eSports Statistics

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What is League of Legends anyway?

- An online computer game (MOBA)
- Two teams of five compete to destroy the enemy base (Nexus)
- The towers and mini-bases (inhibitors) have to be destroyed first
- Each team has minions that help them destroy structures.
- The jungle has neutral monsters that grant bonuses upon their death

What bonuses are we talkin’?

Red Buff: Increased health regeneration and bonus damage

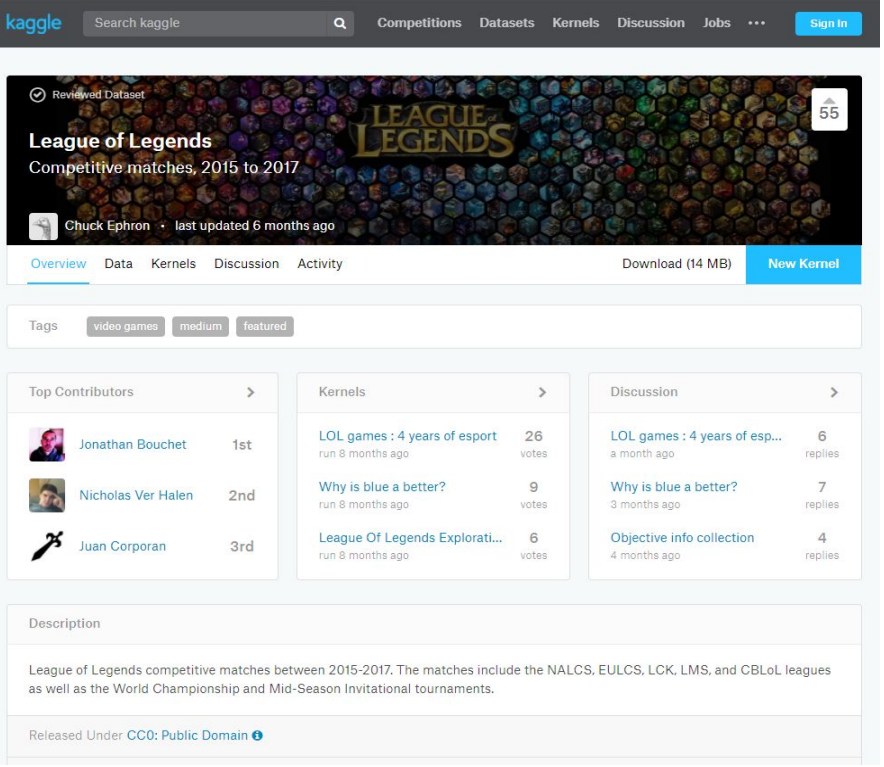
Blue Buff: Increased mana regeneration and cooldown reduction

Dragon: Increased damage/structure/movement speed/regenerations (element based)

Baron: Increased **everything**, plus minion damage increase

So what's your main question?

- Slaying the neutral monsters is optional for winning
- Is trying to slay them worth the potential risks?
- Does taking neutral monsters for your team increase odds of victory?
- Let's find out!



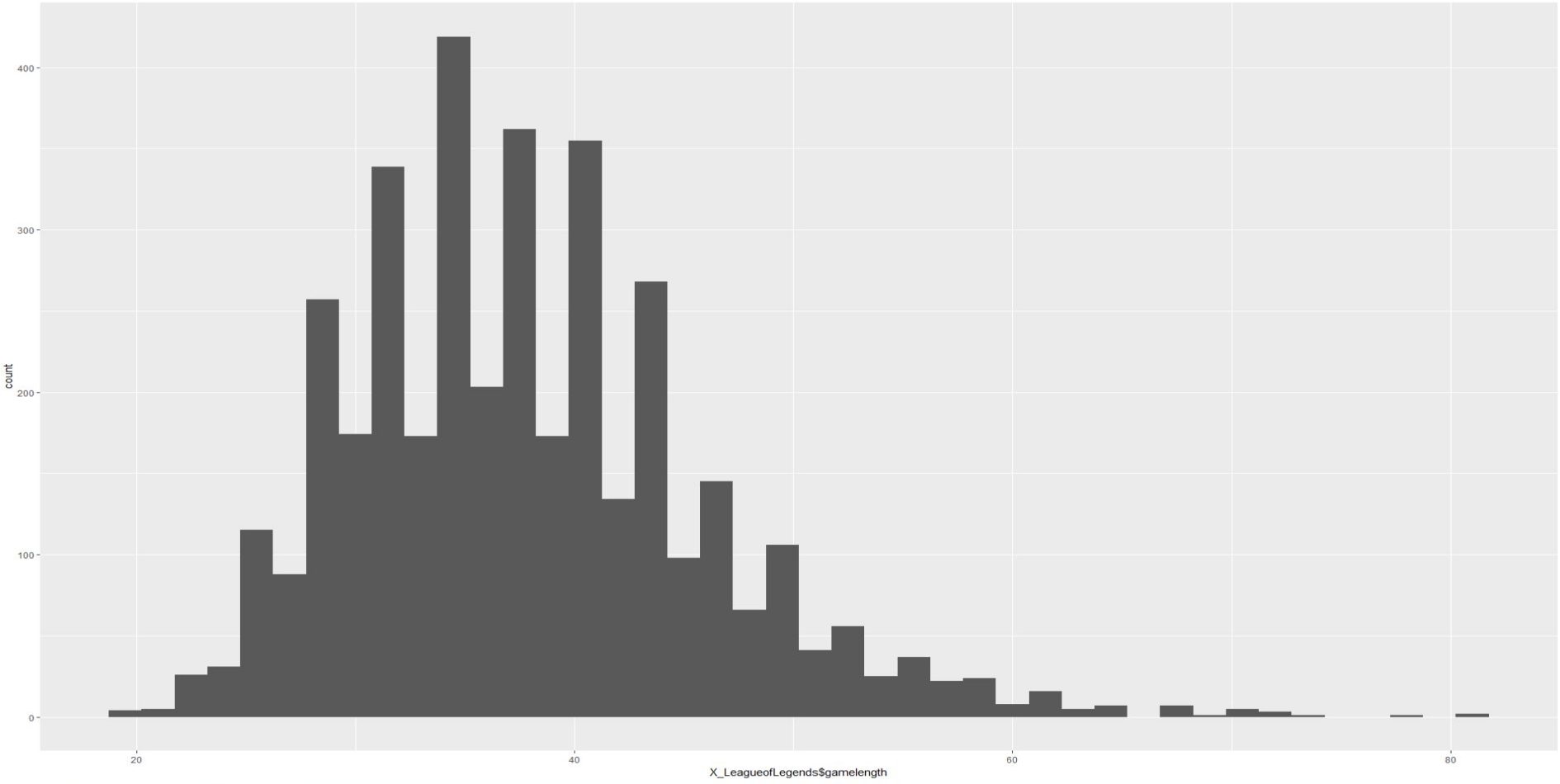
I used data from the League of Legends World Championships from 2015-2017 (3802 games)

All professional players making the “best” decisions at “peak” performance.

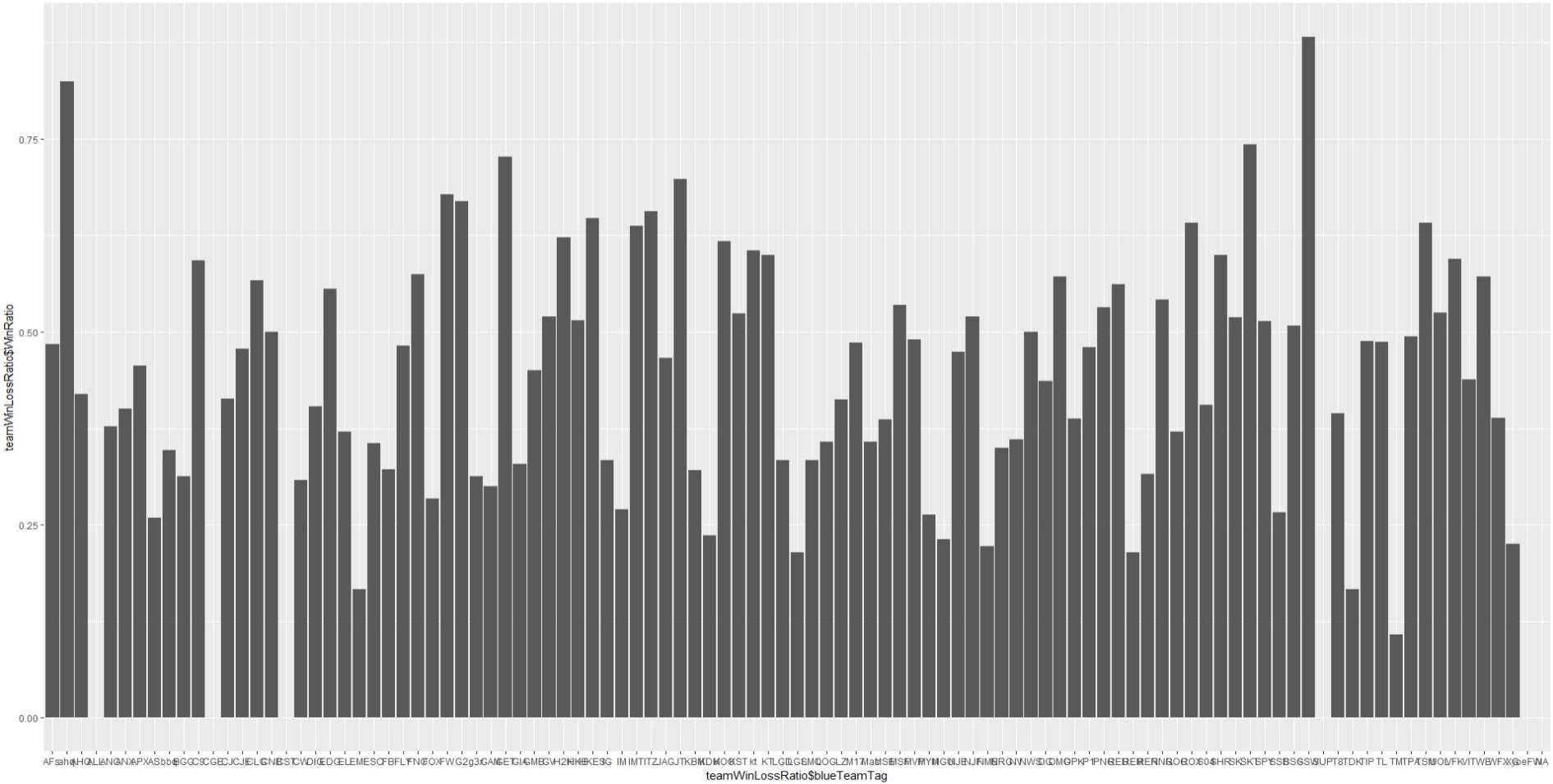
Source: https://www.kaggle.com/chuckephron/leagueoflegends

My Dataset

The Graphs (Game Durations)



The Graphs (Team W/L Ratios)



teamWinLossRatio

Filter

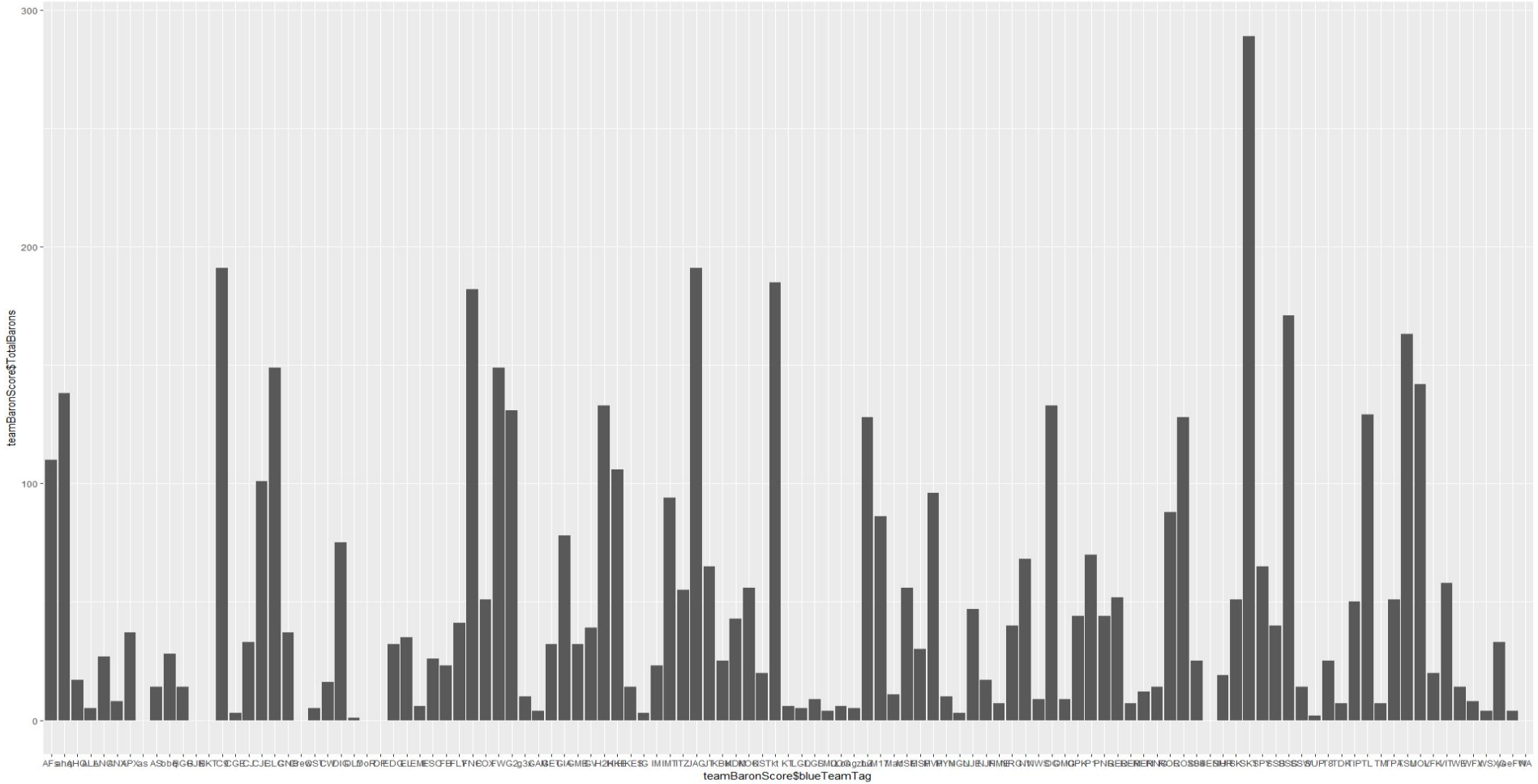
	blueTeamTag	WinsPerTeam.x	WinsPerTeam.y	LossesPerTeam.x	LossesPerTeam.y	TotalWins	TotalLosses	TotalGames	WinRatio
97	SSW	7	8	1	1	15	2	17	0.8823529
96	ahq	63	59	12	14	122	26	148	0.8243243
95	SKT	118	116	36	45	234	81	315	0.7428571
94	GET	11	13	7	2	24	9	33	0.7272727
93	JT	19	25	5	14	44	19	63	0.6984127
92	FW	61	53	26	28	114	54	168	0.6785714
91	G2	49	48	22	26	97	48	145	0.6689655
90	ITZ	27	17	8	15	44	23	67	0.6567164
89	HKES	5	6	4	2	11	6	17	0.6470588
88	TSM	74	71	33	48	145	81	226	0.6415929
87	ROX	54	46	25	31	100	56	156	0.6410256
86	IMT	40	39	20	25	79	45	124	0.6370968
85	H2K	67	50	38	33	117	71	188	0.6223404
84	KOO	22	20	14	12	42	26	68	0.6176471
83	kt	82	73	53	48	155	101	256	0.6054688
81	KT	3	3	2	2	6	4	10	0.6000000
82	SHR	8	4	3	5	12	8	20	0.6000000
80	VFK	15	7	5	10	22	15	37	0.5945946
79	C9	69	65	48	44	134	92	226	0.5929204
78	FNC	70	46	34	52	116	86	202	0.5742574
76	OMG	4	4	2	4	8	6	14	0.5714286
77	WE	5	3	2	4	8	6	14	0.5714286
75	CLG	72	47	41	50	119	91	210	0.5666667
74	RED	16	16	12	13	32	25	57	0.5614035
73	EDG	15	10	7	13	25	20	45	0.5555556
72	RNG	7	6	7	4	13	11	24	0.5416667
71	MSF	14	9	9	11	23	20	43	0.5348837
70	PNG	20	13	9	20	33	29	62	0.5322581
69	UOL	46	50	39	48	96	87	183	0.5245902
68	KST	4	7	8	2	11	10	21	0.5238095
66	GV	10	16	14	10	26	24	50	0.5200000
67	NJF	9	4	2	10	13	12	25	0.5200000
65	SK	16	11	9	16	27	25	52	0.5192308
64	HKE	34	35	31	34	69	65	134	0.5149254
63	SPY	31	25	21	32	56	53	109	0.5137615
62	SSG	64	57	59	58	121	117	238	0.5084034
60	CNB	12	14	13	13	26	26	52	0.5000000
61	NWS	4	1	2	3	5	5	10	0.5000000
59	TPA	23	17	17	24	40	41	81	0.4938272
58	MVP	29	18	18	31	47	49	96	0.4895833
57	TIP	22	19	21	22	41	43	84	0.4880952
56	TL	53	39	40	57	92	97	189	0.4867725
55	M17	31	21	28	27	52	55	107	0.4859813
54	AFs	45	29	32	47	74	79	153	0.4836601
53	FLY	15	12	17	12	27	29	56	0.4821429

teamWinLossRatio

Filter

	blueTeamTag	WinsPerTeam.x	WinsPerTeam.y	LossesPerTeam.x	LossesPerTeam.y	TotalWins	TotalLosses	TotalGames	WinRatio
45	FLY	15	12	17	12	27	29	56	0.4821429
46	P1	26	21	23	28	47	51	98	0.4795918
47	CJE	36	30	35	37	66	72	138	0.4782609
48	NJE	14	14	13	18	28	31	59	0.4745763
49	JAG	61	48	50	75	109	125	234	0.4658120
50	APX	10	11	13	12	21	25	46	0.4565217
51	GMB	10	8	9	13	18	22	40	0.4500000
52	VIT	21	18	23	27	39	50	89	0.4382022
53	OG	34	28	35	45	62	80	142	0.4366197
54	AHQ	7	6	6	12	13	18	31	0.4193548
55	CJ	14	5	9	18	19	27	46	0.4130435
56	LZ	42	29	47	54	71	101	172	0.4127907
57	S04	9	6	9	13	15	22	37	0.4054054
58	DIG	22	20	29	33	42	62	104	0.4038462
59	ANX	3	1	1	5	4	6	10	0.4000000
60	T8	10	5	10	13	15	23	38	0.3947368
61	WFX	5	2	4	7	7	11	18	0.3888889
62	OPK	11	8	14	16	19	30	49	0.3877551
63	MSE	18	21	34	28	39	62	101	0.3861386
64	ANC	10	7	13	15	17	28	45	0.3777778
65	EL	11	9	16	18	20	34	54	0.3703704
66	ROC	29	21	37	48	50	85	135	0.3703704
67	NV	18	17	27	35	35	62	97	0.3608247
68	LOG	2	3	4	5	5	9	14	0.3571429
69	Mac	4	1	3	6	5	9	14	0.3571429
70	ESC	10	6	13	16	16	29	45	0.3555556
71	NRG	16	6	13	28	22	41	63	0.3492063
72	bbq	9	8	12	20	17	32	49	0.3469388
73	IG	1	1	2	2	2	4	6	0.3333333
74	LGD	1	1	2	2	2	4	6	0.3333333
75	LMQ	1	1	2	2	2	4	6	0.3333333
76	GIA	21	24	50	42	45	92	137	0.3284672
77	FB	5	4	8	11	9	19	28	0.3214286
78	KBM	10	7	17	19	17	36	53	0.3207547
79	REN	3	3	6	7	6	13	19	0.3157895
80	BGG	1	4	6	5	5	11	16	0.3125000
81	g3x	1	4	6	5	5	11	16	0.3125000
82	CW	8	4	11	16	12	27	39	0.3076923
83	GAM	2	1	3	4	3	7	10	0.3000000
84	FOX	20	9	33	40	29	73	102	0.2843137
85	IM	7	3	12	15	10	27	37	0.2702703
86	SSB	12	13	35	34	25	69	94	0.2659574
87	MYM	3	2	7	7	5	14	19	0.2631579
88	AS	4	3	9	11	7	20	27	0.2592593
89	KDM	10	7	24	31	17	55	72	0.2361111

The Graphs (Team BaronScores)



teamBaronScore

Filter

	blueTeamTag	baronsPerTeam.x	baronsPerTeam.y	TotalBarons
110	SKT	128	161	289
108	C9	95	96	191
109	JAG	93	98	191
107	kt	80	105	185
106	FNC	105	77	182
105	SSG	89	82	171
104	TSM	77	86	163
102	CLG	89	60	149
103	FW	78	71	149
101	UOL	61	81	142
100	ahq	65	73	138
98	H2K	78	55	133
99	OG	64	69	133
97	G2	61	70	131
96	TL	65	64	129
94	LZ	69	59	128
95	ROX	74	54	128
93	AFs	66	44	110
92	HKE	48	58	106
91	CJE	51	50	101
90	MVP	49	47	96
89	IMT	49	45	94
88	ROC	44	44	88
87	M17	42	44	86
86	GIA	35	43	78
85	DIG	30	45	75
84	P1	32	38	70
83	NV	33	35	68
81	JT	25	40	65
82	SPY	32	33	65
80	VIT	33	25	58
78	KOO	29	27	56
79	MSE	29	27	56
77	ITZ	30	25	55
76	RED	28	24	52
73	FOX	25	26	51
74	SK	25	26	51
75	TPA	23	28	51
72	TIP	20	30	50
71	NJE	19	28	47
69	OPK	25	19	44
70	PNG	19	25	44
68	KDM	25	18	43
67	FLY	22	19	41
65	NRG	24	16	40

teamBaronScore

Filter

	blueTeamTag	baronsPerTeam.x	baronsPerTeam.y	TotalBarons
65	NRG	24	16	40
66	SSB	20	20	40
64	GV	19	20	39
62	APX	16	21	37
63	CNB	20	17	37
61	EL	18	17	35
59	CJ	22	11	33
60	XG	18	15	33
56	EDG	17	15	32
57	GET	15	17	32
58	GMB	17	15	32
55	MSF	16	14	30
54	bbq	16	12	28
53	ANC	13	14	27
52	ESC	14	12	26
49	KBM	14	11	25
50	S04	16	9	25
51	T8	15	10	25
47	FB	12	11	23
48	IM	11	12	23
45	KST	9	11	20
46	VFK	11	9	20
44	SHR	8	11	19
42	AHQ	8	9	17
43	NJF	8	9	17
41	CW	10	6	16
35	AS	5	9	14
36	BGG	5	9	14
37	HKES	7	7	14
38	RNG	6	8	14
39	SSW	5	9	14
40	WE	10	4	14
34	REN	7	5	12
33	Mac	7	4	11
31	g3x	3	7	10
32	MYM	5	5	10
28	LGS	7	2	9
29	NWS	6	3	9
30	OMG	2	7	9
26	ANX	5	3	8
27	WFX	6	2	8
22	NME	3	4	7
23	REM	3	4	7
24	TDK	2	5	7
25	TM	4	3	7

teamBaronScore

Filter

	blueTeamTag	baronsPerTeam.x	baronsPerTeam.y	TotalBarons
43	NJF	8	9	17
41	CW	10	6	16
35	AS	5	9	14
36	BGG	5	9	14
37	HKES	7	7	14
38	RNG	6	8	14
39	SSW	5	9	14
40	WE	10	4	14
34	REN	7	5	12
33	Mac	7	4	11
31	g3x	3	7	10
32	MYM	5	5	10
28	LGS	7	2	9
29	NWS	6	3	9
30	OMG	2	7	9
26	ANX	5	3	8
27	WFX	6	2	8
22	NME	3	4	7
23	REM	3	4	7
24	TDK	2	5	7
25	TM	4	3	7
19	EMF	3	3	6
20	KT	3	3	6
21	LOG	2	4	6
15	ALL	4	1	5
16	CST	2	3	5
17	LGD	3	2	5
18	Longzhu	2	3	5
11	GAM	3	1	4
12	LMQ	2	2	4
13	WS	0	4	4
14	yoeFW	3	1	4
8	CGE	3	0	3
9	IG	1	2	3
10	NGU	1	2	3
7	SUP	1	1	2
6	DLY	0	1	1
1	BJK	0	0	0
2	BKT	0	0	0
3	DoR	0	0	0
4	DP	0	0	0
5	SBENU	0	0	0
111	as	0	NA	NA
112	Crew	0	NA	NA
113	NA	1	NA	NA

My Conclusion

- Baron slightly boosts chances of victory, but it’s not worth the risks involved
- It is important to note that several things affect victory:
- Obviously, correlation doesn't imply causation, but SKT both has highest win rate AND highest BaronScore, however, there are most likely lurking and confounding variables: gold, kills, towers, mood, attitude, communication; so it's hard to tell if Baron truly is the cause for victories
- It would be nice if there was a Pro_Teams table that included the team statistics all together; I had to piece together the data myself

Sources

Data Set: https://www.kaggle.com/chuckephron/leagueoflegends

LoL Minimap: https://upload.wikimedia.org/wikipedia/ru/4/49/Summoners_Rift_minimap.png

Red/Blue Buffs: https://i.ytimg.com/vi/VKFMW4VSFd4/hqdefault.jpg