.39	5-0-3-0	-0.39				
	Almora (PR-10)																					0-1-0-0	0.00				
	Bryant	out	-0.40						1b	0.39	bb	0.12			dp (K + caught stealing)	-0.48	← Allen pitching			out (runner to 2b)	-0.18	4-2-1-0	-0.55				
	Rizzo	out	-0.26						hbp	0.63	1b (runner scores + reach 2b)	1.11					out(K)	-0.23			bb	0.22	3-1-1-1	1.47			
	Zobrist	out	-0.33						out (force @ 2b)	-0.35	out	-0.33								out	-0.16	2b (runner @ 1b to 3b)	1.46	5-1-1-1	0.29		
	Russell			out	-0.23				sac fly (runner to 2b)	0.17				out	-0.23					out	-0.1		bb	0.22	3-0-0-1	-0.17	
	Contreras			out	-0.16				2b	1.00															2-0-1-1	0.84	
	Ross (5)												hr	1.00					bb	0.39					1-1-1-1	1.39	
	Coghlan (PR-9)																									0-0-0-0	0.00
	Montero (9)																						1b (all runners + 1b)	1.00	1-0-1-1	1.00	
	Hayward			out	-0.10				out	-0.33				out	-0.16				out (force @ 2b; steals 2b on Shaw, to 3b on	-0.18	Bauer pitching → out(K)	-0.86	5-0-0-0	-1.63			
	Baez					out	-0.23				hr	1.00	out(K)	-0.10				Shaw pitching →	out(K)	-0.55	out	-0.74	5-1-1-1	-0.62			
R-H-E & SUV	1-2-0	0.51	0-0-0	-0.49	0-1-0	-0.49	2-2-0	1.51	2-3-0	1.51	1-1-0	0.51	0-1-0	-0.49	0-0-0	-0.49	0-0-1	-0.73	2-3-0	1.51	38-8-13-8	2.86					
																		unearned	0.24			unearned	0.24				
																		total	-0.49			total	3.10				
Cleveland Indians	Santana	out	-0.23			1b	0.54			bb (scores from 3b on wp w/2 outs)	0.83			out (runner to 2b)	-0.15			out	-0.23			4-1-1-1	0.76				
	Kipnis	out(K)	-0.16			E/1b + runner to 2b)	0.00	Lester pitching →		1b (reach 2b on E; runner to 3rd; scores out (K)	1.00			out(K)	-0.33			out(K)	-0.16			5-1-1-0	0.35				
	Lindor	E/1b	0.00			out	-0.47			out (K)	-0.10			out(K)	-0.23			out	-0.10			5-0-0-0	-0.90				
	Napoli	out (force 2b)	-0.22			out	-0.45					out(K)	-0.23			out(K)	-0.16	Edwards pitching →		out(K)	-0.23	5-0-0-0	-1.29				
	Ramirez			1b (picked off w/0 out)	-0.23				out	-0.23			out	-0.16			1b	0.12			out	-0.16	5-1-2-0	-0.66			
	Chisenhall			1b	0.22				out	-0.16												bb (to 2nd on indifference w/2 outs)	0.23	2-0-1-0	0.06		
	Guyer (6)											1b	0.12	Chapman pitching →		2b	1.11							2-2-2-1	1.46		
	Davis			dp	-0.48				out	-0.10			out	-0.22			hr	1.77			1b	0.89	5-1-2-3	1.86			
	Crisp					2b	0.63				out	-0.23			out	-0.23	1b	0.12						4-1-2-0	0.29		
	Martinez (9)																		Montgomery pitching →		out	-0.22	1-0-0-0	-0.22			
	Perez					sac	-0.18				out(K)	-0.16			bb	0.22								1-0-0-0	-0.12		
	Naquin (PR-7)																							0-0-0-0	0.00		
	Gomes (8)																		out(K)	-0.22					1-0-0-0	-0.22	
R-H-E & SUV	0-0-1	-0.61	0-1-0	-0.49	1-2-1	0.07	0-0-0	-0.49	2-1-1	1.34	0-1-0	-0.49	0-0-0	-0.49	3-4-0	2.51	0-1-0	-0.49	1-1-0	0.51	40-7-11-5	1.37					
	unearned	0.12			unearned	0.44				unearned	0.17											unearned	0.73				
	total	-0.49			total	0.51				total	1.51											total	2.10				
Chicago Cubs	Pitcher	IP	H	R	ER	BB	SO	SUV																			
	Hendricks	4.67	4	2	1	1	2	-1.08																			
	Lester	3.00	3	2	1	1	4	-0.35																			
	Chapman (W)	1.33	3	2	2	0	2	2.29																			
	Edwards	0.67	1	1	1	1	1	0.73																			
	Montgomery (S)	0.33	0	0	0	0	0	-0.22																			
	Unearned							0.73																			
TOTAL	10.00	11	7	5	3	9	2.10																				
Cleveland Indians	Kluber	4.00	6	4	4	0	0	2.04																			
	Miller	2.33	4	2	2	1	1	1.01																			
	Allen	2.00	0	0	0	1	2	-0.76																			
	Shaw (L)	1.00	3	2	2	2	1	2.17																			
	Bauer	0.67	0	0	0	0	1	-1.60																			
	Unearned							0.24																			
Total	10.00	13	8	8	4	5	3.10																				

See <http://www.baseball-reference.com/boxes/CLE/CLE201611020.shtml> for complete play by play.

An interesting wrinkle is to assign SUVs by league, considering that the National still refuses to use the Designated Hitter. The following article (“MLB — Run Distribution per Game & per Inning — Negative Binomial,” September 6, 2014, by Sean Dolinar, <http://stats.seandolinar.com/mlb-run-distribution-neg-binomial/>) notes that “Using data from 2011-2013, the American League [AL] had an expected value of 0.4830 runs/inning ..., while the National League [NL] had 0.4468 runs/innings ...” Thus, the NL scored  $0.4468/0.4830 = 0.9251$  or ~7.5% less runs than the AL. Assuming both leagues played an equal (or essentially equal) number of innings over the three seasons, the MLB average runs/inning is the average of those for each league, i.e.,  $MLB = (AL + NL)/2$ . Since  $NL = 0.9251 AL$ ,  $AL = \frac{2}{1+0.9251} \times MLB = 0.5091$ , for the MLB average of 0.49. The corresponding value for the NL is 0.4709. Rounding these to two significant figures (0.51 and 0.47), we see that the adjustment to the MLB average is ~4%, an increase for the AL and a decrease for the NL.<sup>a</sup> Again working with just two significant figures, the SUVs for the two leagues become the following:

MLB SUVs	base→ outs↓	3	2	1	0
	0	0.87	0.63	0.39	-0.23
1	0.68	0.44	0.22	-0.16	
2	0.29	0.23	0.12	-0.10	

AL SUVs	base→ outs↓	3	2	1	0
	0	0.91	0.66	0.41	-0.24
1	0.71	0.46	0.23	-0.17	
2	0.30	0.24	0.12	-0.10	

NL SUVs	base→ outs↓	3	2	1	0
	0	0.83	0.60	0.37	-0.22
1	0.65	0.42	0.21	-0.15	
2	0.28	0.22	0.12	-0.10	

With these, it is possible to revise the two games to be specific to their league (treating the World Series game as an AL game since Cleveland was the home team and both teams use the DH).

<sup>a</sup>  $AL\ Adjustment = 0.51/0.49 \approx 1.04$ ;  $NL\ Adjustment = 0.47/0.49 \approx 0.96$ .



Team	Hitter	1		2		3		4		5		6		7		8		9		Total		
		AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB-R-H-RBI	SUV	
Washington	Span	out(K)	-0.22			1b	0.12			dp	-0.74			1b	0.21			reach 1st on error (Castro)	0	5-0-2-0	-0.63	
	Desmond	1b	0.21			out	-0.22			2b	0.22			out(K)	-0.24			1b	0.42	5-0-3-0	0.39	
	Escobar	out(K)	-0.24					1b	0.37	out	-0.32			out	-0.22			on after force out at 2nd	-0.38	5-1-1-0	-0.79	
	Harper	out(K)	-0.22					bb	0.6			hr	1	Russell pitching →	bb	0.37	out(K)	-0.5	3-1-2-1	1.25		
	Zimmerman			out(K)	-0.22			fielder's choice (force out at 2nd) + reach on throwing error (Russell, A) which allows run to score	-0.33			out(K)	-0.22	Motte pitching →	out	-0.38					4-0-0-0	-1.15
	Ramos			out	-0.15			bb	0.42			out(K)	-0.15			out(K)	-0.24				3-0-0-0	-0.12
	Ugla			out	-0.1			out(K)	-0.44			reach 1st on error (Castro)	0			out	-0.22				4-0-0-0	-0.76
	Grace (8)																					
	Janssen (8)																					
	Moore					out	-0.22	out(K)	-0.44			out	-0.22								3-0-0-0	-0.88
	Taylor (8)														Wood pitching →	out(K)	-0.22				1-0-0-0	-0.22
	Scherzer					out(K)	-0.15			1b	0.37			out	-0.22						3-0-1-0	0.00
	Espinosa (8)																	hr	1	1-1-1-1	1.00	
R-H-E & SUV	0-1-0	-0.47	0-0-0	-0.47	0-1-0	-0.47	1-1-2	0.18	0-2-0	-0.47	1-1-1	0.41	0-1-0	-0.47	0-0-0	-0.47	1-2-1	0.32	37-3-9-2	-1.91		
							unearned	0.35			unearned	0.12					unearned	0.21	unearned	0.68		
							total	0.53			total	0.53					total	0.53	total	-1.23		
Chicago	Coghlan	out(K)	-0.22			out(K)	-0.38			out(K)	-0.15									3-0-0-0	-0.75	
	Soler (8)												Grace pitching →	2b	0.6					1-0-1-0	0.60	
	Rizzo	out(K)	-0.15			1b	0.42			out	-0.1				hbp	0.37				3-0-1-0	0.54	
	Bryant	bb	0.12			out	-0.44					out(K)	-0.22	Janssen pitching →	out	-0.56				3-0-0-0	-1.10	
	Fowler	out(K)	-0.22			out(K)	-0.44					out(K)	-0.15		sac	-0.28				3-0-0-0	-1.09	
	Castro			1b	0.37			out(K)	-0.22			1b	0.12		out	-0.6				4-0-2-0	-0.33	
	Lake			out	-0.38			2b + SB (2 out)	0.48			out(K)	-0.22		Storen pitching →	out	-0.24			4-0-1-0	-0.36	
	Ross			out	-0.24			out(K)	-0.35					out	-0.22					3-0-0-0	-0.81	
	Montero (7)																	out(K)	-0.22	1-0-0-0	-0.22	
	Lester			out	-0.22			out(K)	-0.38											2-0-0-0	-0.60	
Baxter (PH-7)													out(K)	-0.15					1-0-0-0	-0.15		
Russell, J (8)																						
Motte (8+)																						
Wood (9)																						
Herrera (PH-9)																	1b	0.37	1-0-1-0	0.37		
Russell, A					1b	0.37				out(K)	-0.22		out(K)	-0.1			out	-0.38	4-0-1-0	-0.33		
R-H-E & SUV	0-0-0	-0.47	0-1-0	-0.47	0-2-0	-0.47	0-1-0	-0.47	0-0-0	-0.47	0-1-0	-0.47	0-0-0	-0.47	0-1-0	-0.47	0-1-0	-0.47	33-0-7-0	-4.23		
Washington	Team	Pitcher	IP	H	R	ER	BB	SO	SUV													
		Scherzer (W)	7	6	0	0	1	13	-3.29													
		Grace	0	1	0	0	0	0	0.97													
		Janssen (H)	1	0	0	0	0	0	-1.44													
		Storen (S)	1	1	0	0	0	1	-0.47													
		Total	9	8	0	0	1	14	-4.23													
Chicago		Lester (L)	7	7	2	1	2	10	-1.76													
		Russell, J	0	0	0	0	1	0	0.37													
		Motte	1	0	0	0	0	1	-0.84													
		Wood	1	2	1	1	0	2	0.32													
		Unearned							0.68													
		Total	9	9	3	2	3	13	-1.23													

See <http://espn.go.com/mlb/playbyplay?gameId=350527116> for complete play by play.

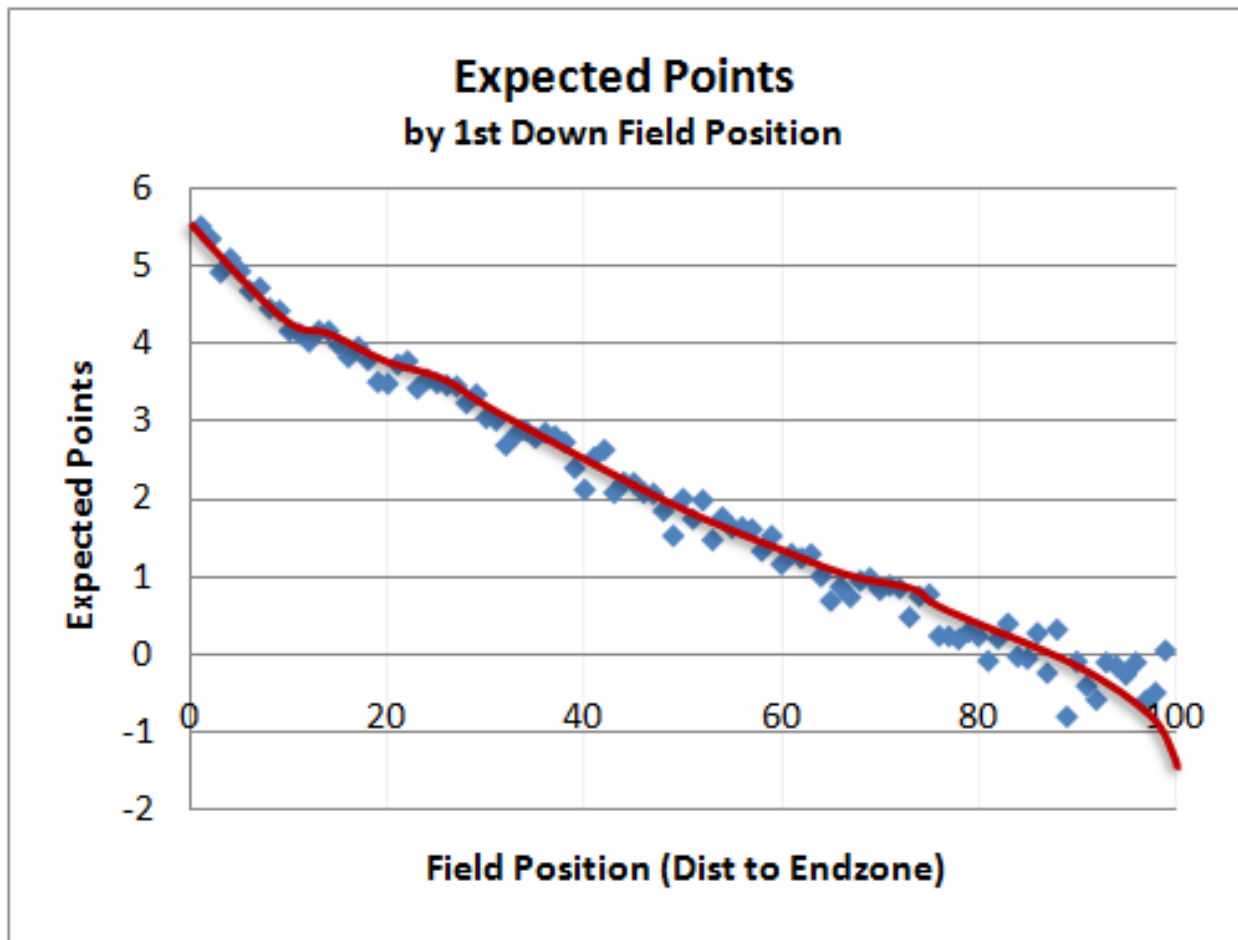
Team	Hitter	1		2		3		4		5		6		7		8		9		10		Total					
		AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB	SUV	AB+FF+BB	SUV				
Chicago Cubs	Fowler	hr	1.00			out	-0.17	Miller pitching →		1b	0.41			1b	0.41			out	-0.40			5-1-3-1	1.25				
	Schwarber	1b (steals 2b w/2 outs)	0.53			1b (out @ 2b)	-0.10			dp	-0.82			out	-0.42					1b	0.41	5-0-3-0	-0.40				
	Almora (PR-10)																					0-1-0-0	0.00				
	Bryant	out	-0.42						1b	0.41	bb	0.12			dp (K + caught stealing)	-0.50	← Allen pitching			out (runner to 2b)	-0.19	4-2-1-0	-0.58				
	Rizzo	out	-0.28						hbp	0.66	1b (runner scores + reach 2b)	1.12					out(K)	-0.24			bb	0.23	3-1-1-1	1.49			
	Zobrist	out	-0.34						out (force @ 2b)	-0.37	out	-0.34								out	-0.17	2b (runner @ 1b to 3b)	1.48	5-1-1-1	0.26		
	Russell			out	-0.24				sac fly (runner to 2b)	0.13				out	-0.24					out	-0.1		bb	0.23	3-0-0-1	-0.22	
	Contreras			out	-0.17				2b	1.00															2-0-1-1	0.83	
	Ross (5)												hr	1.00					bb	0.41					1-1-1-1	1.41	
	Coghlan (PR-9)																									0-0-0-0	0.00
	Montero (9)																					1b (all runners + 1b)	1.00			1-0-1-1	1.00
	Hayward			out	-0.10				out	-0.34				out	-0.17				out (force @ 2b; steals 2b on Shaw, to 3b on	-0.19	Bauer pitching →	out(K)	-0.91	5-0-0-0	-1.71		
	Baez					out	-0.24				hr	1.00	out(K)	-0.10			Shaw pitching →	out(K)	-0.58	out	-0.76	5-1-1-1	-0.68				
	R-H-E & SUV	1-2-0	0.49	0-0-0	-0.51	0-1-0	-0.51	2-2-0	1.49	2-3-0	1.49	1-1-0	0.49	0-1-0	-0.51	0-0-0	-0.51	0-0-1	-0.76	2-3-0	1.49	38-8-13-8	2.65				
																		unearned	0.25			unearned	0.25				
																		total	-0.51			total	2.90				
Cleveland Indians	Santana	out	-0.24			1b	0.52			bb (scores from 3b on wp w/2 outs)	0.82			out (runner to 2b)	-0.16			out	-0.24			4-1-1-1	0.70				
	Kipnis	out(K)	-0.17			E/1b + runner to 2b)	0.00	Lester pitching →		1b (reach 2b on E; runner to 3rd; scores	1.00			out(K)	-0.34			out(K)	-0.17			5-1-1-0	0.32				
	Lindor	E/1b	0.00			out	-0.50			out (K)	-0.10			out	-0.24			out	-0.10			5-0-0-0	-0.94				
	Napoli	out (force 2b)	-0.22			out	-0.46					out(K)	-0.24				out(K)	-0.17	Edwards pitching →		out(K)	-0.24	5-0-0-0	-1.33			
	Ramirez			1b (picked off w/0 out)	-0.24			out	-0.24				out	-0.17			1b	0.12			out	-0.17	5-1-2-0	-0.70			
	Chisenhall			1b	0.23			out	-0.17													bb (to 2nd on indifference w/2 outs)	0.24	2-0-1-0	0.06		
	Guyser (6)											1b	0.12	Chapman pitching →		2b	1.12							2-2-2-1	1.48		
	Davis			dp	-0.50			out	-0.10				out	-0.22		hr	1.76				1b	0.88	5-1-2-3	1.82			
	Crisp					2b	0.66			out	-0.24				out	-0.24	1b	0.12						4-1-2-0	0.30		
	Martinez (9)																		Montgomery pitching →		out	-0.22	1-0-0-0	-0.22			
	Perez					sac	-0.19			out(K)	-0.17				bb	0.23								1-0-0-0	-0.13		
	Naquin (PR-7)																							0-0-0-0	0.00		
	Gomes (8)																	out(K)	-0.22						1-0-0-0	-0.22	
	R-H-E & SUV	0-0-1	-0.63	0-1-0	-0.51	1-2-1	0.03	0-0-0	-0.51	2-1-1	1.31	0-1-0	-0.51	0-0-0	-0.51	3-4-0	2.49	0-1-0	-0.51	1-1-0	0.49	40-7-11-5	1.14				
	unearned	0.12			unearned	0.46			unearned	0.18												unearned	0.76				
	total	-0.51			total	0.49			total	1.49												total	1.90				
Team	Pitcher	IP	H	R	ER	BB	SO	SUV																			
Chicago Cubs	Hendricks	4.67	4	2	1	1	2	-1.21																			
	Lester	3.00	3	2	1	1	4	-0.41																			
	Chapman (W)	1.33	3	2	2	0	2	2.27																			
	Edwards	0.67	1	1	1	1	1	0.71																			
	Montgomery (S)	0.33	0	0	0	0	0	-0.22																			
	Unearned							0.76																			
TOTAL	10.00	11	7	5	3	9	1.90																				
Cleveland Indians	Kluber	4.00	6	4	4	0	0	1.96																			
	Miller	2.33	4	2	2	1	1	0.97																			
	Allen	2.00	0	0	0	1	2	-0.79																			
	Shaw (L)	1.00	3	2	2	2	1	2.18																			
	Bauer	0.67	0	0	0	0	1	-1.67																			
	Unearned							0.25																			
TOTAL	10.00	13	8	8	4	5	2.90																				

See <http://www.baseball-reference.com/boxes/CLE/CLE201611020.shtml> for complete play by play.

## SUV Football

SUV for professional football (NFL) is not as readily conceived as that for baseball, although the concept of each position on the field with down and yards to go has been examined for the possibility of assigning point values (from here on referred to as SUVs). Quantification of this concept is taken from the following, "Expected Points and Expected Points Added Explained," by Brian Burke, December 7, 2014 (<http://archive.advancedfootballanalytics.com/2008/08/expected-points.html>):

*Every spot on the field has an abstract value in terms of points. We can begin assigning values at the end zones, where having the ball has a clear and concrete value. Possessing the ball at the opponent's end zone is worth (nearly always) 7 points. And having the ball at your own end zone is worth -2 points. Every other yard line has a point value too. We can measure it by averaging how many points will be scored next ... The concept of point expectancy originated with the work of Virgil Carter, a former NFL quarterback who studied operations research in the early 1970s (while an active player). Carroll, Palmer, and Thorn adapted the concept in their 1987 book *The Hidden Game of Football* ... The graph below plots the expected points for a 1st down at each yard line. For simplicity, I've named each yard line in terms of its distance from an opponent's end zone. Having the ball at one's own 20 is "the 80 yard line" for example.*



This was readily linearized into segments based on the following values assumed for field position and expected points from the chart: (1, 6.5), (4, 5.6), (10, 5), (35, 3), (93, -0.5), (98, -1) and (99, -1.4). When plotted, this piecewise linear function appears as follows:



To adjust for 2<sup>nd</sup> and 3<sup>rd</sup> downs, Burke recommends the following:

*Things become more complicated when we consider other down and distance situations. Suppose at any given yard line, a pass falls incomplete on 1st and 10. Second down and 10 represents a drop off of about 0.5 points expected. Second and 9 represents a slightly smaller drop off, until at about 2nd and 5 when the expected points are approximately equal to those for 1st and 10. This is consistent with the 1st down probability method I described in my previous posts. Third down and 10 represents a further drop off of about 0.5 points.*

Based on the fitted curve and Burke's recommended adjustments for 2<sup>nd</sup> and 3<sup>rd</sup> down, I compiled the following SUVs for all field positions for 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> down with 10 or less yards to go. Note that, after decreasing the SUV for 1<sup>st</sup> and 10 by Burke's recommended 0.5, I increased each SUV by 0.1 as the yards to go decreased from 10 to five. For five or less, I assumed a constant equal to 1<sup>st</sup> and 10. I did likewise for 3<sup>rd</sup> downs, with 3<sup>rd</sup> and 10 0.5 less than 2<sup>nd</sup> and 10 down to 3<sup>rd</sup> and five (or less) being the same as 2<sup>nd</sup> and 10. The results are shown below. They are immediately followed by results for more than 10 yards to go. For these, I assumed a 0.1 decrease by yard up to 20 yards, which I then treated as constant for anything higher. These are shown below:

yd	pt (1/10-)	pt (2/10)	pt (2/9)	pt (2/8)	pt (2/7)	pt (2/6)	pt (2/5-)	pt (3/10)	pt (3/9)	pt (3/8)	pt (3/7)	pt (3/6)	pt (3/5-)
1	6.50	6.00	6.10	6.20	6.30	6.40	6.50	5.50	5.60	5.70	5.80	5.90	6.00
2	6.20	5.70	5.80	5.90	6.00	6.10	6.20	5.20	5.30	5.40	5.50	5.60	5.70
3	5.90	5.40	5.50	5.60	5.70	5.80	5.90	4.90	5.00	5.10	5.20	5.30	5.40
4	5.60	5.10	5.20	5.30	5.40	5.50	5.60	4.60	4.70	4.80	4.90	5.00	5.10
5	5.50	5.00	5.10	5.20	5.30	5.40	5.50	4.50	4.60	4.70	4.80	4.90	5.00
6	5.40	4.90	5.00	5.10	5.20	5.30	5.40	4.40	4.50	4.60	4.70	4.80	4.90
7	5.30	4.80	4.90	5.00	5.10	5.20	5.30	4.30	4.40	4.50	4.60	4.70	4.80
8	5.20	4.70	4.80	4.90	5.00	5.10	5.20	4.20	4.30	4.40	4.50	4.60	4.70
9	5.10	4.60	4.70	4.80	4.90	5.00	5.10	4.10	4.20	4.30	4.40	4.50	4.60
10	5.00	4.50	4.60	4.70	4.80	4.90	5.00	4.00	4.10	4.20	4.30	4.40	4.50
11	4.92	4.42	4.52	4.62	4.72	4.82	4.92	3.92	4.02	4.12	4.22	4.32	4.42
12	4.84	4.34	4.44	4.54	4.64	4.74	4.84	3.84	3.94	4.04	4.14	4.24	4.34
13	4.76	4.26	4.36	4.46	4.56	4.66	4.76	3.76	3.86	3.96	4.06	4.16	4.26
14	4.68	4.18	4.28	4.38	4.48	4.58	4.68	3.68	3.78	3.88	3.98	4.08	4.18
15	4.60	4.10	4.20	4.30	4.40	4.50	4.60	3.60	3.70	3.80	3.90	4.00	4.10
16	4.52	4.02	4.12	4.22	4.32	4.42	4.52	3.52	3.62	3.72	3.82	3.92	4.02
17	4.44	3.94	4.04	4.14	4.24	4.34	4.44	3.44	3.54	3.64	3.74	3.84	3.94
18	4.36	3.86	3.96	4.06	4.16	4.26	4.36	3.36	3.46	3.56	3.66	3.76	3.86
19	4.28	3.78	3.88	3.98	4.08	4.18	4.28	3.28	3.38	3.48	3.58	3.68	3.78
20	4.20	3.70	3.80	3.90	4.00	4.10	4.20	3.20	3.30	3.40	3.50	3.60	3.70
21	4.12	3.62	3.72	3.82	3.92	4.02	4.12	3.12	3.22	3.32	3.42	3.52	3.62
22	4.04	3.54	3.64	3.74	3.84	3.94	4.04	3.04	3.14	3.24	3.34	3.44	3.54
23	3.96	3.46	3.56	3.66	3.76	3.86	3.96	2.96	3.06	3.16	3.26	3.36	3.46
24	3.88	3.38	3.48	3.58	3.68	3.78	3.88	2.88	2.98	3.08	3.18	3.28	3.38
25	3.80	3.30	3.40	3.50	3.60	3.70	3.80	2.80	2.90	3.00	3.10	3.20	3.30
26	3.72	3.22	3.32	3.42	3.52	3.62	3.72	2.72	2.82	2.92	3.02	3.12	3.22
27	3.64	3.14	3.24	3.34	3.44	3.54	3.64	2.64	2.74	2.84	2.94	3.04	3.14
28	3.56	3.06	3.16	3.26	3.36	3.46	3.56	2.56	2.66	2.76	2.86	2.96	3.06
29	3.48	2.98	3.08	3.18	3.28	3.38	3.48	2.48	2.58	2.68	2.78	2.88	2.98
30	3.40	2.90	3.00	3.10	3.20	3.30	3.40	2.40	2.50	2.60	2.70	2.80	2.90
31	3.32	2.82	2.92	3.02	3.12	3.22	3.32	2.32	2.42	2.52	2.62	2.72	2.82
32	3.24	2.74	2.84	2.94	3.04	3.14	3.24	2.24	2.34	2.44	2.54	2.64	2.74
33	3.16	2.66	2.76	2.86	2.96	3.06	3.16	2.16	2.26	2.36	2.46	2.56	2.66

yd	pt (1/10-)	pt (2/10)	pt (2/9)	pt (2/8)	pt (2/7)	pt (2/6)	pt (2/5-)	pt (3/10)	pt (3/9)	pt (3/8)	pt (3/7)	pt (3/6)	pt (3/5-)
34	3.08	2.58	2.68	2.78	2.88	2.98	3.08	2.08	2.18	2.28	2.38	2.48	2.58
35	3.00	2.50	2.60	2.70	2.80	2.90	3.00	2.00	2.10	2.20	2.30	2.40	2.50
36	2.94	2.44	2.54	2.64	2.74	2.84	2.94	1.94	2.04	2.14	2.24	2.34	2.44
37	2.88	2.38	2.48	2.58	2.68	2.78	2.88	1.88	1.98	2.08	2.18	2.28	2.38
38	2.82	2.32	2.42	2.52	2.62	2.72	2.82	1.82	1.92	2.02	2.12	2.22	2.32
39	2.76	2.26	2.36	2.46	2.56	2.66	2.76	1.76	1.86	1.96	2.06	2.16	2.26
40	2.70	2.20	2.30	2.40	2.50	2.60	2.70	1.70	1.80	1.90	2.00	2.10	2.20
41	2.64	2.14	2.24	2.34	2.44	2.54	2.64	1.64	1.74	1.84	1.94	2.04	2.14
42	2.58	2.08	2.18	2.28	2.38	2.48	2.58	1.58	1.68	1.78	1.88	1.98	2.08
43	2.52	2.02	2.12	2.22	2.32	2.42	2.52	1.52	1.62	1.72	1.82	1.92	2.02
44	2.46	1.96	2.06	2.16	2.26	2.36	2.46	1.46	1.56	1.66	1.76	1.86	1.96
45	2.40	1.90	2.00	2.10	2.20	2.30	2.40	1.40	1.50	1.60	1.70	1.80	1.90
46	2.34	1.84	1.94	2.04	2.14	2.24	2.34	1.34	1.44	1.54	1.64	1.74	1.84
47	2.28	1.78	1.88	1.98	2.08	2.18	2.28	1.28	1.38	1.48	1.58	1.68	1.78
48	2.22	1.72	1.82	1.92	2.02	2.12	2.22	1.22	1.32	1.42	1.52	1.62	1.72
49	2.16	1.66	1.76	1.86	1.96	2.06	2.16	1.16	1.26	1.36	1.46	1.56	1.66
50	2.09	1.59	1.69	1.79	1.89	1.99	2.09	1.09	1.19	1.29	1.39	1.49	1.59
51	2.03	1.53	1.63	1.73	1.83	1.93	2.03	1.03	1.13	1.23	1.33	1.43	1.53
52	1.97	1.47	1.57	1.67	1.77	1.87	1.97	0.97	1.07	1.17	1.27	1.37	1.47
53	1.91	1.41	1.51	1.61	1.71	1.81	1.91	0.91	1.01	1.11	1.21	1.31	1.41
54	1.85	1.35	1.45	1.55	1.65	1.75	1.85	0.85	0.95	1.05	1.15	1.25	1.35
55	1.79	1.29	1.39	1.49	1.59	1.69	1.79	0.79	0.89	0.99	1.09	1.19	1.29
56	1.73	1.23	1.33	1.43	1.53	1.63	1.73	0.73	0.83	0.93	1.03	1.13	1.23
57	1.67	1.17	1.27	1.37	1.47	1.57	1.67	0.67	0.77	0.87	0.97	1.07	1.17
58	1.61	1.11	1.21	1.31	1.41	1.51	1.61	0.61	0.71	0.81	0.91	1.01	1.11
59	1.55	1.05	1.15	1.25	1.35	1.45	1.55	0.55	0.65	0.75	0.85	0.95	1.05
60	1.49	0.99	1.09	1.19	1.29	1.39	1.49	0.49	0.59	0.69	0.79	0.89	0.99
61	1.43	0.93	1.03	1.13	1.23	1.33	1.43	0.43	0.53	0.63	0.73	0.83	0.93
62	1.37	0.87	0.97	1.07	1.17	1.27	1.37	0.37	0.47	0.57	0.67	0.77	0.87
63	1.31	0.81	0.91	1.01	1.11	1.21	1.31	0.31	0.41	0.51	0.61	0.71	0.81
64	1.25	0.75	0.85	0.95	1.05	1.15	1.25	0.25	0.35	0.45	0.55	0.65	0.75
65	1.19	0.69	0.79	0.89	0.99	1.09	1.19	0.19	0.29	0.39	0.49	0.59	0.69
66	1.13	0.63	0.73	0.83	0.93	1.03	1.13	0.13	0.23	0.33	0.43	0.53	0.63

yd	pt (1/10-)	pt (2/10)	pt (2/9)	pt (2/8)	pt (2/7)	pt (2/6)	pt (2/5-)	pt (3/10)	pt (3/9)	pt (3/8)	pt (3/7)	pt (3/6)	pt (3/5-)
67	1.07	0.57	0.67	0.77	0.87	0.97	1.07	0.07	0.17	0.27	0.37	0.47	0.57
68	1.01	0.51	0.61	0.71	0.81	0.91	1.01	0.01	0.11	0.21	0.31	0.41	0.51
69	0.95	0.45	0.55	0.65	0.75	0.85	0.95	-0.05	0.05	0.15	0.25	0.35	0.45
70	0.89	0.39	0.49	0.59	0.69	0.79	0.89	-0.11	-0.01	0.09	0.19	0.29	0.39
71	0.83	0.33	0.43	0.53	0.63	0.73	0.83	-0.17	-0.07	0.03	0.13	0.23	0.33
72	0.77	0.27	0.37	0.47	0.57	0.67	0.77	-0.23	-0.13	-0.03	0.07	0.17	0.27
73	0.71	0.21	0.31	0.41	0.51	0.61	0.71	-0.29	-0.19	-0.09	0.01	0.11	0.21
74	0.65	0.15	0.25	0.35	0.45	0.55	0.65	-0.35	-0.25	-0.15	-0.05	0.05	0.15
75	0.59	0.09	0.19	0.29	0.39	0.49	0.59	-0.41	-0.31	-0.21	-0.11	-0.01	0.09
76	0.53	0.03	0.13	0.23	0.33	0.43	0.53	-0.47	-0.37	-0.27	-0.17	-0.07	0.03
77	0.47	-0.03	0.07	0.17	0.27	0.37	0.47	-0.53	-0.43	-0.33	-0.23	-0.13	-0.03
78	0.41	-0.09	0.01	0.11	0.21	0.31	0.41	-0.59	-0.49	-0.39	-0.29	-0.19	-0.09
79	0.34	-0.16	-0.06	0.04	0.14	0.24	0.34	-0.66	-0.56	-0.46	-0.36	-0.26	-0.16
80	0.28	-0.22	-0.12	-0.02	0.08	0.18	0.28	-0.72	-0.62	-0.52	-0.42	-0.32	-0.22
81	0.22	-0.28	-0.18	-0.08	0.02	0.12	0.22	-0.78	-0.68	-0.58	-0.48	-0.38	-0.28
82	0.16	-0.34	-0.24	-0.14	-0.04	0.06	0.16	-0.84	-0.74	-0.64	-0.54	-0.44	-0.34
83	0.10	-0.40	-0.30	-0.20	-0.10	0.00	0.10	-0.90	-0.80	-0.70	-0.60	-0.50	-0.40
84	0.04	-0.46	-0.36	-0.26	-0.16	-0.06	0.04	-0.96	-0.86	-0.76	-0.66	-0.56	-0.46
85	-0.02	-0.52	-0.42	-0.32	-0.22	-0.12	-0.02	-1.02	-0.92	-0.82	-0.72	-0.62	-0.52
86	-0.08	-0.58	-0.48	-0.38	-0.28	-0.18	-0.08	-1.08	-0.98	-0.88	-0.78	-0.68	-0.58
87	-0.14	-0.64	-0.54	-0.44	-0.34	-0.24	-0.14	-1.14	-1.04	-0.94	-0.84	-0.74	-0.64
88	-0.20	-0.70	-0.60	-0.50	-0.40	-0.30	-0.20	-1.20	-1.10	-1.00	-0.90	-0.80	-0.70
89	-0.26	-0.76	-0.66	-0.56	-0.46	-0.36	-0.26	-1.26	-1.16	-1.06	-0.96	-0.86	-0.76
90	-0.32	-0.82	-0.72	-0.62	-0.52	-0.42	-0.32	-1.32	-1.22	-1.12	-1.02	-0.92	-0.82
91	-0.38	-0.88	-0.78	-0.68	-0.58	-0.48	-0.38	-1.38	-1.28	-1.18	-1.08	-0.98	-0.88
92	-0.44	-0.94	-0.84	-0.74	-0.64	-0.54	-0.44	-1.44	-1.34	-1.24	-1.14	-1.04	-0.94
93	-0.50	-1.00	-0.90	-0.80	-0.70	-0.60	-0.50	-1.50	-1.40	-1.30	-1.20	-1.10	-1.00
94	-0.60	-1.10	-1.00	-0.90	-0.80	-0.70	-0.60	-1.60	-1.50	-1.40	-1.30	-1.20	-1.10
95	-0.70	-1.20	-1.10	-1.00	-0.90	-0.80	-0.70	-1.70	-1.60	-1.50	-1.40	-1.30	-1.20
96	-0.80	-1.30	-1.20	-1.10	-1.00	-0.90	-0.80	-1.80	-1.70	-1.60	-1.50	-1.40	-1.30
97	-0.90	-1.40	-1.30	-1.20	-1.10	-1.00	-0.90	-1.90	-1.80	-1.70	-1.60	-1.50	-1.40
98	-1.00	-1.50	-1.40	-1.30	-1.20	-1.10	-1.00	-2.00	-1.90	-1.80	-1.70	-1.60	-1.50
99	-1.40	-1.90	-1.80	-1.70	-1.60	-1.50	-1.40	-2.40	-2.30	-2.20	-2.10	-2.00	-1.90

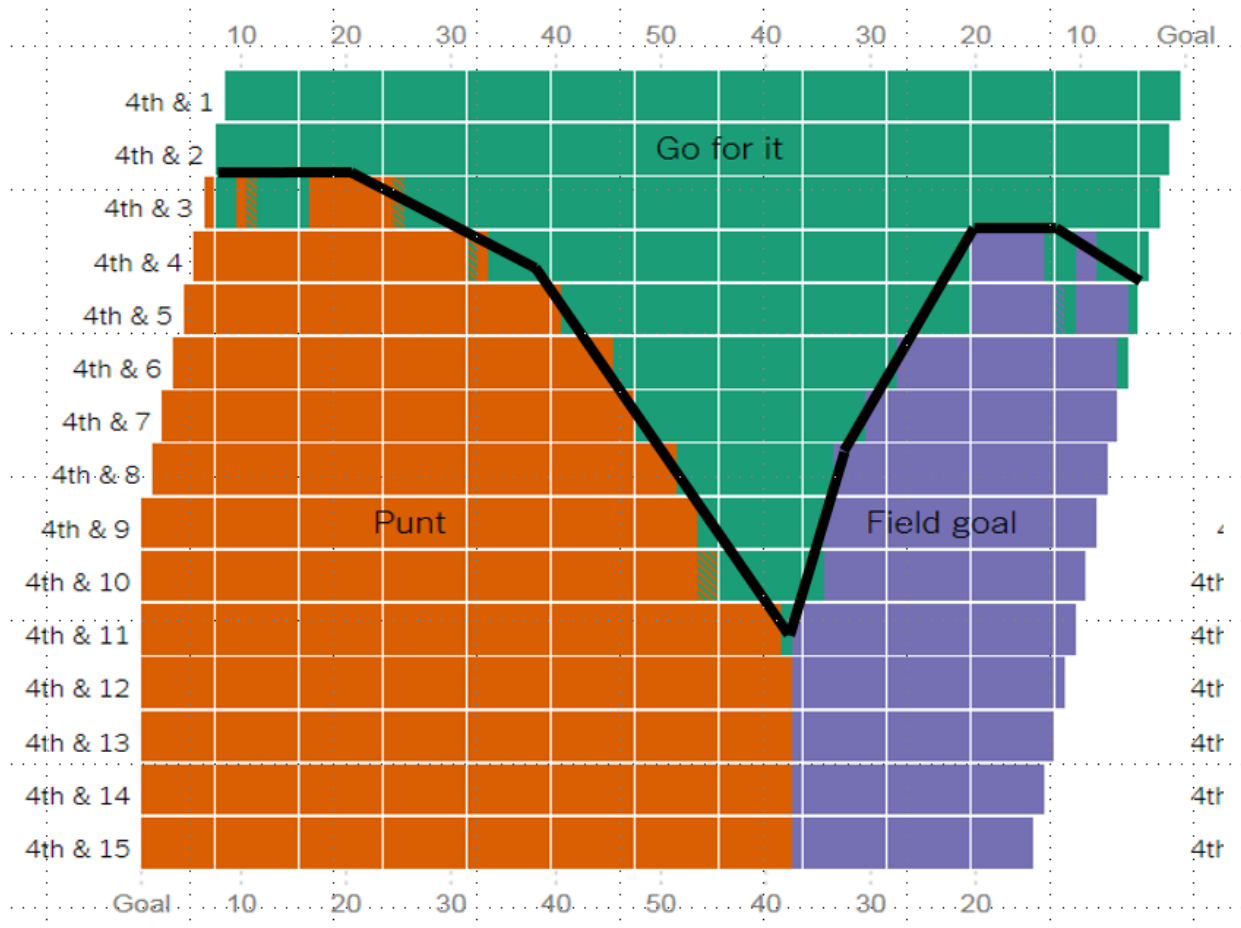
yd	pt (1/10-)	pt (1/11)	pt (1/12)	pt (1/13)	pt (1/14)	pt (1/15)	pt (1/16)	pt (1/17)	pt (1/18)	pt (1/19)	pt (1/20+)
1	6.50	6.40	6.30	6.20	6.10	6.00	5.90	5.80	5.70	5.60	5.50
2	6.20	6.10	6.00	5.90	5.80	5.70	5.60	5.50	5.40	5.30	5.20
3	5.90	5.80	5.70	5.60	5.50	5.40	5.30	5.20	5.10	5.00	4.90
4	5.60	5.50	5.40	5.30	5.20	5.10	5.00	4.90	4.80	4.70	4.60
5	5.50	5.40	5.30	5.20	5.10	5.00	4.90	4.80	4.70	4.60	4.50
6	5.40	5.30	5.20	5.10	5.00	4.90	4.80	4.70	4.60	4.50	4.40
7	5.30	5.20	5.10	5.00	4.90	4.80	4.70	4.60	4.50	4.40	4.30
8	5.20	5.10	5.00	4.90	4.80	4.70	4.60	4.50	4.40	4.30	4.20
9	5.10	5.00	4.90	4.80	4.70	4.60	4.50	4.40	4.30	4.20	4.10
10	5.00	4.90	4.80	4.70	4.60	4.50	4.40	4.30	4.20	4.10	4.00
11	4.92	4.82	4.72	4.62	4.52	4.42	4.32	4.22	4.12	4.02	3.92
12	4.84	4.74	4.64	4.54	4.44	4.34	4.24	4.14	4.04	3.94	3.84
13	4.76	4.66	4.56	4.46	4.36	4.26	4.16	4.06	3.96	3.86	3.76
14	4.68	4.58	4.48	4.38	4.28	4.18	4.08	3.98	3.88	3.78	3.68
15	4.60	4.50	4.40	4.30	4.20	4.10	4.00	3.90	3.80	3.70	3.60
16	4.52	4.42	4.32	4.22	4.12	4.02	3.92	3.82	3.72	3.62	3.52
17	4.44	4.34	4.24	4.14	4.04	3.94	3.84	3.74	3.64	3.54	3.44
18	4.36	4.26	4.16	4.06	3.96	3.86	3.76	3.66	3.56	3.46	3.36
19	4.28	4.18	4.08	3.98	3.88	3.78	3.68	3.58	3.48	3.38	3.28
20	4.20	4.10	4.00	3.90	3.80	3.70	3.60	3.50	3.40	3.30	3.20
21	4.12	4.02	3.92	3.82	3.72	3.62	3.52	3.42	3.32	3.22	3.12
22	4.04	3.94	3.84	3.74	3.64	3.54	3.44	3.34	3.24	3.14	3.04
23	3.96	3.86	3.76	3.66	3.56	3.46	3.36	3.26	3.16	3.06	2.96
24	3.88	3.78	3.68	3.58	3.48	3.38	3.28	3.18	3.08	2.98	2.88
25	3.80	3.70	3.60	3.50	3.40	3.30	3.20	3.10	3.00	2.90	2.80
26	3.72	3.62	3.52	3.42	3.32	3.22	3.12	3.02	2.92	2.82	2.72
27	3.64	3.54	3.44	3.34	3.24	3.14	3.04	2.94	2.84	2.74	2.64
28	3.56	3.46	3.36	3.26	3.16	3.06	2.96	2.86	2.76	2.66	2.56
29	3.48	3.38	3.28	3.18	3.08	2.98	2.88	2.78	2.68	2.58	2.48
30	3.40	3.30	3.20	3.10	3.00	2.90	2.80	2.70	2.60	2.50	2.40
31	3.32	3.22	3.12	3.02	2.92	2.82	2.72	2.62	2.52	2.42	2.32
32	3.24	3.14	3.04	2.94	2.84	2.74	2.64	2.54	2.44	2.34	2.24
33	3.16	3.06	2.96	2.86	2.76	2.66	2.56	2.46	2.36	2.26	2.16



yd	pt (1/10-)	pt (1/11)	pt (1/12)	pt (1/13)	pt (1/14)	pt (1/15)	pt (1/16)	pt (1/17)	pt (1/18)	pt (1/19)	pt (1/20+)
34	3.08	2.98	2.88	2.78	2.68	2.58	2.48	2.38	2.28	2.18	2.08
35	3.00	2.90	2.80	2.70	2.60	2.50	2.40	2.30	2.20	2.10	2.00
36	2.94	2.84	2.74	2.64	2.54	2.44	2.34	2.24	2.14	2.04	1.94
37	2.88	2.78	2.68	2.58	2.48	2.38	2.28	2.18	2.08	1.98	1.88
38	2.82	2.72	2.62	2.52	2.42	2.32	2.22	2.12	2.02	1.92	1.82
39	2.76	2.66	2.56	2.46	2.36	2.26	2.16	2.06	1.96	1.86	1.76
40	2.70	2.60	2.50	2.40	2.30	2.20	2.10	2.00	1.90	1.80	1.70
41	2.64	2.54	2.44	2.34	2.24	2.14	2.04	1.94	1.84	1.74	1.64
42	2.58	2.48	2.38	2.28	2.18	2.08	1.98	1.88	1.78	1.68	1.58
43	2.52	2.42	2.32	2.22	2.12	2.02	1.92	1.82	1.72	1.62	1.52
44	2.46	2.36	2.26	2.16	2.06	1.96	1.86	1.76	1.66	1.56	1.46
45	2.40	2.30	2.20	2.10	2.00	1.90	1.80	1.70	1.60	1.50	1.40
46	2.34	2.24	2.14	2.04	1.94	1.84	1.74	1.64	1.54	1.44	1.34
47	2.28	2.18	2.08	1.98	1.88	1.78	1.68	1.58	1.48	1.38	1.28
48	2.22	2.12	2.02	1.92	1.82	1.72	1.62	1.52	1.42	1.32	1.22
49	2.16	2.06	1.96	1.86	1.76	1.66	1.56	1.46	1.36	1.26	1.16
50	2.09	1.99	1.89	1.79	1.69	1.59	1.49	1.39	1.29	1.19	1.09
51	2.03	1.93	1.83	1.73	1.63	1.53	1.43	1.33	1.23	1.13	1.03
52	1.97	1.87	1.77	1.67	1.57	1.47	1.37	1.27	1.17	1.07	0.97
53	1.91	1.81	1.71	1.61	1.51	1.41	1.31	1.21	1.11	1.01	0.91
54	1.85	1.75	1.65	1.55	1.45	1.35	1.25	1.15	1.05	0.95	0.85
55	1.79	1.69	1.59	1.49	1.39	1.29	1.19	1.09	0.99	0.89	0.79
56	1.73	1.63	1.53	1.43	1.33	1.23	1.13	1.03	0.93	0.83	0.73
57	1.67	1.57	1.47	1.37	1.27	1.17	1.07	0.97	0.87	0.77	0.67
58	1.61	1.51	1.41	1.31	1.21	1.11	1.01	0.91	0.81	0.71	0.61
59	1.55	1.45	1.35	1.25	1.15	1.05	0.95	0.85	0.75	0.65	0.55
60	1.49	1.39	1.29	1.19	1.09	0.99	0.89	0.79	0.69	0.59	0.49
61	1.43	1.33	1.23	1.13	1.03	0.93	0.83	0.73	0.63	0.53	0.43
62	1.37	1.27	1.17	1.07	0.97	0.87	0.77	0.67	0.57	0.47	0.37
63	1.31	1.21	1.11	1.01	0.91	0.81	0.71	0.61	0.51	0.41	0.31
64	1.25	1.15	1.05	0.95	0.85	0.75	0.65	0.55	0.45	0.35	0.25
65	1.19	1.09	0.99	0.89	0.79	0.69	0.59	0.49	0.39	0.29	0.19
66	1.13	1.03	0.93	0.83	0.73	0.63	0.53	0.43	0.33	0.23	0.13

yd	pt (1/10-)	pt (1/11)	pt (1/12)	pt (1/13)	pt (1/14)	pt (1/15)	pt (1/16)	pt (1/17)	pt (1/18)	pt (1/19)	pt (1/20+)
67	1.07	0.97	0.87	0.77	0.67	0.57	0.47	0.37	0.27	0.17	0.07
68	1.01	0.91	0.81	0.71	0.61	0.51	0.41	0.31	0.21	0.11	0.01
69	0.95	0.85	0.75	0.65	0.55	0.45	0.35	0.25	0.15	0.05	-0.05
70	0.89	0.79	0.69	0.59	0.49	0.39	0.29	0.19	0.09	-0.01	-0.11
71	0.83	0.73	0.63	0.53	0.43	0.33	0.23	0.13	0.03	-0.07	-0.17
72	0.77	0.67	0.57	0.47	0.37	0.27	0.17	0.07	-0.03	-0.13	-0.23
73	0.71	0.61	0.51	0.41	0.31	0.21	0.11	0.01	-0.09	-0.19	-0.29
74	0.65	0.55	0.45	0.35	0.25	0.15	0.05	-0.05	-0.15	-0.25	-0.35
75	0.59	0.49	0.39	0.29	0.19	0.09	-0.01	-0.11	-0.21	-0.31	-0.41
76	0.53	0.43	0.33	0.23	0.13	0.03	-0.07	-0.17	-0.27	-0.37	-0.47
77	0.47	0.37	0.27	0.17	0.07	-0.03	-0.13	-0.23	-0.33	-0.43	-0.53
78	0.41	0.31	0.21	0.11	0.01	-0.09	-0.19	-0.29	-0.39	-0.49	-0.59
79	0.34	0.24	0.14	0.04	-0.06	-0.16	-0.26	-0.36	-0.46	-0.56	-0.66
80	0.28	0.18	0.08	-0.02	-0.12	-0.22	-0.32	-0.42	-0.52	-0.62	-0.72
81	0.22	0.12	0.02	-0.08	-0.18	-0.28	-0.38	-0.48	-0.58	-0.68	-0.78
82	0.16	0.06	-0.04	-0.14	-0.24	-0.34	-0.44	-0.54	-0.64	-0.74	-0.84
83	0.10	0.00	-0.10	-0.20	-0.30	-0.40	-0.50	-0.60	-0.70	-0.80	-0.90
84	0.04	-0.06	-0.16	-0.26	-0.36	-0.46	-0.56	-0.66	-0.76	-0.86	-0.96
85	-0.02	-0.12	-0.22	-0.32	-0.42	-0.52	-0.62	-0.72	-0.82	-0.92	-1.02
86	-0.08	-0.18	-0.28	-0.38	-0.48	-0.58	-0.68	-0.78	-0.88	-0.98	-1.08
87	-0.14	-0.24	-0.34	-0.44	-0.54	-0.64	-0.74	-0.84	-0.94	-1.04	-1.14
88	-0.20	-0.30	-0.40	-0.50	-0.60	-0.70	-0.80	-0.90	-1.00	-1.10	-1.20
89	-0.26	-0.36	-0.46	-0.56	-0.66	-0.76	-0.86	-0.96	-1.06	-1.16	-1.26
90	-0.32	-0.42	-0.52	-0.62	-0.72	-0.82	-0.92	-1.02	-1.12	-1.22	-1.32
91	-0.38	-0.48	-0.58	-0.68	-0.78	-0.88	-0.98	-1.08	-1.18	-1.28	-1.38
92	-0.44	-0.54	-0.64	-0.74	-0.84	-0.94	-1.04	-1.14	-1.24	-1.34	-1.44
93	-0.50	-0.60	-0.70	-0.80	-0.90	-1.00	-1.10	-1.20	-1.30	-1.40	-1.50
94	-0.60	-0.70	-0.80	-0.90	-1.00	-1.10	-1.20	-1.30	-1.40	-1.50	-1.60
95	-0.70	-0.80	-0.90	-1.00	-1.10	-1.20	-1.30	-1.40	-1.50	-1.60	-1.70
96	-0.80	-0.90	-1.00	-1.10	-1.20	-1.30	-1.40	-1.50	-1.60	-1.70	-1.80
97	-0.90	-1.00	-1.10	-1.20	-1.30	-1.40	-1.50	-1.60	-1.70	-1.80	-1.90
98	-1.00	-1.10	-1.20	-1.30	-1.40	-1.50	-1.60	-1.70	-1.80	-1.90	-2.00
99	-1.40	-1.50	-1.60	-1.70	-1.80	-1.90	-2.00	-2.10	-2.20	-2.30	-2.40

Guidance for 4<sup>th</sup> down was more difficult to find and develop into an SUV. For this, the following two articles provided information: “How Coaches and the NYT 4th Down Bot Compare,” by Brian Burke and Kevin Quealy, November 28, 2013 (<http://www.nytimes.com/newsgraphics/2013/11/28/fourth-downs/post.html>); and “4th and Go for It?,” by Mike Tanier, October 8, 2013 (<http://www.sportsonearth.com/article/62665328/>). The first article provided the chart below, recommending what to choose on 4<sup>th</sup> down, on which I superimposed line segments representing the boundaries between going for it vs. other. The line segments connected at the following values for field position and yards to go: (99, 2), (76, 2), (61, 4), (38, 10.5), (32, 7), (21, 3), (12, 3), (4, 4):



The second article provided the following information:

*Going for it on 4<sup>th</sup>-and-short has had a 62.7% success rate over the last three years [2010-2012] ... There is a noticeable dip in the 2011 data: 2010 and 2012 look alike and suggest an over 66% (2 out of 3) conversion rate ... The year-to-year data sets are small enough to allow for this kind of fluctuation. It is best to assume that the "real" success rate lies between the low of 2011 and the high of the other two years, though we will see later that there are compelling reasons to lean toward the higher rate ... The raw data tells us that 4<sup>th</sup>-and-short conversion attempts are not a high-risk gamble. A 63% success rate represents good odds. ... That stability is the most interesting finding of this study. The 62.7% success rate we started with is much closer to 66.7%, or two-thirds, if a few more dire circumstance attempts are teased out ... [I]f a team goes for it on 4<sup>th</sup>-and-short three times in a game, they are statistically likely to gain two 1<sup>st</sup> downs and turn the ball over on downs once. If the team makes those three attempts at, say, the opponent's 40-yard line, that means they will get the ball in scoring position twice but give the opponent good field position once.*

Based on this discussion, I assumed that the probability of success in “going for it” on 4<sup>th</sup> and short would be 2/3. However, the “go for it” region in the chart extends beyond two yards over much of its range. While the probability of success for 4<sup>th</sup> and longer than two yards is surely less than 2/3, in terms of SUV, I assumed that the full “go for it”

region could be characterized by an SUV as follows. Starting with the equivalent yardage (and field position) on 4<sup>th</sup> down, adjust the corresponding SUV for 3<sup>rd</sup> down by multiplying by 2/3 and then subtracting 1/3 of the SUV for 1<sup>st</sup> and 10 from that same field position, representing the SUV of the other team should it take over after 4<sup>th</sup> down. If the 4<sup>th</sup> down yardage exceeded the “break even” threshold (BET) for the “go for it” region, as indicated by the solid black line superimposed on the chart, then the SUV would be reduced further using the following equation (note that “|” represents absolute value):

$$\frac{2}{3}x 0.9^{(yds\ needed - BET\ from\ above)}x(SUV\ for\ 3rd\ down\ equivalent\ yardage) - [(1 - \frac{2}{3}x 0.9^{(yds\ needed - BET\ from\ above)})x|SUV\ if\ defense\ takes\ over\ 1st\ and\ 10|]$$

The assumption here is that the SUV is reduced by 10% for each yard beyond the BET.

Here are two examples. Say a team has 4<sup>th</sup> and 3 or less from its own 30, where the BET = 3. From the chart, this lies within the “go for it” region, so the SUV would be as follows:

$$\frac{2}{3}x 0.39 - \left(1 - \frac{2}{3}\right)x 3.40 = -0.87$$

where 0.39 = SUV for 3<sup>rd</sup> and 3 (i.e., 5 or less) from 70 yards away and 3.40 is the SUV for 1<sup>st</sup> and 10 from 30 yards away. Now, if at the same field position it was 4<sup>th</sup> and 6, the SUV would be reduced using the following:

$$\frac{2}{3}x 0.9^{(6-3)}x 0.29 - \left[1 - \frac{2}{3}x 0.9^{(6-3)}\right]x 3.40 = -1.61$$

but now using the SUV for 3<sup>rd</sup> and 6 from 70 yards away (0.29).

Based on the above, here are the SUVs for 4<sup>th</sup> down (anything above 20 yards to go was treated as constant, consistent with 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> downs).

yd	pt (4/1)	pt (4/2)	pt (4/3)	pt (4/4)	pt (4/5)	pt (4/6)	pt (4/7)	pt (4/8)	pt (4/9)	pt (4/10)
1	3.53	3.53	3.53	3.53	3.04	2.54	2.10	1.71	1.36	1.04
2	3.47	3.47	3.47	3.47	3.02	2.56	2.16	1.80	1.48	1.20
3	3.30	3.30	3.30	3.30	2.88	2.45	2.06	1.72	1.42	1.15
4	3.13	3.13	3.13	3.13	2.74	2.33	1.97	1.65	1.37	1.11
5	3.10	3.10	3.10	3.10	2.72	2.32	1.97	1.66	1.39	1.14
6	3.07	3.07	3.07	3.07	2.70	2.32	1.98	1.67	1.41	1.17
7	3.03	3.03	3.03	3.03	2.68	2.31	1.98	1.69	1.43	1.20
8	2.99	2.99	2.99	2.99	2.64	2.28	1.96	1.68	1.43	1.20
9	2.94	2.94	2.94	2.61	2.31	1.99	1.71	1.46	1.24	1.05
10	2.89	2.89	2.89	2.57	2.28	1.97	1.70	1.46	1.25	1.06
11	2.86	2.86	2.86	2.55	2.27	1.97	1.70	1.47	1.26	1.07
12	2.83	2.83	2.83	2.52	2.25	1.96	1.70	1.47	1.27	1.09
13	2.79	2.79	2.79	2.50	2.24	1.95	1.70	1.48	1.28	1.10
14	2.76	2.76	2.76	2.48	2.22	1.94	1.70	1.48	1.29	1.12
15	2.73	2.73	2.73	2.45	2.21	1.94	1.70	1.49	1.30	1.14
16	2.67	2.67	2.67	2.39	2.15	1.88	1.65	1.44	1.25	1.09
17	2.59	2.59	2.59	2.32	2.08	1.81	1.58	1.37	1.19	1.03
18	2.52	2.52	2.52	2.25	2.01	1.74	1.51	1.30	1.12	0.96
19	2.45	2.45	2.45	2.18	1.94	1.67	1.44	1.23	1.05	0.89
20	2.37	2.37	2.37	2.11	1.87	1.60	1.37	1.17	0.99	0.83
21	2.30	2.30	2.30	2.03	1.80	1.53	1.30	1.10	0.92	0.76
22	2.22	2.22	2.22	1.96	1.73	1.46	1.23	1.03	0.85	0.69
23	2.15	2.15	2.15	2.15	1.89	1.60	1.35	1.12	0.92	0.75
24	2.08	2.08	2.08	2.08	1.82	1.53	1.28	1.05	0.85	0.68
25	2.00	2.00	2.00	2.00	1.75	1.46	1.21	0.98	0.79	0.61
26	1.93	1.93	1.93	1.93	1.93	1.61	1.33	1.09	0.87	0.68
27	1.86	1.86	1.86	1.86	1.86	1.54	1.26	1.02	0.80	0.61
28	1.78	1.78	1.78	1.78	1.78	1.72	1.41	1.14	0.90	0.69
29	1.71	1.71	1.71	1.71	1.71	1.64	1.34	1.07	0.83	0.62
30	1.64	1.64	1.64	1.64	1.64	1.57	1.26	1.00	0.76	0.55
31	1.56	1.56	1.56	1.56	1.56	1.50	1.43	1.13	0.87	0.64
32	1.49	1.49	1.49	1.49	1.49	1.42	1.36	1.06	0.80	0.57
33	1.42	1.42	1.42	1.42	1.42	1.35	1.28	1.22	0.93	0.67
34	1.34	1.34	1.34	1.34	1.34	1.28	1.21	1.14	0.86	0.60
35	1.27	1.27	1.27	1.27	1.27	1.20	1.14	1.07	1.00	0.72
36	1.21	1.21	1.21	1.21	1.21	1.14	1.08	1.01	0.94	0.66
37	1.15	1.15	1.15	1.15	1.15	1.08	1.02	0.95	0.88	0.82
38	1.09	1.09	1.09	1.09	1.09	1.02	0.96	0.89	0.82	0.76
39	1.03	1.03	1.03	1.03	1.03	0.96	0.90	0.83	0.76	0.70
40	0.97	0.97	0.97	0.97	0.97	0.90	0.84	0.77	0.70	0.64
41	0.91	0.91	0.91	0.91	0.91	0.84	0.77	0.71	0.64	0.57
42	0.85	0.85	0.85	0.85	0.85	0.78	0.71	0.65	0.58	0.30

yd	pt (4/1)	pt (4/2)	pt (4/3)	pt (4/4)	pt (4/5)	pt (4/6)	pt (4/7)	pt (4/8)	pt (4/9)	pt (4/10)
43	0.79	0.79	0.79	0.79	0.79	0.72	0.65	0.59	0.52	0.24
44	0.73	0.73	0.73	0.73	0.73	0.66	0.59	0.53	0.46	0.18
45	0.67	0.67	0.67	0.67	0.67	0.60	0.53	0.47	0.40	0.12
46	0.61	0.61	0.61	0.61	0.61	0.54	0.47	0.41	0.12	-0.13
47	0.55	0.55	0.55	0.55	0.55	0.48	0.41	0.35	0.06	-0.19
48	0.49	0.49	0.49	0.49	0.49	0.42	0.35	0.29	0.00	-0.25
49	0.43	0.43	0.43	0.43	0.43	0.36	0.29	0.00	-0.26	-0.48
50	0.36	0.36	0.36	0.36	0.36	0.30	0.23	-0.06	-0.32	-0.54
51	0.30	0.30	0.30	0.30	0.30	0.24	0.17	-0.12	-0.38	-0.61
52	0.24	0.24	0.24	0.24	0.24	0.18	0.11	-0.18	-0.44	-0.67
53	0.18	0.18	0.18	0.18	0.18	0.12	-0.18	-0.45	-0.68	-0.88
54	0.12	0.12	0.12	0.12	0.12	0.06	-0.24	-0.51	-0.74	-0.94
55	0.06	0.06	0.06	0.06	0.06	0.00	-0.30	-0.57	-0.80	-1.00
56	0.00	0.00	0.00	0.00	0.00	-0.30	-0.57	-0.81	-1.02	-1.20
57	-0.06	-0.06	-0.06	-0.06	-0.06	-0.36	-0.63	-0.87	-1.08	-1.26
58	-0.12	-0.12	-0.12	-0.12	-0.12	-0.42	-0.69	-0.93	-1.14	-1.32
59	-0.18	-0.18	-0.18	-0.18	-0.18	-0.48	-0.75	-0.99	-1.20	-1.38
60	-0.24	-0.24	-0.24	-0.24	-0.48	-0.76	-1.00	-1.22	-1.40	-1.57
61	-0.30	-0.30	-0.30	-0.30	-0.54	-0.82	-1.06	-1.28	-1.46	-1.63
62	-0.36	-0.36	-0.36	-0.36	-0.61	-0.88	-1.12	-1.34	-1.52	-1.69
63	-0.42	-0.42	-0.42	-0.42	-0.67	-0.94	-1.18	-1.40	-1.58	-1.75
64	-0.48	-0.48	-0.48	-0.48	-0.73	-1.00	-1.24	-1.46	-1.64	-1.81
65	-0.54	-0.54	-0.54	-0.79	-1.01	-1.26	-1.47	-1.67	-1.83	-1.98
66	-0.61	-0.61	-0.61	-0.85	-1.08	-1.33	-1.55	-1.74	-1.91	-2.06
67	-0.67	-0.67	-0.67	-0.92	-1.15	-1.40	-1.62	-1.81	-1.98	-2.13
68	-0.74	-0.74	-0.74	-0.99	-1.22	-1.47	-1.69	-1.88	-2.05	-2.20
69	-0.81	-0.81	-0.81	-1.06	-1.29	-1.54	-1.76	-1.95	-2.13	-2.28
70	-0.87	-0.87	-0.87	-1.13	-1.35	-1.61	-1.83	-2.03	-2.20	-2.35
71	-0.94	-0.94	-0.94	-1.20	-1.42	-1.68	-1.90	-2.10	-2.27	-2.43
72	-1.01	-1.01	-1.01	-1.26	-1.49	-1.75	-1.97	-2.17	-2.35	-2.50
73	-1.08	-1.08	-1.33	-1.56	-1.77	-2.00	-2.20	-2.38	-2.54	-2.68
74	-1.14	-1.14	-1.40	-1.63	-1.84	-2.07	-2.28	-2.46	-2.61	-2.75
75	-1.21	-1.21	-1.47	-1.70	-1.91	-2.14	-2.35	-2.53	-2.69	-2.83
76	-1.28	-1.28	-1.54	-1.77	-1.98	-2.22	-2.42	-2.60	-2.76	-2.90
77	-1.34	-1.34	-1.60	-1.84	-2.05	-2.29	-2.49	-2.68	-2.84	-2.98
78	-1.41	-1.41	-1.67	-1.91	-2.12	-2.36	-2.57	-2.75	-2.91	-3.05
79	-1.48	-1.48	-1.74	-1.98	-2.19	-2.43	-2.64	-2.82	-2.98	-3.13
80	-1.54	-1.54	-1.81	-2.05	-2.26	-2.50	-2.71	-2.89	-3.06	-3.20
81	-1.61	-1.61	-1.88	-2.12	-2.33	-2.57	-2.78	-2.97	-3.13	-3.27
82	-1.68	-1.68	-1.95	-2.19	-2.40	-2.64	-2.85	-3.04	-3.20	-3.35
83	-1.74	-1.74	-2.01	-2.26	-2.47	-2.72	-2.93	-3.11	-3.28	-3.42
84	-1.81	-1.81	-2.08	-2.33	-2.55	-2.79	-3.00	-3.19	-3.35	-3.50

yd	pt (4/1)	pt (4/2)	pt (4/3)	pt (4/4)	pt (4/5)	pt (4/6)	pt (4/7)	pt (4/8)	pt (4/9)	pt (4/10)
85	-1.88	-1.88	-2.15	-2.40	-2.62	-2.86	-3.07	-3.26	-3.43	-3.57
86	-1.95	-1.95	-2.22	-2.46	-2.69	-2.93	-3.14	-3.33	-3.50	-3.65
87	-2.01	-2.01	-2.29	-2.53	-2.76	-3.00	-3.22	-3.41	-3.57	-3.72
88	-2.08	-2.08	-2.35	-2.60	-2.83	-3.07	-3.29	-3.48	-3.65	-3.79
89	-2.15	-2.15	-2.42	-2.67	-2.90	-3.14	-3.36	-3.55	-3.72	-3.87
90	-2.21	-2.21	-2.49	-2.74	-2.97	-3.21	-3.43	-3.62	-3.79	-3.94
91	-2.29	-2.29	-2.57	-2.82	-3.05	-3.30	-3.52	-3.71	-3.88	-4.03
92	-2.36	-2.36	-2.64	-2.90	-3.13	-3.38	-3.60	-3.80	-3.97	-4.12
93	-2.43	-2.43	-2.72	-2.98	-3.21	-3.46	-3.69	-3.88	-4.06	-4.21
94	-2.53	-2.53	-2.82	-3.08	-3.31	-3.56	-3.79	-3.98	-4.16	-4.31
95	-2.63	-2.63	-2.92	-3.18	-3.41	-3.66	-3.89	-4.08	-4.26	-4.41
96	-2.73	-2.73	-3.02	-3.28	-3.51	-3.76	-3.99	-4.18	-4.36	-4.51
97	-2.90	-2.90	-3.20	-3.47	-3.71	-3.98	-4.21	-4.41	-4.59	-4.75
98	-3.07	-3.07	-3.38	-3.66	-3.92	-4.19	-4.43	-4.64	-4.83	-4.99
99	-3.43	-3.43	-3.74	-4.02	-4.26	-4.53	-4.77	-4.98	-5.16	-5.32

yd	pt (4/11)	pt (4/12)	pt (4/13)	pt (4/14)	pt (4/15)	pt (4/16)	pt (4/17)	pt (4/18)	pt (4/19)	pt (4/20+)
1	0.77	0.52	0.30	0.11	-0.06	-0.21	-0.35	-0.47	-0.58	-0.67
2	0.95	0.72	0.52	0.35	0.19	0.05	-0.07	-0.18	-0.27	-0.36
3	0.92	0.71	0.52	0.36	0.21	0.08	-0.04	-0.14	-0.23	-0.31
4	0.89	0.69	0.52	0.36	0.23	0.10	0.00	-0.10	-0.18	-0.26
5	0.93	0.73	0.57	0.42	0.28	0.17	0.06	-0.03	-0.11	-0.18
6	0.96	0.78	0.61	0.47	0.34	0.23	0.13	0.04	-0.04	-0.11
7	1.00	0.82	0.66	0.52	0.40	0.29	0.19	0.11	0.04	-0.03
8	1.01	0.83	0.68	0.55	0.43	0.32	0.23	0.15	0.07	0.01
9	0.88	0.73	0.59	0.47	0.37	0.28	0.20	0.13	0.06	0.01
10	0.89	0.74	0.62	0.50	0.40	0.31	0.23	0.16	0.10	0.05
11	0.91	0.77	0.64	0.53	0.43	0.35	0.27	0.21	0.15	0.09
12	0.93	0.79	0.67	0.56	0.47	0.38	0.31	0.25	0.19	0.14
13	0.95	0.82	0.70	0.59	0.50	0.42	0.35	0.29	0.23	0.18
14	0.97	0.84	0.73	0.62	0.54	0.46	0.39	0.33	0.28	0.23
15	0.99	0.87	0.75	0.66	0.57	0.49	0.43	0.37	0.32	0.27
16	0.95	0.83	0.72	0.62	0.53	0.46	0.39	0.34	0.29	0.24
17	0.88	0.76	0.65	0.55	0.47	0.40	0.33	0.27	0.22	0.18
18	0.82	0.69	0.59	0.49	0.41	0.33	0.27	0.21	0.16	0.12
19	0.75	0.63	0.52	0.43	0.34	0.27	0.20	0.15	0.10	0.05
20	0.69	0.56	0.46	0.36	0.28	0.20	0.14	0.08	0.03	-0.01
21	0.62	0.50	0.39	0.30	0.21	0.14	0.08	0.02	-0.03	-0.07
22	0.55	0.43	0.33	0.23	0.15	0.08	0.01	-0.04	-0.09	-0.13
23	0.59	0.46	0.34	0.24	0.15	0.07	0.00	-0.07	-0.12	-0.17
24	0.53	0.39	0.28	0.17	0.08	0.00	-0.07	-0.13	-0.18	-0.23

yd	pt (4/11)	pt (4/12)	pt (4/13)	pt (4/14)	pt (4/15)	pt (4/16)	pt (4/17)	pt (4/18)	pt (4/19)	pt (4/20+)
25	0.46	0.33	0.21	0.11	0.02	-0.06	-0.13	-0.19	-0.24	-0.29
26	0.51	0.36	0.23	0.12	0.02	-0.07	-0.14	-0.21	-0.27	-0.32
27	0.44	0.30	0.17	0.05	-0.05	-0.13	-0.21	-0.28	-0.33	-0.38
28	0.50	0.34	0.20	0.07	-0.04	-0.13	-0.22	-0.29	-0.36	-0.41
29	0.44	0.27	0.13	0.01	-0.10	-0.20	-0.28	-0.36	-0.42	-0.48
30	0.37	0.21	0.06	-0.06	-0.17	-0.26	-0.35	-0.42	-0.48	-0.54
31	0.44	0.26	0.10	-0.03	-0.15	-0.26	-0.35	-0.43	-0.50	-0.56
32	0.37	0.19	0.04	-0.10	-0.22	-0.32	-0.42	-0.50	-0.57	-0.63
33	0.45	0.26	0.08	-0.07	-0.20	-0.31	-0.42	-0.50	-0.58	-0.65
34	0.38	0.19	0.02	-0.13	-0.27	-0.38	-0.48	-0.57	-0.65	-0.71
35	0.48	0.26	0.07	-0.09	-0.24	-0.36	-0.48	-0.57	-0.66	-0.73
36	0.42	0.20	0.01	-0.15	-0.30	-0.42	-0.54	-0.63	-0.72	-0.79
37	0.54	0.30	0.09	-0.09	-0.25	-0.39	-0.52	-0.62	-0.72	-0.80
38	0.69	0.42	0.19	-0.01	-0.19	-0.35	-0.49	-0.61	-0.71	-0.81
39	0.42	0.18	-0.03	-0.21	-0.37	-0.51	-0.64	-0.75	-0.84	-0.92
40	0.36	0.12	-0.09	-0.27	-0.43	-0.57	-0.70	-0.81	-0.90	-0.98
41	0.30	0.06	-0.15	-0.33	-0.49	-0.63	-0.76	-0.87	-0.96	-1.04
42	0.06	-0.16	-0.35	-0.51	-0.66	-0.79	-0.90	-0.99	-1.08	-1.15
43	0.00	-0.22	-0.41	-0.57	-0.72	-0.85	-0.96	-1.06	-1.14	-1.21
44	-0.06	-0.28	-0.47	-0.63	-0.78	-0.91	-1.02	-1.12	-1.20	-1.27
45	-0.12	-0.34	-0.53	-0.69	-0.84	-0.97	-1.08	-1.18	-1.26	-1.34
46	-0.35	-0.55	-0.72	-0.87	-1.00	-1.11	-1.21	-1.30	-1.37	-1.44
47	-0.41	-0.61	-0.78	-0.93	-1.06	-1.17	-1.27	-1.36	-1.43	-1.50
48	-0.47	-0.67	-0.84	-0.99	-1.12	-1.23	-1.33	-1.42	-1.50	-1.56
49	-0.68	-0.86	-1.01	-1.14	-1.26	-1.37	-1.46	-1.53	-1.60	-1.66
50	-0.74	-0.92	-1.07	-1.21	-1.32	-1.43	-1.52	-1.59	-1.66	-1.72
51	-0.80	-0.98	-1.13	-1.27	-1.38	-1.49	-1.58	-1.66	-1.72	-1.78
52	-0.86	-1.04	-1.19	-1.33	-1.44	-1.55	-1.64	-1.72	-1.78	-1.84
53	-1.06	-1.22	-1.35	-1.48	-1.58	-1.67	-1.76	-1.83	-1.89	-1.94
54	-1.12	-1.28	-1.41	-1.54	-1.64	-1.73	-1.82	-1.89	-1.95	-2.00
55	-1.18	-1.34	-1.48	-1.60	-1.70	-1.79	-1.88	-1.95	-2.01	-2.06
56	-1.36	-1.50	-1.63	-1.74	-1.83	-1.92	-1.99	-2.05	-2.11	-2.16
57	-1.42	-1.56	-1.69	-1.80	-1.89	-1.98	-2.05	-2.11	-2.17	-2.22
58	-1.48	-1.62	-1.75	-1.86	-1.95	-2.04	-2.11	-2.17	-2.23	-2.28
59	-1.54	-1.68	-1.81	-1.92	-2.01	-2.10	-2.17	-2.23	-2.29	-2.34
60	-1.71	-1.84	-1.95	-2.05	-2.14	-2.21	-2.28	-2.33	-2.38	-2.43
61	-1.77	-1.90	-2.01	-2.11	-2.20	-2.27	-2.34	-2.39	-2.44	-2.49
62	-1.83	-1.96	-2.07	-2.17	-2.26	-2.33	-2.40	-2.45	-2.50	-2.55
63	-1.89	-2.02	-2.13	-2.23	-2.32	-2.39	-2.46	-2.51	-2.57	-2.61
64	-1.95	-2.08	-2.19	-2.29	-2.38	-2.45	-2.52	-2.58	-2.63	-2.67
65	-2.11	-2.23	-2.33	-2.42	-2.49	-2.56	-2.62	-2.67	-2.72	-2.76
66	-2.19	-2.30	-2.40	-2.49	-2.57	-2.64	-2.70	-2.75	-2.79	-2.83



yd	pt (4/11)	pt (4/12)	pt (4/13)	pt (4/14)	pt (4/15)	pt (4/16)	pt (4/17)	pt (4/18)	pt (4/19)	pt (4/20+)
67	-2.26	-2.38	-2.48	-2.57	-2.65	-2.71	-2.77	-2.83	-2.87	-2.91
68	-2.34	-2.45	-2.55	-2.64	-2.72	-2.79	-2.85	-2.90	-2.95	-2.99
69	-2.41	-2.53	-2.63	-2.72	-2.80	-2.87	-2.93	-2.98	-3.03	-3.07
70	-2.49	-2.60	-2.71	-2.80	-2.88	-2.94	-3.01	-3.06	-3.11	-3.15
71	-2.56	-2.68	-2.78	-2.87	-2.95	-3.02	-3.08	-3.14	-3.18	-3.22
72	-2.63	-2.75	-2.86	-2.95	-3.03	-3.10	-3.16	-3.21	-3.26	-3.30
73	-2.80	-2.91	-3.00	-3.09	-3.16	-3.22	-3.28	-3.33	-3.37	-3.41
74	-2.88	-2.98	-3.08	-3.16	-3.23	-3.30	-3.35	-3.40	-3.45	-3.48
75	-2.95	-3.06	-3.15	-3.24	-3.31	-3.38	-3.43	-3.48	-3.52	-3.56
76	-3.03	-3.13	-3.23	-3.31	-3.39	-3.45	-3.51	-3.56	-3.60	-3.64
77	-3.10	-3.21	-3.31	-3.39	-3.46	-3.53	-3.59	-3.64	-3.68	-3.72
78	-3.18	-3.29	-3.38	-3.47	-3.54	-3.61	-3.66	-3.71	-3.76	-3.80
79	-3.25	-3.36	-3.46	-3.54	-3.62	-3.68	-3.74	-3.79	-3.83	-3.87
80	-3.33	-3.44	-3.53	-3.62	-3.69	-3.76	-3.82	-3.87	-3.91	-3.95
81	-3.40	-3.51	-3.61	-3.70	-3.77	-3.84	-3.90	-3.95	-3.99	-4.03
82	-3.48	-3.59	-3.69	-3.77	-3.85	-3.91	-3.97	-4.02	-4.07	-4.11
83	-3.55	-3.66	-3.76	-3.85	-3.92	-3.99	-4.05	-4.10	-4.15	-4.19
84	-3.63	-3.74	-3.84	-3.92	-4.00	-4.07	-4.13	-4.18	-4.22	-4.26
85	-3.70	-3.81	-3.91	-4.00	-4.08	-4.15	-4.20	-4.26	-4.30	-4.34
86	-3.78	-3.89	-3.99	-4.08	-4.15	-4.22	-4.28	-4.33	-4.38	-4.42
87	-3.85	-3.96	-4.06	-4.15	-4.23	-4.30	-4.36	-4.41	-4.46	-4.50
88	-3.93	-4.04	-4.14	-4.23	-4.31	-4.38	-4.44	-4.49	-4.54	-4.58
89	-4.00	-4.12	-4.22	-4.31	-4.38	-4.45	-4.51	-4.57	-4.61	-4.65
90	-4.08	-4.19	-4.29	-4.38	-4.46	-4.53	-4.59	-4.64	-4.69	-4.73
91	-4.16	-4.28	-4.38	-4.47	-4.55	-4.62	-4.69	-4.74	-4.79	-4.83
92	-4.25	-4.37	-4.48	-4.57	-4.65	-4.72	-4.78	-4.83	-4.88	-4.92
93	-4.34	-4.46	-4.57	-4.66	-4.74	-4.81	-4.87	-4.93	-4.98	-5.02
94	-4.44	-4.56	-4.67	-4.76	-4.84	-4.91	-4.97	-5.03	-5.08	-5.12
95	-4.54	-4.66	-4.77	-4.86	-4.94	-5.01	-5.07	-5.13	-5.18	-5.22
96	-4.64	-4.76	-4.87	-4.96	-5.04	-5.11	-5.17	-5.23	-5.28	-5.32
97	-4.89	-5.02	-5.13	-5.22	-5.31	-5.38	-5.45	-5.50	-5.56	-5.60
98	-5.14	-5.27	-5.38	-5.48	-5.57	-5.65	-5.72	-5.78	-5.83	-5.88
99	-5.47	-5.59	-5.71	-5.80	-5.89	-5.97	-6.03	-6.09	-6.14	-6.19

The next step was to apply this to an actual game. The recent AFC playoff between Pittsburgh and Kansas City (January 15, 2017) was chosen, which Pittsburgh won 18-16 (<http://www.espn.com/nfl/playbyplay?gameid=400927748>). The results follow.

<b>DRIVE pit-01</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
(15:00 - 1st) C.Santos kicks 63 yards from KC 35 to PIT 2. J.Gilbert to PIT 30 for 28 yards (A.Sherman).	-1.00	0.89	1.89
1st and 10 at PIT 30			
(14:54 - 1st) (Shotgun) B.Roethlisberger pass incomplete short middle to L.Bell (D.Poe).	0.89	0.39	-0.50
2nd and 10 at PIT 30			
(14:50 - 1st) (Shotgun) B.Roethlisberger pass short right to A.Brown to PIT 37 for 7 yards (R.Parker).	0.39	0.81	0.42
3rd and 3 at PIT 37			
(14:14 - 1st) (No Huddle, Shotgun) B.Roethlisberger pass short left to E.Rogers to PIT 41 for 4 yards (E.Berry).	0.81	1.55	0.74
1st and 10 at PIT 41			
(13:38 - 1st) (No Huddle, Shotgun) B.Roethlisberger pass short right to J.James to KC 46 for 13 yards (R.Parker; D.Sorensen).	1.55	2.34	0.79
1st and 10 at KC 46			
(12:58 - 1st) (No Huddle, Shotgun) B.Roethlisberger pass short middle to J.James to KC 30 for 16 yards (M.Peters; E.Berry).	2.34	3.40	1.06
1st and 10 at KC 30			
(12:16 - 1st) (No Huddle, Shotgun) L.Bell right guard to KC 24 for 6 yards (J.Jenkins).	3.40	3.88	0.48
2nd and 4 at KC 24			
(11:38 - 1st) L.Bell right guard to KC 13 for 11 yards (J.Houston).	3.88	4.76	0.88
1st and 10 at KC 13			
(11:01 - 1st) (Shotgun) L.Bell up the middle to KC 5 for 8 yards (R.Wilson).	4.76	5.50	0.74
2nd and 2 at KC 5			
(10:18 - 1st) (No Huddle, Shotgun) B.Roethlisberger pass incomplete short right to L.Bell.	5.50	5.00	-0.50
3rd and 2 at KC 5			
(10:11 - 1st) (No Huddle, Shotgun) B.Roethlisberger pass short left to E.Rogers to KC 4 for 1 yard (R.Parker).	5.00	3.13	-1.87
4th and 1 at KC 4			
(9:38 - 1st) Chris Boswell 22 Yd Field Goal	3.13	3.00	-0.13
	<b>RESULT</b>		
	-1.00	3.00	<b>4.00</b>

<b>DRIVE KCI-01</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
(9:38 - 1st) C.Boswell kicks 45 yards from PIT 35 to KC 20. D.Harris to KC 45 for 25 yards (D.Heyward-Bey).	0.28	1.79	1.51
1st and 10 at KC 45			
(9:31 - 1st) (Shotgun) S.Ware right guard to PIT 48 for 7 yards (J.Harrison).	1.79	2.22	0.43
2nd and 3 at PIT 48			
(9:01 - 1st) (No Huddle) T.Hill right end to PIT 41 for 7 yards (R.Shazier).	2.22	2.64	0.42
1st and 10 at PIT 41			
(8:11 - 1st) (Shotgun) A.Smith pass short right to T.Kelce to PIT 20 for 21 yards (S.Davis).	2.64	4.20	1.56
1st and 10 at PIT 20			
(7:24 - 1st) (Shotgun) A.Smith pass short middle to T.Hill to PIT 13 for 7 yards (B.Dupree).	4.20	4.84	0.64
2nd and 3 at PIT 13			
(6:48 - 1st) A.Smith pass short left to J.Maclin to PIT 5 for 8 yards (A.Burns).	4.84	5.50	0.66
1st and Goal at PIT 5			
(6:09 - 1st) Albert Wilson Pass From Alex Smith for 5 Yrds C.Santos extra point is Good	5.50	7.00	1.50
	<b>RESULT</b>		
	0.28	7.00	<b>6.72</b>

Let's analyze Kansas City's scoring drive. Kansas City receives the punt at their own 20 (potential 1<sup>st</sup> and 10 from 80 yards away gives starting SUV = 0.28) and returns it 25 yards to the 45 (finishing SUV for 1<sup>st</sup> and 10 from 55 yards away = 1.79), an increase in SUV of  $1.79 - 0.28 = 1.51$ . Next is a 7-yard gain to Pittsburgh's 48, making it 2<sup>nd</sup> and 7, which has an SUV = 2.22 for an increase of  $2.22 - 1.79 = 0.43$ . Another run for 7 yards yields a 1<sup>st</sup> and 10 at Pittsburgh's 41, an SUV = 2.64 and another increase of  $2.64 - 2.22 = 0.42$ . A 20-yard completion to the Pittsburgh 20 yields another 1<sup>st</sup> and 10, with an SUV = 4.20 for another gain of  $4.20 - 2.64 = 1.56$ . Next is a 7-yard completion to the 13, where the SUV for 2<sup>nd</sup> and 3 is 4.84 – an increase of  $4.84 - 4.20 = 0.64$ . Another completion to the 5 yields 1<sup>st</sup> and goal with an SUV = 5.50 (for 1<sup>st</sup> and 10 or less), an increase of  $5.50 - 4.84 = 0.66$ . Finally a touchdown pass, with a successful extra point yields 7.00 points and a final SUV gain of  $7.00 - 5.50 = 1.50$ . Summing all the SUV changes yields 6.72, which happens to be the difference between the final SUV (7.00) and the starting SUV (0.28), as expected.

Continuing with the game ...

<b>DRIVE pit-02</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
(6:09 - 1st) C.Santos kicks 65 yards from KC 35 to end zone, Touchback.	0.59	0.59	0.00
1st and 10 at PIT 25			
(6:09 - 1st) L.Bell left guard to PIT 25 for no gain (R.Wilson).	0.59	0.09	-0.50
2nd and 10 at PIT 25			
(5:33 - 1st) (Shotgun) B.Roethlisberger pass incomplete short right to A.Brown.	0.09	-0.41	-0.50
3rd and 10 at PIT 25			
(5:28 - 1st) (Shotgun) B.Roethlisberger pass deep left to A.Brown to KC 23 for 52 yards (J.Houston).	-0.41	3.96	4.37
1st and 10 at KC 23			
(4:44 - 1st) (No Huddle, Shotgun) B.Roethlisberger pass incomplete short right to J.James.	3.96	3.46	-0.50
2nd and 10 at KC 23			
(4:41 - 1st) (Shotgun) B.Roethlisberger pass short right to E.Rogers pushed ob at KC 20 for 3 yards (S.Nelson).	3.46	3.50	0.04
3rd and 7 at KC 20			
(4:02 - 1st) (Shotgun) B.Roethlisberger pass incomplete short left to A.Brown.	3.50	1.37	-2.13
4th and 7 at KC 20			
(3:51 - 1st) Chris Boswell 38 Yd Field Goal	1.37	3.00	1.63
	<b>RESULT</b>		
	0.59	3.00	<b>2.41</b>

<b>DRIVE KCI-02</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
(3:51 - 1st) C.Boswell kicks 65 yards from PIT 35 to KC 0. T.Hill to KC 12 for 12 yards (V.Williams).	0.59	-0.20	-0.79
1st and 10 at KC 12			
(3:46 - 1st) A.Smith pass incomplete deep right to S.Ware.	-0.20	-0.70	-0.50
2nd and 10 at KC 12			
(3:39 - 1st) (Shotgun) A.Smith pass short middle to T.Kelce to KC 25 for 13 yards (M.Mitchell).	-0.70	0.59	1.29
1st and 10 at KC 25			
(2:56 - 1st) (Shotgun) A.Smith pass short right to S.Ware pushed ob at KC 29 for 4 yards (R.Cockrell).	0.59	0.73	0.14
2nd and 6 at KC 29			
(2:15 - 1st) (Shotgun) C.West right guard to KC 29 for no gain (R.Shazier). PENALTY on KC-M.Morse, Offensive Holding, 10 yards, enforced at KC 29 - No Play.	0.73	-0.88	-1.61
2nd and 16 at KC 19			
(1:44 - 1st) (Shotgun) A.Smith pass incomplete short right to D.Harris [J.Harrison]. Penalty on KC-L.Duvernay-Tardif, Ineligible Downfield Pass, declined.	-0.88	-1.38	-0.50
3rd and 16 at KC 19			
(1:35 - 1st) (Shotgun) A.Smith pass short left to T.Hill to KC 28 for 9 yards (A.Burns).	-1.38	-1.97	-0.59
4th and 7 at KC 28			
(0:56 - 1st) D.Colquitt punts 43 yards to PIT 29, Center-J.Winchester, fair catch by A.Brown.	-1.97	-0.83	1.14
	<b>RESULT</b>		
	0.59	-0.83	<b>-1.42</b>

Also, let's analyze this drive, which resulted in a punt and included a penalty. The kickoff was taken in the end zone, which potentially is a 1<sup>st</sup> and 10 and the 25, giving a starting SUV from 75 yards away = 0.59. The kick was returned only 12 yards for a finishing SUV for 1<sup>st</sup> and 10 and 88 yards away = -0.20, a negative SUV change of  $-0.20 - 0.559 = -0.79$ . An incomplete pass makes it 2<sup>nd</sup> and 10, an SUV = -0.70 for a loss of 0.50 (negative SUV). Next is a 13-yard completion to the 25, where the SUV for 1<sup>st</sup> and 10 is 0.59, a gain of 1.29. Another completion for 4 yards yields 2<sup>nd</sup> and 6, with an SUV = 0.73 for another gain of 0.14. The next play is nullified by offensive holding, so it becomes 2<sup>nd</sup> and 16 from 71 yards away, with an SUV = -0.88, resulting in a decrease of 1.61. An incompletion makes it 3<sup>rd</sup> and 16, reducing the SUV to -0.88, another drop of 0.50. A completion of 9 yards still leaves 4<sup>th</sup> and 7 from 72 yards away, an SUV = -1.97, representing yet another decrease of 0.59. Kansas City punts to the Pittsburgh 29, where there is a fair catch and a starting SUV for the Steelers of 0.83, which is evaluated as a negative for Kansas City, i.e., -0.83. However, this play results in a gain of 1.14 from -1.97 to -0.83. Overall, this drive has a negative SUV of -1.42, again the difference between the finishing SUV of -0.38 and the starting SUV of 0.59.

Continuing now through the rest of the game ...

<b>DRIVE pit-03</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
1st and 10 at PIT 29			
(0:48 - 1st) (Shotgun) B.Roethlisberger right guard to PIT 33 for 4 yards (T.Smith).	0.83	0.97	0.14
2nd and 6 at PIT 33			
(0:14 - 1st) (Shotgun) L.Bell up the middle to PIT 38 for 5 yards (R.Wilson; T.Hali).	0.97	0.87	-0.10
3rd and 1 at PIT 38			
(15:00 - 2nd) L.Bell up the middle to PIT 40 for 2 yards (J.Houston).	0.87	1.49	0.62
1st and 10 at PIT 40			
(14:29 - 2nd) (No Huddle, Shotgun) L.Bell right tackle to PIT 49 for 9 yards (R.Parker).	1.49	2.16	0.67
2nd and 1 at PIT 49			
(13:58 - 2nd) (No Huddle) L.Bell up the middle to KC 45 for 6 yards (D.Poe; C.Jones).	2.16	2.40	0.24
1st and 10 at KC 45			
(13:20 - 2nd) (No Huddle) L.Bell right tackle to KC 38 for 7 yards (J.Houston).	2.40	2.82	0.42
2nd and 3 at KC 38			
(12:47 - 2nd) (No Huddle, Shotgun) B.Roethlisberger pass short right to A.Brown to KC 29 for 9 yards (M.Peters).	2.82	3.48	0.66
1st and 10 at KC 29			
(12:09 - 2nd) (No Huddle, Shotgun) B.Roethlisberger pass short left to J.James to KC 24 for 5 yards (S.Nelson; R.Wilson).	3.48	3.88	0.40
2nd and 5 at KC 24			
(11:24 - 2nd) (No Huddle, Shotgun) B.Roethlisberger pass short right to C.Hamilton to KC 20 for 4 yards (M.Peters).	3.88	3.70	-0.18
3rd and 1 at KC 20			
(10:57 - 2nd) (No Huddle) L.Bell up the middle to KC 17 for 3 yards (T.Smith; J.Houston).	3.70	4.44	0.74
1st and 10 at KC 17			
(10:18 - 2nd) (No Huddle, Shotgun) B.Roethlisberger pass incomplete deep middle to A.Brown (M.Peters).	4.44	3.94	-0.50
2nd and 10 at KC 17			
(10:12 - 2nd) (No Huddle, Shotgun) L.Bell left guard to KC 18 for -1 yards (E.Berry).	3.94	3.26	-0.68
3rd and 11 at KC 18			
(9:29 - 2nd) (No Huddle, Shotgun) B.Roethlisberger pass incomplete short left to L.Bell.	3.26	0.82	-2.44
4th and 11 at KC 18			
(9:18 - 2nd) Chris Boswell 36 Yd Field Goal	0.82	3.00	2.18
	<b>RESULT</b>		
	0.83	3.00	<b>2.17</b>

<b>DRIVE KCI-03</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
(9:18 - 2nd) C.Boswell kicks 65 yards from PIT 35 to end zone, Touchback.	0.59	0.59	0.00
1st and 10 at KC 25			
(9:18 - 2nd) (Shotgun) S.Ware up the middle to KC 28 for 3 yards (J.Hargrave).	0.59	0.57	-0.02
2nd and 7 at KC 28			
(8:36 - 2nd) (Shotgun) A.Smith pass short left to T.Hill pushed ob at KC 35 for 7 yards (J.Harrison).	0.57	1.19	0.62
1st and 10 at KC 35			
(8:08 - 2nd) A.Smith pass short middle INTERCEPTED by R.Shazier [B.Dupree] at KC 45. R.Shazier to KC 44 for 1 yard (J.Reid).	1.19	-2.46	-3.65
	<b>RESULT</b>		
	0.59	-2.46	<b>-3.05</b>

<b>DRIVE pit-04</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
1st and 10 at KC 44			
(7:58 - 2nd) (Shotgun) L.Bell right tackle to KC 35 for 9 yards (M.Peters).	2.46	3.00	0.54
2nd and 1 at KC 35			
(7:28 - 2nd) L.Bell up the middle to KC 31 for 4 yards (R.Wilson).	3.00	3.32	0.32
1st and 10 at KC 31			
(6:48 - 2nd) (No Huddle, Shotgun) B.Roethlisberger pass short left to J.James to KC 5 for 26 yards (E.Berry).	3.32	5.50	2.18
1st and Goal at KC 5			
(6:12 - 2nd) (No Huddle) B.Roethlisberger pass short left intended for A.Brown INTERCEPTED by E.Berry (F.Zombo) - Touchback.	5.50	-0.28	-5.78
	<b>RESULT</b>		
	2.46	-0.28	<b>-2.74</b>

A brief discussion about the interception. Starting at the Kansas City 5 with 1<sup>st</sup> and goal, Pittsburgh's SUV = 5.50. The play ended with Kansas City taking over at their own 20 via the interception and touchback, for a starting Kansas City SUV = 0.28. This gave Pittsburgh a finishing SUV of -0.28 for the play and an overall decrease of 5.78 on that play.

<b>DRIVE KCI-04</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
1st and 10 at KC 20			
(6:04 - 2nd) S.Ware left guard to KC 23 for 3 yards (R.Shazier).	0.28	0.27	-0.01
2nd and 7 at KC 23			
(5:26 - 2nd) (Shotgun) A.Smith pass incomplete short right to T.Hill (B.Dupree).	0.27	-0.23	-0.50
3rd and 7 at KC 23			
(5:23 - 2nd) (Shotgun) A.Smith pass incomplete short left to S.Ware.	-0.23	-2.49	-2.26
4th and 7 at KC 23			
(5:16 - 2nd) D.Colquitt punts 38 yards to PIT 39, Center-J.Winchester. A.Brown pushed ob at PIT 45 for 6 yards (J.O'Shaughnessy).	-2.49	-1.79	0.70
	<b>RESULT</b>		
	0.28	-1.79	<b>-2.07</b>

<b>DRIVE pit-05</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
1st and 10 at PIT 45			
(5:03 - 2nd) L.Bell up the middle to PIT 47 for 2 yards (M.Peters; D.Poe).	1.79	1.61	-0.18
2nd and 8 at PIT 47			
(4:19 - 2nd) (No Huddle, Shotgun) B.Roethlisberger pass short left to A.Brown pushed ob at KC 49 for 4 yards (S.Nelson).	1.61	1.66	0.05
3rd and 4 at KC 49			
(3:38 - 2nd) (No Huddle, Shotgun) PENALTY on PIT-B.Roethlisberger, Delay of Game, 5 yards, enforced at KC 49 - No Play.	1.66	0.95	-0.71
3rd and 9 at PIT 46			
(3:15 - 2nd) (No Huddle, Shotgun) L.Bell right end pushed ob at KC 37 for 17 yards (E.Berry).	0.95	2.88	1.93
1st and 10 at KC 37			
(2:49 - 2nd) (No Huddle) L.Bell left guard to KC 31 for 6 yards (R.Nunez-Roches; R.Wilson).	2.88	3.32	0.44
2nd and 4 at KC 31			
(2:10 - 2nd) (No Huddle) L.Bell right guard to KC 25 for 6 yards (J.Jenkins).	3.32	3.80	0.48
1st and 10 at KC 25			
(2:00 - 2nd) (Shotgun) L.Bell right end to KC 24 for 1 yard (D.Ford).	3.80	3.48	-0.32
2nd and 9 at KC 24			
(1:14 - 2nd) (Shotgun) B.Roethlisberger pass short left to L.Bell to KC 27 for -3 yards (R.Wilson).	3.48	2.44	-1.04
3rd and 12 at KC 27			
(1:06 - 2nd) (Shotgun) B.Roethlisberger pass incomplete deep middle to E.Rogers (C.Jones).	2.44	0.30	-2.14
4th and 12 at KC 27			
(0:55 - 2nd) Chris Boswell 45 Yd Field Goal	0.30	3.00	2.70
	<b>RESULT</b>		
	1.79	3.00	<b>1.21</b>

<b>DRIVE KCI-05</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
0:55 - 2nd) C.Boswell kicks 70 yards from PIT 35 to KC -5. T.Hill to KC 16 for 21 yards (J.Jones; J.Dangerfield).	0.59	0.04	-0.55
1st and 10 at KC 16			
(0:50 - 2nd) (Shotgun) A.Smith pass short right to T.Hill to KC 20 for 4 yards (B.Dupree).	0.04	0.18	0.14
2nd and 6 at KC 20			
(0:26 - 2nd) (No Huddle, Shotgun) PENALTY on PIT-R.Shazier, Roughing the Passer, 15 yards, enforced at KC 20 - No Play.	0.18	1.19	1.01
1st and 10 at KC 35			
(0:20 - 2nd) (Shotgun) PENALTY on KC-Z.Fulton, False Start, 5 yards, enforced at KC 35 - No Play.	1.19	0.39	-0.80
1st and 15 at KC 30			
(0:20 - 2nd) (Shotgun) A.Smith pass incomplete short left to J.Maclin.	0.39	-0.11	-0.50
2nd and 15 at KC 30			
(0:13 - 2nd) A.Smith pass short middle to C.West to KC 38 for 8 yards. FUMBLES, RECOVERED by PIT-A.Burns at KC 40.	-0.11	-2.70	-2.59
	<b>RESULT</b>		
	0.59	-2.70	<b>-3.29</b>

<b>DRIVE pit-half</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
1st and 10 at KC 40			
(0:03 - 2nd) B.Roethlisberger pass short left to A.Brown to KC 11 for 29 yards (R.Wilson; T.Mitchell).	2.70	4.92	2.22
	<b>RESULT</b>		
	2.70	4.92	<b>2.22</b>

<b>DRIVE KCI-06</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
(15:00 - 3rd) C.Boswell kicks 60 yards from PIT 35 to KC 5. T.Hill to KC 24 for 19 yards (T.Matakevich).	-0.70	0.53	1.23
1st and 10 at KC 24			
(14:55 - 3rd) (Shotgun) A.Smith pass incomplete short right to C.Conley [S.Tuitt].	0.53	-0.03	-0.56
2nd and 10 at KC 24			
(14:50 - 3rd) (Shotgun) S.Ware up the middle to KC 23 for -1 yards (J.Harrison).	-0.03	-0.69	-0.66
3rd and 11 at KC 23			
(14:08 - 3rd) (Shotgun) A.Smith pass incomplete deep middle to T.Kelce.	-0.69	-3.10	-2.41
4th and 11 at KC 23			
(14:00 - 3rd) D.Colquitt punts 54 yards to PIT 23, Center-J.Winchester. A.Brown to PIT 26 for 3 yards (A.Wilson).	-3.10	-0.65	2.45
	<b>RESULT</b>		
	-0.70	-0.65	<b>0.05</b>

<b>DRIVE pit-06</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
1st and 10 at PIT 26			
(13:48 - 3rd) (Shotgun) L.Bell up the middle to KC 36 for 38 yards (R.Wilson).	0.65	2.94	2.29
1st and 10 at KC 36			
(13:04 - 3rd) (Shotgun) L.Bell left end to KC 30 for 6 yards (R.Wilson).	2.94	3.40	0.46
2nd and 4 at KC 30			
(12:23 - 3rd) (Shotgun) L.Bell left end to KC 25 for 5 yards (E.Berry; D.Ford).	3.40	3.80	0.40
1st and 10 at KC 25			
(11:34 - 3rd) (Shotgun) B.Roethlisberger pass incomplete short left to A.Brown (C.Jones).	3.80	3.30	-0.50
2nd and 10 at KC 25			
(11:31 - 3rd) (Shotgun) L.Bell up the middle to KC 24 for 1 yard (R.Wilson; E.Berry).	3.30	2.98	-0.32
3rd and 9 at KC 24			
(10:48 - 3rd) (Shotgun) B.Roethlisberger pass short left to L.Bell to KC 25 for -1 yards (D.Poe; R.Wilson).	2.98	0.61	-2.37
4th and 10 at KC 25			
(10:06 - 3rd) Chris Boswell 43 Yd Field Goal	0.61	3.00	2.39
	<b>RESULT</b>		
	0.65	3.00	<b>2.35</b>



<b>DRIVE KCI-07</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
(10:06 - 3rd) C.Boswell kicks 64 yards from PIT 35 to KC 1. T.Hill to KC 21 for 20 yards (V.Williams).	-1.40	0.34	1.74
1st and 10 at KC 21			
(9:59 - 3rd) A.Smith pass short right to S.Ware to KC 18 for -3 yards (J.Harrison) [S.Tuitt].	0.34	-0.64	-0.98
2nd and 13 at KC 18			
(9:19 - 3rd) Pass incomplete. PENALTY on PIT-R.Cockrell, Defensive Pass Interference, 20 yards, enforced at KC 18 - No Play.	-0.64	1.37	2.01
1st and 10 at KC 38			
(9:11 - 3rd) (Shotgun) S.Ware up the middle to KC 41 for 3 yards (B.Dupree).	1.37	1.35	-0.02
2nd and 7 at KC 41			
(8:33 - 3rd) A.Smith scrambles up the middle to KC 45 for 4 yards (S.Tuitt).	1.35	1.29	-0.06
3rd and 3 at KC 45			
(8:33 - 3rd) (Shotgun) Direct snap to S.Ware. S.Ware up the middle to PIT 47 for 8 yards (M.Mitchell).	1.29	2.28	0.99
1st and 10 at PIT 47			
(7:12 - 3rd) (Shotgun) A.Smith pass incomplete short middle to T.Hill.	2.28	1.78	-0.50
2nd and 10 at PIT 47			
(7:07 - 3rd) (Shotgun) T.Hill left end pushed ob at PIT 39 for 8 yards (R.Shazier).	1.78	2.26	0.48
3rd and 2 at PIT 39			
(6:27 - 3rd) (Shotgun) PENALTY on KC-A.Smith, Delay of Game, 5 yards, enforced at PIT 39 - No Play.	2.26	1.76	-0.50
3rd and 7 at PIT 44			
(6:01 - 3rd) (Shotgun) A.Smith sacked at 50 for -6 yards (J.Harrison).	1.76	-1.07	-2.83
4th and 13 at 50			
(5:22 - 3rd) D.Colquitt punts 48 yards to PIT 2, Center-J.Winchester, out of bounds.	-1.07	1.00	2.07
	<b>RESULT</b>		
	-1.40	1.00	<b>2.40</b>

<b>DRIVE pit-07</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
1st and 10 at PIT 2			
(5:12 - 3rd) L.Bell up the middle to PIT 2 for no gain (R.Wilson).	-1.00	-1.50	-0.50
2nd and 10 at PIT 2			
(4:26 - 3rd) L.Bell up the middle to PIT 11 for 9 yards (M.Peters).	-1.50	-0.76	0.74
3rd and 1 at PIT 11			
(3:49 - 3rd) L.Bell up the middle to PIT 11 for no gain (F.Zombo; D.Poe).	-0.76	-2.15	-1.39
4th and 1 at PIT 11			
(3:08 - 3rd) J.Berry punts 35 yards to PIT 46, Center-G.Warren, out of bounds.	-2.15	-2.34	-0.19
	<b>RESULT</b>		
	-1.00	-2.34	<b>-1.34</b>

<b>DRIVE KCI-08</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
1st and 10 at PIT 46			
(3:00 - 3rd) (Shotgun) A.Smith pass incomplete deep middle to T.Kelce.	2.34	1.84	-0.50
2nd and 10 at PIT 46			
(2:52 - 3rd) A.Smith scrambles to PIT 41 for 5 yards (B.Dupree). PENALTY on KC-T.Kelce, Unnecessary Roughness, 15 yards.	1.84	0.46	-1.38
3rd and 20 at KC 44			
(2:09 - 3rd) (Shotgun) A.Smith pass deep right to J.Maclin to PIT 36 for 20 yards (R.Cockrell).	0.46	2.94	2.48
1st and 10 at PIT 36			
(1:39 - 3rd) C.West left end to PIT 37 for -1 yards (J.Hargrave).	2.94	2.28	-0.66
2nd and 11 at PIT 37			
(0:58 - 3rd) (Shotgun) A.Smith pass short right to C.Conley pushed ob at PIT 30 for 7 yards (R.Cockrell).	2.28	2.90	0.62
3rd and 4 at PIT 30			
(0:19 - 3rd) (Shotgun) A.Smith pass incomplete short middle to A.Wilson.	2.90	1.64	-1.26
4th and 4 at PIT 30			
(0:10 - 3rd) Cairo Santos 48 Yd Field Goal	1.64	3.00	1.36
	<b>RESULT</b>		
	2.34	3.00	<b>0.66</b>

<b>DRIVE pit-08</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
(0:10 - 3rd) C.Santos kicks 59 yards from KC 35 to PIT 6. S.Coates to PIT 30 for 24 yards (D.Thomas).	-0.60	0.89	1.49
1st and 10 at PIT 30			
(0:02 - 3rd) L.Bell up the middle to PIT 31 for 1 yard (K.Reyes).	0.89	0.55	-0.34
2nd and 9 at PIT 31			
(15:00 - 4th) (Shotgun) B.Roethlisberger pass short middle to E.Rogers to PIT 45 for 14 yards (R.Parker).	0.55	1.79	1.24
1st and 10 at PIT 45			
(14:20 - 4th) (Shotgun) L.Bell up the middle to PIT 48 for 3 yards (J.Houston).	1.79	1.77	-0.02
2nd and 7 at PIT 48			
(13:39 - 4th) (Shotgun) B.Roethlisberger pass short right to D.Ayers to KC 46 for 6 yards (R.Wilson).	1.77	2.34	0.57
3rd and 1 at KC 46			
(13:00 - 4th) (No Huddle) L.Bell up the middle to KC 44 for 2 yards (D.Sorensen).	2.34	2.16	-0.18
1st and 10 at KC 44			
(12:17 - 4th) (No Huddle, Shotgun) B.Roethlisberger pass deep middle to J.James to KC 21 for 23 yards (S.Nelson).	2.16	4.12	1.96
1st and 10 at KC 21			
(11:27 - 4th) (Shotgun) L.Bell left end to KC 19 for 2 yards (K.Reyes; R.Wilson).	4.12	3.88	-0.24
2nd and 8 at KC 19			
(10:43 - 4th) (Shotgun) B.Roethlisberger pass incomplete deep middle to E.Rogers.	3.88	3.48	-0.40
3rd and 8 at KC 19			
(10:38 - 4th) (Shotgun) B.Roethlisberger sacked at KC 25 for -6 yards (sack split by J.Jenkins and D.Ford).	3.48	0.11	-3.37
4th and 14 at KC 25			
(9:49 - 4th) Chris Boswell 43 Yd Field Goal	0.11	3.00	2.89
	<b>RESULT</b>		
	-0.60	3.00	<b>3.60</b>

<b>DRIVE KCI-09</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
(9:49 - 4th) C.Boswell kicks 65 yards from PIT 35 to end zone, Touchback.	0.59	0.59	0.00
1st and 10 at KC 25			
(9:49 - 4th) (Shotgun) A.Smith pass short middle to T.Kelce to KC 49 for 24 yards (L.Timmons; J.Harrison).	0.59	2.03	1.44
1st and 10 at KC 49			
(9:03 - 4th) S.Ware up the middle to PIT 40 for 11 yards (M.Mitchell).	2.03	2.70	0.67
1st and 10 at PIT 40			
(8:21 - 4th) (Shotgun) A.Smith pass incomplete deep left to J.Maclin.	2.70	2.20	-0.50
2nd and 10 at PIT 40			
(8:15 - 4th) A.Smith pass incomplete. PENALTY on KC-S.Ware, Face Mask (15 Yards), 15 yards, enforced at PIT 40 - No Play.	2.20	1.20	-1.00
2nd and 25 at KC 45			
(8:08 - 4th) (Shotgun) A.Smith pass deep right to T.Kelce to PIT 38 for 17 yards (R.Cockrell).	1.20	2.02	0.82
3rd and 8 at PIT 38			
(7:21 - 4th) (Shotgun) A.Smith pass incomplete. A.Smith intentionally threw away the pass. No intended reciever.	2.02	0.89	-1.13
4th and 8 at PIT 38			
(7:11 - 4th) (Shotgun) A.Smith pass short right to C.Conley to PIT 26 for 12 yards (R.Shazier).	0.89	3.72	2.83
1st and 10 at PIT 26			
(6:25 - 4th) T.Hill up the middle to PIT 23 for 3 yards (R.Shazier).	3.72	3.76	0.04
2nd and 7 at PIT 23			
(5:43 - 4th) (Shotgun) A.Smith pass short right to A.Wilson to PIT 25 for -2 yards (R.Cockrell).	3.76	2.90	-0.86
3rd and 9 at PIT 25			
(4:53 - 4th) A.Smith pass incomplete. PENALTY on PIT-S.Davis, Unnecessary Roughness, 13 yards, enforced at PIT 25 - No Play.	2.90	4.84	1.94
1st and 10 at PIT 12			
(4:47 - 4th) (Shotgun) A.Smith pass short left to C.West to PIT 6 for 6 yards (M.Mitchell; S.Davis).	4.84	5.40	0.56
2nd and 4 at PIT 6			
(4:14 - 4th) (Shotgun) A.Smith pass short middle to T.Kelce to PIT 4 for 2 yards (W.Gay).	5.40	5.10	-0.30
3rd and 2 at PIT 4			
(3:34 - 4th) (Shotgun) A.Smith pass incomplete short right to D.Harris.	5.10	3.13	-1.97
4th and 2 at PIT 4			
(3:29 - 4th) A.Smith pass short right to A.Sherman to PIT 1 for 3 yards (S.Davis; R.Cockrell).	3.13	6.50	3.37
1st and Goal at PIT 1			
(2:43 - 4th) Spencer Ware 1 Yard Rush TWO-POINT CONVERSION ATTEMPT. A.Smith pass to J.Maclin is incomplete. ATTEMPT FAILS.	6.50	6.00	-0.50
	<b>RESULT</b>		
	0.59	6.00	<b>5.41</b>

<b>DRIVE pit-end</b>	<b>SUV: start</b>	<b>finish</b>	<b>delta</b>
(2:43 - 4th) C.Santos kicks 58 yards from KC 35 to PIT 7. J.Gilbert to PIT 5 for -2 yards (E.Murray).	-0.50	-0.70	-0.20
1st and 10 at PIT 5			
(2:38 - 4th) L.Bell up the middle to PIT 7 for 2 yards (C.Jones).	-0.70	-0.80	-0.10
2nd and 8 at PIT 7			
(2:32 - 4th) B.Roethlisberger pass short left to E.Rogers to PIT 12 for 5 yards (S.Nelson).	-0.80	-0.70	0.10
3rd and 3 at PIT 12			
(2:00 - 4th) (Shotgun) B.Roethlisberger pass short right to A.Brown ran ob at PIT 19 for 7 yards.	-0.70	0.22	0.92
1st and 10 at PIT 19			
(1:51 - 4th) B.Roethlisberger kneels to PIT 18 for -1 yards.	0.22	-0.44	-0.66
2nd and 11 at PIT 18			
(1:12 - 4th) B.Roethlisberger kneels to PIT 17 for -1 yards.	-0.44	-1.10	-0.66
3rd and 12 at PIT 17			
(0:32 - 4th) B.Roethlisberger kneels to PIT 16 for -1 yards.	-1.10	-3.84	-2.74
	<b>RESULT (with kneel)</b>		
	-0.50	-3.84	<b>-3.34</b>
	<b>RESULT (without kneel)</b>		
	-0.50	0.22	<b>0.72</b>

Note that the green highlighted entries represent kneel-downs, so results are shown both with and without their SUVs.

The following summarize all the drives and give the total SUVs for the game, broken down by type of play and for three individual players (one quarterback, one running back and one wide receiver) for each team. The green entries for Pittsburgh remove the SUVs from the kneel-downs. Incomplete passes are attributed fully to the quarterback, except if there is a clear indication that the receiver dropped the ball, in which case he receives full negative credit. Pass completions are halved between the quarterback and receiver. Individual players also get (or lose) credit for kick returns and penalties. Quarterback runs are attributed solely to the quarterback (so a sack is treated as a run, not a pass). Quarterbacks get full negative credit for interceptions, unless there is clear indication that the receiver bobbled the ball causing the interception. Other “judgmental” assignments can be made as needed based on particulars of a play.

### PITTSBURGH

DRIVE	Ben	Bell	Brown	kick	run	pass	pen.	kneel	punt	FG	SUM	CUMU
01	-0.430	2.100	0.210	1.89	2.10	0.14	0.00	0.00	0.00	-0.13	4.00	4.00
02	-0.925	-0.500	2.185	0.00	-0.50	1.28	0.00	0.00	0.00	1.63	2.41	6.41
03	-2.360	1.910	0.080	0.00	2.05	-2.06	0.00	0.00	0.00	2.18	2.17	8.58
04	-4.690	0.860	0.000	0.00	0.86	-3.60	0.00	0.00	0.00	0.00	-2.74	5.84
05	-3.345	1.830	0.025	0.00	2.35	-3.13	-0.71	0.00	0.00	2.70	1.21	7.05
half	1.110	0.000	1.110	0.00	0.00	2.22	0.00	0.00	0.00	0.00	2.22	9.27
06	-1.685	1.645	0.000	0.00	2.83	-2.87	0.00	0.00	0.00	2.39	2.35	11.62
07	0.000	-1.150	0.000	0.00	-1.15	0.00	0.00	0.00	-0.19	0.00	-1.34	10.28
08	-1.885	-0.780	0.000	1.49	-4.15	3.37	0.00	0.00	0.00	2.89	3.60	13.88
end	-3.550	-0.100	0.460	-0.20	-0.10	1.02	0.00	-4.06	0.00	0.00	-3.34	10.54
T	-17.760	5.815	4.070	3.18	4.29	-3.63	-0.71	-4.06	-0.19	11.66	10.54	10.54
end	0.510	-0.100	0.460	-0.20	-0.10	1.02	0.00	0.00	0.00	0.00	0.72	14.60
T	-13.700	5.815	4.070	3.18	4.29	-3.63	-0.71	0.00	-0.19	11.66	14.60	14.60

### KANSAS CITY

DRIVE	Smith	Hill	Kelce	kick	run	pass	pen.	kneel	punt	FG	SUM	CUMU
01	2.180	0.740	0.780	1.51	0.85	4.36	0.00	0.00	0.00	0.00	6.72	6.72
02	-1.645	-1.085	0.645	-0.79	0.00	-0.16	-1.61	0.00	1.14	0.00	-1.42	5.30
03	-3.340	0.310	0.000	0.00	-0.02	-3.03	0.00	0.00	0.00	0.00	-3.05	2.25
04	-2.760	0.000	0.000	0.00	-0.01	-2.76	0.00	0.00	0.70	0.00	-2.07	0.18
05	-0.430	0.070	0.000	-0.55	0.00	-2.95	0.21	0.00	0.00	0.00	-3.29	-3.11
06	-2.970	1.230	0.000	1.23	-0.66	-2.97	0.00	0.00	2.45	0.00	0.05	-3.06
07	-4.380	2.220	0.000	1.74	-1.44	-1.48	1.51	0.00	2.07	0.00	2.40	-0.66
08	-0.210	0.000	-1.380	0.00	-0.66	1.34	-1.38	0.00	0.00	1.36	0.66	0.00
09	0.330	0.040	0.980	0.00	0.21	4.26	0.94	0.00	0.00	0.00	5.41	5.41
T	-13.225	3.525	1.025	3.14	-1.73	-3.39	-0.33	0.00	6.36	1.36	5.41	5.41

The results suggest that, while the game was very close (an 18-16 Pittsburgh victory via a missed two-point conversion by Kansas City at the end), Pittsburgh dominated the play (SUV = 14.60 vs. 5.41), given they drove for six field goals and nearly a touchdown (end zone interception).

Following this exercise, it was clear that some expediting could be done, in particular assigning the SUV for each play to the particular type of play (kick, run, pass, etc.), as this would streamline the summation effort at the end. This was done for the next game, the Giants’ 20-19 Super Bowl XXV win over Buffalo, when Norwood missed the field goal “wide right” at the end (<http://usatoday30.usatoday.com/sports/nfl/super/superbowl-xxv-plays.htm>). This game also had a safety, which will be discussed.

DRIVE Buf-01											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
		Bahr kick to B 14, D. Smith 20 return (Bahr).	-0.08	1.13							1.21
B 34	1-10	Kelly pressured, pass to Reed right overthrown, incomplete.	1.13			0.63					-0.50
B 34	2-10	Kelly 4 pass to Reed middle (G. Jackson).	0.63			0.77					0.14
B 38	3-6	Kelly 5 pass to Reed middle (G. Jackson, Howard).	0.77			-0.06					-0.83
B 43	4-1	Tuten 46 punt, Meggett 20 return (Tuten).	-0.06						-0.95		-0.89
<b>Total</b>			2.39	1.21	0.00	-1.19	0.00	0.00	-0.89	0.00	<b>-0.87</b>

DRIVE Nyg-01											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
N 31	1-10	Anderson run left, no gain (Wright). Play nullified and Buffalo penalized 5 for offsides (Talley).	0.95				1.25				0.30
N 36	1-5	Meggett 4 run off right tackle (B. Smith).	1.25		1.49						0.24
N 40	2-1	Carthon 3 run middle (Bennett, Bentley).	1.49		1.67						0.18
N 43	1-10	Hostetler rollout right, 13 pass to Cross (L. Smith). Holding against Buffalo (Odomes) declined.	1.67			2.46					0.79
B 44	1-10	Meggett fell down in backfield, then 10 run left (L. Smith, Kelso).	2.46		3.08						0.62
B 34	1-10	Hostetler deep pass to wide-open Bavaro middle overthrown, incomplete.	3.08			2.58					-0.50
B 34	2-10	Meggett 3 draw left (Conlan).	2.58		2.62						0.04
B 31	3-7	Hostetler 16 pass to Ingram crossing middle (caught at B 26) (Talley).	2.62			4.60					1.98
B 15	1-10	Anderson 3 run right (Conlan).	4.60		4.64						0.04
B 12	2-7	Hostetler rollout right, 1 run (Seals).	4.64		4.32						-0.32
B 11	3-6	Hostetler pass to Ingram left end zone broken up (Hicks), incomplete.	4.32		1.97						-2.35
B 11	4-6	Bahr, 28-yard field goal (7:14).	1.97							3.00	1.03
<b>Total</b>			31.63	0.00	-1.55	2.27	0.30	0.00	0.00	1.03	<b>2.05</b>

DRIVE Buf-02											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
		Bahr kick to B 5, D. Smith 24 return (Rouson).	-0.70	0.83							1.53
B 29	1-10	Thomas 2 Shotgun draw middle (Thompson).	0.83		0.65						-0.18
B 31	2-8	Kelly 61 pass to Lofton deep left (caught at NY 20) off deflection by P. Williams (Walls).	0.65			5.20					4.55
N 8	1-go	Kelly pass to McKeller middle incomplete.	5.20			4.90					-0.30
N 8	2-go	Thomas 3 Shotgun draw middle (Howard).	4.90		5.00						0.10
N 5	3-go	Kelly pass to Thomas left goal line broken up (Walls), incomplete.	5.00			2.72					-2.28
N 5	4-go	Norwood, 23-yard field goal (5:51).	2.72							3.00	0.28
<b>Total</b>			<b>18.60</b>	<b>1.53</b>	<b>-0.08</b>	<b>1.97</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.28</b>	<b>3.70</b>

DRIVE Nyg-02											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
		Norwood kick into end zone, touchback.	0.28	0.28							0.00
N 20	1-10	Anderson 5 run left (B. Smith).	0.28		0.53						0.25
N 25	2-5	Hostetler 5 scramble left (Bennett).	0.53		0.89						0.36
N 30	1-10	Meggett 3 sweep right (Talley, Wright).	0.89		0.87						-0.02
N 33	2-7	Hostetler 17 pass to Baker left off deflection by Cross (Odomes, Kelso).	0.87			2.09					1.22
50	1-10	Anderson 4 run middle (Seals).	2.09		2.24						0.15
B 46	2-6	Hostetler pressured, pass to Baker right sideline overthrow, incomplete.	2.24			1.74					-0.50
B 46	3-6	Hostetler pressured, pass to Meggett crossing middle dropped, incomplete.	1.74			0.66					-1.08
B 46	4-6	Landeta 46 punt, touchback.	0.66						-0.28		-0.94
<b>Total</b>			<b>9.58</b>	<b>0.00</b>	<b>0.74</b>	<b>-0.36</b>	<b>0.00</b>	<b>0.00</b>	<b>-0.94</b>	<b>0.00</b>	<b>-0.56</b>

DRIVE Buf-03											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
B 20	1-10	Thomas 3 run middle (Howard).	0.28		0.27						-0.01
B 23	2-7	Kelly 11 pass to Reed right (Thompson, Collins).	0.27			1.13					0.86
B 34	1-10	Kelly 4 pass to Reed left (Thompson, Banks).	1.13			1.27					0.14
B 38	2-6	Buffalo penalized 5 for false start (Ritcher).	1.27				0.47				-0.80
B 33	2-11	Kelly 20 pass to Reed middle (Collins, Walls).	0.47			2.28					1.81
N 47	1-10	Thomas 6 Shotgun draw left (Reasons).	2.28		2.64						0.36
N 41	2-4	Kelly 13 pass to Thomas short right (Banks).	2.64		3.56						0.92
N 28	1-10	K. Davis 3 run right (Howard).	3.56		3.60						0.04
N 25	2-7	Kelly 9 pass to Reed crossing right (Collins).	3.60			4.52					0.92
N 16	1-10	Thomas 3 run right (Johnson).	4.52		4.56						0.04
N 13	2-7	Kelly 5 pass to McKeller left (Guyton).	4.56			4.70					0.14
N 8	3-2	New York penalized 4 (half the distance) for roughing the passer (Marshall). New York—first time out (13:14).	4.70				5.60				0.90
N 4	1-go	Mueller 3 run middle (Taylor).	5.60		6.50						0.90
N 1	2-go	D. Smith 1 run right, touchdown (12:30). Norwood kicked extra point.	6.50		7.00						0.50
<b>Total</b>			41.38	0.00	2.75	3.87	0.10	0.00	0.00	0.00	<b>6.72</b>

DRIVE Nyg-03											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
		Norwood kick to NY 10, Duerson 22 return (Tasker).	-0.32	1.01							1.33
N 32	1-10	Hostetler 2 scramble left (out of bounds).	1.01		0.83						-0.18
N 34	2-8	Anderson 2 run middle (Wright).	0.83		0.65						-0.18
N 36	3-6	Hostetler hit as he threw (Seals), pass to Kyles incomplete.	0.65			-1.00					-1.65
N 36	4-6	Landeta 37 punt, Edwards fair catch.	-1.00						-0.71		0.29
<b>Total</b>			1.17	1.33	-0.36	-1.65	0.00	0.00	0.29	0.00	<b>-0.39</b>



DRIVE Buf-04											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
B 27	1-10	Thomas 14 run left (Walls, P. Williams).	0.71		1.55						0.84
B 41	1-10	Thomas 4 run left (Johnson).	1.55		1.69						0.14
B 45	2-6	Kelly pass to Reed right broken up (Guyton), incomplete.	1.69			1.19					-0.50
B 45	3-6	New York penalized 5 for offsides (Howard).	1.19				1.59				0.40
50	3-1	Kelly pass to Reed middle dropped, incomplete.	1.59			0.36					-1.23
50	4-1	Tuten 43 punt, Meggett fair catch.	0.36						0.50		0.14
<b>Total</b>			7.09	0.00	-0.71	-0.04	0.40	0.00	0.14	0.00	<b>-0.21</b>

DRIVE Nyg-04											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
N 7	1-10	Hostetler 7 pass to Anderson middle (K. Jackson).	-0.50			-0.08					0.42
N 14	2-3	Anderson 3 run middle (Bentley). Play nullified and New York penalized 7 (half the distance) for holding (Oates).	-0.08				-1.00				-0.92
N 7	2-10	Hostetler tripped over Anderson, regained footing, then sacked, loss of 7 (B. Smith), SAFETY (8:27). Buffalo penalized 5 for excessive celebration (B. Smith), assessed on free kick. Landeta free kick from NY 25 to B 15. Treated as if kick went to B 25 (if no penalty).	-1.00		-2.59						-1.59
Buffalo penalized 5 for excessive celebration (B. Smith), assessed on free kick. Landeta free kick from NY 25 to B 15. Treated as if kick went to B 25, with 10-yd penalty taking it back to 15.			-0.59				0.02				0.61
<b>Total</b>			-2.17	0.00	-1.59	0.42	-0.31	0.00	0.00	0.00	<b>-1.48</b>

The safety and post-safety excessive celebration penalty were treated separately. For the safety, the Giants started 2<sup>nd</sup> and 10 from their own 7, an SUV = -1.00 at 93 yards away. The safety resulted in a loss of 2.00 points and a free kick, which was treated as giving the ball to Buffalo at their 25 (SUV = 0.59), where they would have been without the 10-yard penalty. Thus, the finishing SUV was the negative sum of the safety (-2.00) and Buffalo's assumed starting position (-0.59), or -2.59, resulting in an SUV decrease for the play of -1.59. The penalty was treated as Buffalo getting the ball at their 25 and losing 10 yards, a change in SUV from 0.59 to -0.02 for them, or from -0.59 to +0.02 for the Giants, an increase of 0.61.

DRIVE Buf-05											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
Landeta free kick from NY 25 to B 15, Edwards 15 return (Rouson).			-0.02	0.89							0.91
B 30	1-10	Kelly pass to Reed deep right broken up (Guyton), incomplete.	0.89			0.39					-0.50
B 30	2-10	Kelly pass to McKeller middle incomplete.	0.39			-0.11					-0.50
B 30	3-10	Kelly pressured, pass to McKeller left overthrown, incomplete.	-0.11			-2.35					-2.24
B 30	4-10	Tuten 47 punt, Meggett fair catch.	-2.35						-0.47		1.88
<b>Total</b>			-1.20	0.91	0.00	-3.24	0.00	0.00	1.88	0.00	<b>-0.45</b>

DRIVE Nyg-05											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
N 23	1-10	Anderson 3 run left (Wright).	0.47		0.45						-0.02
N 26	2-7	Anderson 4 run left (Baldinger, Conlan).	0.45		0.39						-0.06
N 30	3-3	Hostetler pass batted down at line (Seals), incomplete.	0.39			-0.87					-1.26
N 30	4-3	Landeta 54 punt, Edwards fair catch.	-0.87						-0.04		0.83
<b>Total</b>			0.44	0.00	-0.08	-1.26	0.00	0.00	0.83	0.00	<b>-0.51</b>

DRIVE Buf-06											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
B 16	1-10	Thomas 18 run right (Guyton).	0.04		1.13						1.09
B 34	1-10	Thomas 4 run middle (Howard, Banks).	1.13		1.27						0.14
B 38	2-6	Kelly 10 screen pass to Thomas right (Collins).	1.27			2.22					0.95
B 48	1-10	Kelly 8 pass to Thomas right (G. Jackson).	2.22			2.46					0.24
N 44	2-2	Kelly pass to Lofton left goal line incomplete.	2.46			1.96					-0.50
N 44	3-2	Buffalo penalized 5 for false start (Wolford).	1.96				1.46				-0.50
N 49	3-7	Kelly 5 pass to Reed crossing right (Banks).	1.46			0.73					-0.73
N 44	4-2	Tuten 31 punt, Meggett fair catch.	0.73						0.14		-0.59
<b>Total</b>			11.27	0.00	1.23	-0.04	-0.50	0.00	-0.59	0.00	<b>0.10</b>

DRIVE Nyg-06											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
N 13	1-10	Hostetler rollout right, 6 pass to Bavaro (Conlan).	-0.14			0.22					0.36
N 19	2-4	Anderson 18 run right middle (Kelso).	0.22		1.31						1.09
N 37	1-10	Hostetler 22 pass to Ingram right sideline (out of bounds).	1.31			2.64					1.33
B 41	1-10	Meggett 17 run around left end (L. Smith, Kelso). Two-Minute Warning at 1:55.	2.64		3.88						1.24
B 24	1-10	Hostetler pass to Carthon left overthrown, incomplete.	3.88		3.38						-0.50
B 24	2-10	Hostetler 3 dump-off pass to Carthon left (Conlan). New York-second time out (1:13).	3.38			3.42					0.04
B 21	3-7	Hostetler 7 pass to Cross left (crawled 1 for first down) (Bennett).	3.42			4.68					1.26
B 14	1-10	Hostetler rollout right, pass batted down (Bennett), incomplete.	4.68			4.18					-0.50
B 14	2-10	Hostetler pass to Baker middle end zone underthrown, incomplete.	4.18			3.68					-0.50
B 14	3-10	Hostetler 14 pass to Baker left front corner of end zone, touchdown (:25). Bahr kicked extra point.	3.68			7.00					3.32
<b>Total</b>			27.25	0.00	1.83	5.31	0.00	0.00	0.00	0.00	<b>7.14</b>

DRIVE Buf-half											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
Bahr kick to B 4, D. Smith recovered own fumble, 9 return.			-0.80	-0.14							0.66
B 13	1-10	Kelly knelt down, loss of 1.	-0.14					-0.80			-0.66
<b>Total</b>			-0.94	0.66	0.00	0.00	0.00	-0.66	0.00	0.00	<b>0.00</b>

DRIVE Nyg-07											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
		Norwood kick to NY 9, Meggett 16 return (Gardner).	-0.38	0.59							0.97
N 25	1-10	Hostetler rollout right, pressured, pass to Cross incomplete.	0.59			0.49					-0.10
N 25	2-10	New York penalized 5 for false start (Kratch).	0.49				-0.72				-1.21
N 20	2-15	Hostetler 7 screen pass to Meggett left (Odomes).	-0.72			-0.09					0.63
N 27	3-8	Hostetler 11 pass to Meggett middle (caught at NY 30) (Odomes).	-0.09			1.37					1.46
N 38	1-10	Meggett 4 sweep left (Bentley).	1.37		1.51						0.14
N 42	2-6	Anderson 5 run middle (Seals, Bentley).	1.51		1.41						-0.10
N 47	3-1	Anderson 24 run around left end (Kelso, Bennett).	1.41		3.48						2.07
B 29	1-10	Carthon 5 run left (Wright).	3.48		3.88						0.40
B 24	2-5	Meggett 15 run right (Kelso). Play nullified and New York penalized 10 for holding (Bavaro).	3.88				2.08				-1.80
B 34	2-15	Hostetler 2 scramble middle (Wright, Pike).	2.08		1.94						-0.14
B 32	3-13	Hostetler 14 pass to Ingram middle (caught at B 26, then broke two tackles) (J. Williams).	1.94			4.36					2.42
B 18	1-10	Anderson 5 run middle (Lodish).	4.36		4.76						0.40
B 13	2-5	Meggett 1 run right (Bennett, K. Jackson).	4.76		4.34						-0.42
B 12	3-4	Hostetler rollout left, 9 pass to Cross (L. Smith).	4.34			5.90					1.56
B 3	1-go	Anderson 2 run middle (L. Smith).	5.90		6.50						0.60
B 1	2-go	Anderson 1 run off left end, touchdown (5:31) Bahr kicked extra point.	6.50		7.00						0.50
<b>Total</b>			41.42	0.97	3.45	5.97	-3.01	0.00	0.00	0.00	<b>7.38</b>

DRIVE Buf-07											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
		Bahr kick to B 7, Edwards 33 return (Bahr, Abrams).	-0.50	1.49							1.99
B 40	1-10	Thomas 8 run middle (Walls, G. Jackson).	1.49		1.97						0.48
B 48	2-2	Kelly 5 scramble middle (G. Jackson).	1.97		2.28						0.31
N 47	1-10	Thomas 2 run middle (Reasons).	2.28		2.10						-0.18
N 45	2-8	Kelly pass to Reed incomplete. Play nullified and Buffalo penalized 10 for offensive pass interference (McKeller).	2.10				0.49				-1.61
B 45	2-18	Kelly pass to Edwards left sideline overthrown, incomplete. Holding against Buffalo (J. Davis) declined.	0.49		0.60						0.11
B 45	3-18	Kelly sacked, loss of 7 (Marshall).	0.60		-2.55						-3.15
B 38	4-25	Tuten 20 punt, out of bounds.	-2.55						-1.61		0.94
<b>Total</b>			5.88	1.99	-2.54	0.11	-1.61	0.00	0.94	0.00	<b>-1.11</b>

DRIVE Nyg-08												
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta	
N 42	1-10	Hostetler rollout left, 10 pass to Cross (Odomes).	1.61			2.22					0.61	
B 48	1-10	Hostetler pass to Baker left sideline incomplete. Play nullified and Buffalo penalized 5 for holding (Odomes). Automatic first down.	2.22				2.52				0.30	
B 43	1-10	Anderson run right, no gain (Conlan, Bennett).	2.52			2.02					-0.50	
B 43	2-10	Hostetler rollout left, sacked, loss of 1 (forced out by Wright).	2.02		1.36						-0.66	
B 44	3-11	Hostetler 9 pass to Ingram left (L. Smith).	1.36		0.67						-0.69	
B 35	4-2	Anderson run left, loss of 2 (B. Smith).	0.67		-2.88						-3.55	
<b>Total</b>			10.40	0.00	-4.90	0.11	0.30	0.00	0.00	0.00	<b>-4.49</b>	

DRIVE Buf-08												
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta	
B 37	1-10	Kelly 9 pass to Thomas left (Howard).	2.88			1.85					-1.03	
B 46	2-1	Kelly 4 screen pass to K. Davis left (Reasons, Walls).	1.85			2.09					0.24	
50	1-10	Kelly 19 pass to K. Davis left (Reasons, P. Williams).	2.09			3.32					1.23	
N 31	1-10	Thomas 31 shotgun draw middle, broke 2 tackles, then bounced out right and down sideline, touchdown (14:52). Norwood kicked extra point.	3.32		7.00						3.68	
<b>Total</b>			10.14	0.00	3.68	0.44	0.00	0.00	0.00	0.00	<b>4.12</b>	

DRIVE Nyg-09											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
		Norwood kick to NY 13, Meggett 10 return (Mueller).	-0.14	0.47							0.61
N 23	1-10	Anderson 3 run middle (Seals).	0.47		0.45						-0.02
N 26	2-7	Hostetler pressured, deep pass to Ingram overthrown, incomplete.	0.45			-0.05					-0.50
N 26	3-7	Hostetler 17 pass to Bavaro right (Conlan).	-0.05			1.67					1.72
N 43	1-10	Anderson 7 run right (K. Jackson).	1.67		2.09						0.42
50	2-3	Carthon 4 run middle (Baldinger).	2.09		2.34						0.25
B 46	1-10	Hostetler 19 pass to Bavaro middle (L. Smith).	2.34			3.64					1.30
B 27	1-10	Hostetler 13 pass to Ingram right (L. Smith).	3.64			4.68					1.04
B 14	1-10	Anderson 4 run left (Drane, Talley).	4.68		4.90						0.22
B 10	2-6	Hostetler 1 pass to Bavaro right (Conlan, L. Smith). New York--first time out (10:57).	4.90			4.60					-0.30
B 9	3-5	Meggett 6 run around right end (Bentley).	4.60		5.90						1.30
B 3	1-go	Anderson run left, loss of 4 (Wright).	5.90		5.10						-0.80
B 7	2-go	Anderson 4 run middle (Bailey, Conlan).	5.10		5.40						0.30
B 3	3-go	Hostetler pass batted down (Bennett), incomplete.	5.40			3.30					-2.10
B 3	4-go	Bahr, 21-yard field goal (7:20).	3.30							3.00	-0.30
<b>Total</b>			<b>44.35</b>	<b>0.61</b>	<b>1.67</b>	<b>1.16</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>-0.30</b>	<b>3.14</b>

DRIVE Buf-09											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
		Bahr kick to B 7, D. Smith 13 return (Brown).	-0.50	0.28							0.78
B 20	1-10	Thomas 4 run right end (Collins, Banks).	0.28		0.43						0.15
B 24	2-6	Kelly 15 pass to Thomas right sideline (Collins).	0.43			1.43					1.00
B 39	1-10	Kelly 1 scramble right (Johnson).	1.43		1.09						-0.34
B 40	2-9	K. Davis 1 Shotgun draw left (Marshall).	1.09		0.75						-0.34
B 41	3-8	Kelly pass to Edwards broken up (P. Williams), incomplete.	0.75			-0.99					-1.74
B 41	4-8	Tuten 46 punt, Meggett 17 return (Tasker).	-0.99						0.89		1.88
<b>Total</b>			<b>2.49</b>	<b>0.78</b>	<b>-0.53</b>	<b>-0.74</b>	<b>0.00</b>	<b>0.00</b>	<b>1.88</b>	<b>0.00</b>	<b>1.39</b>

DRIVE Nyg-10											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
N 30	1-10	Anderson 5 run left (Bailey, Talley).	-0.89		1.19						2.08
N 35	2-5	Anderson 9 run middle (Conlan, Bailey).	1.19		1.73						0.54
N 44	1-10	Meggett run right, no gain (Lodish). Buffalo-first time out (3:33).	1.73		1.23						-0.50
N 44	2-10	Hostetler 7 pass to Bavaro right (Kelso). New York-second time out (2:41).	1.23			1.66					0.43
B 49	3-3	Hostetler 1 Shotgun draw middle (Seals). Buffalo-second time out (2:22).	1.66		0.49						-1.17
B 48	4-2	Landeta 38 punt, Edwards fair catch.	0.49						0.32		-0.17
<b>Total</b>			5.41	0.00	0.95	0.43	0.00	0.00	-0.17	0.00	<b>1.21</b>

DRIVE Buf-10											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
B 10	1-10	Kelly 8 scramble middle (Johnson). Two-Minute Warning.	-0.32		0.16						0.48
B 18	2-2	Kelly 1 scramble middle (Howard).	0.16		-0.28						-0.44
B 19	3-1	Thomas 22 Shotgun draw middle, then left (Walls).	-0.28		1.55						1.83
B 41	1-10	Kelly 4 pass to Reed middle (Banks).	1.55			1.69					0.14
B 45	2-6	Kelly 9 scramble middle (Banks). Buffalo-third time out (:48).	1.69		2.34						0.65
N 46	1-10	Kelly 6 pass to McKeller right (shoestring catch) (Thompson). Official time out with :29 remaining for replay review.	2.34			2.70					0.36
N 40	2-4	Thomas 11 Shotgun draw right (Collins).	2.70		3.48						0.78
N 29	1-10	Kelly spiked ball to stop clock. (:08). New York-third time out.	3.48			2.98					-0.50
N 29	2-10	Norwood's 47-yard field-goal attempt was wide right.	2.98							-0.83	-3.81
<b>Total</b>			14.30	0.00	3.30	0.00	0.00	0.00	0.00	-3.81	<b>-0.51</b>

DRIVE Nyg-end											
Yard	Down	Play	Start	Kick	Run	Pass	Pen.	Knee	Punt	FG	Delta
N 29	1-10	Hostetler knelt down, loss of 1.	0.83					0.29			-0.54
<b>Total</b>			0.83	0.00	0.00	0.00	0.00	-0.54	0.00	0.00	<b>-0.54</b>

Nyg Summary												
DRIVE	Hoss	Meggett	Bavaro	kick	run	pass	pen.	kneel	punt	FG	SUM	CUMU
01	0.565	0.900	0.000	0.00	-1.55	2.27	0.30	0.00	0.00	1.03	2.05	2.05
02	0.470	-1.100	0.000	0.00	0.74	-0.36	0.00	0.00	-0.94	0.00	-0.56	1.49
03	-1.830	0.000	0.000	1.33	-0.36	-1.65	0.00	0.00	0.29	0.00	-0.39	1.10
04	-2.380	0.000	0.000	0.00	-1.59	0.42	-0.31	0.00	0.00	0.00	-1.48	-0.38
05	-1.260	0.000	0.000	0.00	-0.08	-1.26	0.00	0.00	0.83	0.00	-0.51	-0.89
06	2.155	1.240	0.180	0.00	1.83	5.31	0.00	0.00	0.00	0.00	7.14	6.25
07	2.795	1.735	-1.800	0.97	3.45	5.97	-3.01	0.00	0.00	0.00	7.38	13.63
08	-0.510	0.000	0.000	0.00	-4.90	0.11	0.30	0.00	0.00	0.00	-4.49	9.14
09	-0.720	1.910	1.360	0.61	1.67	1.16	0.00	0.00	0.00	-0.30	3.14	12.28
10	-0.955	-0.500	0.215	0.00	0.95	0.43	0.00	0.00	-0.17	0.00	1.21	13.49
end	-0.540	0.000	0.000	0.00	0.00	0.00	0.00	-0.54	0.00	0.00	-0.54	12.95
Total	-2.210	4.185	-0.045	2.91	0.16	12.40	-2.72	-0.54	0.01	0.73	12.95	12.95
end	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.49
Total	-1.670	4.185	-0.045	2.91	0.16	12.40	-2.72	0.00	0.01	0.73	13.49	13.49

Buf Summary												
DRIVE	Kelly	Thomas	Reed	kick	run	pass	pen.	kneel	punt	FG	SUM	CUMU
01	-0.845	0.000	-0.345	1.21	0.00	-1.19	0.00	0.00	-0.89	0.00	-0.87	-0.87
02	-0.305	-0.080	0.000	1.53	-0.08	1.97	0.00	0.00	0.00	0.28	3.70	2.83
03	1.475	0.850	1.865	0.00	2.75	3.87	0.10	0.00	0.00	0.00	6.72	9.55
04	1.190	0.980	-1.230	0.00	-0.71	-0.04	0.40	0.00	0.14	0.00	-0.21	9.34
05	-3.240	0.000	0.000	0.91	0.00	-3.24	0.00	0.00	1.88	0.00	-0.45	8.89
06	-0.270	1.705	-0.365	0.00	1.23	-0.04	-0.50	0.00	-0.59	0.00	0.10	8.99
half	-0.660	0.000	0.000	0.66	0.00	0.00	0.00	-0.66	0.00	0.00	0.00	8.99
07	-2.730	0.300	0.000	1.99	-2.54	0.11	-1.61	0.00	0.94	0.00	-1.11	7.88
08	0.220	3.165	0.000	0.00	3.68	0.44	0.00	0.00	0.00	0.00	4.12	12.00
09	-1.580	0.650	0.000	0.78	-0.53	-0.74	0.00	0.00	1.88	0.00	1.39	13.39
10	0.440	2.610	0.070	0.00	3.30	0.00	0.00	0.00	0.00	-3.81	-0.51	12.88
Total	-6.305	10.180	-0.005	7.08	7.10	1.14	-1.61	-0.66	3.36	-3.53	12.88	12.88
half	0.000	0.000	0.000	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.66	13.54
Total	-5.645	10.180	-0.005	7.08	7.10	1.14	-1.61	0.00	3.36	-3.53	13.54	13.54

Again, the green highlighted entries remove the SUVs for kneel-downs. The SUVs for both teams are essentially equal, consistent with the closeness of the game and the fact that both teams scored two touchdowns and drove far enough for two field goal attempts each, with Buffalo missing its last one (partially compensated with the safety).

Another streamlining effort for a future time would be to assign EXCEL Name Labels to each specific triplet of field position, down and yards to go, such that, rather than looking this up from the tables manually, they could automatically be entered into a spreadsheet. For example, if “1<sup>st</sup> down, 10 yards to go, from 55 yards away” (SUV = 1.79) were labeled as “55\_1\_10-,” entering this directly would automatically provide the SUV (note the “10-“ where the minus sign means the SUV is the same for all 1<sup>st</sup> and 10 yards or less).