

# Baseball Analysis - Tara Ghorpadkar

Motivation: I wanted to analyze the trends in baseball following the recent enforcement of the “sticky stuff” ball rule change in the MLB implemented on June 21, 2021. This rule prohibits the doctoring of balls by the pitching team in order to increase the spin rate by getting a better grip on the ball. By increasing the spin rate with the use of adhesives on the ball, this increases the ball’s time in the air, therefore making the ball’s vertical position higher than expected when it reaches the hitter. This rule was created prior to June 21, but it had been loosely enforced until recently. Suspicions of teams using sticky substances on baseballs arose back in 2018 when The Dodgers’ Trevor Bauer blew the whistle on the league, but enforcement continued to be loose until this past season saw the lowest batting averages and the highest no-hitters on record. The MLB came out with the news on June 5, 2021 to warn the teams of this upcoming change. This new rule will suspend a player for 10 days if they are caught using sticky substances to enhance their performance. For my project, I wanted to see how and when the rule change affected the league. Specifically, I looked to see which types of pitches were most impacted by the new rule, when exactly the change in spin rate occurred, which teams previously relied on the use of sticky substances the most, and whether batting averages were impacted by this enforcement.

```
library(devtools)
library(baseballr)
library(tidyverse)
library(lubridate)
library(ggplot2)
library(scales)
library(reshape2)
library(knitr)
```

First, I import the data from Baseball Savant Statcast Search from the beginning to July 30 of the 2021 season. In order to download the data from the website, you will need to uncomment the lines in this chunk.

```
#dates <- seq.Date(as.Date('2021-04-01'), as.Date('2021-07-30'), by = 7)

#date_grid <- tibble(start_date = dates, end_date = dates+6)

#savant_data <- purrr::map2_df(.x = date_grid$start_date,
#                             .y = date_grid$end_date,
#                             ~scrape_statcast_savant(start_date = .x,
#                                                       end_date = .y,
#                                                       player_type = 'pitcher'))
#write.csv(savant_data, "savant_data.csv", row.names = TRUE)

df = read.csv("savant_data.csv", header = TRUE)
paste('Number of pitches since July 30:', nrow(df))

## [1] "Number of pitches since July 30: 473481"
```

Then I clean the data frame by removing all of the columns that I am not using for my analysis as well as null values for the columns I am using.

```
df[,c("pitch_type", "game_date", "release_speed",
      "release_pos_x", "release_pos_z", "player_name",
      "zone", "des", "p_throws", "home_team", "away_team",
      "plate_x", "plate_z", "inning_topbot", "launch_speed",
      "launch_angle", "effective_speed", "release_spin_rate",
      "release_extension", "estimated_ba_using_speedangle",
      "estimated_woba_using_speedangle", "woba_value", "woba_denom",
      "babip_value", "iso_value", "launch_speed_angle",
      "at_bat_number", "pitch_number", "pitch_name", "spin_axis")]
```

##	pitch_type	game_date	release_speed	release_pos_x	release_pos_z
## 1	FF	2021-04-07	96.3	-1.43	5.72
## 2	FC	2021-04-07	87.8	-1.57	5.54
## 3	FC	2021-04-07	86.2	-1.55	5.66
## 4	FF	2021-04-07	95.2	-1.65	5.69
## 5	SL	2021-04-07	81.3	-1.77	5.52
## 6	SL	2021-04-07	82.5	-1.75	5.45
## 7	FF	2021-04-07	90.6	2.28	5.85
## 8	FC	2021-04-07	85.4	-1.66	5.64
## 9	SL	2021-04-07	85.4	-1.23	5.40
## 10	FF	2021-04-07	94.7	-1.51	5.67
## 11	FF	2021-04-07	93.8	2.12	5.89
## 12	FF	2021-04-07	94.1	-1.57	5.62
## 13	CH	2021-04-07	87.0	2.40	5.73
## 14	SL	2021-04-07	87.4	-1.19	5.38
## 15	SI	2021-04-07	91.8	2.21	5.81
## 16	FF	2021-04-07	96.7	-1.54	5.70
## 17	SL	2021-04-07	85.9	-1.21	5.40
## 18	FF	2021-04-07	96.2	-2.54	5.23
## 19	SL	2021-04-07	86.4	-1.19	5.32
## 20	FF	2021-04-07	94.8	-2.49	5.49
## 21	FF	2021-04-07	93.7	-1.73	5.57
## 22	SI	2021-04-07	93.2	2.08	5.94
## 23	FF	2021-04-07	89.8	3.15	5.72
## 24	SI	2021-04-07	93.3	2.22	6.00
## 25	FF	2021-04-07	95.3	-2.42	5.34
## 26	KC	2021-04-07	78.4	-1.48	5.95
## 27	FF	2021-04-07	93.4	-0.97	5.41
## 28	FC	2021-04-07	91.7	-2.33	5.18
## 29	FF	2021-04-07	96.5	2.03	6.12
## 30	KC	2021-04-07	77.8	-1.48	5.97
## 31	SL	2021-04-07	86.4	-1.18	5.38
## 32	SI	2021-04-07	93.1	-2.32	5.43
## 33	FF	2021-04-07	94.8	-2.55	5.18
## 34	FC	2021-04-07	83.0	3.27	5.69
## 35	FC	2021-04-07	93.5	-2.30	5.27
## 36	SL	2021-04-07	83.7	-2.68	5.29
## 37	KC	2021-04-07	79.8	-1.51	5.93
## 38	FF	2021-04-07	96.4	2.21	5.96
## 39	CU	2021-04-07	77.7	3.45	5.74
## 40	FF	2021-04-07	93.6	-1.01	5.43
## 41	FS	2021-04-07	85.4	-2.91	5.80
## 42	SL	2021-04-07	78.1	2.33	5.52

## 43	CH	2021-04-07	87.6	-2.42	5.31
## 44	SL	2021-04-07	86.4	-2.59	5.89
## 45	CU	2021-04-07	79.3	3.24	5.72
## 46	CH	2021-04-07	86.4	2.48	5.67
## 47	FF	2021-04-07	94.6	-1.64	5.65
## 48	KC	2021-04-07	77.6	-2.31	5.56
## 49	KC	2021-04-07	84.0	-1.06	5.49
## 50	FF	2021-04-07	97.1	-2.53	5.99
## 51	SL	2021-04-07	85.8	-2.70	5.81
## 52	KC	2021-04-07	82.6	-1.10	5.46
## 53	FF	2021-04-07	94.6	-1.68	5.57
## 54	SL	2021-04-07	83.3	-2.69	5.24
## 55	CH	2021-04-07	87.6	-2.41	5.23
## 56	SI	2021-04-07	93.1	2.21	5.94
## 57	FF	2021-04-07	89.5	3.25	5.73
## 58	SL	2021-04-07	79.0	2.32	5.57
## 59	SL	2021-04-07	85.1	-2.61	5.36
## 60	FF	2021-04-07	92.3	-2.70	5.72
## 61	KC	2021-04-07	84.3	-1.02	5.47
## 62	CH	2021-04-07	87.7	2.48	5.71
## 63	FC	2021-04-07	84.7	3.37	5.72
## 64	FF	2021-04-07	92.8	2.24	5.73
## 65	FF	2021-04-07	93.9	-1.60	5.59
## 66	FF	2021-04-07	93.1	-2.31	5.30
## 67	FS	2021-04-07	83.4	-2.73	5.91
## 68	FF	2021-04-07	94.2	-1.39	5.68
## 69	SI	2021-04-07	95.1	2.30	6.01
## 70	FF	2021-04-07	88.9	3.06	5.77
## 71	FF	2021-04-07	94.7	-2.55	5.98
## 72	CU	2021-04-07	75.8	1.71	6.19
## 73	FF	2021-04-07	92.9	-2.57	5.33
## 74	SL	2021-04-07	86.5	-2.59	5.86
## 75	CH	2021-04-07	78.8	1.18	6.23
## 76	FF	2021-04-07	94.1	-1.16	5.48
## 77	FF	2021-04-07	93.3	-2.39	5.33
## 78	CH	2021-04-07	82.2	0.15	6.47
## 79	FF	2021-04-07	93.3	-1.70	5.59
## 80	FF	2021-04-07	95.4	-2.43	6.10
## 81	SI	2021-04-07	93.3	2.31	6.05
## 82	CH	2021-04-07	80.2	2.11	5.69
## 83	SL	2021-04-07	83.8	-1.61	5.56
## 84	FF	2021-04-07	94.6	-2.42	5.47
## 85	FF	2021-04-07	86.7	3.24	5.69
## 86	SL	2021-04-07	85.5	-2.63	5.93
## 87	FF	2021-04-07	92.1	-1.60	5.65
## 88	KC	2021-04-07	78.7	-1.93	5.34
## 89	SI	2021-04-07	94.2	-2.30	5.33
## 90	FF	2021-04-07	92.3	-0.02	6.42
## 91	KC	2021-04-07	83.3	-0.98	5.54
## 92	SI	2021-04-07	87.7	1.44	6.12
## 93	CH	2021-04-07	85.4	-2.08	5.08
## 94	CU	2021-04-07	74.1	1.74	6.18
## 95	FF	2021-04-07	95.5	-2.53	6.13
## 96	SI	2021-04-07	86.6	1.41	6.15

## 97	CH 2021-04-07	83.4	3.14	5.64
## 98	SL 2021-04-07	84.7	-2.55	5.28
## 99	FF 2021-04-07	91.2	-0.23	6.51
## 100	FF 2021-04-07	95.5	-1.61	5.53
## 101	SI 2021-04-07	93.6	2.13	6.07
## 102	FF 2021-04-07	92.6	-2.62	5.81
## 103	SL 2021-04-07	84.2	-1.64	5.58
## 104	CH 2021-04-07	88.1	-2.29	5.27
## 105	FC 2021-04-07	93.7	-1.99	5.89
## 106	SL 2021-04-07	86.0	-1.13	5.41
## 107	CH 2021-04-07	85.4	-2.69	5.80
## 108	SI 2021-04-07	87.4	1.35	6.19
## 109	SL 2021-04-07	85.4	-1.98	5.89
## 110	CU 2021-04-07	74.4	2.04	5.95
## 111	FC 2021-04-07	84.7	3.20	5.70
## 112	SL 2021-04-07	80.2	2.35	5.50
## 113	CH 2021-04-07	88.0	-2.49	5.19
## 114	FF 2021-04-07	93.3	-1.06	5.49
## 115	FF 2021-04-07	92.3	2.19	5.91
## 116	FF 2021-04-07	94.8	-1.55	5.62
## 117	FF 2021-04-07	92.4	-2.51	5.57
## 118	FF 2021-04-07	94.4	-2.46	6.11
## 119	FF 2021-04-07	93.3	-2.02	5.20
## 120	CU 2021-04-07	81.6	-1.50	5.73
## 121	CU 2021-04-07	77.1	0.62	6.30
## 122	CH 2021-04-07	75.9	2.53	5.53
## 123	FF 2021-04-07	92.0	2.13	5.81
## 124	FF 2021-04-07	96.0	-2.10	5.53
## 125	FF 2021-04-07	91.3	-0.11	6.43
## 126	FC 2021-04-07	79.9	3.00	5.02
## 127	CU 2021-04-07	81.5	-1.40	5.81
## 128	SL 2021-04-07	84.6	-2.74	5.91
## 129	SI 2021-04-07	86.9	1.41	6.17
## 130	FF 2021-04-07	93.5	2.08	6.10
## 131	FF 2021-04-07	93.0	-1.56	5.64
## 132	FF 2021-04-07	89.5	3.22	5.60
## 133	FF 2021-04-07	94.0	-2.33	5.19
## 134	SL 2021-04-07	79.6	-2.73	5.99
## 135	FF 2021-04-07	92.2	-1.96	5.33
## 136	FF 2021-04-07	93.6	-2.43	5.38
## 137	FF 2021-04-07	94.1	-0.94	5.53
## 138	FF 2021-04-07	92.6	-1.55	5.72
## 139	FC 2021-04-07	84.4	1.25	6.24
## 140	SL 2021-04-07	83.4	-2.45	5.93
## 141	FF 2021-04-07	90.7	2.14	5.79
## 142	FF 2021-04-07	98.2	-2.20	5.47
## 143	SL 2021-04-07	86.0	-1.23	5.43
## 144	FF 2021-04-07	94.8	-2.55	6.03
## 145	FF 2021-04-07	94.2	-1.19	5.72
## 146	FC 2021-04-07	79.8	3.11	5.05
## 147	CU 2021-04-07	83.0	2.18	5.72
## 148	CH 2021-04-07	82.9	0.30	6.48
## 149	CH 2021-04-07	74.0	2.58	5.57
## 150	FF 2021-04-07	93.5	-2.56	5.40

## 151	FF 2021-04-07	87.9	3.22	5.76
## 152	FF 2021-04-07	94.1	-2.50	5.24
## 153	CH 2021-04-07	85.1	-2.12	5.05
## 154	SL 2021-04-07	76.5	1.36	6.15
## 155	CH 2021-04-07	80.5	2.14	5.69
## 156	FF 2021-04-07	89.0	3.18	5.75
## 157	CU 2021-04-07	78.8	0.43	6.39
## 158	CH 2021-04-07	73.6	2.35	5.67
## 159	FF 2021-04-07	93.4	-1.99	5.26
## 160	CS 2021-04-07	78.1	2.39	5.87
## 161	SL 2021-04-07	85.1	-2.62	5.91
## 162	FC 2021-04-07	81.7	3.08	5.03
## 163	CH 2021-04-07	84.0	-2.61	6.04
## 164	FF 2021-04-07	94.0	-1.61	5.71
## 165	FF 2021-04-07	93.8	-1.11	5.52
## 166	CU 2021-04-07	81.5	-1.49	5.73
## 167	SI 2021-04-07	94.7	-2.26	5.36
## 168	SL 2021-04-07	86.5	-1.88	5.92
## 169	FF 2021-04-07	94.9	1.74	6.51
## 170	FF 2021-04-07	94.9	-2.49	5.36
## 171	FF 2021-04-07	95.9	-2.00	5.65
## 172	FF 2021-04-07	94.4	-1.00	5.50
## 173	FF 2021-04-07	95.2	1.77	6.42
## 174	FF 2021-04-07	95.2	-1.29	5.67
## 175	FF 2021-04-07	92.3	-2.73	5.76
## 176	FF 2021-04-07	94.5	-2.34	5.23
## 177	FC 2021-04-07	81.0	3.07	4.95
## 178	SL 2021-04-07	84.4	-2.59	5.32
## 179	KC 2021-04-07	78.9	-1.94	5.27
## 180	FF 2021-04-07	89.4	2.19	5.81
## 181	CS 2021-04-07	81.1	2.25	5.94
## 182	FF 2021-04-07	95.0	-1.47	5.73
## 183	CU 2021-04-07	77.8	0.53	6.34
## 184	FC 2021-04-07	85.1	1.48	6.17
## 185	CU 2021-04-07	73.1	2.07	5.93
## 186	FF 2021-04-07	93.2	-2.53	6.16
## 187	FC 2021-04-07	83.7	3.26	5.74
## 188	FC 2021-04-07	81.4	2.99	5.05
## 189	CU 2021-04-07	77.5	-1.84	5.98
## 190	CU 2021-04-07	78.8	3.15	5.76
## 191	FC 2021-04-07	83.5	-1.77	5.71
## 192	FF 2021-04-07	94.5	-1.33	5.67
## 193	FF 2021-04-07	91.8	-1.63	5.87
## 194	FF 2021-04-07	94.7	-2.49	5.75
## 195	CU 2021-04-07	83.0	2.39	5.89
## 196	FC 2021-04-07	84.6	2.36	5.82
## 197	CH 2021-04-07	78.7	2.08	5.75
## 198	FF 2021-04-07	92.7	-2.57	5.46
## 199	SL 2021-04-07	88.9	1.92	6.53
## 200	FF 2021-04-07	94.5	-0.93	5.53
## 201	CH 2021-04-07	79.9	1.33	6.10
## 202	CH 2021-04-07	79.3	-1.98	6.13
## 203	FF 2021-04-07	90.8	-0.08	6.51
## 204	FF 2021-04-07	97.5	-2.55	6.07

## 205	SI	2021-04-07	94.2	-2.46	5.34
## 206	KC	2021-04-07	79.5	-1.90	5.43
## 207	FS	2021-04-07	85.1	-2.82	5.92
## 208	CH	2021-04-07	80.3	2.09	5.71
## 209	CH	2021-04-07	88.8	-2.44	5.36
## 210	FF	2021-04-07	94.1	2.04	6.36
## 211	SI	2021-04-07	88.0	1.32	6.16
## 212	FF	2021-04-07	91.1	2.37	5.68
## 213	SL	2021-04-07	85.4	-1.16	5.44
## 214	FF	2021-04-07	92.8	-2.60	5.69
## 215	SL	2021-04-07	83.3	-1.61	5.64
## 216	CH	2021-04-07	85.3	2.36	5.79
## 217	FF	2021-04-07	98.5	-2.10	5.52
## 218	SI	2021-04-07	92.6	-1.46	5.88
## 219	FF	2021-04-07	92.7	-2.55	5.69
## 220	CH	2021-04-07	85.4	-2.03	5.11
## 221	CH	2021-04-07	79.5	-1.92	6.09
## 222	FC	2021-04-07	88.5	3.10	5.83
## 223	FF	2021-04-07	93.6	-1.60	5.65
## 224	CU	2021-04-07	76.1	0.76	6.27
## 225	FC	2021-04-07	81.6	3.00	5.02
## 226	SL	2021-04-07	85.9	-1.18	5.42
## 227	FC	2021-04-07	85.4	3.21	5.83
## 228	CH	2021-04-07	80.9	2.22	5.53
## 229	FF	2021-04-07	97.6	-2.52	6.11
## 230	CU	2021-04-07	74.1	-1.96	6.04
## 231	FF	2021-04-07	93.0	-2.67	5.70
## 232	CU	2021-04-07	76.7	1.83	6.64
## 233	FC	2021-04-07	88.0	-2.03	5.24
## 234	SI	2021-04-07	95.1	2.01	6.00
## 235	FF	2021-04-07	98.1	-2.11	5.42
## 236	CH	2021-04-07	81.2	1.33	6.11
## 237	CU	2021-04-07	81.4	-1.56	5.80
## 238	KC	2021-04-07	70.9	-2.51	5.72
## 239	CH	2021-04-07	83.2	0.32	6.33
## 240	CH	2021-04-07	77.6	2.66	5.42
## 241	FF	2021-04-07	94.1	-1.73	5.67
## 242	CH	2021-04-07	79.4	2.54	5.63
## 243	FF	2021-04-07	92.1	-1.67	5.88
## 244	CH	2021-04-07	90.2	-2.44	5.23
## 245	CH	2021-04-07	88.2	-1.68	5.91
## 246	FF	2021-04-07	94.4	-2.34	5.33
## 247	CH	2021-04-07	79.0	-1.95	6.12
## 248	FC	2021-04-07	82.2	3.11	5.04
## 249	CH	2021-04-07	86.8	2.00	6.32
## 250	CH	2021-04-07	82.8	0.39	6.33
## 251	SL	2021-04-07	86.6	-1.15	5.45
## 252	FC	2021-04-07	88.7	-2.27	6.24
## 253	CU	2021-04-07	81.8	-1.65	5.83
## 254	CH	2021-04-07	81.7	2.53	5.70
## 255	FF	2021-04-07	95.7	2.01	6.04
## 256	CU	2021-04-07	79.0	3.24	5.78
## 257	FS	2021-04-07	84.4	-2.77	5.95
## 258	CU	2021-04-07	76.2	1.82	6.12

## 259	FF 2021-04-07	97.8	-2.13	5.60
## 260	FF 2021-04-07	92.5	-2.62	5.69
## 261	FF 2021-04-07	93.0	-1.79	5.63
## 262	FF 2021-04-07	92.9	-2.45	5.38
## 263	KC 2021-04-07	78.3	-1.98	5.33
## 264	FC 2021-04-07	84.8	1.22	6.27
## 265	CU 2021-04-07	80.2	-2.00	6.35
## 266	FF 2021-04-07	94.5	-1.04	5.55
## 267	FF 2021-04-07	92.5	-1.75	5.89
## 268	FF 2021-04-07	91.7	-2.10	5.27
## 269	FC 2021-04-07	79.0	3.17	4.92
## 270	FF 2021-04-07	94.4	-2.42	5.29
## 271	FF 2021-04-07	96.4	1.99	6.02
## 272	FF 2021-04-07	92.9	-1.60	5.75
## 273	FF 2021-04-07	93.5	-2.77	5.71
## 274	FF 2021-04-07	94.6	-2.51	5.17
## 275	FF 2021-04-07	92.8	0.24	6.45
## 276	FF 2021-04-07	93.0	-1.21	5.66
## 277	CH 2021-04-07	88.7	1.96	6.44
## 278	FC 2021-04-07	84.6	2.44	5.84
## 279	FC 2021-04-07	85.2	1.30	6.23
## 280	FF 2021-04-07	95.3	-2.28	5.48
## 281	FF 2021-04-07	89.5	3.06	5.84
## 282	FF 2021-04-07	92.3	2.20	5.85
## 283	SI 2021-04-07	86.5	-1.95	6.04
## 284	SL 2021-04-07	86.0	-1.87	5.90
## 285	FS 2021-04-07	84.2	-2.75	5.96
## 286	CH 2021-04-07	76.4	2.71	5.43
## 287	CH 2021-04-07	81.6	0.51	6.43
## 288	SL 2021-04-07	85.0	2.03	6.50
## 289	FC 2021-04-07	92.6	-2.00	5.85
## 290	SI 2021-04-07	95.9	1.82	6.12
## 291	FF 2021-04-07	92.5	-2.49	5.21
## 292	SL 2021-04-07	84.3	-2.65	5.98
## 293	CH 2021-04-07	87.8	-2.59	5.15
## 294	FF 2021-04-07	95.3	-2.46	6.10
## 295	CH 2021-04-07	80.3	-1.95	6.15
## 296	FF 2021-04-07	92.3	-2.03	5.25
## 297	CU 2021-04-07	72.4	2.16	5.98
## 298	FF 2021-04-07	89.5	3.25	5.79
## 299	CU 2021-04-07	81.0	-1.43	5.77
## 300	SL 2021-04-07	83.7	-1.99	6.31
## 301	FF 2021-04-07	91.7	-1.72	5.83
## 302	CH 2021-04-07	80.7	2.26	5.71
## 303	SL 2021-04-07	86.1	-1.18	5.47
## 304	FC 2021-04-07	81.1	-1.82	5.66
## 305	SL 2021-04-07	77.4	1.23	6.11
## 306	SI 2021-04-07	93.8	-2.31	5.43
## 307	FC 2021-04-07	81.7	3.15	4.97
## 308	CU 2021-04-07	80.2	-2.03	6.38
## 309	FF 2021-04-07	86.5	-2.05	5.94
## 310	KC 2021-04-07	78.2	-2.07	5.31
## 311	SL 2021-04-07	85.8	-1.28	5.46
## 312	SL 2021-04-07	82.7	-2.46	5.21

## 313	CU	2021-04-07	78.6	3.28	5.79
## 314	CU	2021-04-07	80.7	-1.52	5.73
## 315	SI	2021-04-07	95.0	1.69	6.16
## 316	CH	2021-04-07	74.0	2.49	5.73
## 317	FF	2021-04-07	92.6	-1.63	5.70
## 318	FF	2021-04-07	95.7	-2.50	5.42
## 319	FF	2021-04-07	88.9	1.23	6.30
## 320	CU	2021-04-07	75.1	0.60	6.37
## 321	SL	2021-04-07	79.5	2.34	5.52
## 322	FS	2021-04-07	84.2	-2.71	5.96
## 323	CH	2021-04-07	87.2	-2.38	5.46
## 324	SL	2021-04-07	85.2	-1.94	5.81
## 325	FF	2021-04-07	94.0	-2.76	5.71
## 326	FF	2021-04-07	93.2	1.87	6.49
## 327	CH	2021-04-07	87.1	-1.66	5.92
## 328	CU	2021-04-07	73.7	-1.98	6.12
## 329	FS	2021-04-07	89.4	-1.88	5.88
## 330	SL	2021-04-07	78.8	2.38	5.66
## 331	FF	2021-04-07	93.3	1.84	6.58
## 332	SL	2021-04-07	79.4	1.17	6.14
## 333	SL	2021-04-07	85.7	-2.70	5.97
## 334	FF	2021-04-07	95.4	-2.49	6.10
## 335	FC	2021-04-07	83.0	-1.78	5.68
## 336	FF	2021-04-07	93.8	-2.54	5.29
## 337	CH	2021-04-07	87.2	-2.72	5.21
## 338	CH	2021-04-07	87.9	-2.52	5.34
## 339	KC	2021-04-07	78.8	-1.95	5.33
## 340	CU	2021-04-07	85.0	2.04	6.03
## 341	SL	2021-04-07	86.5	-1.28	5.43
## 342	CH	2021-04-07	78.7	2.50	5.70
## 343	FC	2021-04-07	81.0	3.09	5.01
## 344	FF	2021-04-07	94.0	-1.18	5.74
## 345	CH	2021-04-07	86.7	-1.62	5.96
## 346	SI	2021-04-07	87.7	1.36	6.22
## 347	SL	2021-04-07	83.5	-2.10	6.25
## 348	CH	2021-04-07	81.4	0.39	6.40
## 349	FC	2021-04-07	85.0	3.15	5.73
## 350	CU	2021-04-07	73.7	2.21	6.07
## 351	FC	2021-04-07	82.6	-1.69	5.70
## 352	SI	2021-04-07	88.4	1.42	6.16
## 353	CH	2021-04-07	81.3	2.06	5.70
## 354	FF	2021-04-07	96.7	-2.57	6.04
## 355	FF	2021-04-07	92.9	-2.74	5.88
## 356	FC	2021-04-07	82.5	2.96	5.09
## 357	FF	2021-04-07	89.1	3.21	5.72
## 358	FF	2021-04-07	92.6	-2.11	5.11
## 359	FF	2021-04-07	92.9	-1.59	5.83
## 360	FF	2021-04-07	92.4	-1.17	5.56
## 361	CH	2021-04-07	87.5	-2.62	5.14
## 362	SL	2021-04-07	83.4	1.90	6.52
## 363	CU	2021-04-07	76.4	0.57	6.34
## 364	CH	2021-04-07	79.5	-2.00	6.09
## 365	SL	2021-04-07	80.0	1.19	6.11
## 366	FF	2021-04-07	90.7	-2.38	5.54



## 367	FF 2021-04-07	95.1	1.86	6.10
## 368	SI 2021-04-07	92.7	-1.90	6.49
## 369	FF 2021-04-07	97.4	-2.02	5.79
## 370	FF 2021-04-07	94.7	-2.44	5.26
## 371	FF 2021-04-07	94.9	-1.38	5.73
## 372	FF 2021-04-07	95.5	-2.62	5.99
## 373	SL 2021-04-07	85.2	-1.80	5.96
## 374	FF 2021-04-07	85.8	-2.03	5.99
## 375	FC 2021-04-07	86.2	3.24	5.82
## 376	SL 2021-04-07	78.3	1.33	6.23
## 377	FF 2021-04-07	93.9	1.93	6.49
## 378	KC 2021-04-07	83.2	-1.11	5.60
## 379	KC 2021-04-07	82.4	-1.27	5.99
## 380	FC 2021-04-07	84.4	1.26	6.24
## 381	FF 2021-04-07	92.0	-2.10	5.16
## 382	FC 2021-04-07	85.0	2.36	5.81
## 383	SL 2021-04-07	81.9	-2.60	5.48
## 384	SL 2021-04-07	81.0	2.36	5.58
## 385	FF 2021-04-07	92.7	-2.71	5.78
## 386	FF 2021-04-07	93.3	-1.56	5.87
## 387	CU 2021-04-07	79.6	-1.49	5.80
## 388	CH 2021-04-07	86.3	-2.53	5.21
## 389	FC 2021-04-07	88.9	-2.10	6.23
## 390	FF 2021-04-07	94.3	1.93	6.13
## 391	FF 2021-04-07	94.6	-2.24	5.35
## 392	CU 2021-04-07	70.5	3.06	5.13
## 393	CH 2021-04-07	80.6	0.47	6.55
## 394	FF 2021-04-07	92.6	-2.36	5.52
## 395	CU 2021-04-07	79.7	-1.68	5.96
## 396	CH 2021-04-07	83.8	-2.22	5.07
## 397	CU 2021-04-07	79.3	0.22	6.37
## 398	CU 2021-04-07	70.2	3.05	5.11
## 399	FF 2021-04-07	88.8	3.07	5.70
## 400	FF 2021-04-07	95.0	2.10	6.04
## 401	CH 2021-04-07	88.7	-2.35	5.21
## 402	FF 2021-04-07	91.5	-2.67	5.86
## 403	FF 2021-04-07	92.6	2.12	5.82
## 404	FC 2021-04-07	85.3	1.19	6.26
## 405	FF 2021-04-07	93.2	-2.17	5.84
## 406	CH 2021-04-07	87.0	-2.78	5.07
## 407	FF 2021-04-07	94.3	-2.54	6.02
## 408	CU 2021-04-07	80.1	-1.43	5.75
## 409	FC 2021-04-07	88.0	-2.18	6.29
## 410	FF 2021-04-07	93.5	-1.07	5.50
## 411	FF 2021-04-07	93.8	1.93	6.46
## 412	FF 2021-04-07	89.9	0.74	6.58
## 413	FF 2021-04-07	97.2	-2.01	5.53
## 414	KC 2021-04-07	79.2	-1.27	6.05
## 415	CH 2021-04-07	79.4	-1.95	6.08
## 416	CH 2021-04-07	79.2	2.48	5.72
## 417	FF 2021-04-07	93.6	2.14	5.99
## 418	FF 2021-04-07	94.4	-2.47	5.24
## 419	CU 2021-04-07	77.8	3.26	5.80
## 420	SL 2021-04-07	82.7	-2.79	5.55

## 421	SL 2021-04-07	80.2	2.29	5.50
## 422	SL 2021-04-07	80.7	1.16	6.39
## 423	CU 2021-04-07	80.4	-1.54	5.81
## 424	CU 2021-04-07	78.3	-1.75	6.05
## 425	FF 2021-04-07	95.6	-2.49	6.03
## 426	SL 2021-04-07	83.8	-2.18	5.85
## 427	SL 2021-04-07	86.8	1.77	6.49
## 428	CH 2021-04-07	88.2	-1.17	5.43
## 429	CH 2021-04-07	87.5	-1.49	5.93
## 430	SL 2021-04-07	85.6	0.35	6.34
## 431	CH 2021-04-07	80.4	1.27	6.15
## 432	CU 2021-04-07	71.8	2.91	5.11
## 433	FF 2021-04-07	93.7	-2.07	6.07
## 434	FC 2021-04-07	84.5	2.33	5.94
## 435	FF 2021-04-07	92.9	-2.80	5.74
## 436	CH 2021-04-07	84.4	-2.24	5.07
## 437	FF 2021-04-07	96.2	-1.30	5.85
## 438	SI 2021-04-07	92.9	-1.83	6.44
## 439	FF 2021-04-07	94.3	-1.47	5.73
## 440	CH 2021-04-07	86.8	-2.67	5.12
## 441	CH 2021-04-07	79.3	-1.87	6.11
## 442	FF 2021-04-07	92.0	-0.08	6.50
## 443	SI 2021-04-07	90.5	0.74	6.27
## 444	CH 2021-04-07	80.7	2.17	5.70
## 445	FF 2021-04-07	91.4	-1.55	5.89
## 446	FF 2021-04-07	95.4	-2.54	6.08
## 447	SL 2021-04-07	86.8	-2.52	5.92
## 448	FF 2021-04-07	93.3	-1.97	6.06
## 449	FF 2021-04-07	91.7	-2.69	5.69
## 450	FS 2021-04-07	89.3	-1.81	6.01
## 451	FF 2021-04-07	93.5	-1.09	5.46
## 452	SI 2021-04-07	95.8	-1.39	5.83
## 453	SI 2021-04-07	85.6	2.60	5.57
## 454	CU 2021-04-07	72.1	2.33	5.96
## 455	FC 2021-04-07	83.8	3.27	5.85
## 456	FF 2021-04-07	90.8	-1.99	5.19
## 457	CH 2021-04-07	78.2	-1.95	6.10
## 458	SI 2021-04-07	90.9	-2.11	5.94
## 459	FF 2021-04-07	93.4	2.07	6.09
## 460	FF 2021-04-07	93.7	-2.43	5.28
## 461	SI 2021-04-07	96.0	-2.58	5.49
## 462	SL 2021-04-07	81.3	-2.10	6.38
## 463	FC 2021-04-07	85.7	-1.62	5.64
## 464	CU 2021-04-07	80.4	1.65	6.60
## 465	FF 2021-04-07	94.6	-1.25	5.66
## 466	CH 2021-04-07	79.1	1.35	6.14
## 467	FF 2021-04-07	90.7	-2.01	5.24
## 468	FC 2021-04-07	84.9	1.25	6.30
## 469	FF 2021-04-07	94.6	1.85	6.51
## 470	CH 2021-04-07	78.7	-2.00	6.06
## 471	FF 2021-04-07	95.8	-2.36	5.59
## 472	KC 2021-04-07	74.4	-2.63	5.86
## 473	FF 2021-04-07	91.3	-2.16	6.07
## 474	FF 2021-04-07	92.6	-1.56	5.99

## 475	FF	2021-04-07	92.0	-2.74	5.81
## 476	SL	2021-04-07	88.0	-2.09	5.85
## 477	FF	2021-04-07	95.8	1.97	6.18
## 478	FF	2021-04-07	91.4	2.25	5.82
## 479	SL	2021-04-07	84.0	-2.36	6.28
## 480	FC	2021-04-07	84.8	-1.67	5.68
## 481	CH	2021-04-07	82.6	0.94	6.23
## 482	FF	2021-04-07	86.9	3.27	5.90
## 483	FF	2021-04-07	93.6	-2.31	5.41
## 484	FF	2021-04-07	97.4	-1.96	5.64
## 485	FF	2021-04-07	92.5	-0.14	6.54
## 486	CU	2021-04-07	86.2	-1.35	5.82
## 487	FF	2021-04-07	92.5	-2.22	5.83
## 488	SI	2021-04-07	86.4	2.62	5.57
## 489	FF	2021-04-07	92.9	-1.01	5.50
## 490	CH	2021-04-07	80.6	2.13	5.78
## 491	CU	2021-04-07	81.3	-1.58	5.74
## 492	FS	2021-04-07	83.3	-2.88	5.91
## 493	FF	2021-04-07	94.5	-2.44	5.31
## 494	FF	2021-04-07	95.6	-1.65	6.49
## 495	SI	2021-04-07	87.6	1.44	6.16
## 496	SL	2021-04-07	82.4	-2.69	6.00
## 497	SL	2021-04-07	86.8	1.91	6.52
## 498	CH	2021-04-07	83.5	-2.67	5.58
## 499	CH	2021-04-07	76.7	2.69	5.31
## 500	FC	2021-04-07	86.7	2.23	5.94
## 501	SI	2021-04-07	91.6	-2.00	5.20
## 502	FF	2021-04-07	93.9	-1.66	5.67
## 503	FC	2021-04-07	84.8	3.20	5.85
## 504	CU	2021-04-07	79.1	-1.72	5.92
## 505	CH	2021-04-07	80.7	2.32	5.74
## 506	CU	2021-04-07	80.0	-1.83	6.30
## 507	FF	2021-04-07	93.1	-1.37	5.73
## 508	CU	2021-04-07	84.0	-1.39	5.86
## 509	FF	2021-04-07	92.9	2.12	6.09
## 510	FF	2021-04-07	93.7	-2.27	5.40
## 511	FF	2021-04-07	95.2	-2.60	5.68
## 512	SL	2021-04-07	82.5	-2.17	5.88
## 513	SI	2021-04-07	90.9	0.85	6.28
## 514	SL	2021-04-07	88.3	-2.02	5.73
## 515	FF	2021-04-07	92.4	0.00	6.49
## 516	CU	2021-04-07	78.0	-1.72	6.11
## 517	FF	2021-04-07	93.3	-0.97	5.54
## 518	FF	2021-04-07	86.1	-2.06	5.97
## 519	FF	2021-04-07	93.0	-2.74	5.73
## 520	CH	2021-04-07	77.2	2.63	5.33
## 521	SL	2021-04-07	83.9	-1.51	5.65
## 522	FF	2021-04-07	94.1	-1.70	5.76
## 523	FF	2021-04-07	96.1	-1.41	5.84
## 524	KC	2021-04-07	81.3	-1.37	5.89
## 525	SL	2021-04-07	80.5	1.11	6.27
## 526	CH	2021-04-07	85.1	-2.70	5.04
## 527	CH	2021-04-07	81.7	0.26	6.45
## 528	CH	2021-04-07	80.0	-1.94	6.15

## 529	SL 2021-04-07	86.8	-1.18	5.39
## 530	SL 2021-04-07	86.7	-1.95	6.18
## 531	SI 2021-04-07	94.3	-1.65	6.58
## 532	CH 2021-04-07	87.1	-1.68	5.90
## 533	FS 2021-04-07	84.3	-2.24	6.04
## 534	SL 2021-04-07	84.8	1.92	6.53
## 535	CH 2021-04-07	79.3	2.36	5.74
## 536	FC 2021-04-07	85.1	3.26	5.78
## 537	CH 2021-04-07	85.4	-2.05	5.00
## 538	SI 2021-04-07	92.6	2.09	5.93
## 539	CH 2021-04-07	78.6	2.48	5.66
## 540	KC 2021-04-07	74.9	-2.49	5.84
## 541	CH 2021-04-07	80.0	1.36	6.14
## 542	FS 2021-04-07	82.2	-2.76	5.96
## 543	CH 2021-04-07	85.3	-2.65	5.39
## 544	FC 2021-04-07	92.3	-1.96	5.91
## 545	FF 2021-04-07	94.3	-2.67	5.65
## 546	SL 2021-04-07	80.8	1.15	6.43
## 547	FS 2021-04-07	84.8	-2.08	6.04
## 548	CH 2021-04-07	88.5	2.23	6.34
## 549	FF 2021-04-07	95.9	-1.37	5.84
## 550	FF 2021-04-07	91.7	2.10	5.76
## 551	SL 2021-04-07	86.2	-1.23	5.45
## 552	SI 2021-04-07	92.4	2.23	5.99
## 553	CH 2021-04-07	82.3	0.32	6.43
## 554	CH 2021-04-07	89.2	-2.07	5.57
## 555	FF 2021-04-07	92.1	-2.05	6.08
## 556	CH 2021-04-07	85.0	-2.44	5.09
## 557	KC 2021-04-07	77.7	-1.42	5.95
## 558	SL 2021-04-07	82.2	-1.59	5.67
## 559	CH 2021-04-07	81.0	1.34	6.14
## 560	CU 2021-04-07	70.1	3.12	5.05
## 561	FF 2021-04-07	92.1	-2.58	6.10
## 562	KC 2021-04-07	78.2	-1.98	5.37
## 563	SL 2021-04-07	85.6	-1.78	5.95
## 564	FF 2021-04-07	86.0	-2.05	5.94
## 565	SL 2021-04-07	82.6	-2.62	5.41
## 566	FF 2021-04-07	91.6	2.09	5.88
## 567	FF 2021-04-07	87.9	3.26	5.82
## 568	FF 2021-04-07	91.8	-1.54	5.91
## 569	SI 2021-04-07	91.6	-2.32	5.47
## 570	SI 2021-04-07	93.8	-1.72	6.59
## 571	FF 2021-04-07	92.2	-2.38	5.32
## 572	FC 2021-04-07	86.7	2.29	5.85
## 573	FF 2021-04-07	85.5	-2.19	6.02
## 574	CH 2021-04-07	85.4	-2.60	5.12
## 575	FF 2021-04-07	93.5	-2.70	5.69
## 576	FF 2021-04-07	88.6	2.21	5.94
## 577	SL 2021-04-07	76.8	1.32	6.13
## 578	SL 2021-04-07	88.4	1.91	6.55
## 579	SL 2021-04-07	84.1	-1.58	6.17
## 580	SL 2021-04-07	86.1	-1.19	5.42
## 581	FF 2021-04-07	91.7	-1.97	5.32
## 582	SI 2021-04-07	96.0	-1.44	5.91

## 583	KC	2021-04-07	76.0	-2.47	5.83
## 584	CH	2021-04-07	77.4	2.78	5.29
## 585	SL	2021-04-07	79.6	1.06	6.29
## 586	FF	2021-04-07	92.6	-1.32	5.68
## 587	FS	2021-04-07	84.0	-2.75	5.96
## 588	CU	2021-04-07	76.9	3.23	5.84
## 589	CH	2021-04-07	86.6	-1.58	5.88
## 590	FC	2021-04-07	83.0	-1.85	5.67
## 591	SL	2021-04-07	87.9	-1.80	5.74
## 592	FF	2021-04-07	92.7	0.10	6.52
## 593	FS	2021-04-07	83.9	-2.09	6.04
## 594	SI	2021-04-07	90.6	2.22	6.01
## 595	SL	2021-04-07	86.3	-1.96	6.17
## 596	SL	2021-04-07	84.1	-2.16	6.30
## 597	CU	2021-04-07	79.3	-1.77	5.88
## 598	CH	2021-04-07	80.3	1.37	6.10
## 599	FF	2021-04-07	90.0	0.57	6.40
## 600	SL	2021-04-07	88.6	-1.66	5.78
## 601	CU	2021-04-07	77.7	-1.74	5.97
## 602	CU	2021-04-07	80.8	-1.57	5.86
## 603	FF	2021-04-07	90.8	2.30	5.76
## 604	SL	2021-04-07	85.7	-2.00	6.12
## 605	KC	2021-04-07	80.4	-1.47	5.88
## 606	SL	2021-04-07	80.3	-2.64	5.58
## 607	FF	2021-04-07	95.5	-2.49	6.02
## 608	FC	2021-04-07	83.4	3.05	5.08
## 609	FF	2021-04-07	95.1	-1.50	5.83
## 610	SL	2021-04-07	83.4	-2.07	5.98
## 611	FF	2021-04-07	94.8	1.75	6.46
## 612	FF	2021-04-07	92.7	-1.18	5.45
## 613	SL	2021-04-07	83.6	-1.70	6.02
## 614	CH	2021-04-07	88.0	-2.73	5.75
## 615	FF	2021-04-07	92.6	0.02	6.48
## 616	FF	2021-04-07	89.0	3.20	5.89
## 617	SL	2021-04-07	82.0	-2.35	6.23
## 618	FF	2021-04-07	92.1	2.32	5.82
## 619	FF	2021-04-07	95.1	-2.53	5.61
## 620	CU	2021-04-07	82.4	-1.69	5.86
## 621	SI	2021-04-07	95.6	2.14	6.15
## 622	FC	2021-04-07	87.3	-1.91	5.26
## 623	CU	2021-04-07	72.7	-2.01	6.15
## 624	FF	2021-04-07	94.5	-2.37	5.28
## 625	FC	2021-04-07	81.2	2.79	5.12
## 626	CH	2021-04-07	80.0	-2.02	6.12
## 627	CH	2021-04-07	80.3	2.46	5.74
## 628	FF	2021-04-07	89.3	1.14	6.35
## 629	FC	2021-04-07	86.5	-1.89	5.67
## 630	SL	2021-04-07	90.2	-1.38	5.82
## 631	SL	2021-04-07	83.8	-2.65	5.45
## 632	CU	2021-04-07	77.8	-1.53	5.93
## 633	FF	2021-04-07	94.8	-2.53	5.47
## 634	CH	2021-04-07	88.5	2.02	6.47
## 635	SL	2021-04-07	78.3	2.41	5.63
## 636	FF	2021-04-07	93.2	-1.85	6.01

## 637	CH 2021-04-07	88.5	2.27	5.81
## 638	SL 2021-04-07	78.9	1.03	6.26
## 639	FF 2021-04-07	96.9	-1.90	5.64
## 640	CU 2021-04-07	78.4	-2.45	5.99
## 641	FS 2021-04-07	85.2	-2.03	6.11
## 642	CU 2021-04-07	76.5	3.16	5.86
## 643	CH 2021-04-07	85.1	-1.70	5.77
## 644	CU 2021-04-07	80.6	-1.63	5.85
## 645	FS 2021-04-07	82.2	-2.74	6.02
## 646	FC 2021-04-07	92.1	-2.34	5.43
## 647	FC 2021-04-07	89.1	-2.23	6.28
## 648	FF 2021-04-07	92.4	-1.05	5.49
## 649	SL 2021-04-07	84.8	-1.57	6.03
## 650	KC 2021-04-07	77.5	-1.96	5.41
## 651	CH 2021-04-07	83.9	0.27	6.44
## 652	FC 2021-04-07	83.5	3.26	5.83
## 653	CH 2021-04-07	88.7	-1.14	5.37
## 654	CH 2021-04-07	89.3	2.10	6.44
## 655	SL 2021-04-07	78.5	2.48	5.64
## 656	CU 2021-04-07	80.6	-1.51	5.76
## 657	FF 2021-04-07	90.6	-2.50	5.73
## 658	CH 2021-04-07	81.0	1.30	6.16
## 659	FF 2021-04-07	93.4	-2.40	6.10
## 660	FF 2021-04-07	94.1	-1.68	5.62
## 661	SI 2021-04-07	86.4	-2.07	5.99
## 662	FF 2021-04-07	93.2	-2.40	5.38
## 663	FF 2021-04-07	89.2	0.94	6.44
## 664	FF 2021-04-07	96.4	1.95	6.09
## 665	SI 2021-04-07	93.1	-1.70	5.74
## 666	FF 2021-04-07	93.1	-1.95	5.21
## 667	FS 2021-04-07	84.7	-2.11	6.03
## 668	SI 2021-04-07	95.4	-1.36	5.92
## 669	SL 2021-04-07	84.4	-1.91	6.15
## 670	FC 2021-04-07	80.5	3.03	5.07
## 671	FC 2021-04-07	93.4	-1.96	5.88
## 672	FC 2021-04-07	84.5	2.22	5.91
## 673	CH 2021-04-07	82.3	0.50	6.38
## 674	FF 2021-04-07	93.6	-2.65	5.80
## 675	SI 2021-04-07	94.3	-2.66	5.29
## 676	FF 2021-04-07	96.3	-1.07	6.47
## 677	FF 2021-04-07	93.3	-1.56	5.88
## 678	SI 2021-04-07	92.2	-1.80	6.57
## 679	CH 2021-04-07	82.3	0.13	6.44
## 680	FF 2021-04-07	95.7	-1.32	5.87
## 681	SI 2021-04-07	95.1	1.85	6.11
## 682	CU 2021-04-07	78.6	-2.54	5.39
## 683	SI 2021-04-07	93.5	-1.63	5.75
## 684	SL 2021-04-07	84.2	-1.45	6.01
## 685	FF 2021-04-07	93.5	-1.11	5.49
## 686	FF 2021-04-07	99.0	-2.09	5.51
## 687	KC 2021-04-07	77.5	-1.90	5.32
## 688	SL 2021-04-07	86.0	-2.52	5.77
## 689	CU 2021-04-07	80.4	-1.46	5.78
## 690	CU 2021-04-07	68.2	2.97	5.29

## 691	SL 2021-04-07	77.0	1.46	6.11
## 692	CU 2021-04-07	80.5	1.64	6.59
## 693	CU 2021-04-07	78.5	-1.92	6.36
## 694	SL 2021-04-07	78.3	2.32	5.73
## 695	FF 2021-04-07	92.5	-1.63	5.90
## 696	FC 2021-04-07	86.0	2.08	6.01
## 697	SI 2021-04-07	93.3	-1.82	6.57
## 698	FF 2021-04-07	96.0	-2.44	6.01
## 699	FC 2021-04-07	82.8	3.15	5.87
## 700	CH 2021-04-07	85.2	-2.72	5.19
## 701	FC 2021-04-07	86.8	-1.84	5.54
## 702	SI 2021-04-07	86.3	-2.03	6.05
## 703	SI 2021-04-07	92.3	0.70	6.26
## 704	SL 2021-04-07	83.1	-2.16	5.92
## 705	SL 2021-04-07	79.5	-2.68	5.62
## 706	FF 2021-04-07	92.4	-2.37	5.51
## 707	SL 2021-04-07	81.6	1.19	6.04
## 708	SI 2021-04-07	89.3	-2.11	5.97
## 709	FF 2021-04-07	94.7	1.85	6.51
## 710	SI 2021-04-07	92.7	-2.13	6.37
## 711	FF 2021-04-07	92.0	-1.85	5.23
## 712	SL 2021-04-07	88.1	-2.52	5.66
## 713	SL 2021-04-07	84.7	-1.47	6.11
## 714	FF 2021-04-07	94.3	-2.64	5.55
## 715	FF 2021-04-07	92.5	-2.38	5.43
## 716	CU 2021-04-07	80.7	-1.76	6.26
## 717	FF 2021-04-07	92.5	2.24	5.90
## 718	FF 2021-04-07	92.4	-1.55	5.93
## 719	CH 2021-04-07	80.5	1.16	6.20
## 720	SL 2021-04-07	82.6	-2.61	5.95
## 721	FF 2021-04-07	93.6	-0.13	6.52
## 722	CU 2021-04-07	71.8	2.10	6.06
## 723	FF 2021-04-07	96.0	2.05	6.01
## 724	SI 2021-04-07	86.2	-2.17	6.05
## 725	CU 2021-04-07	78.7	-1.77	6.03
## 726	FF 2021-04-07	94.9	-1.61	5.80
## 727	SL 2021-04-07	86.3	-1.19	5.45
## 728	FC 2021-04-07	86.1	-1.91	5.52
## 729	FF 2021-04-07	94.7	-1.35	5.91
## 730	CH 2021-04-07	77.8	2.66	5.35
## 731	CU 2021-04-07	77.6	3.23	5.79
## 732	FF 2021-04-07	92.5	-1.40	5.78
## 733	CU 2021-04-07	80.8	-1.75	5.94
## 734	SL 2021-04-07	84.4	-1.82	5.94
## 735	FC 2021-04-07	85.4	2.35	5.85
## 736	SL 2021-04-07	85.0	-1.88	6.14
## 737	CH 2021-04-07	81.4	1.19	6.06
## 738	CH 2021-04-07	87.6	2.36	5.81
## 739	CU 2021-04-07	77.9	3.23	5.79
## 740	SL 2021-04-07	85.6	-1.23	5.43
## 741	FF 2021-04-07	92.8	-2.39	5.41
## 742	FC 2021-04-07	81.0	3.09	5.00
## 743	FF 2021-04-07	91.9	-2.45	5.57
## 744	SL 2021-04-07	87.8	-1.95	6.06

## 745	CU	2021-04-07	80.4	-1.86	6.08
## 746	SL	2021-04-07	88.0	-1.74	5.82
## 747	FF	2021-04-07	94.2	-2.00	5.23
## 748	FF	2021-04-07	92.4	0.84	6.29
## 749	FF	2021-04-07	96.0	-2.42	5.55
## 750	SI	2021-04-07	92.9	-1.75	6.51
## 751	FF	2021-04-07	93.4	-1.31	5.75
## 752	FF	2021-04-07	95.6	-1.48	5.77
## 753	SI	2021-04-07	96.0	-1.42	5.93
## 754	SL	2021-04-07	84.0	0.47	6.42
## 755	SL	2021-04-07	83.1	-2.69	5.88
## 756	FF	2021-04-07	92.0	2.30	5.81
## 757	SI	2021-04-07	90.0	-1.92	6.06
## 758	SL	2021-04-07	85.7	1.98	6.50
## 759	CH	2021-04-07	78.2	-2.02	6.12
## 760	FC	2021-04-07	85.2	-1.81	5.64
## 761	FF	2021-04-07	96.7	-2.41	5.54
## 762	FF	2021-04-07	93.0	-2.51	5.58
## 763	CH	2021-04-07	78.2	-1.93	6.10
## 764	FF	2021-04-07	90.5	-2.19	5.85
## 765	SI	2021-04-07	87.6	1.45	6.09
## 766	SI	2021-04-07	94.9	-1.51	5.71
## 767	CU	2021-04-07	81.0	-1.65	5.90
## 768	CH	2021-04-07	78.0	2.53	5.31
## 769	FC	2021-04-07	88.1	-2.17	6.27
## 770	FF	2021-04-07	94.5	2.20	6.00
## 771	SL	2021-04-07	85.6	-1.93	5.84
## 772	FF	2021-04-07	89.3	2.20	5.90
## 773	CH	2021-04-07	84.7	-2.53	5.57
## 774	FF	2021-04-07	97.2	-2.49	6.00
## 775	SL	2021-04-07	86.6	-1.28	5.43
## 776	FF	2021-04-07	94.4	-1.13	6.48
## 777	FF	2021-04-07	94.8	1.91	6.42
## 778	FC	2021-04-07	84.1	3.40	5.72
## 779	FC	2021-04-07	88.0	-2.02	5.25
## 780	CU	2021-04-07	81.0	-1.76	6.29
## 781	SI	2021-04-07	90.8	0.63	6.27
## 782	FF	2021-04-07	91.6	2.10	5.91
## 783	FF	2021-04-07	92.3	0.23	6.52
## 784	SI	2021-04-07	92.9	-1.68	5.71
## 785	CU	2021-04-07	80.2	-1.81	6.03
## 786	CU	2021-04-07	78.4	-1.51	5.95
## 787	FF	2021-04-07	94.2	-2.40	5.37
## 788	CU	2021-04-07	79.3	-1.70	6.00
## 789	CH	2021-04-07	79.0	2.26	5.82
## 790	FF	2021-04-07	93.2	2.03	6.11
## 791	CH	2021-04-07	89.7	-2.02	5.66
## 792	SI	2021-04-07	92.6	-1.54	5.93
## 793	SL	2021-04-07	84.2	-1.43	6.13
## 794	FC	2021-04-07	85.9	1.18	6.21
## 795	CH	2021-04-07	83.7	0.34	6.41
## 796	FF	2021-04-07	95.4	1.86	6.51
## 797	SI	2021-04-07	89.5	-2.42	5.42
## 798	CH	2021-04-07	83.1	3.25	5.76



## 799	SI 2021-04-07	90.5	1.02	6.25
## 800	SL 2021-04-07	86.9	-2.58	5.83
## 801	SL 2021-04-07	84.3	-1.32	5.47
## 802	CH 2021-04-07	84.7	-2.10	6.30
## 803	FF 2021-04-07	93.2	-1.98	5.23
## 804	FS 2021-04-07	84.3	-2.75	5.92
## 805	SI 2021-04-07	85.9	-2.09	6.02
## 806	CU 2021-04-07	76.2	-1.98	6.17
## 807	FF 2021-04-07	96.1	-2.49	5.55
## 808	CU 2021-04-07	70.1	3.01	5.22
## 809	FF 2021-04-07	89.0	2.21	5.91
## 810	FF 2021-04-07	94.0	-1.84	6.05
## 811	SI 2021-04-07	96.5	-1.49	5.78
## 812	FC 2021-04-07	86.2	-1.67	5.64
## 813	SL 2021-04-07	85.0	-1.51	5.69
## 814	CH 2021-04-07	77.2	2.55	5.71
## 815	CU 2021-04-07	77.7	-1.70	6.07
## 816	SI 2021-04-07	88.3	1.17	6.18
## 817	CH 2021-04-07	81.7	0.34	6.50
## 818	CU 2021-04-07	79.0	-1.61	6.05
## 819	SL 2021-04-07	86.2	-1.85	6.15
## 820	CH 2021-04-07	90.1	2.09	6.45
## 821	SL 2021-04-07	82.9	1.27	6.18
## 822	SL 2021-04-07	81.3	-2.74	5.98
## 823	SI 2021-04-07	91.7	-1.74	6.52
## 824	CH 2021-04-07	85.7	-2.18	5.06
## 825	FF 2021-04-07	92.3	-1.17	5.80
## 826	FF 2021-04-07	92.5	-2.38	5.30
## 827	KC 2021-04-07	84.0	-1.02	5.51
## 828	CH 2021-04-07	78.1	-1.91	6.13
## 829	FF 2021-04-07	95.1	-2.51	5.87
## 830	CU 2021-04-07	78.8	3.24	5.76
## 831	CH 2021-04-07	86.6	-1.45	5.75
## 832	CH 2021-04-07	86.5	-2.55	5.22
## 833	SL 2021-04-07	83.3	-2.14	5.89
## 834	SL 2021-04-07	84.4	-1.50	6.16
## 835	FF 2021-04-07	92.9	2.19	5.78
## 836	SL 2021-04-07	82.8	-2.51	5.51
## 837	SI 2021-04-07	94.3	-1.73	5.81
## 838	CH 2021-04-07	77.7	2.63	5.29
## 839	FC 2021-04-07	85.6	-1.76	5.65
## 840	FF 2021-04-07	93.5	2.00	6.18
## 841	FF 2021-04-07	97.8	-2.06	5.59
## 842	CH 2021-04-07	77.9	2.49	5.38
## 843	SL 2021-04-07	83.6	-2.15	6.24
## 844	FF 2021-04-07	94.1	-2.28	5.39
## 845	CU 2021-04-07	84.0	-1.34	5.88
## 846	FF 2021-04-07	91.3	0.68	6.37
## 847	FF 2021-04-07	94.1	-1.46	5.96
## 848	SL 2021-04-07	87.4	1.90	6.50
## 849	CH 2021-04-07	87.5	-2.64	5.13
## 850	FF 2021-04-07	91.3	-2.39	5.75
## 851	FF 2021-04-07	91.0	0.25	6.59
## 852	KC 2021-04-07	80.8	-1.92	5.42

## 853	CU 2021-04-07	80.9	-1.87	6.20
## 854	FF 2021-04-07	96.1	-2.42	6.13
## 855	FF 2021-04-07	92.4	-1.17	5.82
## 856	FF 2021-04-07	90.9	2.32	5.85
## 857	SI 2021-04-07	88.1	1.26	6.11
## 858	SL 2021-04-07	84.9	-2.07	5.83
## 859	FF 2021-04-07	92.5	-1.63	5.95
## 860	SL 2021-04-07	85.8	-2.50	5.81
## 861	FF 2021-04-07	94.9	-1.53	5.65
## 862	KC 2021-04-07	84.2	-1.02	5.52
## 863	CU 2021-04-07	84.2	2.28	5.87
## 864	FF 2021-04-07	94.6	-2.28	5.53
## 865	SI 2021-04-07	85.7	-2.05	6.06
## 866	FC 2021-04-07	86.3	3.20	5.75
## 867	SL 2021-04-07	82.6	-1.69	6.20
## 868	FC 2021-04-07	86.0	2.11	5.90
## 869	CU 2021-04-07	81.3	-1.69	5.93
## 870	FC 2021-04-07	86.6	2.18	5.89
## 871	SI 2021-04-07	93.1	-1.79	5.77
## 872	SL 2021-04-07	82.4	-2.14	6.00
## 873	FF 2021-04-07	90.6	0.24	6.49
## 874	KC 2021-04-07	83.2	-1.16	5.48
## 875	FC 2021-04-07	91.5	-1.93	5.76
## 876	FF 2021-04-07	93.6	2.21	6.01
## 877	CH 2021-04-07	85.2	-2.09	5.05
## 878	SL 2021-04-07	83.8	-1.97	6.28
## 879	FS 2021-04-07	87.9	-2.03	5.93
## 880	CH 2021-04-07	86.9	-2.47	5.30
## 881	FC 2021-04-07	86.7	3.27	5.79
## 882	FF 2021-04-07	95.0	-1.63	5.69
## 883	CH 2021-04-07	82.0	0.89	6.25
## 884	SL 2021-04-07	85.8	-1.99	6.12
## 885	SL 2021-04-07	85.5	-1.46	5.68
## 886	SI 2021-04-07	88.1	1.38	6.11
## 887	FF 2021-04-07	96.1	-2.48	5.50
## 888	SL 2021-04-07	85.4	-2.49	5.92
## 889	CH 2021-04-07	76.6	2.55	5.45
## 890	CH 2021-04-07	79.8	2.40	5.72
## 891	FF 2021-04-07	95.8	-1.49	5.83
## 892	CU 2021-04-07	72.5	-2.11	6.12
## 893	FF 2021-04-07	95.1	-2.56	6.10
## 894	FF 2021-04-07	94.0	-2.43	5.59
## 895	CH 2021-04-07	88.5	2.11	6.37
## 896	SL 2021-04-07	84.2	-1.46	6.15
## 897	FS 2021-04-07	83.3	-2.72	5.95
## 898	CH 2021-04-07	81.1	2.32	5.69
## 899	FF 2021-04-07	94.0	2.04	6.54
## 900	CH 2021-04-07	81.5	0.81	6.33
## 901	SI 2021-04-07	86.5	-1.96	6.13
## 902	FF 2021-04-07	94.1	-1.59	5.72
## 903	SI 2021-04-07	92.6	-1.67	6.01
## 904	CU 2021-04-07	75.4	0.79	6.43
## 905	FS 2021-04-07	85.0	-2.20	5.95
## 906	FF 2021-04-07	94.5	-1.33	5.67

## 907	FF 2021-04-07	92.5	-1.95	5.77
## 908	FF 2021-04-07	93.1	-1.99	5.21
## 909	FF 2021-04-07	94.6	-2.35	5.41
## 910	SL 2021-04-07	85.4	-1.28	6.17
## 911	KC 2021-04-07	82.9	-1.19	5.51
## 912	SL 2021-04-07	81.4	-1.95	6.43
## 913	FF 2021-04-07	94.5	-1.87	5.90
## 914	SI 2021-04-07	92.9	2.26	5.97
## 915	SL 2021-04-07	82.3	-2.50	5.49
## 916	SL 2021-04-07	85.0	-2.63	5.92
## 917	SL 2021-04-07	87.2	-1.91	6.12
## 918	SI 2021-04-07	85.9	2.40	5.69
## 919	FF 2021-04-07	96.6	-1.32	5.75
## 920	FC 2021-04-07	85.8	1.17	6.21
## 921	CU 2021-04-07	71.0	2.22	6.03
## 922	CU 2021-04-07	77.0	-1.77	6.07
## 923	CH 2021-04-07	86.4	-2.65	5.13
## 924	FF 2021-04-07	91.1	2.99	5.72
## 925	CH 2021-04-07	88.9	2.08	6.46
## 926	SL 2021-04-07	84.8	-1.41	6.07
## 927	SL 2021-04-07	84.0	-2.19	5.76
## 928	FF 2021-04-07	94.5	-2.56	6.01
## 929	CU 2021-04-07	78.1	-1.96	6.15
## 930	FF 2021-04-07	97.5	-1.39	5.81
## 931	SI 2021-04-07	92.7	2.34	6.10
## 932	FC 2021-04-07	83.0	3.03	5.10
## 933	FC 2021-04-07	85.1	1.16	6.16
## 934	FF 2021-04-07	90.2	3.07	5.75
## 935	SI 2021-04-07	96.8	-2.57	5.44
## 936	FF 2021-04-07	93.0	0.02	6.47
## 937	CH 2021-04-07	81.3	1.01	6.30
## 938	FF 2021-04-07	92.6	-1.51	5.89
## 939	CU 2021-04-07	79.2	-1.45	5.77
## 940	FF 2021-04-07	93.8	-2.53	5.23
## 941	FF 2021-04-07	92.0	-2.70	5.67
## 942	CU 2021-04-07	81.8	-1.72	6.26
## 943	CU 2021-04-07	79.5	-2.04	6.37
## 944	SI 2021-04-07	86.4	-1.97	5.99
## 945	FF 2021-04-07	93.4	-1.65	5.61
## 946	SL 2021-04-07	89.0	-1.67	5.88
## 947	KC 2021-04-07	82.9	-1.06	5.54
## 948	FF 2021-04-07	91.2	-2.56	5.28
## 949	SL 2021-04-07	79.6	2.34	5.53
## 950	FC 2021-04-07	85.7	2.43	5.77
## 951	FF 2021-04-07	93.0	-1.97	5.27
## 952	CU 2021-04-07	80.0	-1.72	6.00
## 953	FC 2021-04-07	89.9	-2.14	5.79
## 954	CU 2021-04-07	80.8	-1.67	5.83
## 955	CH 2021-04-07	77.3	2.43	5.82
## 956	CH 2021-04-07	82.0	0.99	6.32
## 957	SL 2021-04-07	86.8	-1.22	5.50
## 958	CH 2021-04-07	80.3	1.26	6.09
## 959	FF 2021-04-07	91.8	-0.12	6.51
## 960	SL 2021-04-07	86.3	-1.44	5.73

## 961	SL 2021-04-07	86.1	1.82	6.50
## 962	SI 2021-04-07	92.7	-1.66	6.52
## 963	FF 2021-04-07	92.3	-1.63	5.57
## 964	FF 2021-04-07	95.9	2.23	5.99
## 965	FF 2021-04-07	93.2	-2.86	5.64
## 966	SL 2021-04-07	83.5	-1.62	6.16
## 967	SL 2021-04-07	89.7	-1.73	5.89
## 968	FF 2021-04-07	97.5	-2.14	5.62
## 969	FC 2021-04-07	86.6	3.12	5.72
## 970	SL 2021-04-07	81.1	-2.79	5.99
## 971	FF 2021-04-07	87.3	-2.14	5.93
## 972	FF 2021-04-07	92.8	-1.49	5.90
## 973	SL 2021-04-07	82.6	-2.24	5.92
## 974	CH 2021-04-07	87.2	-2.48	5.37
## 975	FF 2021-04-07	88.5	-1.97	5.28
## 976	CH 2021-04-07	84.9	-2.66	5.12
## 977	FF 2021-04-07	94.2	-1.86	6.00
## 978	SL 2021-04-07	81.1	2.36	5.52
## 979	SI 2021-04-07	85.9	2.61	5.64
## 980	FF 2021-04-07	93.9	-2.37	5.52
## 981	FF 2021-04-07	95.3	-2.40	5.43
## 982	CH 2021-04-07	92.3	-1.47	6.22
## 983	FC 2021-04-07	88.4	-2.08	6.28
## 984	FC 2021-04-07	83.7	-1.73	5.69
## 985	CH 2021-04-07	85.0	-2.14	5.17
## 986	FC 2021-04-07	85.6	3.11	5.76
## 987	SL 2021-04-07	84.6	-2.06	5.85
## 988	FF 2021-04-07	91.7	-2.79	5.81
## 989	CH 2021-04-07	80.4	2.36	5.63
## 990	SL 2021-04-07	86.2	-1.50	5.75
## 991	CU 2021-04-07	82.7	-1.44	5.82
## 992	FF 2021-04-07	96.3	-2.57	5.52
## 993	CH 2021-04-07	79.0	-2.01	6.18
## 994	CH 2021-04-07	88.0	-1.61	5.95
## 995	CH 2021-04-07	87.1	2.27	5.70
## 996	CU 2021-04-07	76.1	-2.01	6.20
## 997	CH 2021-04-07	78.2	2.43	5.86
## 998	SL 2021-04-07	88.7	-2.07	5.89
## 999	CH 2021-04-07	86.4	-2.60	5.39
## 1000	FF 2021-04-07	93.9	-1.91	6.08
## 1001	FC 2021-04-07	79.5	3.13	4.93
## 1002	FF 2021-04-07	91.6	-0.11	6.51
## 1003	FS 2021-04-07	81.0	-2.80	5.99
## 1004	SI 2021-04-07	88.3	1.26	6.14
## 1005	SL 2021-04-07	85.3	-1.21	5.50
## 1006	CH 2021-04-07	86.8	1.93	6.33
## 1007	FF 2021-04-07	97.2	-1.91	5.69
## 1008	SL 2021-04-07	77.5	1.32	6.48
## 1009	CH 2021-04-07	88.0	1.98	6.40
## 1010	SL 2021-04-07	82.4	-2.18	5.90
## 1011	CH 2021-04-07	85.6	-2.64	5.11
## 1012	FC 2021-04-07	83.1	3.05	5.02
## 1013	FC 2021-04-07	83.7	-1.83	5.62
## 1014	SL 2021-04-07	84.0	-2.30	5.94

## 1015	SI	2021-04-07	95.9	-1.43	5.75
## 1016	CU	2021-04-07	76.2	0.47	6.37
## 1017	CH	2021-04-07	79.1	-2.06	6.16
## 1018	SI	2021-04-07	88.6	0.85	6.32
## 1019	SI	2021-04-07	95.7	-1.60	5.86
## 1020	FF	2021-04-07	93.1	-0.98	5.57
## 1021	FF	2021-04-07	94.1	-1.94	5.16
## 1022	CU	2021-04-07	78.7	-1.74	5.95
## 1023	CH	2021-04-07	85.5	-2.09	6.31
## 1024	FF	2021-04-07	90.7	2.40	5.86
## 1025	FC	2021-04-07	85.9	2.19	5.96
## 1026	FF	2021-04-07	91.1	3.01	5.67
## 1027	FF	2021-04-07	93.6	-2.39	5.31
## 1028	FF	2021-04-07	95.8	2.22	6.01
## 1029	FF	2021-04-07	94.7	-1.02	5.78
## 1030	CU	2021-04-07	79.8	-1.64	5.97
## 1031	FS	2021-04-07	83.3	-2.81	5.91
## 1032	FF	2021-04-07	95.4	-0.96	6.57
## 1033	CH	2021-04-07	81.0	1.16	6.11
## 1034	FF	2021-04-07	93.8	-2.57	5.65
## 1035	SL	2021-04-07	88.6	-2.72	5.83
## 1036	SL	2021-04-07	87.9	-1.93	6.12
## 1037	FF	2021-04-07	87.1	-2.16	5.97
## 1038	SI	2021-04-07	93.5	-2.21	5.45
## 1039	SI	2021-04-07	96.5	-1.46	5.81
## 1040	FF	2021-04-07	93.6	1.86	6.57
## 1041	CU	2021-04-07	80.3	-1.77	6.01
## 1042	FC	2021-04-07	85.1	3.34	5.72
## 1043	SL	2021-04-07	82.6	1.28	5.94
## 1044	FF	2021-04-07	95.9	-2.46	5.52
## 1045	FF	2021-04-07	90.4	-2.14	5.95
## 1046	FC	2021-04-07	81.5	3.02	4.96
## 1047	FF	2021-04-07	96.2	-2.57	5.72
## 1048	FF	2021-04-07	93.5	-1.08	5.74
## 1049	FF	2021-04-07	93.2	-2.02	6.06
## 1050	FS	2021-04-07	82.7	-2.94	5.92
## 1051	SI	2021-04-07	93.7	-1.71	5.71
## 1052	SL	2021-04-07	84.4	-2.01	6.30
## 1053	FF	2021-04-07	97.2	-0.44	6.73
## 1054	CH	2021-04-07	79.6	2.34	5.80
## 1055	SI	2021-04-07	95.1	2.29	5.94
## 1056	SL	2021-04-07	76.6	-1.90	5.48
## 1057	FF	2021-04-07	92.3	-1.08	5.53
## 1058	SL	2021-04-07	87.1	-2.60	5.86
## 1059	FF	2021-04-07	92.7	0.05	6.52
## 1060	SL	2021-04-07	85.6	-1.90	5.81
## 1061	SI	2021-04-07	90.3	-2.17	5.16
## 1062	CH	2021-04-07	80.2	1.27	6.01
## 1063	FF	2021-04-07	91.7	-2.17	5.83
## 1064	FC	2021-04-07	86.9	2.27	5.80
## 1065	SL	2021-04-07	84.5	-1.19	5.51
## 1066	SI	2021-04-07	87.8	1.21	6.15
## 1067	CH	2021-04-07	86.6	-2.73	5.07
## 1068	SL	2021-04-07	84.7	-2.61	5.83

## 1069	SI 2021-04-07	87.1	-2.05	6.02
## 1070	FF 2021-04-07	96.7	-2.13	5.61
## 1071	SI 2021-04-07	93.9	2.28	6.07
## 1072	CU 2021-04-07	79.5	-1.76	5.99
## 1073	FC 2021-04-07	82.7	-1.71	5.74
## 1074	CH 2021-04-07	85.8	-2.02	6.33
## 1075	FF 2021-04-07	89.9	3.18	5.85
## 1076	FF 2021-04-07	96.2	-1.34	5.80
## 1077	SL 2021-04-07	83.6	-2.06	5.97
## 1078	SL 2021-04-07	81.4	1.31	6.10
## 1079	FF 2021-04-07	90.4	-2.05	5.95
## 1080	CU 2021-04-07	71.7	3.01	5.08
## 1081	FF 2021-04-07	93.4	-2.48	5.28
## 1082	SL 2021-04-07	82.2	-2.76	5.50
## 1083	FF 2021-04-07	92.0	-1.25	5.78
## 1084	CU 2021-04-07	80.4	-1.93	6.28
## 1085	FF 2021-04-07	92.9	-0.05	6.51
## 1086	CH 2021-04-07	78.9	2.46	5.67
## 1087	SI 2021-04-07	92.8	-1.67	5.76
## 1088	SL 2021-04-07	87.5	1.77	6.55
## 1089	SI 2021-04-07	89.7	-2.15	5.13
## 1090	SL 2021-04-07	85.4	-1.21	6.13
## 1091	FF 2021-04-07	93.3	-2.41	6.18
## 1092	CH 2021-04-07	79.9	2.36	5.65
## 1093	FF 2021-04-07	94.0	-1.87	6.11
## 1094	SL 2021-04-07	82.4	-2.75	6.00
## 1095	CH 2021-04-07	80.0	2.43	5.70
## 1096	CH 2021-04-07	80.4	1.28	6.09
## 1097	FF 2021-04-07	96.3	-1.45	5.80
## 1098	FF 2021-04-07	97.6	-2.24	5.48
## 1099	SI 2021-04-07	93.5	-1.75	6.54
## 1100	KC 2021-04-07	81.2	-1.43	5.96
## 1101	SL 2021-04-07	83.0	-2.07	5.94
## 1102	SI 2021-04-07	96.3	-1.47	5.89
## 1103	SL 2021-04-07	79.8	1.18	6.17
## 1104	FF 2021-04-07	92.2	-0.06	6.49
## 1105	CU 2021-04-07	78.8	-1.34	5.81
## 1106	CU 2021-04-07	79.5	1.68	6.67
## 1107	CH 2021-04-07	76.8	2.71	5.40
## 1108	FC 2021-04-07	84.9	3.26	5.79
## 1109	SL 2021-04-07	87.0	-1.30	6.23
## 1110	FC 2021-04-07	88.4	-2.03	5.23
## 1111	CU 2021-04-07	83.9	2.34	5.78
## 1112	CH 2021-04-07	77.6	2.41	5.76
## 1113	KC 2021-04-07	82.1	-1.04	5.60
## 1114	CH 2021-04-07	86.7	-2.73	5.07
## 1115	SL 2021-04-07	81.4	-2.10	5.88
## 1116	CU 2021-04-07	79.0	-2.42	5.45
## 1117	CH 2021-04-07	79.8	-1.89	6.08
## 1118	SL 2021-04-07	85.4	1.41	6.01
## 1119	CU 2021-04-07	80.2	-1.67	6.00
## 1120	KC 2021-04-07	76.7	-2.38	5.76
## 1121	SL 2021-04-07	85.2	-2.64	5.88
## 1122	FF 2021-04-07	94.2	-2.50	6.12

## 1123	FF 2021-04-07	96.7	-2.72	5.47
## 1124	SL 2021-04-07	83.5	-2.21	5.87
## 1125	SL 2021-04-07	82.4	-2.50	5.46
## 1126	SL 2021-04-07	84.7	-1.99	5.75
## 1127	FC 2021-04-07	85.9	-1.71	5.58
## 1128	SI 2021-04-07	92.6	0.75	6.27
## 1129	SI 2021-04-07	92.3	-1.59	5.97
## 1130	CH 2021-04-07	84.1	-2.19	4.99
## 1131	SL 2021-04-07	86.3	-2.74	5.80
## 1132	FF 2021-04-07	92.4	-0.02	6.58
## 1133	FC 2021-04-07	86.5	2.22	5.90
## 1134	FF 2021-04-07	92.6	-1.18	5.80
## 1135	SL 2021-04-07	85.2	-1.85	6.26
## 1136	SI 2021-04-07	95.8	-1.52	5.75
## 1137	FF 2021-04-07	93.6	-1.70	6.58
## 1138	SI 2021-04-07	87.1	-1.82	6.02
## 1139	CH 2021-04-07	88.0	-2.45	5.34
## 1140	CU 2021-04-07	74.3	2.00	6.16
## 1141	FF 2021-04-07	90.4	3.12	5.76
## 1142	CU 2021-04-07	85.2	2.20	5.90
## 1143	FF 2021-04-07	96.9	-0.54	6.65
## 1144	SI 2021-04-07	94.6	-1.80	5.72
## 1145	FF 2021-04-07	94.3	-1.11	5.44
## 1146	SL 2021-04-07	86.6	1.38	6.03
## 1147	SL 2021-04-07	86.4	1.92	6.48
## 1148	FF 2021-04-07	90.5	-2.19	5.83
## 1149	SI 2021-04-07	87.5	1.27	6.12
## 1150	FC 2021-04-07	83.1	3.09	4.97
## 1151	CH 2021-04-07	80.7	1.28	6.20
## 1152	KC 2021-04-07	77.3	-2.47	5.77
## 1153	SL 2021-04-07	85.6	-2.58	5.87
## 1154	CH 2021-04-07	83.3	1.04	6.20
## 1155	FF 2021-04-07	93.3	0.12	6.53
## 1156	CH 2021-04-07	78.9	2.32	5.74
## 1157	FF 2021-04-07	90.6	-2.45	5.82
## 1158	FF 2021-04-07	93.3	-1.58	5.92
## 1159	CH 2021-04-07	79.0	-1.88	6.12
## 1160	FC 2021-04-07	89.1	-1.99	5.86
## 1161	KC 2021-04-07	84.1	-1.12	5.50
## 1162	SL 2021-04-07	85.8	-2.03	5.91
## 1163	CU 2021-04-07	84.6	2.29	5.81
## 1164	SI 2021-04-07	93.4	-1.33	6.38
## 1165	FF 2021-04-07	95.1	-1.12	5.73
## 1166	SL 2021-04-07	84.1	-2.06	6.35
## 1167	SI 2021-04-07	96.0	-2.67	5.41
## 1168	FF 2021-04-07	89.9	3.03	5.77
## 1169	CH 2021-04-07	84.4	-1.55	5.76
## 1170	FF 2021-04-07	94.7	1.75	6.50
## 1171	FS 2021-04-07	84.8	-2.94	5.84
## 1172	FC 2021-04-07	87.5	-2.04	5.23
## 1173	FF 2021-04-07	96.3	-1.55	5.64
## 1174	SI 2021-04-07	94.0	1.17	6.14
## 1175	SI 2021-04-07	93.4	-2.38	5.35
## 1176	CH 2021-04-07	78.1	2.67	5.34

## 1177	CH 2021-04-07	78.8	2.40	5.71
## 1178	FF 2021-04-07	92.7	-1.91	6.12
## 1179	SI 2021-04-07	96.2	-1.84	5.75
## 1180	FF 2021-04-07	93.2	-1.12	5.46
## 1181	SL 2021-04-07	85.1	1.89	6.46
## 1182	FF 2021-04-07	92.9	-2.17	5.87
## 1183	SL 2021-04-07	78.5	1.38	6.08
## 1184	SI 2021-04-07	93.0	-1.56	5.96
## 1185	FF 2021-04-07	94.6	-1.64	5.69
## 1186	SI 2021-04-07	86.1	-2.12	6.00
## 1187	CU 2021-04-07	80.6	3.11	5.70
## 1188	FF 2021-04-07	93.3	-2.69	5.47
## 1189	FF 2021-04-07	94.6	-2.43	5.25
## 1190	SL 2021-04-07	79.9	2.48	5.61
## 1191	CH 2021-04-07	82.8	0.92	6.25
## 1192	FF 2021-04-07	91.0	-2.01	5.91
## 1193	CU 2021-04-07	84.7	2.44	5.79
## 1194	CH 2021-04-07	89.4	-1.81	5.69
## 1195	FF 2021-04-07	92.7	0.06	6.57
## 1196	FF 2021-04-07	96.6	-2.01	5.62
## 1197	SL 2021-04-07	84.4	-2.02	6.32
## 1198	FS 2021-04-07	84.1	-2.75	5.98
## 1199	SI 2021-04-07	95.4	-2.75	5.46
## 1200	FF 2021-04-07	98.5	-1.29	5.77
## 1201	SL 2021-04-07	84.7	-1.56	5.60
## 1202	FF 2021-04-07	92.8	-1.95	6.13
## 1203	SL 2021-04-07	84.6	-2.71	5.84
## 1204	CU 2021-04-07	74.0	1.25	6.17
## 1205	CH 2021-04-07	78.3	2.61	5.46
## 1206	FF 2021-04-07	95.9	-0.85	6.69
## 1207	CH 2021-04-07	78.7	2.43	5.78
## 1208	CH 2021-04-07	85.2	-2.29	5.03
## 1209	SL 2021-04-07	83.7	-1.39	6.23
## 1210	FF 2021-04-07	91.8	2.31	5.94
## 1211	FF 2021-04-07	93.5	-0.10	6.57
## 1212	FF 2021-04-07	96.1	2.19	6.01
## 1213	SL 2021-04-07	89.2	-1.32	5.66
## 1214	SL 2021-04-07	85.1	-1.93	6.18
## 1215	SL 2021-04-07	86.6	1.75	6.52
## 1216	FF 2021-04-07	91.0	2.20	5.90
## 1217	SI 2021-04-07	93.6	-1.79	5.78
## 1218	CU 2021-04-07	73.2	1.32	6.22
## 1219	SL 2021-04-07	82.4	-2.73	6.02
## 1220	FF 2021-04-07	97.1	-2.19	5.62
## 1221	FF 2021-04-07	94.1	-1.14	5.55
## 1222	SL 2021-04-07	85.0	-2.19	5.85
## 1223	CU 2021-04-07	79.8	-1.66	5.99
## 1224	FC 2021-04-07	86.7	-2.12	5.28
## 1225	SL 2021-04-07	83.9	-1.58	5.66
## 1226	CH 2021-04-07	87.4	-2.32	5.39
## 1227	KC 2021-04-07	74.6	-2.58	5.78
## 1228	CH 2021-04-07	80.0	-1.95	6.15
## 1229	SI 2021-04-07	86.4	2.35	5.62
## 1230	KC 2021-04-07	81.4	-1.23	5.92



## 1231	FF 2021-04-07	92.4	-2.51	5.99
## 1232	SL 2021-04-07	89.9	-1.72	5.81
## 1233	SL 2021-04-07	80.2	1.41	6.22
## 1234	SL 2021-04-07	82.6	-2.19	6.26
## 1235	SI 2021-04-07	87.8	1.51	6.17
## 1236	SL 2021-04-07	84.8	-2.23	5.78
## 1237	SL 2021-04-07	77.7	-2.10	5.29
## 1238	CH 2021-04-07	86.7	-2.60	5.17
## 1239	FC 2021-04-07	86.5	3.05	5.75
## 1240	CH 2021-04-07	79.8	-1.99	6.12
## 1241	CH 2021-04-07	76.8	2.48	5.73
## 1242	CU 2021-04-07	78.2	-1.70	5.99
## 1243	FC 2021-04-07	85.9	-1.94	5.42
## 1244	SI 2021-04-07	92.3	-1.95	6.44
## 1245	FF 2021-04-07	96.1	-0.96	6.68
## 1246	SI 2021-04-07	93.0	-1.48	5.80
## 1247	CU 2021-04-07	71.3	2.75	5.24
## 1248	CH 2021-04-07	87.8	2.07	6.46
## 1249	FF 2021-04-07	93.9	-1.18	5.49
## 1250	KC 2021-04-07	82.6	-1.72	5.75
## 1251	FF 2021-04-07	95.5	-1.67	5.63
## 1252	FF 2021-04-07	92.8	-2.19	5.15
## 1253	FF 2021-04-07	91.5	2.43	5.81
## 1254	CH 2021-04-07	85.2	-2.09	6.15
## 1255	SL 2021-04-07	82.7	-2.09	5.84
## 1256	FF 2021-04-07	94.1	-2.72	5.69
## 1257	FF 2021-04-07	96.0	-1.27	5.71
## 1258	FF 2021-04-07	95.3	0.96	6.09
## 1259	FF 2021-04-07	94.4	-2.56	5.51
## 1260	FF 2021-04-07	94.8	-1.26	5.70
## 1261	FF 2021-04-07	92.1	0.10	6.56
## 1262	CU 2021-04-07	79.4	-1.67	6.06
## 1263	SI 2021-04-07	91.9	0.87	6.23
## 1264	FF 2021-04-07	92.2	-2.16	5.81
## 1265	FF 2021-04-07	95.5	-2.51	6.00
## 1266	CU 2021-04-07	82.7	2.44	5.80
## 1267	CH 2021-04-07	87.0	-2.44	5.39
## 1268	SL 2021-04-07	75.3	1.44	6.17
## 1269	FF 2021-04-07	95.1	-2.40	5.44
## 1270	FC 2021-04-07	85.9	3.10	5.72
## 1271	SI 2021-04-07	86.3	2.34	5.69
## 1272	SI 2021-04-07	95.9	-1.81	5.72
## 1273	FF 2021-04-07	93.7	-1.00	5.50
## 1274	SI 2021-04-07	94.3	-1.74	6.59
## 1275	FF 2021-04-07	97.3	-1.38	5.81
## 1276	CH 2021-04-07	79.8	-2.00	6.16
## 1277	FF 2021-04-07	92.7	-1.59	5.95
## 1278	SL 2021-04-07	77.6	-2.11	5.21
## 1279	CU 2021-04-07	80.9	-2.47	5.36
## 1280	CH 2021-04-07	85.2	-2.76	5.95
## 1281	FF 2021-04-07	91.6	2.17	5.85
## 1282	FS 2021-04-07	88.6	-1.93	5.80
## 1283	CU 2021-04-07	81.6	-1.62	5.79
## 1284	FC 2021-04-07	87.1	2.19	5.92

## 1285	KC	2021-04-07	78.7	-1.97	5.24
## 1286	SL	2021-04-07	84.5	-2.20	5.91
## 1287	FF	2021-04-07	96.4	2.28	5.93
## 1288	SI	2021-04-07	88.1	1.31	6.14
## 1289	SI	2021-04-07	96.3	-0.70	6.69
## 1290	CH	2021-04-07	89.0	2.12	6.42
## 1291	SL	2021-04-07	90.4	1.22	6.02
## 1292	FC	2021-04-07	89.5	-2.08	5.87
## 1293	SL	2021-04-07	81.5	-2.67	5.56
## 1294	FF	2021-04-07	90.9	-2.03	6.15
## 1295	CU	2021-04-07	77.8	3.19	5.79
## 1296	KC	2021-04-07	78.2	-1.42	6.00
## 1297	SL	2021-04-07	82.6	1.21	6.21
## 1298	FF	2021-04-07	97.0	-2.33	5.50
## 1299	CH	2021-04-07	85.0	-2.69	5.72
## 1300	CH	2021-04-07	82.1	0.20	6.52
## 1301	SI	2021-04-07	92.4	-1.67	5.85
## 1302	FC	2021-04-07	89.5	-1.74	5.71
## 1303	FF	2021-04-07	94.2	-1.80	6.56
## 1304	FF	2021-04-07	95.6	1.84	6.52
## 1305	CH	2021-04-07	86.0	-2.18	5.03
## 1306	SI	2021-04-07	84.8	2.34	5.69
## 1307	FF	2021-04-07	93.6	-2.66	5.65
## 1308	SI	2021-04-07	87.0	1.29	6.14
## 1309	FF	2021-04-07	94.1	-1.21	5.68
## 1310	SL	2021-04-07	79.3	-2.07	5.35
## 1311	SI	2021-04-07	96.6	-0.84	6.64
## 1312	CU	2021-04-07	76.2	1.09	6.22
## 1313	CH	2021-04-07	81.5	0.63	6.38
## 1314	FF	2021-04-07	91.7	-2.26	5.86
## 1315	SL	2021-04-07	90.2	-1.71	5.82
## 1316	FF	2021-04-07	90.6	-2.53	5.56
## 1317	CH	2021-04-07	85.9	-1.79	6.12
## 1318	FF	2021-04-07	90.9	-2.16	5.84
## 1319	FF	2021-04-07	96.6	-2.12	5.61
## 1320	SI	2021-04-07	95.3	2.14	6.10
## 1321	FF	2021-04-07	94.0	-2.44	5.29
## 1322	SI	2021-04-07	91.5	0.78	6.34
## 1323	CH	2021-04-07	86.7	-2.70	5.23
## 1324	CH	2021-04-07	87.6	-1.24	5.45
## 1325	FF	2021-04-07	87.0	-2.18	5.96
## 1326	SL	2021-04-07	80.6	2.40	5.52
## 1327	FC	2021-04-07	83.8	-1.66	5.66
## 1328	CH	2021-04-07	78.2	2.49	5.79
## 1329	FC	2021-04-07	85.1	3.20	5.81
## 1330	FF	2021-04-07	93.2	-1.93	6.09
## 1331	FF	2021-04-07	95.0	-2.69	6.02
## 1332	CH	2021-04-07	87.5	-1.46	5.64
## 1333	CU	2021-04-07	83.8	-1.31	5.91
## 1334	FF	2021-04-07	92.2	2.29	5.87
## 1335	FF	2021-04-07	90.0	2.04	5.90
## 1336	FF	2021-04-07	93.3	-2.48	5.31
## 1337	SL	2021-04-07	86.5	-2.64	5.89
## 1338	KC	2021-04-07	80.3	-1.42	5.98

## 1339	FC 2021-04-07	87.3	-1.98	5.47
## 1340	CU 2021-04-07	80.0	1.75	6.59
## 1341	SI 2021-04-07	94.9	-1.10	6.54
## 1342	FF 2021-04-07	91.5	-1.75	5.91
## 1343	CH 2021-04-07	85.4	-2.09	5.00
## 1344	SL 2021-04-07	83.7	-2.14	5.89
## 1345	FF 2021-04-07	94.4	-1.31	5.68
## 1346	SI 2021-04-07	94.7	-1.82	6.51
## 1347	CH 2021-04-07	86.9	-2.00	5.32
## 1348	SI 2021-04-07	84.8	2.41	5.69
## 1349	CH 2021-04-07	87.3	-1.75	5.61
## 1350	FS 2021-04-07	87.0	-1.81	5.87
## 1351	FF 2021-04-07	87.2	-2.13	5.93
## 1352	FF 2021-04-07	90.4	-2.27	5.82
## 1353	FS 2021-04-07	83.2	-2.83	5.96
## 1354	CH 2021-04-07	86.5	-2.59	5.20
## 1355	SI 2021-04-07	93.2	2.33	5.94
## 1356	FF 2021-04-07	90.2	-2.63	5.51
## 1357	SL 2021-04-07	86.8	-1.99	6.17
## 1358	CU 2021-04-07	76.8	3.29	5.85
## 1359	FF 2021-04-07	93.7	-1.12	5.45
## 1360	FF 2021-04-07	90.3	0.79	6.28
## 1361	FF 2021-04-07	92.9	0.09	6.51
## 1362	CH 2021-04-07	86.3	1.65	5.88
## 1363	SI 2021-04-07	86.7	1.39	6.08
## 1364	CH 2021-04-07	79.2	2.46	5.84
## 1365	FF 2021-04-07	90.1	3.11	5.79
## 1366	CU 2021-04-07	77.3	1.05	6.32
## 1367	FF 2021-04-07	93.0	-1.92	6.01
## 1368	CU 2021-04-07	80.6	-1.82	5.98
## 1369	FC 2021-04-07	88.6	-2.15	6.31
## 1370	SI 2021-04-07	91.1	0.72	6.31
## 1371	FF 2021-04-07	91.7	0.06	6.53
## 1372	FS 2021-04-07	84.9	-2.03	6.05
## 1373	SI 2021-04-07	93.2	-2.49	5.35
## 1374	FC 2021-04-07	84.1	1.14	6.16
## 1375	FF 2021-04-07	91.2	-1.98	5.87
## 1376	CU 2021-04-07	80.3	-1.68	5.61
## 1377	SL 2021-04-07	85.1	1.94	6.53
## 1378	SI 2021-04-07	95.5	-0.73	6.61
## 1379	SL 2021-04-07	78.3	-2.35	5.26
## 1380	FF 2021-04-07	92.0	-2.88	5.84
## 1381	FF 2021-04-07	93.8	-1.91	5.73
## 1382	SL 2021-04-07	84.4	-1.96	5.90
## 1383	SL 2021-04-07	82.8	-2.62	5.53
## 1384	KC 2021-04-07	78.6	-1.47	5.93
## 1385	FF 2021-04-07	94.0	2.03	6.14
## 1386	FF 2021-04-07	95.1	-2.54	6.08
## 1387	FF 2021-04-07	97.2	-1.39	5.78
## 1388	CU 2021-04-07	82.1	-1.50	5.81
## 1389	FC 2021-04-07	83.1	3.14	4.99
## 1390	SL 2021-04-07	85.8	-1.24	5.48
## 1391	CH 2021-04-07	79.9	-1.90	6.12
## 1392	KC 2021-04-07	78.6	-1.94	5.26

## 1393	FF 2021-04-07	96.5	-2.63	5.44
## 1394	FF 2021-04-07	92.8	2.23	5.84
## 1395	SI 2021-04-07	87.7	-1.96	6.03
## 1396	FF 2021-04-07	94.5	-2.02	6.02
## 1397	KC 2021-04-07	84.2	-1.80	5.79
## 1398	CU 2021-04-07	74.4	-1.69	5.61
## 1399	FC 2021-04-07	87.0	-1.95	5.32
## 1400	SI 2021-04-07	95.2	2.06	6.10
## 1401	SI 2021-04-07	92.7	-2.02	6.46
## 1402	SI 2021-04-07	92.6	-2.49	5.37
## 1403	FF 2021-04-07	92.7	-1.58	5.67
## 1404	CH 2021-04-07	79.4	1.33	6.13
## 1405	SL 2021-04-07	85.0	-1.96	5.98
## 1406	FC 2021-04-07	85.3	2.16	6.00
## 1407	SL 2021-04-07	80.5	-2.76	5.95
## 1408	FC 2021-04-07	86.1	3.21	5.76
## 1409	SI 2021-04-07	94.9	-1.43	5.78
## 1410	CU 2021-04-07	81.2	-1.56	5.78
## 1411	CH 2021-04-07	80.7	0.39	6.37
## 1412	FC 2021-04-07	91.4	-1.74	5.80
## 1413	SI 2021-04-07	91.3	0.77	6.28
## 1414	SL 2021-04-07	85.2	-1.37	6.13
## 1415	SL 2021-04-07	87.5	-2.62	5.90
## 1416	CH 2021-04-07	80.1	2.26	5.74
## 1417	FC 2021-04-07	83.3	3.04	5.07
## 1418	KC 2021-04-07	84.6	-1.11	5.58
## 1419	SI 2021-04-07	95.1	0.71	6.41
## 1420	CH 2021-04-07	86.3	-1.73	5.99
## 1421	SL 2021-04-07	83.0	2.01	6.51
## 1422	SL 2021-04-07	83.0	-2.24	5.88
## 1423	FF 2021-04-07	92.3	-1.99	5.84
## 1424	KC 2021-04-07	74.6	-2.60	5.88
## 1425	SI 2021-04-07	96.0	-2.56	5.39
## 1426	SI 2021-04-07	94.8	2.07	6.06
## 1427	FF 2021-04-07	92.2	-1.76	5.97
## 1428	FC 2021-04-07	85.3	1.20	6.21
## 1429	FF 2021-04-07	95.2	-1.46	5.61
## 1430	SL 2021-04-07	80.5	-2.77	5.67
## 1431	SI 2021-04-07	92.9	-2.39	5.38
## 1432	SL 2021-04-07	86.9	-1.26	5.41
## 1433	CH 2021-04-07	77.5	2.67	5.46
## 1434	FF 2021-04-07	92.6	-2.02	5.18
## 1435	SL 2021-04-07	81.4	1.29	6.00
## 1436	FF 2021-04-07	93.7	-1.12	5.74
## 1437	FF 2021-04-07	91.7	-0.12	6.49
## 1438	FF 2021-04-07	95.3	-1.68	5.74
## 1439	SL 2021-04-07	84.6	-1.51	5.75
## 1440	SL 2021-04-07	80.6	-2.80	5.94
## 1441	SL 2021-04-07	83.7	-1.67	6.21
## 1442	CU 2021-04-07	78.0	-1.80	5.94
## 1443	FF 2021-04-07	91.2	-2.23	5.87
## 1444	SI 2021-04-07	94.3	0.88	6.35
## 1445	CU 2021-04-07	78.4	1.77	6.68
## 1446	FC 2021-04-07	89.6	-2.14	6.33

## 1447	SL 2021-04-07	80.3	2.46	5.53
## 1448	CH 2021-04-07	77.7	2.29	5.82
## 1449	SL 2021-04-07	78.3	-2.06	5.37
## 1450	FF 2021-04-07	93.5	-2.20	6.02
## 1451	CH 2021-04-07	86.4	-1.98	5.36
## 1452	FF 2021-04-07	96.3	-2.43	5.60
## 1453	SI 2021-04-07	87.0	-1.91	6.02
## 1454	FF 2021-04-07	91.0	3.04	5.71
## 1455	FF 2021-04-07	91.4	-2.27	5.86
## 1456	SL 2021-04-07	87.7	-2.50	5.76
## 1457	SL 2021-04-07	80.0	-2.73	6.13
## 1458	SL 2021-04-07	87.6	-1.49	5.69
## 1459	SL 2021-04-07	80.9	1.21	6.05
## 1460	CH 2021-04-07	79.0	2.35	5.84
## 1461	CU 2021-04-07	74.1	1.26	6.29
## 1462	CH 2021-04-07	86.1	-2.06	6.03
## 1463	FF 2021-04-07	88.9	-1.80	5.54
## 1464	FF 2021-04-07	95.0	-1.92	5.89
## 1465	FF 2021-04-07	92.5	2.23	5.77
## 1466	SL 2021-04-07	86.2	-1.45	6.27
## 1467	FC 2021-04-07	85.4	3.17	5.86
## 1468	FF 2021-04-07	91.8	-1.99	6.56
## 1469	CH 2021-04-07	88.6	1.96	6.49
## 1470	FF 2021-04-07	96.6	-2.76	5.61
## 1471	CH 2021-04-07	88.0	-1.62	5.98
## 1472	FF 2021-04-07	92.6	-0.04	6.55
## 1473	SL 2021-04-07	89.8	-1.65	5.78
## 1474	CH 2021-04-07	78.4	2.67	5.38
## 1475	CH 2021-04-07	80.3	-1.98	6.11
## 1476	FF 2021-04-07	93.8	-2.04	6.07
## 1477	SL 2021-04-07	82.5	-1.77	5.55
## 1478	SL 2021-04-07	81.4	-2.20	5.90
## 1479	KC 2021-04-07	77.9	-1.88	5.39
## 1480	CH 2021-04-07	87.1	-2.55	5.81
## 1481	SI 2021-04-07	93.8	-1.86	5.65
## 1482	FF 2021-04-07	93.7	-2.40	5.33
## 1483	SI 2021-04-07	94.4	2.20	6.08
## 1484	FF 2021-04-07	91.6	-2.59	5.58
## 1485	SL 2021-04-07	87.4	-1.15	5.47
## 1486	FC 2021-04-07	86.4	1.20	6.21
## 1487	SL 2021-04-07	84.0	-1.25	5.81
## 1488	SL 2021-04-07	82.3	-1.84	5.57
## 1489	FF 2021-04-07	95.1	1.75	6.57
## 1490	SI 2021-04-07	95.8	-1.78	5.79
## 1491	FC 2021-04-07	92.2	-1.94	5.94
## 1492	CU 2021-04-07	75.7	1.13	6.29
## 1493	CH 2021-04-07	80.9	2.33	5.66
## 1494	FF 2021-04-07	93.2	-1.23	5.76
## 1495	FF 2021-04-07	92.6	-1.96	5.21
## 1496	SI 2021-04-07	94.2	2.01	6.12
## 1497	CH 2021-04-07	80.4	1.21	6.11
## 1498	FF 2021-04-07	96.7	-2.66	5.58
## 1499	SL 2021-04-07	80.0	-2.25	5.92
## 1500	SL 2021-04-07	77.3	-1.98	5.38

## 1501	FF 2021-04-07	94.6	-0.78	6.68
## 1502	FS 2021-04-07	84.9	-2.82	5.98
## 1503	CU 2021-04-07	71.1	3.00	5.21
## 1504	CU 2021-04-07	78.3	-2.26	6.43
## 1505	SI 2021-04-07	91.8	2.64	6.12
## 1506	FF 2021-04-07	90.6	0.15	6.58
## 1507	FF 2021-04-07	90.0	2.25	5.74
## 1508	CH 2021-04-07	87.3	-2.07	6.13
## 1509	SI 2021-04-07	87.0	-1.88	6.08
## 1510	FF 2021-04-07	92.4	-2.19	5.88
## 1511	FF 2021-04-07	93.8	-1.02	5.57
## 1512	SI 2021-04-07	94.1	-1.59	5.98
## 1513	SL 2021-04-07	87.0	-2.70	5.91
## 1514	FF 2021-04-07	90.7	3.01	5.79
## 1515	SL 2021-04-07	82.7	-2.56	5.61
## 1516	SL 2021-04-07	82.3	1.04	6.22
## 1517	FC 2021-04-07	90.7	-1.57	5.73
## 1518	FF 2021-04-07	93.3	-2.67	5.18
## 1519	SL 2021-04-07	85.8	-1.59	5.80
## 1520	FF 2021-04-07	92.7	-2.40	6.08
## 1521	CU 2021-04-07	78.9	-1.50	5.95
## 1522	CU 2021-04-07	75.0	1.14	6.27
## 1523	KC 2021-04-07	84.0	-2.04	5.74
## 1524	FF 2021-04-07	92.5	-2.56	5.51
## 1525	FF 2021-04-07	95.4	-2.73	5.47
## 1526	CU 2021-04-07	74.0	-1.57	5.80
## 1527	FC 2021-04-07	90.3	-2.06	6.35
## 1528	SI 2021-04-07	96.2	2.27	6.07
## 1529	SI 2021-04-07	92.7	0.77	6.23
## 1530	SI 2021-04-07	87.1	-2.14	6.01
## 1531	FF 2021-04-07	93.3	-0.93	6.57
## 1532	SI 2021-04-07	92.6	2.61	6.10
## 1533	FS 2021-04-07	89.4	-1.82	5.89
## 1534	CU 2021-04-07	85.9	-1.30	5.83
## 1535	FS 2021-04-07	84.7	-2.22	6.04
## 1536	FC 2021-04-07	83.5	2.17	5.93
## 1537	SL 2021-04-07	83.5	-1.98	5.88
## 1538	CH 2021-04-07	77.6	2.70	5.37
## 1539	FF 2021-04-07	93.2	-1.04	5.56
## 1540	FF 2021-04-07	91.1	-2.01	5.15
## 1541	SI 2021-04-07	88.4	1.41	6.15
## 1542	FF 2021-04-07	92.8	0.11	6.43
## 1543	SL 2021-04-07	81.9	2.50	5.49
## 1544	CU 2021-04-07	81.3	-1.67	5.98
## 1545	SL 2021-04-07	79.7	-1.83	5.52
## 1546	FC 2021-04-07	89.1	-1.68	5.87
## 1547	SL 2021-04-07	87.8	-2.52	5.80
## 1548	FC 2021-04-07	86.1	3.23	5.79
## 1549	FF 2021-04-07	95.1	1.83	6.60
## 1550	CH 2021-04-07	87.1	-2.04	6.11
## 1551	FF 2021-04-07	94.2	-2.42	5.39
## 1552	KC 2021-04-07	75.7	-2.05	5.38
## 1553	CU 2021-04-07	73.2	2.21	6.09
## 1554	SL 2021-04-07	85.0	1.37	5.92

## 1555	FF 2021-04-07	92.4	-2.11	6.09
## 1556	FC 2021-04-07	88.0	-2.16	6.33
## 1557	SL 2021-04-07	78.0	-2.00	5.27
## 1558	FF 2021-04-07	94.4	1.78	6.59
## 1559	FF 2021-04-07	93.7	0.29	6.39
## 1560	CU 2021-04-07	86.3	-1.31	5.83
## 1561	CH 2021-04-07	78.7	-2.04	6.11
## 1562	FF 2021-04-07	94.5	-2.58	5.95
## 1563	SL 2021-04-07	82.8	0.99	6.19
## 1564	FC 2021-04-07	91.3	-2.29	5.53
## 1565	FC 2021-04-07	85.8	3.06	5.78
## 1566	CH 2021-04-07	80.4	2.31	5.77
## 1567	CH 2021-04-07	80.1	1.23	6.12
## 1568	SL 2021-04-07	90.5	-1.98	5.82
## 1569	SI 2021-04-07	90.5	2.42	6.29
## 1570	FF 2021-04-07	95.0	-1.27	6.18
## 1571	KC 2021-04-07	83.5	-1.17	5.63
## 1572	SI 2021-04-07	93.2	-1.74	5.72
## 1573	CU 2021-04-07	80.7	-1.49	5.81
## 1574	FF 2021-04-07	95.3	-0.98	6.64
## 1575	FC 2021-04-07	85.0	-1.84	5.66
## 1576	FF 2021-04-07	91.4	-2.08	5.84
## 1577	FF 2021-04-07	95.8	2.27	5.95
## 1578	FF 2021-04-07	92.6	-2.58	5.48
## 1579	CH 2021-04-07	88.4	-1.63	5.93
## 1580	CU 2021-04-07	78.6	-1.66	6.14
## 1581	CH 2021-04-07	85.4	-3.00	5.23
## 1582	FF 2021-04-07	96.2	-2.48	5.80
## 1583	CH 2021-04-07	84.5	-2.90	6.03
## 1584	FC 2021-04-07	82.3	3.03	5.13
## 1585	FF 2021-04-07	92.7	-2.29	5.85
## 1586	SL 2021-04-07	84.0	1.54	6.04
## 1587	FF 2021-04-07	93.6	0.36	6.42
## 1588	SI 2021-04-07	86.4	-1.97	6.10
## 1589	FC 2021-04-07	85.3	2.01	5.97
## 1590	FF 2021-04-07	92.2	-2.08	5.82
## 1591	FF 2021-04-07	95.6	-1.34	5.74
## 1592	SL 2021-04-07	85.5	-1.19	5.50
## 1593	SI 2021-04-07	95.5	2.33	6.01
## 1594	FF 2021-04-07	92.9	-0.94	6.58
## 1595	FC 2021-04-07	87.1	-1.93	5.55
## 1596	FF 2021-04-07	93.5	-2.56	5.66
## 1597	FF 2021-04-07	92.9	-1.14	5.75
## 1598	FF 2021-04-07	94.4	-1.62	5.69
## 1599	SL 2021-04-07	80.9	-2.26	5.93
## 1600	FC 2021-04-07	82.8	2.96	5.05
## 1601	SI 2021-04-07	96.2	-2.78	5.31
## 1602	FF 2021-04-07	92.6	0.74	6.25
## 1603	FF 2021-04-07	88.7	-1.07	5.71
## 1604	FC 2021-04-07	91.4	-1.63	5.84
## 1605	SL 2021-04-07	90.7	-1.92	5.77
## 1606	CH 2021-04-07	87.9	-1.23	6.11
## 1607	CU 2021-04-07	70.5	1.47	6.25
## 1608	SI 2021-04-07	93.0	-1.79	6.50

## 1609	SI 2021-04-07	87.8	1.30	6.17
## 1610	SI 2021-04-07	94.6	-1.57	5.92
## 1611	FF 2021-04-07	95.6	-2.49	5.75
## 1612	CH 2021-04-07	86.1	-2.52	5.90
## 1613	FF 2021-04-07	92.5	-2.54	5.50
## 1614	FF 2021-04-07	97.1	-2.10	5.80
## 1615	SL 2021-04-07	87.9	-2.17	6.11
## 1616	FF 2021-04-07	94.2	-2.60	6.20
## 1617	SI 2021-04-07	93.7	2.16	6.26
## 1618	FF 2021-04-07	90.5	2.91	5.77
## 1619	FF 2021-04-07	94.0	1.96	6.51
## 1620	CH 2021-04-07	80.2	2.26	5.80
## 1621	FF 2021-04-07	91.4	1.10	6.11
## 1622	FC 2021-04-07	86.3	-1.93	5.33
## 1623	FF 2021-04-07	96.4	-2.72	5.54
## 1624	FF 2021-04-07	92.2	0.16	6.50
## 1625	SL 2021-04-07	91.0	-1.86	5.77
## 1626	CH 2021-04-07	87.2	-2.55	5.31
## 1627	FF 2021-04-07	93.0	-0.97	6.63
## 1628	FF 2021-04-07	94.0	1.90	6.55
## 1629	SL 2021-04-07	81.4	-2.34	5.92
## 1630	SL 2021-04-07	84.8	-2.09	6.35
## 1631	SL 2021-04-07	83.6	-2.02	5.87
## 1632	CU 2021-04-07	79.4	-1.81	5.70
## 1633	SI 2021-04-07	96.4	2.39	5.93
## 1634	FC 2021-04-07	84.4	2.17	6.04
## 1635	FF 2021-04-07	91.6	0.97	6.07
## 1636	FF 2021-04-07	95.8	-1.20	6.20
## 1637	FF 2021-04-07	93.4	-1.45	5.93
## 1638	FF 2021-04-07	91.4	-2.70	5.59
## 1639	CU 2021-04-07	76.6	-1.22	5.69
## 1640	FF 2021-04-07	97.2	-1.99	5.64
## 1641	FC 2021-04-07	85.7	3.21	5.74
## 1642	FF 2021-04-07	92.6	-1.05	5.57
## 1643	FF 2021-04-07	95.6	-1.46	5.88
## 1644	FF 2021-04-07	92.7	2.31	5.83
## 1645	SL 2021-04-07	88.0	-1.99	6.11
## 1646	CH 2021-04-07	77.5	2.68	5.37
## 1647	CH 2021-04-07	80.0	-1.97	6.16
## 1648	FF 2021-04-07	93.5	0.51	6.26
## 1649	SL 2021-04-07	79.7	-2.79	6.12
## 1650	FF 2021-04-07	93.6	1.25	5.82
## 1651	CU 2021-04-07	81.5	2.02	6.60
## 1652	FF 2021-04-07	92.6	-1.89	5.24
## 1653	FF 2021-04-07	95.3	-2.55	5.95
## 1654	FC 2021-04-07	89.6	-1.43	6.39
## 1655	SL 2021-04-07	86.5	-2.60	5.79
## 1656	SI 2021-04-07	87.6	1.33	6.10
## 1657	SL 2021-04-07	80.4	-2.11	5.21
## 1658	CU 2021-04-07	81.1	-1.59	5.84
## 1659	FF 2021-04-07	94.0	-1.61	5.72
## 1660	CH 2021-04-07	88.1	-1.25	6.06
## 1661	FS 2021-04-07	85.3	-2.24	5.97
## 1662	FF 2021-04-07	88.6	2.18	5.87



## 1663	SI 2021-04-07	87.7	1.35	6.14
## 1664	FC 2021-04-07	84.1	-1.90	5.71
## 1665	CH 2021-04-07	80.1	-1.69	5.71
## 1666	SL 2021-04-07	82.8	2.46	5.56
## 1667	FF 2021-04-07	90.7	1.10	6.09
## 1668	FF 2021-04-07	93.2	0.13	6.47
## 1669	CH 2021-04-07	79.8	-1.95	6.17
## 1670	SI 2021-04-07	91.1	-2.58	5.68
## 1671	CU 2021-04-07	79.3	3.17	5.70
## 1672	FF 2021-04-07	91.6	-2.63	6.12
## 1673	SI 2021-04-07	96.4	2.08	6.01
## 1674	FC 2021-04-07	85.6	-2.09	5.41
## 1675	CU 2021-04-07	77.8	-1.11	5.63
## 1676	SI 2021-04-07	93.6	-1.79	5.83
## 1677	CU 2021-04-07	78.7	-1.72	6.15
## 1678	FF 2021-04-07	94.4	-2.47	5.31
## 1679	FF 2021-04-07	92.9	1.38	5.83
## 1680	FC 2021-04-07	90.6	-1.87	5.88
## 1681	FF 2021-04-07	96.0	-1.50	5.81
## 1682	SL 2021-04-07	83.3	-2.14	6.26
## 1683	SL 2021-04-07	84.4	1.20	6.21
## 1684	FF 2021-04-07	94.2	-1.06	5.53
## 1685	SL 2021-04-07	87.8	-2.63	5.76
## 1686	CH 2021-04-07	85.3	-2.11	5.12
## 1687	CH 2021-04-07	86.1	-2.79	5.26
## 1688	SI 2021-04-07	95.8	-0.81	6.71
## 1689	FF 2021-04-07	93.2	-1.52	5.92
## 1690	SI 2021-04-07	86.9	2.52	5.72
## 1691	FF 2021-04-07	95.3	-2.54	5.88
## 1692	CU 2021-04-07	79.8	-1.91	6.30
## 1693	CU 2021-04-07	80.0	-1.32	5.79
## 1694	FF 2021-04-07	93.9	-1.16	6.34
## 1695	CU 2021-04-07	78.4	1.95	6.68
## 1696	FF 2021-04-07	94.6	1.84	6.57
## 1697	KC 2021-04-07	82.9	-1.71	5.80
## 1698	FF 2021-04-07	93.0	-1.46	5.96
## 1699	FF 2021-04-07	92.8	-2.06	6.09
## 1700	FF 2021-04-07	93.9	0.24	6.39
## 1701	FF 2021-04-07	93.0	-2.75	5.31
## 1702	SL 2021-04-07	79.9	-2.10	5.24
## 1703	FF 2021-04-07	93.8	-2.58	5.66
## 1704	FC 2021-04-07	86.9	-1.04	5.76
## 1705	FF 2021-04-07	97.2	-0.74	6.67
## 1706	FF 2021-04-07	93.2	0.70	6.22
## 1707	FF 2021-04-07	95.1	-1.39	5.76
## 1708	FF 2021-04-07	93.9	-1.20	5.70
## 1709	FF 2021-04-07	91.6	1.26	6.13
## 1710	CH 2021-04-07	88.6	-1.40	6.06
## 1711	CH 2021-04-07	79.6	-1.98	6.15
## 1712	FC 2021-04-07	86.1	2.14	5.97
## 1713	SL 2021-04-07	86.6	-1.86	6.04
## 1714	FF 2021-04-07	90.6	-2.36	5.91
## 1715	SL 2021-04-07	87.9	2.19	5.71
## 1716	CU 2021-04-07	79.6	1.76	6.67

## 1717	FF 2021-04-07	93.0	2.28	5.88
## 1718	SI 2021-04-07	93.5	-1.83	6.43
## 1719	FC 2021-04-07	85.9	1.18	6.20
## 1720	CH 2021-04-07	83.1	-2.18	5.11
## 1721	FC 2021-04-07	90.7	-1.91	5.86
## 1722	FF 2021-04-07	94.5	-1.12	5.51
## 1723	CH 2021-04-07	77.7	-2.02	5.04
## 1724	SL 2021-04-07	89.0	-1.75	5.83
## 1725	SI 2021-04-07	94.4	-2.57	5.42
## 1726	FC 2021-04-07	90.7	-1.24	6.28
## 1727	FF 2021-04-07	92.6	-2.41	6.18
## 1728	FC 2021-04-07	83.0	-1.65	5.76
## 1729	CH 2021-04-07	87.3	-2.40	5.41
## 1730	FF 2021-04-07	93.5	1.29	5.88
## 1731	CU 2021-04-07	83.5	2.32	5.82
## 1732	FC 2021-04-07	90.6	-1.66	5.77
## 1733	FC 2021-04-07	89.7	-2.44	5.87
## 1734	SI 2021-04-07	92.0	2.01	6.16
## 1735	FF 2021-04-07	90.6	3.11	5.75
## 1736	FC 2021-04-07	81.3	2.93	5.14
## 1737	SL 2021-04-07	84.6	2.02	6.50
## 1738	SL 2021-04-07	78.9	-2.16	5.26
## 1739	FF 2021-04-07	92.2	0.58	6.27
## 1740	FF 2021-04-07	91.7	-1.88	5.29
## 1741	FF 2021-04-07	92.2	2.43	5.74
## 1742	FF 2021-04-07	95.5	-1.32	6.18
## 1743	FC 2021-04-07	81.8	2.98	5.11
## 1744	SI 2021-04-07	91.2	2.41	6.14
## 1745	FF 2021-04-07	94.0	-1.04	5.75
## 1746	FC 2021-04-07	85.4	3.18	5.81
## 1747	FF 2021-04-07	92.4	1.35	5.87
## 1748	SI 2021-04-07	95.0	-1.53	5.78
## 1749	FC 2021-04-07	85.8	2.27	5.97
## 1750	SI 2021-04-07	87.1	1.21	6.21
## 1751	CH 2021-04-07	87.2	-2.00	6.00
## 1752	CH 2021-04-07	78.1	-1.83	5.95
## 1753	FC 2021-04-07	94.2	-1.97	5.84
## 1754	CH 2021-04-07	81.9	0.70	6.42
## 1755	FF 2021-04-07	91.5	1.16	6.06
## 1756	FC 2021-04-07	90.6	-2.10	6.31
## 1757	FF 2021-04-07	94.3	-1.02	5.53
## 1758	FC 2021-04-07	88.6	-1.38	6.36
## 1759	SL 2021-04-07	82.3	-2.28	5.96
## 1760	CH 2021-04-07	87.3	-2.48	5.43
## 1761	FF 2021-04-07	89.8	-1.06	5.70
## 1762	FF 2021-04-07	94.9	-2.59	6.05
## 1763	FF 2021-04-07	93.8	2.06	5.68
## 1764	CH 2021-04-07	86.7	-2.47	5.97
## 1765	FF 2021-04-07	94.0	-2.71	5.69
## 1766	FF 2021-04-07	93.2	-1.61	5.87
## 1767	CU 2021-04-07	83.3	2.35	5.81
## 1768	SL 2021-04-07	90.4	-1.71	5.72
## 1769	SL 2021-04-07	87.6	-1.91	6.09
## 1770	FF 2021-04-07	96.3	-2.90	5.52

## 1771	FF 2021-04-07	86.4	-2.06	6.00
## 1772	FC 2021-04-07	86.8	-1.72	5.72
## 1773	FF 2021-04-07	95.4	-1.43	5.78
## 1774	SL 2021-04-07	85.6	-1.47	6.15
## 1775	FF 2021-04-07	91.5	-2.63	5.54
## 1776	SL 2021-04-07	88.5	-2.58	5.77
## 1777	SL 2021-04-07	86.6	2.30	5.71
## 1778	FC 2021-04-07	89.1	-1.75	5.85
## 1779	CH 2021-04-07	78.3	2.52	5.79
## 1780	FF 2021-04-07	94.9	-1.75	5.83
## 1781	FF 2021-04-07	93.0	0.35	6.44
## 1782	FF 2021-04-07	95.7	-1.36	5.93
## 1783	SI 2021-04-07	87.4	2.53	5.60
## 1784	FF 2021-04-07	93.7	-1.73	5.59
## 1785	CU 2021-04-07	81.5	-1.70	6.26
## 1786	SL 2021-04-07	83.5	1.91	6.50
## 1787	SI 2021-04-07	93.4	2.05	6.09
## 1788	SI 2021-04-07	92.1	1.89	6.18
## 1789	SL 2021-04-07	85.6	-1.20	6.19
## 1790	FF 2021-04-07	95.1	-0.85	6.37
## 1791	CH 2021-04-07	88.2	-1.59	5.96
## 1792	SI 2021-04-07	86.9	-2.08	6.05
## 1793	FF 2021-04-07	96.3	-2.62	5.97
## 1794	CU 2021-04-07	78.6	3.05	5.81
## 1795	FF 2021-04-07	90.9	1.21	6.12
## 1796	FF 2021-04-07	94.8	-1.37	6.12
## 1797	FF 2021-04-07	94.6	-2.48	5.92
## 1798	FC 2021-04-07	86.9	-1.02	5.78
## 1799	SL 2021-04-07	80.7	2.39	5.55
## 1800	CH 2021-04-07	86.1	0.92	6.13
## 1801	SI 2021-04-07	89.9	-2.30	5.92
## 1802	FF 2021-04-07	91.1	-2.59	5.57
## 1803	SL 2021-04-07	80.4	-2.33	5.95
## 1804	SI 2021-04-07	89.5	1.30	6.15
## 1805	KC 2021-04-07	84.7	-0.98	5.57
## 1806	SI 2021-04-07	84.9	-1.73	5.91
## 1807	FF 2021-04-07	94.2	1.14	5.91
## 1808	FF 2021-04-07	94.2	-1.13	5.77
## 1809	SL 2021-04-07	79.6	-2.09	5.26
## 1810	FF 2021-04-07	94.2	-2.69	6.10
## 1811	FF 2021-04-07	95.5	-1.55	5.89
## 1812	SI 2021-04-07	91.8	-2.02	6.37
## 1813	CH 2021-04-07	87.1	-2.98	5.19
## 1814	FF 2021-04-07	97.2	-2.08	5.74
## 1815	SI 2021-04-07	95.0	-2.33	5.57
## 1816	KC 2021-04-07	79.7	-1.94	5.26
## 1817	FF 2021-04-07	88.9	2.31	5.85
## 1818	CU 2021-04-07	82.4	-1.55	5.95
## 1819	CH 2021-04-07	78.2	2.69	5.50
## 1820	FF 2021-04-07	95.7	-2.06	5.55
## 1821	CU 2021-04-07	78.6	1.60	6.12
## 1822	SI 2021-04-07	94.2	-2.40	5.51
## 1823	SL 2021-04-07	85.5	-2.77	6.07
## 1824	SL 2021-04-07	79.2	2.27	5.64

## 1825	SL 2021-04-07	85.0	1.87	6.58
## 1826	FF 2021-04-07	94.8	-1.16	6.29
## 1827	SL 2021-04-07	85.9	-1.37	6.21
## 1828	SL 2021-04-07	86.6	-2.58	5.76
## 1829	CH 2021-04-07	80.5	1.48	6.12
## 1830	FC 2021-04-07	86.2	3.00	5.75
## 1831	FF 2021-04-07	94.3	-1.44	5.83
## 1832	FF 2021-04-07	90.5	-2.16	5.85
## 1833	CH 2021-04-07	77.2	-2.05	5.02
## 1834	FC 2021-04-07	84.7	-1.74	5.62
## 1835	SI 2021-04-07	92.9	1.98	6.27
## 1836	SL 2021-04-07	82.0	-2.64	6.00
## 1837	FF 2021-04-07	94.4	-1.12	5.56
## 1838	SL 2021-04-07	87.3	-1.70	6.19
## 1839	FC 2021-04-07	86.7	-0.68	5.93
## 1840	FF 2021-04-07	93.5	1.20	6.01
## 1841	CH 2021-04-07	87.5	-1.21	6.12
## 1842	CH 2021-04-07	85.2	-2.54	6.03
## 1843	SI 2021-04-07	94.5	-1.85	5.24
## 1844	SL 2021-04-07	83.0	-2.28	5.89
## 1845	SI 2021-04-07	96.0	-1.44	5.90
## 1846	FF 2021-04-07	93.4	2.17	5.66
## 1847	SL 2021-04-07	80.6	-2.19	5.25
## 1848	CH 2021-04-07	87.0	-3.10	5.17
## 1849	FF 2021-04-07	89.5	-2.62	5.78
## 1850	SI 2021-04-07	94.2	-1.80	5.66
## 1851	SI 2021-04-07	96.6	2.25	6.01
## 1852	FF 2021-04-07	93.6	0.25	6.47
## 1853	SI 2021-04-07	86.7	-2.11	6.03
## 1854	CH 2021-04-07	84.3	0.82	6.17
## 1855	SI 2021-04-07	94.1	-2.97	5.76
## 1856	SI 2021-04-07	92.2	-2.27	6.33
## 1857	SL 2021-04-07	83.6	-1.26	5.78
## 1858	SI 2021-04-07	94.1	-1.61	5.76
## 1859	CU 2021-04-07	82.3	-1.63	6.08
## 1860	SL 2021-04-07	84.2	-2.66	6.17
## 1861	FF 2021-04-07	93.7	2.07	5.76
## 1862	SL 2021-04-07	88.2	-1.89	6.01
## 1863	FF 2021-04-07	95.0	-2.55	6.18
## 1864	FF 2021-04-07	95.1	-1.17	6.17
## 1865	CH 2021-04-07	78.9	-1.80	5.92
## 1866	CH 2021-04-07	86.5	-2.37	5.32
## 1867	KC 2021-04-07	72.5	-2.52	5.95
## 1868	CU 2021-04-07	80.7	-1.82	6.23
## 1869	SI 2021-04-07	95.2	-1.71	5.62
## 1870	FF 2021-04-07	89.5	3.11	5.76
## 1871	CU 2021-04-07	81.4	-1.63	6.03
## 1872	CH 2021-04-07	84.9	-3.07	5.21
## 1873	CU 2021-04-07	72.2	3.04	5.16
## 1874	FF 2021-04-07	94.4	-2.36	6.02
## 1875	SL 2021-04-07	83.0	1.03	6.11
## 1876	SI 2021-04-07	95.6	-1.16	6.41
## 1877	FS 2021-04-07	83.0	-2.09	6.07
## 1878	CH 2021-04-07	87.3	2.48	5.70

## 1879	FC 2021-04-07	87.8	-0.65	5.95
## 1880	SI 2021-04-07	86.4	-1.95	6.11
## 1881	FC 2021-04-07	90.2	-1.27	6.36
## 1882	SI 2021-04-07	91.5	1.94	6.25
## 1883	SL 2021-04-07	89.3	-1.76	5.79
## 1884	SL 2021-04-07	83.8	-2.17	5.85
## 1885	FC 2021-04-07	86.9	1.27	6.16
## 1886	CU 2021-04-07	79.3	-1.41	5.92
## 1887	FF 2021-04-07	91.3	2.22	5.98
## 1888	FF 2021-04-07	90.6	0.97	6.16
## 1889	CU 2021-04-07	71.0	2.13	6.13
## 1890	FF 2021-04-07	90.2	-1.85	5.50
## 1891	FF 2021-04-07	93.6	-1.10	5.53
## 1892	CH 2021-04-07	84.7	-2.28	6.31
## 1893	KC 2021-04-07	79.4	-1.91	5.35
## 1894	CU 2021-04-07	82.5	-1.80	6.09
## 1895	FC 2021-04-07	85.8	-1.76	5.62
## 1896	SI 2021-04-07	93.6	-1.53	5.85
## 1897	CH 2021-04-07	83.3	-1.65	5.74
## 1898	SI 2021-04-07	95.8	-2.99	5.80
## 1899	CU 2021-04-07	79.7	1.73	6.67
## 1900	CU 2021-04-07	78.3	0.41	6.38
## 1901	SL 2021-04-07	84.8	-1.23	5.37
## 1902	FF 2021-04-07	97.9	0.95	6.09
## 1903	CH 2021-04-07	86.4	-2.62	5.72
## 1904	SI 2021-04-07	87.8	1.32	6.22
## 1905	FF 2021-04-07	94.3	-2.61	6.14
## 1906	FF 2021-04-07	95.1	-2.96	5.61
## 1907	CH 2021-04-07	86.0	-2.80	5.96
## 1908	FC 2021-04-07	80.7	3.12	5.12
## 1909	SL 2021-04-07	84.0	1.14	6.12
## 1910	FF 2021-04-07	96.2	-2.44	5.98
## 1911	SL 2021-04-07	86.6	-2.70	5.79
## 1912	SI 2021-04-07	96.1	-1.71	5.76
## 1913	SI 2021-04-07	89.9	-2.01	5.21
## 1914	CU 2021-04-07	79.0	2.05	6.67
## 1915	FF 2021-04-07	94.8	-1.66	6.14
## 1916	SI 2021-04-07	94.5	-2.99	5.68
## 1917	FC 2021-04-07	87.0	-2.02	5.32
## 1918	CH 2021-04-07	77.2	2.42	5.74
## 1919	SL 2021-04-07	86.3	2.21	5.73
## 1920	FC 2021-04-07	90.9	-2.93	6.16
## 1921	FF 2021-04-07	97.2	-1.34	5.77
## 1922	CU 2021-04-07	80.8	-1.53	5.99
## 1923	FF 2021-04-07	94.3	-1.03	6.28
## 1924	CH 2021-04-07	79.1	-1.81	5.75
## 1925	FF 2021-04-07	95.1	-1.57	5.79
## 1926	FC 2021-04-07	85.4	3.21	5.76
## 1927	FF 2021-04-07	91.3	2.24	5.85
## 1928	CU 2021-04-07	75.7	1.06	6.17
## 1929	SL 2021-04-07	84.4	-1.42	6.23
## 1930	FF 2021-04-07	93.6	-1.15	5.74
## 1931	CH 2021-04-07	79.5	-1.92	6.09
## 1932	FF 2021-04-07	91.0	1.23	6.07

## 1933	FF 2021-04-07	94.9	-2.34	5.49
## 1934	SI 2021-04-07	92.2	-2.09	6.39
## 1935	SL 2021-04-07	87.4	1.91	6.60
## 1936	FF 2021-04-07	95.4	-2.39	5.44
## 1937	FF 2021-04-07	91.7	-2.07	5.81
## 1938	FF 2021-04-07	95.5	-1.33	6.14
## 1939	SL 2021-04-07	88.4	-1.20	5.37
## 1940	SL 2021-04-07	85.0	-1.77	5.87
## 1941	FC 2021-04-07	87.2	-0.73	5.92
## 1942	FF 2021-04-07	93.3	-1.84	6.12
## 1943	FC 2021-04-07	90.2	-2.03	5.74
## 1944	SI 2021-04-07	96.7	2.16	6.07
## 1945	FF 2021-04-07	93.1	0.21	6.60
## 1946	CH 2021-04-07	85.4	-2.40	5.62
## 1947	FS 2021-04-07	84.1	-2.17	6.06
## 1948	CU 2021-04-07	76.6	-1.35	6.06
## 1949	FC 2021-04-07	89.8	-1.24	6.30
## 1950	FF 2021-04-07	94.4	-1.18	5.55
## 1951	FC 2021-04-07	92.7	-2.17	5.67
## 1952	FC 2021-04-07	90.3	-1.09	6.34
## 1953	SL 2021-04-07	83.5	-2.18	5.83
## 1954	CU 2021-04-07	80.0	-1.38	5.99
## 1955	FF 2021-04-07	92.6	-1.56	5.96
## 1956	CH 2021-04-07	77.5	2.69	5.49
## 1957	SL 2021-04-07	86.9	-2.62	5.97
## 1958	FF 2021-04-07	94.4	-2.13	5.71
## 1959	SL 2021-04-07	83.7	1.54	5.99
## 1960	SL 2021-04-07	84.4	-2.06	6.46
## 1961	SI 2021-04-07	92.8	-1.84	6.12
## 1962	SL 2021-04-07	86.4	-2.61	6.08
## 1963	CH 2021-04-07	87.6	-2.42	5.43
## 1964	CH 2021-04-07	79.4	2.40	5.85
## 1965	SL 2021-04-07	86.9	-1.39	6.17
## 1966	SI 2021-04-07	92.3	2.07	6.24
## 1967	CH 2021-04-07	84.6	-1.78	6.22
## 1968	FF 2021-04-07	92.0	0.46	6.53
## 1969	CU 2021-04-07	79.1	1.88	6.68
## 1970	FC 2021-04-07	86.4	-0.95	5.90
## 1971	SL 2021-04-07	78.8	-1.88	5.59
## 1972	SI 2021-04-07	87.3	-2.02	6.03
## 1973	FF 2021-04-07	96.3	-2.55	6.10
## 1974	FF 2021-04-07	92.9	-1.77	6.17
## 1975	FF 2021-04-07	96.8	-1.38	5.67
## 1976	CU 2021-04-07	74.3	1.34	6.09
## 1977	FF 2021-04-07	96.5	2.32	6.02
## 1978	CH 2021-04-07	87.7	-1.55	5.91
## 1979	FF 2021-04-07	92.3	-2.22	5.96
## 1980	FF 2021-04-07	94.6	-1.70	6.16
## 1981	FC 2021-04-07	86.2	1.23	6.30
## 1982	SL 2021-04-07	82.5	1.02	6.20
## 1983	FF 2021-04-07	94.6	-1.75	5.54
## 1984	SI 2021-04-07	102.5	-2.43	6.35
## 1985	SI 2021-04-07	94.9	-2.94	6.01
## 1986	FF 2021-04-07	94.4	-2.32	6.06

## 1987	CU	2021-04-07	83.3	-1.56	6.05
## 1988	SI	2021-04-07	93.1	2.02	5.72
## 1989	KC	2021-04-07	82.8	-1.14	5.64
## 1990	FF	2021-04-07	94.8	-2.41	5.45
## 1991	FC	2021-04-07	85.4	3.19	5.85
## 1992	CH	2021-04-07	76.0	-2.03	5.00
## 1993	CH	2021-04-07	86.9	-2.85	5.14
## 1994	FC	2021-04-07	87.4	-1.83	5.41
## 1995	SL	2021-04-07	85.2	-1.24	5.40
## 1996	FF	2021-04-07	93.8	-1.14	6.23
## 1997	FC	2021-04-07	90.0	-1.92	5.55
## 1998	CH	2021-04-07	78.6	2.46	5.71
## 1999	SL	2021-04-07	90.0	-1.99	5.83
## 2000	CH	2021-04-07	86.2	-1.15	6.11
## 2001	FF	2021-04-07	92.8	-1.87	5.25
## 2002	CH	2021-04-07	83.4	-2.49	5.72
## 2003	FF	2021-04-07	93.3	-1.80	6.08
## 2004	SL	2021-04-07	86.4	-1.97	6.04
## 2005	KC	2021-04-07	81.7	-1.13	5.61
## 2006	FF	2021-04-07	96.3	-1.50	5.77
## 2007	CU	2021-04-07	76.8	-1.92	6.21
## 2008	CH	2021-04-07	84.3	-2.73	6.03
## 2009	SI	2021-04-07	93.1	-1.55	6.07
## 2010	FF	2021-04-07	94.8	-1.18	6.24
## 2011	CH	2021-04-07	82.9	-2.57	6.04
## 2012	CU	2021-04-07	77.0	3.21	5.89
## 2013	CH	2021-04-07	77.5	-2.07	5.96
## 2014	FF	2021-04-07	92.8	-1.68	6.03
## 2015	SL	2021-04-07	86.8	-1.39	5.58
## 2016	FC	2021-04-07	79.5	2.94	5.13
## 2017	CH	2021-04-07	82.6	1.18	6.12
## 2018	SL	2021-04-07	86.6	-1.79	5.40
## 2019	CH	2021-04-07	80.6	1.30	6.10
## 2020	SL	2021-04-07	83.9	-2.16	5.85
## 2021	SL	2021-04-07	79.6	-1.90	5.57
## 2022	SL	2021-04-07	79.4	2.41	5.64
## 2023	FC	2021-04-07	90.5	-1.81	5.64
## 2024	FC	2021-04-07	86.4	-0.80	5.93
## 2025	SL	2021-04-07	85.8	-1.34	5.55
## 2026	FS	2021-04-07	83.3	-2.19	6.07
## 2027	FF	2021-04-07	96.5	-2.60	6.05
## 2028	CU	2021-04-07	85.4	2.30	5.82
## 2029	FF	2021-04-07	95.3	-1.73	6.12
## 2030	CU	2021-04-07	78.7	1.84	6.73
## 2031	SL	2021-04-07	84.1	-2.23	6.37
## 2032	FF	2021-04-07	94.0	2.02	5.73
## 2033	SI	2021-04-07	94.0	-1.62	5.72
## 2034	SI	2021-04-07	94.4	-2.90	5.92
## 2035	CU	2021-04-07	72.0	-1.92	6.16
## 2036	FF	2021-04-07	94.9	-2.10	5.70
## 2037	SL	2021-04-07	86.3	-1.26	6.27
## 2038	FF	2021-04-07	93.1	0.06	6.53
## 2039	FF	2021-04-07	95.9	-2.93	5.55
## 2040	CU	2021-04-07	77.4	-1.73	6.07

## 2041	SL 2021-04-07	88.3	1.40	6.01
## 2042	FC 2021-04-07	91.9	-2.22	5.53
## 2043	CH 2021-04-07	88.1	-1.56	5.82
## 2044	FF 2021-04-07	89.8	-1.77	5.43
## 2045	FF 2021-04-07	92.9	-2.03	6.20
## 2046	CH 2021-04-07	78.9	2.39	5.81
## 2047	CH 2021-04-07	84.2	-2.54	5.63
## 2048	FC 2021-04-07	87.5	-2.01	5.32
## 2049	FC 2021-04-07	89.4	-1.15	6.36
## 2050	SI 2021-04-07	103.2	-2.52	6.31
## 2051	FF 2021-04-07	91.7	0.83	6.07
## 2052	SL 2021-04-07	84.1	-2.59	5.34
## 2053	FF 2021-04-07	95.9	-2.57	5.65
## 2054	CU 2021-04-07	79.6	-1.21	5.51
## 2055	FF 2021-04-07	95.1	1.75	6.66
## 2056	CH 2021-04-07	84.9	-1.17	6.21
## 2057	SL 2021-04-07	79.9	1.17	6.14
## 2058	SI 2021-04-07	91.8	2.14	6.24
## 2059	CU 2021-04-07	81.0	-1.69	6.00
## 2060	SL 2021-04-07	88.3	-1.37	5.43
## 2061	SI 2021-04-07	88.3	1.33	6.09
## 2062	CH 2021-04-07	79.5	-2.02	5.75
## 2063	SI 2021-04-07	95.0	-1.55	5.83
## 2064	SL 2021-04-07	89.4	-1.64	5.90
## 2065	FF 2021-04-07	90.2	3.00	5.87
## 2066	SL 2021-04-07	82.6	-2.05	5.90
## 2067	CH 2021-04-07	83.7	-2.43	5.33
## 2068	FF 2021-04-07	94.5	1.76	6.61
## 2069	FF 2021-04-07	93.4	0.08	6.52
## 2070	FF 2021-04-07	95.3	-1.04	6.36
## 2071	CH 2021-04-07	85.8	-2.69	5.98
## 2072	SI 2021-04-07	97.3	2.21	5.96
## 2073	CH 2021-04-07	80.0	2.42	5.72
## 2074	FF 2021-04-07	93.4	-1.15	5.61
## 2075	FF 2021-04-07	95.9	-2.69	5.64
## 2076	FF 2021-04-07	92.9	-2.38	5.72
## 2077	CH 2021-04-07	84.6	-1.75	6.22
## 2078	SI 2021-04-07	87.8	-1.87	6.05
## 2079	SL 2021-04-07	80.2	-1.91	5.53
## 2080	FF 2021-04-07	90.2	1.06	6.09
## 2081	SI 2021-04-07	95.7	-2.99	5.79
## 2082	CU 2021-04-07	66.6	-2.99	5.71
## 2083	FF 2021-04-07	95.5	-1.18	5.69
## 2084	FC 2021-04-07	81.2	3.01	5.15
## 2085	FF 2021-04-07	94.0	-1.57	5.75
## 2086	SL 2021-04-07	84.4	-2.47	5.32
## 2087	CH 2021-04-07	86.8	-3.08	5.21
## 2088	FF 2021-04-07	97.7	-2.23	5.63
## 2089	SI 2021-04-07	94.0	-1.75	6.69
## 2090	FC 2021-04-07	87.1	-2.04	5.45
## 2091	FF 2021-04-07	93.7	-1.82	6.11
## 2092	FF 2021-04-07	94.9	-1.03	6.25
## 2093	FF 2021-04-07	94.7	1.10	6.03
## 2094	SI 2021-04-07	96.2	-1.49	5.62



## 2095	FF 2021-04-07	95.4	-1.51	5.91
## 2096	FF 2021-04-07	91.5	-1.98	5.21
## 2097	SI 2021-04-07	94.6	-1.84	6.08
## 2098	SL 2021-04-07	87.4	-2.34	6.40
## 2099	FS 2021-04-07	83.7	-2.13	6.06
## 2100	SI 2021-04-07	93.9	-2.45	5.45
## 2101	CH 2021-04-07	84.4	-2.49	6.01
## 2102	FF 2021-04-07	90.0	-1.07	5.76
## 2103	CH 2021-04-07	86.5	1.51	5.93
## 2104	SL 2021-04-07	87.7	-1.79	5.45
## 2105	FF 2021-04-07	95.5	-1.06	5.52
## 2106	SL 2021-04-07	83.5	-2.23	5.38
## 2107	FF 2021-04-07	93.9	-2.93	5.97
## 2108	FF 2021-04-07	93.3	-1.65	6.02
## 2109	SI 2021-04-07	102.4	-2.49	6.31
## 2110	FF 2021-04-07	94.5	-1.97	6.07
## 2111	SL 2021-04-07	87.0	2.47	5.70
## 2112	FF 2021-04-07	97.9	-0.68	6.78
## 2113	SI 2021-04-07	90.4	-1.80	6.22
## 2114	CH 2021-04-07	77.8	2.38	5.89
## 2115	SI 2021-04-07	101.9	-2.62	6.29
## 2116	SL 2021-04-07	82.1	-2.33	5.85
## 2117	FF 2021-04-07	93.5	-2.60	5.67
## 2118	FF 2021-04-07	94.8	-2.71	6.07
## 2119	FF 2021-04-07	95.1	1.91	6.59
## 2120	CH 2021-04-07	83.6	1.00	6.10
## 2121	FC 2021-04-07	85.4	-0.96	5.92
## 2122	FF 2021-04-07	94.2	-1.10	6.30
## 2123	SI 2021-04-07	87.7	1.36	6.01
## 2124	CU 2021-04-07	83.8	-1.74	5.52
## 2125	SL 2021-04-07	87.1	-1.79	5.41
## 2126	SI 2021-04-07	88.8	-3.09	5.66
## 2127	SL 2021-04-07	86.1	-1.27	5.47
## 2128	SL 2021-04-07	84.7	-1.86	6.05
## 2129	SI 2021-04-07	95.0	-1.48	5.87
## 2130	SI 2021-04-07	94.1	2.21	5.69
## 2131	CH 2021-04-07	84.0	-2.49	5.38
## 2132	FF 2021-04-07	92.1	-1.90	5.18
## 2133	SI 2021-04-07	94.1	-1.91	6.15
## 2134	FF 2021-04-07	94.2	-2.51	6.05
## 2135	CH 2021-04-07	88.6	-2.57	5.47
## 2136	FF 2021-04-07	90.3	3.29	5.79
## 2137	SL 2021-04-07	86.1	-1.40	5.37
## 2138	SL 2021-04-07	89.3	2.43	5.44
## 2139	FF 2021-04-07	95.7	-2.43	6.15
## 2140	CU 2021-04-07	81.2	-1.69	6.31
## 2141	FF 2021-04-07	95.7	-1.10	6.22
## 2142	CU 2021-04-07	80.9	-1.69	6.13
## 2143	FF 2021-04-07	92.3	-1.12	5.60
## 2144	FC 2021-04-07	81.4	3.04	5.15
## 2145	CU 2021-04-07	79.9	-2.21	6.54
## 2146	SL 2021-04-07	80.1	-2.16	5.95
## 2147	FF 2021-04-07	94.0	-2.55	5.10
## 2148	SI 2021-04-07	95.8	-1.93	5.73

## 2149	SI 2021-04-07	96.0	-1.50	5.65
## 2150	CH 2021-04-07	87.0	-1.54	5.88
## 2151	SI 2021-04-07	86.8	-2.04	6.00
## 2152	FF 2021-04-07	89.1	2.17	5.86
## 2153	SL 2021-04-07	90.4	-2.62	5.70
## 2154	FC 2021-04-07	92.2	-3.01	6.04
## 2155	FC 2021-04-07	89.5	-1.84	6.20
## 2156	CU 2021-04-07	76.6	2.01	6.74
## 2157	FC 2021-04-07	89.0	-1.38	6.33
## 2158	CH 2021-04-07	81.1	2.37	5.71
## 2159	SL 2021-04-07	83.6	1.97	6.36
## 2160	CH 2021-04-07	77.6	-2.20	4.96
## 2161	SI 2021-04-07	94.8	-3.00	5.80
## 2162	SL 2021-04-07	78.8	-1.91	5.68
## 2163	CU 2021-04-07	81.5	-1.50	5.75
## 2164	FF 2021-04-07	95.8	2.20	5.99
## 2165	KC 2021-04-07	78.0	-1.80	6.31
## 2166	FF 2021-04-07	93.9	0.11	6.61
## 2167	FF 2021-04-07	94.3	-1.67	6.25
## 2168	SI 2021-04-07	92.9	-1.45	5.95
## 2169	SL 2021-04-07	79.3	-2.28	5.23
## 2170	FF 2021-04-07	95.4	-1.91	6.25
## 2171	CU 2021-04-07	76.5	1.13	6.12
## 2172	FF 2021-04-07	91.6	1.16	5.99
## 2173	CH 2021-04-07	86.4	1.48	5.94
## 2174	SI 2021-04-07	96.6	-1.07	6.47
## 2175	CH 2021-04-07	86.2	-2.98	5.22
## 2176	FF 2021-04-07	89.5	-1.55	6.04
## 2177	SL 2021-04-07	82.2	-2.27	5.44
## 2178	CH 2021-04-07	78.6	-1.99	5.87
## 2179	SI 2021-04-07	101.2	-2.57	6.29
## 2180	FC 2021-04-07	88.5	-2.62	5.94
## 2181	SI 2021-04-07	95.0	-1.45	5.94
## 2182	SL 2021-04-07	87.5	-1.21	5.47
## 2183	SL 2021-04-07	85.8	-1.10	5.53
## 2184	SL 2021-04-07	87.8	2.18	5.69
## 2185	CH 2021-04-07	85.0	-1.25	6.19
## 2186	FC 2021-04-07	85.5	-0.75	5.94
## 2187	SI 2021-04-07	93.7	-2.05	5.45
## 2188	SI 2021-04-07	94.0	-1.90	6.58
## 2189	CH 2021-04-07	77.1	2.68	5.43
## 2190	SL 2021-04-07	89.3	-2.72	5.83
## 2191	FF 2021-04-07	94.4	-0.98	5.59
## 2192	FF 2021-04-07	91.8	-1.69	6.00
## 2193	CH 2021-04-07	89.1	2.16	6.42
## 2194	CH 2021-04-07	87.1	-1.55	6.09
## 2195	FF 2021-04-07	94.2	-2.38	5.52
## 2196	CU 2021-04-07	80.1	0.89	6.10
## 2197	CH 2021-04-07	88.0	-3.33	5.91
## 2198	CH 2021-04-07	79.6	-1.83	6.17
## 2199	SL 2021-04-07	82.2	-1.36	6.34
## 2200	KC 2021-04-07	80.3	-2.06	6.44
## 2201	FC 2021-04-07	91.0	-1.75	6.31
## 2202	SL 2021-04-07	87.2	-1.87	5.80

## 2203	SI 2021-04-07	96.0	-1.69	5.76
## 2204	SI 2021-04-07	91.0	0.97	6.18
## 2205	CH 2021-04-07	88.8	-2.47	5.44
## 2206	CH 2021-04-07	85.9	-1.59	5.77
## 2207	SL 2021-04-07	83.7	2.80	5.81
## 2208	KC 2021-04-07	79.0	-1.55	6.04
## 2209	FF 2021-04-07	90.8	1.12	6.11
## 2210	FF 2021-04-07	94.4	-2.45	5.67
## 2211	SI 2021-04-07	94.7	-1.16	6.58
## 2212	CH 2021-04-07	85.7	-3.05	5.21
## 2213	CH 2021-04-07	81.7	-2.99	5.60
## 2214	FF 2021-04-07	93.7	-2.63	6.19
## 2215	SL 2021-04-07	89.7	2.44	5.37
## 2216	FC 2021-04-07	83.8	2.13	5.98
## 2217	SI 2021-04-07	92.5	2.16	6.15
## 2218	FF 2021-04-07	92.9	-0.07	6.07
## 2219	SI 2021-04-07	95.6	-1.29	5.55
## 2220	SL 2021-04-07	85.9	1.36	5.89
## 2221	CH 2021-04-07	84.2	-2.11	5.03
## 2222	SI 2021-04-07	94.4	-2.82	5.78
## 2223	FF 2021-04-07	89.9	2.99	5.86
## 2224	CU 2021-04-07	83.7	-1.78	6.11
## 2225	FC 2021-04-07	88.6	-1.96	5.43
## 2226	FF 2021-04-07	91.1	2.26	5.90
## 2227	SL 2021-04-07	87.6	-1.94	5.41
## 2228	SL 2021-04-07	83.3	-1.92	6.15
## 2229	FF 2021-04-07	94.9	-2.38	5.53
## 2230	FC 2021-04-07	89.6	-1.10	6.40
## 2231	CH 2021-04-07	89.9	-2.54	5.68
## 2232	CU 2021-04-07	80.5	-1.71	6.24
## 2233	CH 2021-04-07	79.4	1.31	6.10
## 2234	SI 2021-04-07	90.3	-2.26	6.04
## 2235	FF 2021-04-07	92.8	0.19	6.54
## 2236	SL 2021-04-07	84.0	-1.46	5.71
## 2237	FF 2021-04-07	94.6	2.25	6.32
## 2238	FF 2021-04-07	90.9	-2.08	5.82
## 2239	FF 2021-04-07	96.3	2.26	6.03
## 2240	FF 2021-04-07	95.1	1.61	6.62
## 2241	FF 2021-04-07	98.6	-2.30	5.56
## 2242	SL 2021-04-07	86.7	-2.39	6.35
## 2243	FF 2021-04-07	94.6	-2.71	6.03
## 2244	KC 2021-04-07	79.4	-1.76	5.84
## 2245	FF 2021-04-07	92.4	-1.29	6.31
## 2246	CU 2021-04-07	78.9	0.90	6.17
## 2247	CH 2021-04-07	87.4	-2.47	5.50
## 2248	SL 2021-04-07	80.8	-1.47	6.35
## 2249	CH 2021-04-07	86.0	2.51	5.69
## 2250	CH 2021-04-07	78.3	1.32	6.02
## 2251	CH 2021-04-07	89.6	2.00	6.46
## 2252	FF 2021-04-07	95.6	-1.30	5.98
## 2253	FC 2021-04-07	86.7	-1.97	5.25
## 2254	SL 2021-04-07	85.9	-1.15	5.49
## 2255	FC 2021-04-07	85.1	-0.92	6.01
## 2256	FF 2021-04-07	95.0	-1.21	5.75

## 2257	SL 2021-04-07	83.0	-2.46	5.50
## 2258	SL 2021-04-07	84.5	-2.24	5.89
## 2259	SL 2021-04-07	88.3	-1.91	5.44
## 2260	SI 2021-04-07	94.0	-2.78	5.78
## 2261	KC 2021-04-07	79.1	-1.53	6.02
## 2262	FF 2021-04-07	96.6	-1.02	5.54
## 2263	CU 2021-04-07	77.0	-1.91	6.23
## 2264	FF 2021-04-07	94.8	-1.03	6.29
## 2265	FC 2021-04-07	89.6	-1.51	6.36
## 2266	SL 2021-04-07	89.4	-1.75	5.93
## 2267	FF 2021-04-07	95.6	1.07	6.03
## 2268	SL 2021-04-07	85.6	-2.55	6.07
## 2269	FF 2021-04-07	96.5	-3.01	5.48
## 2270	SI 2021-04-07	93.6	-1.50	5.82
## 2271	SI 2021-04-07	95.3	-1.76	6.14
## 2272	SL 2021-04-07	88.4	-2.69	5.85
## 2273	KC 2021-04-07	83.3	2.34	6.41
## 2274	SI 2021-04-07	91.3	2.28	6.18
## 2275	CH 2021-04-07	83.3	-1.96	5.55
## 2276	SL 2021-04-07	82.5	1.94	6.35
## 2277	FF 2021-04-07	94.8	-2.36	5.59
## 2278	FF 2021-04-07	93.4	0.15	6.55
## 2279	SI 2021-04-07	89.4	-3.07	5.75
## 2280	SL 2021-04-07	87.3	2.43	5.70
## 2281	FC 2021-04-07	90.7	-2.30	5.91
## 2282	FF 2021-04-07	95.9	-2.32	6.19
## 2283	FF 2021-04-07	92.1	-1.58	6.03
## 2284	FF 2021-04-07	91.5	1.18	6.11
## 2285	SI 2021-04-07	84.8	-1.78	5.91
## 2286	SI 2021-04-07	91.9	-1.82	5.88
## 2287	SI 2021-04-07	95.2	-1.10	6.65
## 2288	SL 2021-04-07	84.8	-2.05	6.00
## 2289	KC 2021-04-07	80.3	-1.69	5.90
## 2290	FF 2021-04-07	95.2	-1.98	6.48
## 2291	SL 2021-04-07	79.0	-2.03	5.25
## 2292	SI 2021-04-07	96.6	-1.36	5.62
## 2293	SI 2021-04-07	95.8	-1.56	5.74
## 2294	SL 2021-04-07	83.2	2.99	5.81
## 2295	FF 2021-04-07	93.0	-2.53	6.18
## 2296	FF 2021-04-07	93.6	-2.32	5.70
## 2297	SI 2021-04-07	101.5	-2.66	6.32
## 2298	CH 2021-04-07	90.2	-2.62	5.68
## 2299	FF 2021-04-07	95.5	-1.73	5.86
## 2300	FF 2021-04-07	91.4	2.37	5.90
## 2301	FC 2021-04-07	92.5	-3.24	6.00
## 2302	SL 2021-04-07	79.2	1.11	6.11
## 2303	FC 2021-04-07	90.6	-1.86	6.35
## 2304	SL 2021-04-07	89.4	2.46	5.52
## 2305	FF 2021-04-07	98.0	-1.25	5.49
## 2306	FF 2021-04-07	95.0	-1.70	5.24
## 2307	SI 2021-04-07	93.6	-2.07	6.46
## 2308	CU 2021-04-07	73.4	-1.96	6.08
## 2309	CU 2021-04-07	79.8	-1.72	6.13
## 2310	CH 2021-04-07	76.4	2.62	5.39

## 2311	SL 2021-04-07	87.5	-1.90	6.14
## 2312	FS 2021-04-07	87.9	-1.91	5.94
## 2313	FC 2021-04-07	83.7	2.10	6.02
## 2314	SL 2021-04-07	85.2	0.08	6.09
## 2315	FF 2021-04-07	90.4	3.16	5.81
## 2316	SI 2021-04-07	93.5	-2.02	6.26
## 2317	SL 2021-04-07	85.1	2.38	5.70
## 2318	SL 2021-04-07	89.0	-2.63	5.84
## 2319	FF 2021-04-07	94.4	-2.48	6.09
## 2320	CH 2021-04-07	85.3	-1.72	6.22
## 2321	SL 2021-04-07	83.8	1.88	6.40
## 2322	SL 2021-04-07	85.5	-0.42	6.10
## 2323	FF 2021-04-07	92.2	-2.10	6.00
## 2324	SL 2021-04-07	87.1	-1.29	5.42
## 2325	SL 2021-04-07	80.4	-1.53	6.40
## 2326	SI 2021-04-07	86.5	-2.10	6.01
## 2327	KC 2021-04-07	80.2	-1.88	5.72
## 2328	SL 2021-04-07	84.9	-1.82	6.05
## 2329	FF 2021-04-07	95.5	-2.46	6.00
## 2330	CU 2021-04-07	76.4	1.63	6.17
## 2331	SL 2021-04-07	79.5	2.45	5.61
## 2332	SI 2021-04-07	94.6	-1.44	5.91
## 2333	SL 2021-04-07	84.1	-2.13	6.53
## 2334	CH 2021-04-07	89.6	-2.53	5.69
## 2335	FF 2021-04-07	90.0	-1.81	5.49
## 2336	FC 2021-04-07	84.7	-1.01	5.90
## 2337	SL 2021-04-07	82.9	3.09	5.75
## 2338	FF 2021-04-07	94.4	-2.61	6.14
## 2339	FC 2021-04-07	85.8	3.29	5.77
## 2340	SL 2021-04-07	86.2	-1.39	6.29
## 2341	SI 2021-04-07	94.8	-2.86	5.81
## 2342	SI 2021-04-07	101.9	-2.55	6.30
## 2343	CH 2021-04-07	82.5	1.09	6.28
## 2344	FF 2021-04-07	95.2	-1.03	6.36
## 2345	FF 2021-04-07	91.7	-1.95	5.14
## 2346	CU 2021-04-07	79.9	-1.11	5.52
## 2347	FF 2021-04-07	95.0	-1.04	6.33
## 2348	FF 2021-04-07	96.0	-2.15	5.92
## 2349	SL 2021-04-07	85.5	-1.47	5.73
## 2350	SL 2021-04-07	86.2	-2.39	6.32
## 2351	FF 2021-04-07	94.6	-1.67	5.36
## 2352	SI 2021-04-07	95.3	-2.54	4.57
## 2353	FF 2021-04-07	94.8	1.85	6.55
## 2354	KC 2021-04-07	78.5	-1.61	6.00
## 2355	CH 2021-04-07	87.9	-1.48	5.60
## 2356	CU 2021-04-07	76.3	0.76	6.43
## 2357	FF 2021-04-07	96.8	2.18	5.59
## 2358	FC 2021-04-07	92.4	-1.86	6.35
## 2359	FF 2021-04-07	92.8	-1.97	6.02
## 2360	FF 2021-04-07	95.9	0.88	6.21
## 2361	SL 2021-04-07	85.6	-2.43	5.37
## 2362	SI 2021-04-07	93.9	-2.37	5.54
## 2363	CU 2021-04-07	85.0	-1.98	6.06
## 2364	FF 2021-04-07	91.7	-1.96	5.90

## 2365	SL 2021-04-07	78.6	-2.87	5.71
## 2366	CU 2021-04-07	80.5	-1.64	6.04
## 2367	SI 2021-04-07	96.0	-2.34	5.60
## 2368	CH 2021-04-07	87.0	-3.31	5.96
## 2369	SI 2021-04-07	85.8	-1.79	5.93
## 2370	FF 2021-04-07	93.0	-1.36	6.09
## 2371	FF 2021-04-07	94.6	2.31	6.33
## 2372	FC 2021-04-07	79.6	3.08	5.19
## 2373	SI 2021-04-07	92.5	2.07	6.20
## 2374	SL 2021-04-07	87.4	-1.47	5.69
## 2375	FF 2021-04-07	94.5	-1.69	5.55
## 2376	CU 2021-04-07	75.3	1.20	6.15
## 2377	SI 2021-04-07	94.9	-1.91	6.01
## 2378	FF 2021-04-07	94.4	-1.07	5.55
## 2379	CH 2021-04-07	85.9	-3.07	5.23
## 2380	FC 2021-04-07	93.0	-1.95	5.82
## 2381	SL 2021-04-07	83.3	3.78	4.84
## 2382	SL 2021-04-07	89.1	-2.00	5.78
## 2383	FC 2021-04-07	85.0	1.21	6.21
## 2384	FF 2021-04-07	94.9	-1.76	5.81
## 2385	SL 2021-04-07	85.1	-1.94	6.18
## 2386	FF 2021-04-07	94.0	-2.32	5.76
## 2387	CU 2021-04-07	72.2	2.14	6.10
## 2388	SI 2021-04-07	93.0	2.65	5.92
## 2389	SI 2021-04-07	96.4	-1.38	5.86
## 2390	FC 2021-04-07	89.6	-1.45	6.01
## 2391	FF 2021-04-07	91.6	-1.91	5.24
## 2392	FF 2021-04-07	88.7	2.05	5.91
## 2393	FC 2021-04-07	88.7	-1.31	6.39
## 2394	FC 2021-04-07	90.2	-2.27	6.39
## 2395	FS 2021-04-07	91.3	-2.55	5.61
## 2396	FF 2021-04-07	96.7	-2.10	5.57
## 2397	CH 2021-04-07	76.0	2.84	5.44
## 2398	FF 2021-04-07	95.2	1.52	6.65
## 2399	SL 2021-04-07	82.0	-2.05	6.26
## 2400	FF 2021-04-07	98.1	-1.42	5.68
## 2401	SL 2021-04-07	82.3	-2.25	5.98
## 2402	FF 2021-04-07	95.4	-2.56	5.82
## 2403	SL 2021-04-07	82.8	1.64	5.85
## 2404	SL 2021-04-07	87.0	-2.39	6.31
## 2405	SL 2021-04-07	85.4	-1.98	5.87
## 2406	FF 2021-04-07	94.2	-2.52	5.44
## 2407	SI 2021-04-07	94.7	-1.93	5.85
## 2408	CU 2021-04-07	80.2	-2.33	5.86
## 2409	SI 2021-04-07	95.9	-1.42	5.67
## 2410	FF 2021-04-07	93.4	-1.90	6.24
## 2411	CU 2021-04-07	80.4	1.13	6.09
## 2412	CH 2021-04-07	88.0	-2.17	5.82
## 2413	SL 2021-04-07	82.7	2.66	5.89
## 2414	SI 2021-04-07	85.7	-1.86	6.10
## 2415	FF 2021-04-07	94.1	-0.97	5.59
## 2416	FF 2021-04-07	92.5	-1.83	5.74
## 2417	FF 2021-04-07	96.0	-2.21	5.63
## 2418	FF 2021-04-07	93.8	-2.32	5.75

## 2419	FC 2021-04-07	92.0	-3.31	5.91
## 2420	FF 2021-04-07	91.2	0.63	6.28
## 2421	KC 2021-04-07	84.7	2.32	6.27
## 2422	FF 2021-04-07	96.0	-2.87	5.53
## 2423	SL 2021-04-07	84.7	-2.08	5.99
## 2424	SL 2021-04-07	86.0	-1.92	6.18
## 2425	SL 2021-04-07	80.0	2.43	5.58
## 2426	CH 2021-04-07	77.1	-1.98	4.97
## 2427	FC 2021-04-07	87.1	-0.62	6.03
## 2428	FF 2021-04-07	94.0	-1.61	5.34
## 2429	FF 2021-04-07	92.1	-1.50	5.96
## 2430	FF 2021-04-07	97.1	3.45	5.22
## 2431	SL 2021-04-07	86.7	2.31	5.70
## 2432	FF 2021-04-07	93.0	-0.78	6.52
## 2433	CU 2021-04-07	72.5	1.30	6.10
## 2434	SL 2021-04-07	86.9	-1.46	5.29
## 2435	SI 2021-04-07	95.0	-1.72	5.72
## 2436	SL 2021-04-07	78.3	1.37	5.95
## 2437	CU 2021-04-07	82.8	-1.98	6.16
## 2438	SI 2021-04-07	102.1	-2.69	6.30
## 2439	FF 2021-04-07	93.6	-0.26	6.04
## 2440	FF 2021-04-07	96.0	-2.49	6.01
## 2441	FF 2021-04-07	93.5	-2.51	6.21
## 2442	CU 2021-04-07	80.1	-1.82	6.06
## 2443	FF 2021-04-07	93.5	-1.75	5.45
## 2444	SL 2021-04-07	84.9	-2.08	5.58
## 2445	CU 2021-04-07	79.9	2.07	6.66
## 2446	SL 2021-04-07	84.9	-2.92	5.52
## 2447	KC 2021-04-07	80.6	-1.95	5.85
## 2448	FF 2021-04-07	93.7	-1.27	5.64
## 2449	FF 2021-04-07	94.5	-2.38	5.45
## 2450	SL 2021-04-07	87.5	-1.12	6.29
## 2451	FF 2021-04-07	91.0	-3.15	5.73
## 2452	FF 2021-04-07	94.3	1.89	6.63
## 2453	SL 2021-04-07	87.5	-2.75	6.03
## 2454	KC 2021-04-07	84.7	-1.34	6.19
## 2455	FF 2021-04-07	92.8	-1.63	6.01
## 2456	FF 2021-04-07	95.4	2.45	5.64
## 2457	FF 2021-04-07	95.1	-0.92	6.27
## 2458	FF 2021-04-07	90.1	-1.78	6.32
## 2459	FF 2021-04-07	90.6	3.01	5.81
## 2460	SL 2021-04-07	85.7	-1.44	5.39
## 2461	SL 2021-04-07	86.2	-2.73	4.66
## 2462	FC 2021-04-07	90.5	-2.26	5.84
## 2463	CH 2021-04-07	81.6	0.22	6.46
## 2464	SL 2021-04-07	79.0	-2.05	5.36
## 2465	CH 2021-04-07	88.1	2.57	5.68
## 2466	CH 2021-04-07	80.0	-1.93	6.10
## 2467	FF 2021-04-07	98.2	-2.22	5.88
## 2468	FC 2021-04-07	85.8	3.18	5.84
## 2469	CU 2021-04-07	79.5	-0.68	6.13
## 2470	FF 2021-04-07	98.2	-1.56	5.66
## 2471	FF 2021-04-07	93.9	-1.95	5.22
## 2472	CH 2021-04-07	83.0	-2.31	5.36

## 2473	FF 2021-04-07	94.4	-1.85	6.04
## 2474	KC 2021-04-07	81.0	-2.19	5.68
## 2475	FF 2021-04-07	94.7	2.18	6.40
## 2476	SI 2021-04-07	94.8	-2.88	5.93
## 2477	FF 2021-04-07	95.9	1.02	6.04
## 2478	SI 2021-04-07	93.8	-1.28	5.99
## 2479	CH 2021-04-07	88.7	-1.38	4.80
## 2480	SL 2021-04-07	87.0	1.41	5.95
## 2481	FF 2021-04-07	93.0	-2.34	5.50
## 2482	CH 2021-04-07	85.6	-2.94	5.21
## 2483	SL 2021-04-07	86.6	-1.17	5.53
## 2484	KC 2021-04-07	79.1	-1.43	6.32
## 2485	FF 2021-04-07	91.0	-2.02	5.86
## 2486	SI 2021-04-07	94.1	-1.96	6.14
## 2487	SL 2021-04-07	83.2	2.48	5.96
## 2488	SL 2021-04-07	89.9	2.36	5.54
## 2489	FF 2021-04-07	93.5	-1.14	6.47
## 2490	SL 2021-04-07	86.6	-2.62	4.55
## 2491	FC 2021-04-07	85.4	1.22	6.19
## 2492	FF 2021-04-07	93.9	-2.37	5.51
## 2493	CH 2021-04-07	87.8	-1.45	5.57
## 2494	CH 2021-04-07	81.8	-3.04	5.68
## 2495	SL 2021-04-07	87.3	2.17	5.72
## 2496	SL 2021-04-07	71.9	-4.11	1.16
## 2497	FF 2021-04-07	95.1	-1.00	6.32
## 2498	FF 2021-04-07	88.5	2.21	5.98
## 2499	FF 2021-04-07	92.7	-2.29	6.26
## 2500	CU 2021-04-07	82.5	-1.46	6.07
## 2501	CH 2021-04-07	83.3	-2.33	5.68
## 2502	SL 2021-04-07	84.5	-2.06	5.56
## 2503	SL 2021-04-07	80.0	-1.90	5.50
## 2504	CU 2021-04-07	82.5	-1.55	5.77
## 2505	CH 2021-04-07	84.5	-2.54	5.99
## 2506	FF 2021-04-07	95.1	-1.37	5.99
## 2507	FF 2021-04-07	96.7	-1.36	5.40
## 2508	FF 2021-04-07	96.5	-0.66	6.79
## 2509	FC 2021-04-07	86.7	-1.90	5.55
## 2510	CU 2021-04-07	78.0	2.16	6.62
## 2511	SL 2021-04-07	85.3	-1.80	6.00
## 2512	FF 2021-04-07	92.4	1.05	6.15
## 2513	KC 2021-04-07	83.7	-1.41	6.16
## 2514	FC 2021-04-07	90.1	-1.15	6.34
## 2515	CH 2021-04-07	82.5	0.41	6.44
## 2516	FF 2021-04-07	93.3	-1.68	6.20
## 2517	FF 2021-04-07	90.9	-2.35	5.91
## 2518	FF 2021-04-07	94.5	1.86	6.56
## 2519	KC 2021-04-07	82.4	-1.74	5.81
## 2520	SL 2021-04-07	84.6	-2.21	6.38
## 2521	SL 2021-04-07	84.6	-1.61	5.41
## 2522	FF 2021-04-07	96.1	-2.05	6.51
## 2523	FF 2021-04-07	97.3	3.26	5.27
## 2524	CH 2021-04-07	84.5	2.41	5.57
## 2525	SL 2021-04-07	85.6	-2.75	5.99
## 2526	CU 2021-04-07	81.1	-1.72	6.10



## 2527	FS	2021-04-07	84.9	-2.85	5.90
## 2528	SI	2021-04-07	95.7	-1.89	5.95
## 2529	FC	2021-04-07	80.0	3.01	5.18
## 2530	SL	2021-04-07	82.9	1.77	6.54
## 2531	CH	2021-04-07	78.2	-2.45	4.79
## 2532	FC	2021-04-07	85.2	-1.01	5.87
## 2533	FC	2021-04-07	91.8	-1.78	6.31
## 2534	CH	2021-04-07	89.6	-2.63	5.79
## 2535	SL	2021-04-07	84.4	-1.26	6.14
## 2536	SL	2021-04-07	85.6	-1.03	5.57
## 2537	CH	2021-04-07	87.9	-2.29	5.87
## 2538	FF	2021-04-07	92.2	0.95	6.06
## 2539	FC	2021-04-07	93.1	-3.26	5.97
## 2540	FF	2021-04-07	91.4	2.35	5.83
## 2541	SL	2021-04-07	86.2	-1.96	6.07
## 2542	CH	2021-04-07	86.4	-2.64	5.76
## 2543	SI	2021-04-07	101.3	-2.69	6.30
## 2544	SI	2021-04-07	101.2	0.38	6.15
## 2545	CH	2021-04-07	89.4	-1.34	5.66
## 2546	CH	2021-04-07	80.6	-3.13	5.58
## 2547	FC	2021-04-07	81.2	3.05	5.16
## 2548	FF	2021-04-07	96.7	1.65	6.50
## 2549	CU	2021-04-07	78.0	3.22	5.83
## 2550	CH	2021-04-07	88.7	-3.30	5.92
## 2551	FF	2021-04-07	92.8	-2.42	6.23
## 2552	FF	2021-04-07	94.1	-1.72	5.29
## 2553	FF	2021-04-07	95.2	-1.07	5.51
## 2554	FF	2021-04-07	95.6	-0.81	6.76
## 2555	FC	2021-04-07	87.8	-2.42	6.09
## 2556	FF	2021-04-07	96.5	-2.94	5.53
## 2557	SI	2021-04-07	90.6	2.07	6.33
## 2558	SL	2021-04-07	80.2	-1.74	5.62
## 2559	SL	2021-04-07	72.7	-4.07	1.16
## 2560	CU	2021-04-07	80.2	-1.52	5.33
## 2561	SL	2021-04-07	83.2	0.33	6.32
## 2562	FC	2021-04-07	86.1	-0.94	5.94
## 2563	SL	2021-04-07	85.0	-1.21	6.13
## 2564	CH	2021-04-07	78.9	-2.19	5.86
## 2565	SI	2021-04-07	92.5	-1.56	6.13
## 2566	SI	2021-04-07	88.1	1.45	6.08
## 2567	SI	2021-04-07	101.7	-2.55	6.30
## 2568	FF	2021-04-07	90.9	-1.84	5.63
## 2569	CH	2021-04-07	89.1	-1.62	5.50
## 2570	CH	2021-04-07	86.2	-1.53	5.58
## 2571	SI	2021-04-07	96.1	-2.34	5.46
## 2572	FF	2021-04-07	96.7	-2.45	5.73
## 2573	FF	2021-04-07	91.9	0.02	6.56
## 2574	SI	2021-04-07	93.8	-2.70	5.88
## 2575	SL	2021-04-07	84.1	1.16	5.98
## 2576	SL	2021-04-07	82.5	-2.33	6.01
## 2577	FF	2021-04-07	93.9	-2.04	5.22
## 2578	SL	2021-04-07	87.3	-2.70	4.61
## 2579	CU	2021-04-07	81.5	-1.67	5.61
## 2580	FF	2021-04-07	96.1	-0.88	5.72

## 2581	FF	2021-04-07	96.3	-1.98	5.76
## 2582	KC	2021-04-07	85.7	2.39	6.29
## 2583	SI	2021-04-07	93.6	2.16	5.80
## 2584	SI	2021-04-07	94.0	-2.01	6.52
## 2585	FF	2021-04-07	94.4	-0.51	5.98
## 2586	FF	2021-04-07	95.8	-1.00	5.70
## 2587	FC	2021-04-07	91.3	-1.72	6.33
## 2588	FF	2021-04-07	97.2	-2.44	6.08
## 2589	FF	2021-04-07	95.6	-1.15	6.19
## 2590	FF	2021-04-07	98.0	2.35	5.66
## 2591	CH	2021-04-07	90.4	-1.37	5.30
## 2592	SL	2021-04-07	87.8	-2.68	6.03
## 2593	FF	2021-04-07	95.0	-2.03	6.05
## 2594	SI	2021-04-07	90.0	-2.59	5.34
## 2595	SL	2021-04-07	81.9	2.99	5.94
## 2596	FF	2021-04-07	93.4	-0.87	6.55
## 2597	KC	2021-04-07	80.7	-1.67	5.88
## 2598	KC	2021-04-07	82.3	-1.78	5.86
## 2599	CU	2021-04-07	77.6	-1.75	6.18
## 2600	SL	2021-04-07	84.3	2.54	5.83
## 2601	FF	2021-04-07	94.0	1.05	6.07
## 2602	FF	2021-04-07	95.1	1.83	6.54
## 2603	SI	2021-04-07	94.2	-1.81	5.66
## 2604	SL	2021-04-07	82.6	1.85	6.39
## 2605	FF	2021-04-07	96.8	-2.25	5.58
## 2606	SL	2021-04-07	85.9	-2.07	5.92
## 2607	CU	2021-04-07	77.9	-1.26	6.06
## 2608	FF	2021-04-07	92.7	0.65	6.33
## 2609	SL	2021-04-07	89.4	-0.52	6.17
## 2610	CH	2021-04-07	80.5	2.29	5.68
## 2611	KC	2021-04-07	84.1	-1.43	6.13
## 2612	CU	2021-04-07	77.5	-2.19	5.99
## 2613	SL	2021-04-07	80.1	-3.22	6.18
## 2614	CH	2021-04-07	83.2	-2.42	5.70
## 2615	FF	2021-04-07	96.2	-1.23	5.36
## 2616	CH	2021-04-07	88.6	-1.40	4.88
## 2617	FF	2021-04-07	96.4	2.33	6.00
## 2618	SI	2021-04-07	95.1	0.99	6.14
## 2619	SL	2021-04-07	86.1	-2.69	5.85
## 2620	FF	2021-04-07	94.1	-1.86	6.19
## 2621	SL	2021-04-07	86.8	-2.42	6.37
## 2622	FF	2021-04-07	93.9	-0.62	6.53
## 2623	CU	2021-04-07	74.4	2.15	5.99
## 2624	FF	2021-04-07	95.9	-2.66	6.05
## 2625	FF	2021-04-07	90.9	-1.87	5.96
## 2626	FF	2021-04-07	91.8	-1.38	6.26
## 2627	CH	2021-04-07	88.6	-1.40	5.54
## 2628	SL	2021-04-07	84.0	3.84	4.90
## 2629	CU	2021-04-07	81.6	-1.64	6.06
## 2630	CH	2021-04-07	82.7	-2.38	5.43
## 2631	CU	2021-04-07	80.7	-1.63	6.37
## 2632	FF	2021-04-07	85.8	-2.21	5.99
## 2633	KC	2021-04-07	84.6	-1.14	5.55
## 2634	FC	2021-04-07	92.2	-3.19	5.95

## 2635	CH 2021-04-07	87.1	1.47	5.88
## 2636	FF 2021-04-07	94.0	-2.30	5.67
## 2637	FF 2021-04-07	93.0	2.31	6.28
## 2638	CU 2021-04-07	81.0	-1.54	5.65
## 2639	FC 2021-04-07	100.9	-0.81	6.15
## 2640	SL 2021-04-07	86.7	-0.60	5.97
## 2641	SL 2021-04-07	87.3	-1.35	5.28
## 2642	CH 2021-04-07	86.9	-1.26	6.14
## 2643	CH 2021-04-07	88.9	-2.41	5.46
## 2644	CU 2021-04-07	79.8	1.88	6.67
## 2645	SI 2021-04-07	94.4	-1.40	5.53
## 2646	SL 2021-04-07	81.6	-2.19	5.99
## 2647	FF 2021-04-07	94.7	-2.78	5.82
## 2648	FF 2021-04-07	94.2	1.82	6.58
## 2649	FF 2021-04-07	96.6	-2.06	5.76
## 2650	FF 2021-04-07	92.9	-2.25	6.26
## 2651	FF 2021-04-07	96.3	-2.61	6.07
## 2652	SL 2021-04-07	76.5	-2.56	4.85
## 2653	KC 2021-04-07	81.1	-1.71	5.89
## 2654	CH 2021-04-07	82.6	-2.36	5.48
## 2655	FF 2021-04-07	98.4	-0.57	6.76
## 2656	CH 2021-04-07	85.8	1.23	6.06
## 2657	SL 2021-04-07	83.9	2.52	5.86
## 2658	FF 2021-04-07	95.0	2.50	6.31
## 2659	FF 2021-04-07	95.6	-1.58	6.13
## 2660	KC 2021-04-07	84.5	-1.40	6.13
## 2661	SI 2021-04-07	91.9	-2.12	5.12
## 2662	SL 2021-04-07	86.3	-2.13	6.00
## 2663	FF 2021-04-07	93.0	-1.65	6.10
## 2664	FF 2021-04-07	93.3	-2.39	5.53
## 2665	SL 2021-04-07	84.7	-2.07	5.94
## 2666	CH 2021-04-07	87.1	-1.81	6.09
## 2667	SL 2021-04-07	85.4	-1.59	5.63
## 2668	FF 2021-04-07	95.9	-2.62	6.08
## 2669	FF 2021-04-07	89.4	-1.92	5.41
## 2670	FS 2021-04-07	91.7	-2.59	5.67
## 2671	SL 2021-04-07	85.3	2.35	5.77
## 2672	SI 2021-04-07	90.0	-3.15	5.64
## 2673	FF 2021-04-07	94.8	-1.17	5.72
## 2674	FC 2021-04-07	86.9	-1.66	6.23
## 2675	SI 2021-04-07	84.6	2.57	5.85
## 2676	CH 2021-04-07	81.7	0.42	6.47
## 2677	SL 2021-04-07	80.3	-3.29	6.28
## 2678	SL 2021-04-07	84.2	1.34	6.00
## 2679	FF 2021-04-07	94.4	-1.92	5.98
## 2680	SI 2021-04-07	88.6	1.26	6.14
## 2681	SL 2021-04-07	86.4	-1.78	6.18
## 2682	SI 2021-04-07	93.6	-2.68	5.98
## 2683	CH 2021-04-07	91.5	-2.54	5.63
## 2684	FF 2021-04-07	95.4	-2.98	5.50
## 2685	FF 2021-04-07	97.5	1.54	6.58
## 2686	CH 2021-04-07	88.7	-1.60	4.86
## 2687	FC 2021-04-07	88.1	-2.55	5.98
## 2688	FF 2021-04-07	94.0	-1.74	5.29

## 2689	SL 2021-04-07	87.0	-2.45	6.39
## 2690	CU 2021-04-07	77.9	3.15	5.81
## 2691	FC 2021-04-07	89.0	-1.15	6.43
## 2692	FF 2021-04-07	91.9	2.19	5.96
## 2693	SI 2021-04-07	94.9	-1.48	5.39
## 2694	SI 2021-04-07	101.7	-2.59	6.31
## 2695	FF 2021-04-07	98.5	0.58	6.24
## 2696	FF 2021-04-07	95.6	-1.30	6.00
## 2697	CH 2021-04-07	86.4	-1.60	5.68
## 2698	FF 2021-04-07	92.1	-1.21	6.11
## 2699	SI 2021-04-07	95.6	-2.55	4.63
## 2700	FF 2021-04-07	96.5	3.25	5.22
## 2701	SI 2021-04-07	92.0	4.16	3.36
## 2702	SL 2021-04-07	83.2	1.94	6.42
## 2703	FC 2021-04-07	84.9	-1.68	5.74
## 2704	SL 2021-04-07	83.2	1.03	6.32
## 2705	FF 2021-04-07	95.6	2.38	5.38
## 2706	FF 2021-04-07	95.0	-1.23	5.36
## 2707	FC 2021-04-07	91.2	-1.78	6.32
## 2708	SI 2021-04-07	97.1	-1.38	5.59
## 2709	FF 2021-04-07	95.8	-2.57	5.99
## 2710	FF 2021-04-07	94.4	-1.20	6.46
## 2711	CU 2021-04-07	76.9	-1.02	5.82
## 2712	SL 2021-04-07	91.2	-2.03	5.88
## 2713	SI 2021-04-07	93.6	-1.82	6.51
## 2714	SL 2021-04-07	86.3	-1.94	6.04
## 2715	SI 2021-04-07	86.9	-2.00	6.10
## 2716	CU 2021-04-07	77.6	-1.75	6.04
## 2717	FF 2021-04-07	94.2	1.22	6.07
## 2718	CH 2021-04-07	77.9	2.54	5.70
## 2719	FF 2021-04-07	95.9	-1.73	5.45
## 2720	FF 2021-04-07	83.7	-4.14	1.18
## 2721	SI 2021-04-07	94.3	2.19	5.94
## 2722	SL 2021-04-07	88.4	-1.12	5.49
## 2723	FF 2021-04-07	95.4	-1.78	5.25
## 2724	SL 2021-04-07	89.3	-2.09	5.86
## 2725	FF 2021-04-07	97.1	3.38	5.15
## 2726	CH 2021-04-07	88.7	-1.43	5.70
## 2727	FC 2021-04-07	83.7	-1.80	5.73
## 2728	SL 2021-04-07	82.7	-2.60	5.36
## 2729	FF 2021-04-07	94.7	-2.69	5.93
## 2730	SL 2021-04-07	77.4	1.41	5.98
## 2731	FF 2021-04-07	92.1	-1.28	6.23
## 2732	FC 2021-04-07	100.7	-0.58	6.16
## 2733	FF 2021-04-07	90.1	-1.97	5.94
## 2734	SI 2021-04-07	93.9	2.40	5.96
## 2735	CU 2021-04-07	80.9	-1.60	6.07
## 2736	CU 2021-04-07	73.4	1.33	6.15
## 2737	FF 2021-04-07	97.2	-2.16	5.65
## 2738	FF 2021-04-07	97.1	-1.63	5.77
## 2739	SL 2021-04-07	81.0	2.26	5.66
## 2740	KC 2021-04-07	80.6	-1.46	6.29
## 2741	CH 2021-04-07	79.3	-1.98	6.09
## 2742	SI 2021-04-07	92.2	4.03	3.36

## 2743	CH 2021-04-07	84.2	-2.42	5.44
## 2744	CU 2021-04-07	83.2	-0.03	6.59
## 2745	FF 2021-04-07	94.4	-2.83	5.71
## 2746	FF 2021-04-07	95.4	-2.54	6.10
## 2747	KC 2021-04-07	80.2	-1.83	5.74
## 2748	CH 2021-04-07	89.7	-1.55	4.86
## 2749	FC 2021-04-07	90.5	-1.14	6.36
## 2750	CH 2021-04-07	77.1	2.61	5.66
## 2751	FC 2021-04-07	90.2	-2.92	6.20
## 2752	FF 2021-04-07	95.8	-2.62	6.07
## 2753	SL 2021-04-07	82.3	1.82	6.47
## 2754	SL 2021-04-07	84.4	-1.54	6.33
## 2755	FF 2021-04-07	94.6	-0.97	6.32
## 2756	CU 2021-04-07	77.7	-1.32	6.08
## 2757	FF 2021-04-07	93.2	-2.35	6.28
## 2758	CH 2021-04-07	79.1	2.53	5.77
## 2759	CH 2021-04-07	87.1	-0.59	5.43
## 2760	CH 2021-04-07	86.9	-3.19	6.03
## 2761	CH 2021-04-07	85.9	-1.36	6.44
## 2762	FS 2021-04-07	85.1	-2.16	6.04
## 2763	SL 2021-04-07	87.8	-2.59	6.35
## 2764	SL 2021-04-07	87.0	2.29	5.75
## 2765	CH 2021-04-07	85.6	1.08	6.06
## 2766	FF 2021-04-07	92.6	-2.41	5.69
## 2767	FF 2021-04-07	95.4	-1.71	6.15
## 2768	SL 2021-04-07	80.3	-3.30	6.19
## 2769	SI 2021-04-07	93.7	-1.36	5.97
## 2770	SI 2021-04-07	90.2	-3.08	5.81
## 2771	SL 2021-04-07	87.2	-1.92	6.18
## 2772	FF 2021-04-07	92.2	-1.33	6.04
## 2773	SI 2021-04-07	93.1	-2.69	5.94
## 2774	CU 2021-04-07	81.2	-1.76	6.00
## 2775	SL 2021-04-07	84.2	-1.30	5.48
## 2776	FF 2021-04-07	93.7	-1.29	6.31
## 2777	FF 2021-04-07	94.8	-0.34	5.88
## 2778	FF 2021-04-07	82.5	-4.16	1.15
## 2779	FC 2021-04-07	89.0	-2.08	6.42
## 2780	SL 2021-04-07	87.5	-1.60	5.37
## 2781	FF 2021-04-07	94.0	0.59	6.40
## 2782	SL 2021-04-07	85.1	-1.29	5.42
## 2783	FC 2021-04-07	91.4	-1.84	6.29
## 2784	FF 2021-04-07	96.0	1.84	5.66
## 2785	CU 2021-04-07	81.1	-1.85	6.27
## 2786	CH 2021-04-07	80.0	-2.14	5.81
## 2787	FF 2021-04-07	94.7	2.52	6.29
## 2788	FC 2021-04-07	88.4	-2.04	5.49
## 2789	SI 2021-04-07	94.0	-1.80	6.11
## 2790	FF 2021-04-07	93.1	-1.09	6.36
## 2791	FF 2021-04-07	89.8	1.14	6.16
## 2792	SL 2021-04-07	84.6	1.52	6.23
## 2793	SL 2021-04-07	85.3	-2.62	4.72
## 2794	SI 2021-04-07	86.5	-3.34	2.10
## 2795	FC 2021-04-07	86.1	3.10	5.77
## 2796	SI 2021-04-07	93.7	2.24	6.03

## 2797	CH	2021-04-07	87.2	-3.04	5.19
## 2798	FS	2021-04-07	92.6	-2.55	5.54
## 2799	FF	2021-04-07	98.6	1.52	6.53
## 2800	SL	2021-04-07	90.7	2.31	5.54
## 2801	SL	2021-04-07	85.8	-2.59	5.62
## 2802	SL	2021-04-07	86.8	-1.24	5.49
## 2803	FF	2021-04-07	97.3	0.46	6.21
## 2804	SI	2021-04-07	95.4	-1.38	5.51
## 2805	FF	2021-04-07	94.3	1.81	6.61
## 2806	SL	2021-04-07	83.1	3.00	5.64
## 2807	SI	2021-04-07	90.7	2.08	6.22
## 2808	CU	2021-04-07	76.3	0.76	6.48
## 2809	FF	2021-04-07	95.5	-1.89	5.95
## 2810	FF	2021-04-07	94.9	0.96	6.15
## 2811	CH	2021-04-07	89.2	-2.41	5.41
## 2812	KC	2021-04-07	80.1	-1.96	5.32
## 2813	FF	2021-04-07	96.3	-2.56	6.07
## 2814	SL	2021-04-07	84.9	-1.62	5.66
## 2815	FF	2021-04-07	95.1	-2.59	6.20
## 2816	CU	2021-04-07	77.8	-1.04	5.88
## 2817	FF	2021-04-07	94.4	-1.16	5.70
## 2818	SL	2021-04-07	85.4	-2.59	4.62
## 2819	SI	2021-04-07	87.4	1.43	6.05
## 2820	FF	2021-04-07	94.5	-1.14	5.53
## 2821	FF	2021-04-07	91.3	-1.27	6.09
## 2822	SL	2021-04-07	81.6	-2.20	6.02
## 2823	SL	2021-04-07	88.3	2.30	5.80
## 2824	FC	2021-04-07	86.4	-1.98	5.38
## 2825	FF	2021-04-07	98.0	1.58	6.48
## 2826	CH	2021-04-07	89.6	-1.37	5.62
## 2827	FF	2021-04-07	92.7	0.72	6.25
## 2828	FF	2021-04-07	95.4	-1.46	5.48
## 2829	SI	2021-04-07	90.1	2.06	6.28
## 2830	SL	2021-04-07	88.3	-2.60	5.59
## 2831	FF	2021-04-07	94.2	-1.15	6.30
## 2832	SL	2021-04-07	83.3	-1.35	5.39
## 2833	FC	2021-04-07	83.8	2.30	5.95
## 2834	CU	2021-04-07	82.2	-2.37	5.32
## 2835	CU	2021-04-07	80.8	-1.88	6.30
## 2836	SL	2021-04-07	84.5	4.15	3.26
## 2837	FF	2021-04-07	94.2	-1.29	5.14
## 2838	SI	2021-04-07	94.7	-1.35	5.91
## 2839	FC	2021-04-07	90.9	-2.87	6.10
## 2840	CH	2021-04-07	88.4	-1.70	6.06
## 2841	CH	2021-04-07	89.2	-0.61	5.49
## 2842	SI	2021-04-07	96.7	-1.60	5.84
## 2843	SI	2021-04-07	84.7	2.33	5.92
## 2844	FF	2021-04-07	90.8	-2.20	5.87
## 2845	FC	2021-04-07	85.7	-1.80	6.31
## 2846	FC	2021-04-07	90.5	-1.41	6.06
## 2847	SI	2021-04-07	94.8	1.01	6.19
## 2848	SL	2021-04-07	77.3	-3.54	2.24
## 2849	FF	2021-04-07	91.0	1.03	6.20
## 2850	SL	2021-04-07	84.4	-1.60	5.67

## 2851	SL 2021-04-07	85.6	-2.36	6.29
## 2852	CU 2021-04-07	73.8	1.32	6.05
## 2853	SL 2021-04-07	86.5	-1.16	5.49
## 2854	FF 2021-04-07	90.8	3.00	5.76
## 2855	KC 2021-04-07	81.8	-1.65	5.94
## 2856	CH 2021-04-07	81.0	-3.10	5.63
## 2857	CU 2021-04-07	80.7	-1.81	5.94
## 2858	FF 2021-04-07	92.3	-0.99	6.63
## 2859	FF 2021-04-07	97.8	-2.95	5.52
## 2860	CH 2021-04-07	85.1	-2.06	6.35
## 2861	SL 2021-04-07	86.7	-0.43	6.01
## 2862	FC 2021-04-07	88.5	2.21	5.61
## 2863	FS 2021-04-07	85.2	-2.71	5.91
## 2864	SI 2021-04-07	93.6	-2.73	5.98
## 2865	SI 2021-04-07	93.5	-1.89	6.54
## 2866	SL 2021-04-07	85.3	-1.73	6.06
## 2867	CH 2021-04-07	85.8	-2.20	5.11
## 2868	FF 2021-04-07	95.8	-2.14	5.69
## 2869	FF 2021-04-07	97.7	-1.22	5.40
## 2870	SL 2021-04-07	84.4	-1.49	5.60
## 2871	FF 2021-04-07	98.2	-0.38	6.83
## 2872	FF 2021-04-07	95.9	3.22	5.19
## 2873	SI 2021-04-07	94.8	-2.05	5.71
## 2874	FC 2021-04-07	89.9	-1.45	6.18
## 2875	SL 2021-04-07	83.2	-0.89	6.01
## 2876	FC 2021-04-07	83.5	-1.82	5.66
## 2877	SL 2021-04-07	84.5	-2.45	6.10
## 2878	SI 2021-04-07	96.5	2.17	5.83
## 2879	SL 2021-04-07	90.0	2.53	5.43
## 2880	CU 2021-04-07	83.3	-1.72	6.02
## 2881	FC 2021-04-07	90.6	-2.23	5.89
## 2882	CU 2021-04-07	80.2	1.57	6.67
## 2883	SI 2021-04-07	93.2	-1.82	6.19
## 2884	FF 2021-04-07	92.1	-2.36	5.77
## 2885	SI 2021-04-07	86.9	-2.14	6.01
## 2886	FF 2021-04-07	88.6	-1.21	5.68
## 2887	FF 2021-04-07	94.4	-1.89	5.26
## 2888	SL 2021-04-07	85.9	-2.61	5.98
## 2889	SL 2021-04-07	86.4	-1.39	6.09
## 2890	SI 2021-04-07	96.0	-1.74	6.25
## 2891	SL 2021-04-07	77.5	-2.94	3.36
## 2892	SL 2021-04-07	74.3	-2.73	4.98
## 2893	FC 2021-04-07	91.5	-2.73	6.34
## 2894	SL 2021-04-07	70.6	-4.24	1.15
## 2895	CH 2021-04-07	85.6	1.22	6.10
## 2896	SL 2021-04-07	83.1	0.27	6.39
## 2897	SL 2021-04-07	84.8	-1.75	5.55
## 2898	FC 2021-04-07	92.0	-3.25	5.97
## 2899	FF 2021-04-07	94.0	1.46	6.32
## 2900	FF 2021-04-07	96.2	-0.04	6.61
## 2901	SI 2021-04-07	93.1	-1.54	6.16
## 2902	CU 2021-04-07	77.5	-2.35	5.83
## 2903	SL 2021-04-07	85.8	1.88	6.59
## 2904	FF 2021-04-07	95.4	-1.07	6.27

## 2905	CH 2021-04-07	82.0	0.51	6.50
## 2906	SI 2021-04-07	98.2	-1.66	5.67
## 2907	SL 2021-04-07	92.5	-0.42	6.19
## 2908	FF 2021-04-07	93.9	2.58	6.28
## 2909	FF 2021-04-07	96.1	-2.72	6.01
## 2910	FC 2021-04-07	88.9	0.89	5.79
## 2911	SI 2021-04-07	89.3	-2.53	5.36
## 2912	KC 2021-04-07	86.0	-2.75	4.95
## 2913	CH 2021-04-07	86.8	2.19	6.00
## 2914	FF 2021-04-07	94.5	-2.43	6.18
## 2915	SL 2021-04-07	82.0	2.87	5.77
## 2916	SI 2021-04-07	95.8	2.22	5.54
## 2917	CH 2021-04-07	78.0	-2.27	4.84
## 2918	SL 2021-04-07	80.5	-3.42	6.30
## 2919	FF 2021-04-07	97.4	-1.85	5.85
## 2920	FF 2021-04-07	95.3	-2.63	6.22
## 2921	SL 2021-04-07	80.7	2.38	5.56
## 2922	SI 2021-04-07	94.9	-1.42	5.92
## 2923	SI 2021-04-07	94.3	-1.22	5.51
## 2924	CU 2021-04-07	81.9	0.93	5.90
## 2925	FF 2021-04-07	94.6	1.82	6.66
## 2926	SL 2021-04-07	86.2	-0.48	5.99
## 2927	KC 2021-04-07	82.2	-1.91	5.91
## 2928	SL 2021-04-07	85.2	-1.47	6.09
## 2929	FF 2021-04-07	94.7	-1.68	5.69
## 2930	SI 2021-04-07	100.3	-2.50	6.32
## 2931	SL 2021-04-07	83.9	-1.05	6.01
## 2932	SL 2021-04-07	82.7	2.17	5.68
## 2933	SL 2021-04-07	82.7	-3.06	5.46
## 2934	FF 2021-04-07	94.4	-0.85	5.76
## 2935	FF 2021-04-07	98.7	-2.02	5.50
## 2936	FF 2021-04-07	93.5	2.33	6.34
## 2937	FF 2021-04-07	94.5	-1.62	5.52
## 2938	CH 2021-04-07	83.8	0.37	6.47
## 2939	SL 2021-04-07	84.4	1.75	6.53
## 2940	SI 2021-04-07	94.7	-2.04	5.71
## 2941	SI 2021-04-07	91.4	2.64	6.10
## 2942	FF 2021-04-07	95.0	-1.80	5.23
## 2943	SL 2021-04-07	84.6	-2.06	6.18
## 2944	FF 2021-04-07	95.8	-0.23	6.58
## 2945	SL 2021-04-07	78.4	-2.85	3.49
## 2946	FF 2021-04-07	90.5	-1.90	5.89
## 2947	FF 2021-04-07	95.7	-2.31	5.54
## 2948	FC 2021-04-07	89.6	-1.10	6.39
## 2949	FF 2021-04-07	93.4	-1.52	5.75
## 2950	FC 2021-04-07	90.0	-1.88	6.24
## 2951	FF 2021-04-07	90.4	0.91	6.24
## 2952	SL 2021-04-07	85.4	-2.66	4.70
## 2953	FF 2021-04-07	98.2	-2.53	5.51
## 2954	FC 2021-04-07	86.5	3.12	5.82
## 2955	SI 2021-04-07	96.6	-1.48	6.15
## 2956	CU 2021-04-07	84.3	-1.83	6.09
## 2957	FC 2021-04-07	91.2	-3.25	6.05
## 2958	SI 2021-04-07	94.8	1.43	6.29



## 2959	FF 2021-04-07	97.6	1.53	6.55
## 2960	CU 2021-04-07	69.8	2.94	5.22
## 2961	SL 2021-04-07	79.9	-1.33	6.50
## 2962	FF 2021-04-07	97.1	-1.78	5.80
## 2963	FC 2021-04-07	91.6	-2.73	6.38
## 2964	FF 2021-04-07	96.5	2.48	5.61
## 2965	FF 2021-04-07	87.3	-2.22	6.01
## 2966	FF 2021-04-07	94.2	-0.14	6.33
## 2967	CH 2021-04-07	84.3	0.90	6.29
## 2968	SL 2021-04-07	88.5	-2.30	6.32
## 2969	SL 2021-04-07	86.6	-2.70	5.84
## 2970	FF 2021-04-07	95.7	-2.66	6.17
## 2971	SI 2021-04-07	97.8	-1.44	5.69
## 2972	FC 2021-04-07	86.1	1.15	6.22
## 2973	CU 2021-04-07	78.2	-0.89	5.64
## 2974	SI 2021-04-07	95.3	-1.54	5.91
## 2975	CH 2021-04-07	78.4	-2.23	5.70
## 2976	SL 2021-04-07	83.1	2.98	5.90
## 2977	SL 2021-04-07	93.7	-0.51	6.06
## 2978	FF 2021-04-07	97.4	-2.40	6.07
## 2979	SI 2021-04-07	93.9	-1.76	6.61
## 2980	FF 2021-04-07	89.8	-1.02	5.78
## 2981	CH 2021-04-07	83.6	-2.30	5.46
## 2982	CH 2021-04-07	86.7	2.12	5.52
## 2983	CH 2021-04-07	84.8	-1.95	6.38
## 2984	SL 2021-04-07	89.2	1.26	5.91
## 2985	CH 2021-04-07	81.3	-3.00	5.69
## 2986	FF 2021-04-07	93.3	-2.59	5.27
## 2987	SL 2021-04-07	80.5	-2.13	5.42
## 2988	SI 2021-04-07	90.7	2.24	6.09
## 2989	FF 2021-04-07	93.6	-2.04	6.18
## 2990	SL 2021-04-07	81.0	-3.30	6.30
## 2991	CH 2021-04-07	88.0	-3.14	5.15
## 2992	SL 2021-04-07	90.8	-1.48	5.40
## 2993	KC 2021-04-07	79.4	-2.13	5.30
## 2994	FF 2021-04-07	96.4	-1.94	6.12
## 2995	FF 2021-04-07	97.3	-2.44	5.78
## 2996	CH 2021-04-07	85.1	1.69	5.96
## 2997	FF 2021-04-07	93.6	-1.09	6.08
## 2998	SI 2021-04-07	97.5	-1.64	5.69
## 2999	KC 2021-04-07	87.0	-2.64	4.89
## 3000	SI 2021-04-07	92.3	4.17	3.39
## 3001	FF 2021-04-07	94.7	-2.52	6.24
## 3002	FS 2021-04-07	85.7	-2.85	5.88
## 3003	SL 2021-04-07	84.5	-1.49	6.27
## 3004	FF 2021-04-07	87.9	-3.38	2.23
## 3005	FF 2021-04-07	90.8	1.86	5.94
## 3006	FF 2021-04-07	96.1	-0.68	5.43
## 3007	SL 2021-04-07	88.8	2.12	5.71
## 3008	SL 2021-04-07	86.6	-1.32	5.48
## 3009	SL 2021-04-07	81.5	-2.18	5.90
## 3010	SL 2021-04-07	86.4	-1.77	6.02
## 3011	SL 2021-04-07	74.8	-2.87	4.98
## 3012	SL 2021-04-07	87.1	-1.50	5.65

## 3013	FF	2021-04-07	97.8	3.26	5.31
## 3014	FF	2021-04-07	95.0	-1.11	6.27
## 3015	FF	2021-04-07	82.4	-4.12	1.16
## 3016	SL	2021-04-07	79.2	2.48	5.59
## 3017	FF	2021-04-07	92.8	-2.48	5.71
## 3018	FF	2021-04-07	93.8	-2.66	5.98
## 3019	FF	2021-04-07	95.6	1.52	5.65
## 3020	CU	2021-04-07	83.1	-1.37	5.77
## 3021	SI	2021-04-07	95.4	2.06	6.01
## 3022	SI	2021-04-07	94.3	-1.54	5.12
## 3023	FS	2021-04-07	88.7	0.34	6.13
## 3024	FF	2021-04-07	96.8	-2.31	5.81
## 3025	FF	2021-04-07	92.6	-1.73	6.00
## 3026	KC	2021-04-07	80.1	-1.65	6.27
## 3027	SI	2021-04-07	91.5	0.87	6.20
## 3028	FF	2021-04-07	93.3	-2.07	5.87
## 3029	SL	2021-04-07	86.0	-1.61	5.61
## 3030	CH	2021-04-07	89.0	-2.76	5.72
## 3031	KC	2021-04-07	84.4	-1.46	6.12
## 3032	SL	2021-04-07	80.6	-3.36	6.25
## 3033	FF	2021-04-07	93.5	-2.05	5.18
## 3034	SI	2021-04-07	95.2	-1.38	5.69
## 3035	FF	2021-04-07	94.5	-1.27	5.56
## 3036	FF	2021-04-07	96.0	-2.40	6.21
## 3037	FF	2021-04-07	93.8	-0.99	5.43
## 3038	CU	2021-04-07	76.7	-0.60	6.20
## 3039	SL	2021-04-07	70.3	-4.06	1.16
## 3040	FF	2021-04-07	93.4	2.41	6.40
## 3041	FF	2021-04-07	95.9	1.50	6.67
## 3042	FF	2021-04-07	93.7	2.53	6.15
## 3043	FF	2021-04-07	94.2	-1.77	6.10
## 3044	FS	2021-04-07	90.7	-2.52	5.59
## 3045	FF	2021-04-07	89.3	-1.11	5.73
## 3046	FF	2021-04-07	96.6	-2.84	4.71
## 3047	CU	2021-04-07	78.3	1.33	6.13
## 3048	FF	2021-04-07	98.3	0.59	6.17
## 3049	CH	2021-04-07	83.9	-2.27	5.34
## 3050	SI	2021-04-07	90.8	-3.18	5.70
## 3051	SL	2021-04-07	86.1	-1.45	5.66
## 3052	SI	2021-04-07	92.9	2.22	5.93
## 3053	SL	2021-04-07	84.3	-1.49	5.42
## 3054	SI	2021-04-07	96.1	-1.47	5.85
## 3055	FC	2021-04-07	87.2	-1.99	6.23
## 3056	FF	2021-04-07	95.7	-0.05	6.54
## 3057	SI	2021-04-07	94.2	-2.38	5.49
## 3058	FC	2021-04-07	88.9	-1.20	6.43
## 3059	CH	2021-04-07	86.3	2.17	5.47
## 3060	CU	2021-04-07	77.9	-1.23	6.14
## 3061	SL	2021-04-07	74.9	-3.05	4.63
## 3062	FC	2021-04-07	88.6	-2.71	5.98
## 3063	SL	2021-04-07	84.8	1.57	6.17
## 3064	FF	2021-04-07	98.0	-2.07	5.70
## 3065	SI	2021-04-07	85.8	-1.96	5.90
## 3066	SL	2021-04-07	85.1	-3.00	6.17

## 3067	CH 2021-04-07	89.2	-1.38	4.77
## 3068	FF 2021-04-07	94.0	-2.73	6.08
## 3069	FF 2021-04-07	96.6	1.61	6.59
## 3070	FC 2021-04-07	84.6	-1.76	5.72
## 3071	FF 2021-04-07	92.5	-1.63	6.07
## 3072	FF 2021-04-07	96.3	-1.74	6.23
## 3073	SI 2021-04-07	93.9	-1.38	5.45
## 3074	SI 2021-04-07	97.5	-1.86	5.60
## 3075	SI 2021-04-07	95.0	-2.76	5.77
## 3076	FF 2021-04-07	97.6	-1.81	5.76
## 3077	FF 2021-04-07	93.0	0.26	6.50
## 3078	CH 2021-04-07	87.6	-1.73	6.10
## 3079	FC 2021-04-07	86.1	-1.83	5.50
## 3080	SL 2021-04-07	88.6	-1.98	6.18
## 3081	FF 2021-04-07	91.3	2.33	5.88
## 3082	FC 2021-04-07	83.6	2.03	5.96
## 3083	FF 2021-04-07	90.7	-1.55	6.01
## 3084	FF 2021-04-07	92.6	-1.18	6.08
## 3085	SI 2021-04-07	87.9	-1.91	6.09
## 3086	SL 2021-04-07	79.9	-1.36	6.59
## 3087	SL 2021-04-07	89.1	-2.19	5.79
## 3088	SL 2021-04-07	87.1	2.42	5.80
## 3089	CU 2021-04-07	81.2	0.96	5.79
## 3090	FF 2021-04-07	94.1	-2.50	5.19
## 3091	SI 2021-04-07	91.8	4.12	3.46
## 3092	SI 2021-04-07	96.5	2.18	5.55
## 3093	SI 2021-04-07	96.1	-1.43	5.69
## 3094	FF 2021-04-07	94.3	-1.70	5.37
## 3095	CH 2021-04-07	86.2	1.04	6.05
## 3096	SL 2021-04-07	85.2	-1.21	5.42
## 3097	FS 2021-04-07	83.5	-1.74	5.95
## 3098	CH 2021-04-07	79.0	1.30	6.09
## 3099	SI 2021-04-07	92.9	1.90	6.31
## 3100	CH 2021-04-07	89.8	1.97	6.46
## 3101	FC 2021-04-07	79.3	2.89	5.25
## 3102	CH 2021-04-07	89.1	-2.26	5.82
## 3103	FF 2021-04-07	97.4	-2.59	6.06
## 3104	SI 2021-04-07	86.4	-3.38	2.09
## 3105	FC 2021-04-07	89.7	-2.00	5.87
## 3106	FC 2021-04-07	87.3	-2.75	6.20
## 3107	SL 2021-04-07	83.4	-2.13	6.34
## 3108	CH 2021-04-07	86.9	-1.46	6.14
## 3109	SL 2021-04-07	89.1	1.30	5.93
## 3110	CH 2021-04-07	87.9	1.68	5.53
## 3111	KC 2021-04-07	79.2	-2.03	6.46
## 3112	CU 2021-04-07	73.9	-0.51	5.84
## 3113	SL 2021-04-07	80.2	-2.18	6.02
## 3114	SL 2021-04-07	85.5	-1.02	5.63
## 3115	SL 2021-04-07	85.7	3.67	4.88
## 3116	SL 2021-04-07	78.2	-2.77	3.49
## 3117	SL 2021-04-07	83.3	-1.10	6.03
## 3118	FF 2021-04-07	91.9	1.16	6.11
## 3119	FF 2021-04-07	92.5	-2.33	5.83
## 3120	CH 2021-04-07	88.0	-3.08	5.16

## 3121	FF 2021-04-07	93.5	-2.63	5.86
## 3122	SL 2021-04-07	91.1	-1.24	5.48
## 3123	CU 2021-04-07	84.2	2.19	5.75
## 3124	FC 2021-04-07	87.1	-2.07	6.21
## 3125	FF 2021-04-07	90.3	3.01	5.85
## 3126	SL 2021-04-07	84.3	-1.35	6.42
## 3127	FC 2021-04-07	100.0	-0.55	6.15
## 3128	FF 2021-04-07	98.0	2.37	5.66
## 3129	KC 2021-04-07	83.4	-2.46	6.45
## 3130	SL 2021-04-07	85.4	-1.94	6.06
## 3131	SL 2021-04-07	86.9	-2.46	6.27
## 3132	CU 2021-04-07	77.3	-3.04	6.21
## 3133	FF 2021-04-07	93.4	0.01	6.18
## 3134	FF 2021-04-07	95.7	-2.50	4.75
## 3135	SL 2021-04-07	83.2	1.01	6.40
## 3136	SL 2021-04-07	87.8	-1.24	5.53
## 3137	SI 2021-04-07	99.5	-2.57	6.32
## 3138	FF 2021-04-07	95.2	1.79	6.63
## 3139	CH 2021-04-07	83.7	0.72	6.35
## 3140	FS 2021-04-07	85.6	-2.90	5.91
## 3141	SI 2021-04-07	95.5	-1.69	5.11
## 3142	FF 2021-04-07	95.4	-1.37	6.00
## 3143	FF 2021-04-07	94.3	-1.90	5.33
## 3144	KC 2021-04-07	81.3	-1.78	5.78
## 3145	SL 2021-04-07	85.0	0.44	6.37
## 3146	FF 2021-04-07	87.4	-0.26	5.67
## 3147	SI 2021-04-07	96.2	-1.40	5.58
## 3148	FF 2021-04-07	94.8	-2.32	5.44
## 3149	FF 2021-04-07	98.1	-2.55	5.71
## 3150	FC 2021-04-07	87.3	-0.75	6.06
## 3151	SL 2021-04-07	91.3	2.47	5.46
## 3152	FF 2021-04-07	94.3	-2.77	6.00
## 3153	SL 2021-04-07	82.6	1.21	6.21
## 3154	FF 2021-04-07	93.1	-1.17	6.76
## 3155	CU 2021-04-07	78.5	1.89	6.65
## 3156	KC 2021-04-07	86.0	-2.61	5.06
## 3157	SI 2021-04-07	95.2	2.26	5.52
## 3158	FF 2021-04-07	93.2	-1.71	5.68
## 3159	CU 2021-04-07	81.9	-1.62	6.09
## 3160	FC 2021-04-07	85.6	3.31	5.83
## 3161	CH 2021-04-07	77.2	-2.46	4.84
## 3162	KC 2021-04-07	84.2	-1.45	6.10
## 3163	FF 2021-04-07	95.3	1.23	5.99
## 3164	SI 2021-04-07	92.3	1.45	6.32
## 3165	CU 2021-04-07	74.3	-1.87	6.28
## 3166	FC 2021-04-07	100.6	-0.61	6.16
## 3167	CU 2021-04-07	85.7	-1.68	5.99
## 3168	FF 2021-04-07	82.2	-4.10	1.29
## 3169	CU 2021-04-07	77.3	-0.85	6.15
## 3170	SL 2021-04-07	84.6	-1.12	6.10
## 3171	FC 2021-04-07	92.5	-2.67	6.44
## 3172	SI 2021-04-07	93.3	-1.78	6.18
## 3173	SI 2021-04-07	90.4	4.12	3.33
## 3174	FF 2021-04-07	96.1	-2.13	6.38

## 3175	FF	2021-04-07	95.5	-1.46	5.59
## 3176	FF	2021-04-07	96.5	1.71	5.60
## 3177	SL	2021-04-07	83.2	-0.90	6.04
## 3178	FS	2021-04-07	82.9	-1.67	5.94
## 3179	FF	2021-04-07	92.1	-1.67	5.95
## 3180	FF	2021-04-07	96.2	-0.20	6.50
## 3181	CH	2021-04-07	89.2	-2.58	5.78
## 3182	SL	2021-04-07	84.3	2.89	5.82
## 3183	SI	2021-04-07	88.0	1.21	6.14
## 3184	SL	2021-04-07	83.3	1.58	6.59
## 3185	FF	2021-04-07	96.1	-2.40	6.06
## 3186	SL	2021-04-07	85.5	3.64	4.91
## 3187	FF	2021-04-07	95.5	-1.03	5.54
## 3188	FS	2021-04-07	91.0	-2.61	5.58
## 3189	SL	2021-04-07	80.4	-3.38	6.20
## 3190	SL	2021-04-07	85.2	-2.87	6.14
## 3191	CU	2021-04-07	75.2	-1.64	5.74
## 3192	CH	2021-04-07	80.2	-1.96	6.14
## 3193	CH	2021-04-07	79.7	2.39	5.74
## 3194	FF	2021-04-07	84.9	-2.81	3.77
## 3195	FF	2021-04-07	94.8	2.29	6.30
## 3196	SL	2021-04-07	82.6	-2.48	5.42
## 3197	CU	2021-04-07	77.0	1.00	6.35
## 3198	CU	2021-04-07	80.0	-3.14	6.03
## 3199	FC	2021-04-07	91.0	-1.52	5.82
## 3200	CH	2021-04-07	89.0	-1.58	5.46
## 3201	FF	2021-04-07	94.8	-1.23	6.18
## 3202	FF	2021-04-07	97.0	-2.25	5.52
## 3203	FC	2021-04-07	87.7	-1.92	5.27
## 3204	FC	2021-04-07	89.4	-2.55	5.98
## 3205	FC	2021-04-07	89.7	-2.02	5.92
## 3206	FF	2021-04-07	97.0	1.47	6.53
## 3207	FF	2021-04-07	93.8	-1.67	6.05
## 3208	SL	2021-04-07	78.1	-3.35	2.19
## 3209	CH	2021-04-07	88.0	-3.06	5.19
## 3210	SI	2021-04-07	95.2	1.88	5.73
## 3211	CH	2021-04-07	88.8	-1.21	5.53
## 3212	FF	2021-04-07	95.2	0.88	6.14
## 3213	CU	2021-04-07	80.6	-1.80	6.30
## 3214	SI	2021-04-07	86.3	2.48	5.83
## 3215	SL	2021-04-07	89.4	-2.19	5.81
## 3216	FF	2021-04-07	92.5	-2.24	6.34
## 3217	SI	2021-04-07	97.3	-1.89	5.65
## 3218	FF	2021-04-07	93.9	-0.16	6.23
## 3219	SL	2021-04-07	81.7	3.73	5.63
## 3220	SL	2021-04-07	82.6	-2.06	6.04
## 3221	SI	2021-04-07	98.1	-1.50	5.60
## 3222	FF	2021-04-07	96.0	1.99	6.14
## 3223	CH	2021-04-07	89.3	-1.85	6.21
## 3224	CH	2021-04-07	82.9	-2.38	5.43
## 3225	FF	2021-04-07	99.0	-0.51	6.80
## 3226	SL	2021-04-07	86.4	2.53	5.91
## 3227	FF	2021-04-07	98.6	1.55	5.32
## 3228	CU	2021-04-07	82.0	0.88	5.91

## 3229	FC 2021-04-07	90.0	-1.96	6.42
## 3230	SI 2021-04-07	97.3	-1.31	5.81
## 3231	FF 2021-04-07	92.6	-1.45	6.33
## 3232	FF 2021-04-07	95.0	-0.76	5.48
## 3233	CH 2021-04-07	80.7	-3.15	5.66
## 3234	FF 2021-04-07	94.4	2.11	5.54
## 3235	SI 2021-04-07	97.2	-2.39	5.56
## 3236	SL 2021-04-07	85.1	-1.39	5.66
## 3237	SI 2021-04-07	96.0	-2.74	4.63
## 3238	FF 2021-04-07	91.2	2.06	5.90
## 3239	FF 2021-04-07	95.1	-1.67	6.03
## 3240	SL 2021-04-07	73.8	-2.68	5.07
## 3241	FF 2021-04-07	95.1	-0.86	5.77
## 3242	FF 2021-04-07	94.4	1.94	5.70
## 3243	SI 2021-04-07	94.9	-2.93	5.74
## 3244	FC 2021-04-07	89.9	-1.08	6.39
## 3245	FC 2021-04-07	87.0	-2.07	6.23
## 3246	FF 2021-04-07	91.5	0.94	6.12
## 3247	CH 2021-04-07	83.3	-2.42	5.70
## 3248	SI 2021-04-07	87.7	-2.00	6.05
## 3249	FC 2021-04-07	90.4	0.84	5.86
## 3250	SL 2021-04-07	89.2	-2.23	5.68
## 3251	FF 2021-04-07	96.0	1.16	5.98
## 3252	FF 2021-04-07	97.5	3.41	5.13
## 3253	FF 2021-04-07	95.2	-2.58	5.69
## 3254	FF 2021-04-07	94.9	-1.93	5.72
## 3255	FC 2021-04-07	100.5	-0.71	6.13
## 3256	FF 2021-04-07	97.7	-0.78	6.83
## 3257	SL 2021-04-07	84.6	2.62	5.94
## 3258	FC 2021-04-07	92.1	-3.25	5.97
## 3259	FF 2021-04-07	93.9	-0.12	6.28
## 3260	CU 2021-04-07	84.3	-1.43	5.78
## 3261	FF 2021-04-07	83.7	-2.78	3.65
## 3262	FF 2021-04-07	91.9	0.62	6.33
## 3263	FF 2021-04-07	94.1	-2.83	6.10
## 3264	SL 2021-04-07	85.4	-1.60	6.07
## 3265	CU 2021-04-07	83.2	-1.82	6.06
## 3266	FF 2021-04-07	94.9	-0.94	5.78
## 3267	FC 2021-04-07	88.9	-1.83	5.45
## 3268	FF 2021-04-07	97.9	-2.65	5.74
## 3269	SL 2021-04-07	87.9	-2.44	6.30
## 3270	FS 2021-04-07	89.3	0.49	6.28
## 3271	CH 2021-04-07	88.5	-1.19	5.49
## 3272	FF 2021-04-07	82.9	-4.07	1.20
## 3273	FF 2021-04-07	91.6	-1.48	6.01
## 3274	SL 2021-04-07	73.1	-2.77	5.16
## 3275	FC 2021-04-07	89.4	-2.73	5.99
## 3276	SL 2021-04-07	83.1	-1.16	6.03
## 3277	SI 2021-04-07	94.3	-1.85	6.19
## 3278	CH 2021-04-07	87.3	-3.03	5.23
## 3279	SL 2021-04-07	79.8	-3.33	6.33
## 3280	SI 2021-04-07	95.2	2.00	5.76
## 3281	FF 2021-04-07	94.3	-2.08	5.73
## 3282	FF 2021-04-07	94.8	2.06	5.61

## 3283	FC 2021-04-07	88.9	-1.87	6.25
## 3284	CH 2021-04-07	89.3	-1.60	5.48
## 3285	FF 2021-04-07	92.8	-1.62	6.05
## 3286	SI 2021-04-07	95.4	0.96	6.07
## 3287	SI 2021-04-07	95.0	-3.00	5.67
## 3288	FC 2021-04-07	86.4	3.20	5.81
## 3289	SL 2021-04-07	83.5	3.97	5.57
## 3290	SL 2021-04-07	84.5	-2.32	5.67
## 3291	FF 2021-04-07	96.9	-2.81	4.81
## 3292	KC 2021-04-07	82.8	-2.51	6.41
## 3293	FF 2021-04-07	95.0	-1.09	5.74
## 3294	FF 2021-04-07	93.0	-1.06	6.11
## 3295	CU 2021-04-07	80.5	1.62	6.71
## 3296	SI 2021-04-07	92.4	1.48	6.29
## 3297	FF 2021-04-07	91.2	4.05	3.39
## 3298	SI 2021-04-07	95.0	-1.39	5.06
## 3299	CU 2021-04-07	73.2	-1.89	6.34
## 3300	CU 2021-04-07	79.9	-0.84	5.71
## 3301	CH 2021-04-07	85.6	1.19	6.07
## 3302	SI 2021-04-07	95.1	2.25	5.51
## 3303	FF 2021-04-07	96.6	-1.57	6.06
## 3304	SI 2021-04-07	86.5	-3.34	2.21
## 3305	FF 2021-04-07	92.8	-1.77	5.70
## 3306	FF 2021-04-07	94.6	2.37	6.25
## 3307	FF 2021-04-07	96.3	-2.52	5.81
## 3308	FC 2021-04-07	89.8	-2.43	5.88
## 3309	FF 2021-04-07	96.3	-2.56	6.05
## 3310	CH 2021-04-07	88.8	-2.38	5.47
## 3311	SL 2021-04-07	87.3	-1.38	5.65
## 3312	CU 2021-04-07	84.1	2.40	5.77
## 3313	FF 2021-04-07	98.0	1.52	5.37
## 3314	FF 2021-04-07	95.8	-1.46	5.92
## 3315	CU 2021-04-07	83.6	0.10	6.53
## 3316	CU 2021-04-07	78.4	-0.99	5.76
## 3317	CH 2021-04-07	87.9	-1.40	5.54
## 3318	SI 2021-04-07	93.0	2.43	6.12
## 3319	FF 2021-04-07	95.0	1.16	6.05
## 3320	FF 2021-04-07	94.6	2.60	6.10
## 3321	FF 2021-04-07	98.5	2.37	5.58
## 3322	FF 2021-04-07	93.4	-2.83	6.25
## 3323	FF 2021-04-07	94.3	-1.68	5.66
## 3324	FC 2021-04-07	90.4	1.89	6.21
## 3325	CH 2021-04-07	85.5	-2.27	5.09
## 3326	CU 2021-04-07	72.2	2.24	6.03
## 3327	FF 2021-04-07	91.1	1.06	6.21
## 3328	FF 2021-04-07	92.6	-1.95	5.86
## 3329	SL 2021-04-07	86.2	-2.64	4.69
## 3330	SL 2021-04-07	87.3	-1.31	5.46
## 3331	SI 2021-04-07	93.7	1.81	6.44
## 3332	FC 2021-04-07	84.9	-0.32	5.62
## 3333	FF 2021-04-07	92.9	2.46	5.87
##	player_name zone			
## 1	Bauer, Trevor	12		
## 2	Bauer, Trevor	14		

## 3	Bauer, Trevor	14
## 4	Bauer, Trevor	4
## 5	Bauer, Trevor	14
## 6	Bauer, Trevor	14
## 7	Luzardo, Jesús	6
## 8	Bauer, Trevor	9
## 9	Bieber, Shane	5
## 10	Bauer, Trevor	5
## 11	Luzardo, Jesús	11
## 12	Bauer, Trevor	11
## 13	Luzardo, Jesús	12
## 14	Bieber, Shane	14
## 15	Luzardo, Jesús	13
## 16	Bauer, Trevor	5
## 17	Bieber, Shane	14
## 18	Flaherty, Jack	12
## 19	Bieber, Shane	14
## 20	Flaherty, Jack	1
## 21	Bauer, Trevor	11
## 22	Luzardo, Jesús	11
## 23	Bumgarner, Madison	6
## 24	Luzardo, Jesús	6
## 25	Flaherty, Jack	12
## 26	Bauer, Trevor	11
## 27	Bieber, Shane	6
## 28	López, Pablo	11
## 29	Luzardo, Jesús	11
## 30	Bauer, Trevor	2
## 31	Bieber, Shane	14
## 32	López, Pablo	5
## 33	Flaherty, Jack	2
## 34	Bumgarner, Madison	9
## 35	López, Pablo	12
## 36	Flaherty, Jack	8
## 37	Bauer, Trevor	14
## 38	Luzardo, Jesús	13
## 39	Bumgarner, Madison	6
## 40	Bieber, Shane	11
## 41	Gausman, Kevin	13
## 42	Boyd, Matthew	8
## 43	López, Pablo	11
## 44	Senzatela, Antonio	14
## 45	Bumgarner, Madison	13
## 46	Luzardo, Jesús	7
## 47	Bauer, Trevor	2
## 48	Flaherty, Jack	13
## 49	Bieber, Shane	7
## 50	Gausman, Kevin	3
## 51	Senzatela, Antonio	8
## 52	Bieber, Shane	11
## 53	Bauer, Trevor	14
## 54	Flaherty, Jack	14
## 55	López, Pablo	13
## 56	Luzardo, Jesús	12



## 57	Bumgarner, Madison	5
## 58	Boyd, Matthew	7
## 59	Flaherty, Jack	14
## 60	Senzatela, Antonio	1
## 61	Bieber, Shane	14
## 62	Luzardo, Jesús	9
## 63	Bumgarner, Madison	14
## 64	Boyd, Matthew	6
## 65	Bauer, Trevor	14
## 66	López, Pablo	11
## 67	Gausman, Kevin	8
## 68	Dunn, Justin	11
## 69	Luzardo, Jesús	12
## 70	Bumgarner, Madison	13
## 71	Gausman, Kevin	3
## 72	Boyd, Matthew	13
## 73	Flaherty, Jack	4
## 74	Senzatela, Antonio	14
## 75	Keuchel, Dallas	9
## 76	Bieber, Shane	4
## 77	López, Pablo	2
## 78	Means, John	3
## 79	Bauer, Trevor	14
## 80	Gausman, Kevin	12
## 81	Luzardo, Jesús	11
## 82	Boyd, Matthew	14
## 83	Dunn, Justin	14
## 84	Flaherty, Jack	5
## 85	Bumgarner, Madison	9
## 86	Senzatela, Antonio	7
## 87	Bauer, Trevor	14
## 88	Nola, Aaron	4
## 89	López, Pablo	4
## 90	Means, John	4
## 91	Bieber, Shane	9
## 92	Keuchel, Dallas	13
## 93	Nola, Aaron	14
## 94	Boyd, Matthew	2
## 95	Gausman, Kevin	13
## 96	Keuchel, Dallas	13
## 97	Bumgarner, Madison	13
## 98	Flaherty, Jack	14
## 99	Means, John	13
## 100	Bauer, Trevor	3
## 101	Luzardo, Jesús	11
## 102	Senzatela, Antonio	4
## 103	Dunn, Justin	13
## 104	López, Pablo	14
## 105	Eovaldi, Nathan	8
## 106	Bieber, Shane	14
## 107	Senzatela, Antonio	8
## 108	Keuchel, Dallas	11
## 109	Eovaldi, Nathan	7
## 110	Ryu, Hyun Jin	13

## 111	Bumgarner, Madison	2
## 112	Boyd, Matthew	13
## 113	López, Pablo	13
## 114	Bieber, Shane	5
## 115	Luzardo, Jesús	13
## 116	Bauer, Trevor	5
## 117	Flaherty, Jack	2
## 118	Gausman, Kevin	14
## 119	Nola, Aaron	5
## 120	Dunn, Justin	13
## 121	Means, John	14
## 122	Ryu, Hyun Jin	14
## 123	Boyd, Matthew	12
## 124	Eovaldi, Nathan	12
## 125	Means, John	13
## 126	Yarbrough, Ryan	7
## 127	Dunn, Justin	9
## 128	Senzatela, Antonio	11
## 129	Keuchel, Dallas	5
## 130	Luzardo, Jesús	11
## 131	Bauer, Trevor	8
## 132	Bumgarner, Madison	14
## 133	López, Pablo	2
## 134	Gausman, Kevin	4
## 135	Nola, Aaron	11
## 136	Flaherty, Jack	12
## 137	Bieber, Shane	14
## 138	Bauer, Trevor	11
## 139	Keuchel, Dallas	13
## 140	Senzatela, Antonio	4
## 141	Boyd, Matthew	5
## 142	Eovaldi, Nathan	11
## 143	Bieber, Shane	14
## 144	Gausman, Kevin	6
## 145	Dunn, Justin	11
## 146	Yarbrough, Ryan	11
## 147	Luzardo, Jesús	4
## 148	Means, John	6
## 149	Ryu, Hyun Jin	6
## 150	Flaherty, Jack	1
## 151	Bumgarner, Madison	12
## 152	López, Pablo	11
## 153	Nola, Aaron	13
## 154	Keuchel, Dallas	13
## 155	Boyd, Matthew	14
## 156	Bumgarner, Madison	8
## 157	Means, John	13
## 158	Ryu, Hyun Jin	12
## 159	Nola, Aaron	7
## 160	Luzardo, Jesús	7
## 161	Senzatela, Antonio	14
## 162	Yarbrough, Ryan	13
## 163	Gausman, Kevin	8
## 164	Bauer, Trevor	11

## 165	Bieber, Shane	14
## 166	Dunn, Justin	13
## 167	López, Pablo	7
## 168	Eovaldi, Nathan	14
## 169	Snell, Blake	2
## 170	Flaherty, Jack	14
## 171	Eovaldi, Nathan	1
## 172	Bieber, Shane	6
## 173	Snell, Blake	13
## 174	Dunn, Justin	14
## 175	Senzatela, Antonio	2
## 176	López, Pablo	1
## 177	Yarbrough, Ryan	4
## 178	Flaherty, Jack	14
## 179	Nola, Aaron	14
## 180	Boyd, Matthew	12
## 181	Luzardo, Jesús	8
## 182	Bauer, Trevor	2
## 183	Means, John	2
## 184	Keuchel, Dallas	2
## 185	Ryu, Hyun Jin	13
## 186	Gausman, Kevin	13
## 187	Bumgarner, Madison	5
## 188	Yarbrough, Ryan	7
## 189	Eovaldi, Nathan	11
## 190	Bumgarner, Madison	13
## 191	Bauer, Trevor	6
## 192	Dunn, Justin	13
## 193	Strasburg, Stephen	8
## 194	Senzatela, Antonio	14
## 195	Luzardo, Jesús	3
## 196	Ryu, Hyun Jin	2
## 197	Boyd, Matthew	6
## 198	Flaherty, Jack	2
## 199	Snell, Blake	13
## 200	Bieber, Shane	12
## 201	Keuchel, Dallas	13
## 202	Hendricks, Kyle	14
## 203	Means, John	13
## 204	Gausman, Kevin	13
## 205	López, Pablo	4
## 206	Nola, Aaron	6
## 207	Gausman, Kevin	13
## 208	Boyd, Matthew	13
## 209	López, Pablo	13
## 210	Snell, Blake	14
## 211	Keuchel, Dallas	14
## 212	Ryu, Hyun Jin	13
## 213	Bieber, Shane	6
## 214	Flaherty, Jack	8
## 215	Dunn, Justin	13
## 216	Luzardo, Jesús	7
## 217	Eovaldi, Nathan	3
## 218	Strasburg, Stephen	14

## 219	Senzatela, Antonio	5
## 220	Nola, Aaron	14
## 221	Hendricks, Kyle	14
## 222	Bumgarner, Madison	11
## 223	Bauer, Trevor	1
## 224	Means, John	2
## 225	Yarbrough, Ryan	13
## 226	Bieber, Shane	14
## 227	Bumgarner, Madison	5
## 228	Boyd, Matthew	8
## 229	Gausman, Kevin	11
## 230	Hendricks, Kyle	6
## 231	Senzatela, Antonio	1
## 232	Snell, Blake	5
## 233	Nola, Aaron	6
## 234	Luzardo, Jesús	2
## 235	Eovaldi, Nathan	5
## 236	Keuchel, Dallas	14
## 237	Dunn, Justin	13
## 238	Flaherty, Jack	11
## 239	Means, John	9
## 240	Yarbrough, Ryan	14
## 241	Bauer, Trevor	1
## 242	Ryu, Hyun Jin	12
## 243	Strasburg, Stephen	14
## 244	López, Pablo	14
## 245	Strasburg, Stephen	14
## 246	López, Pablo	7
## 247	Hendricks, Kyle	5
## 248	Yarbrough, Ryan	4
## 249	Snell, Blake	9
## 250	Means, John	14
## 251	Bieber, Shane	14
## 252	Gibson, Kyle	6
## 253	Dunn, Justin	7
## 254	Ryu, Hyun Jin	14
## 255	Luzardo, Jesús	2
## 256	Bumgarner, Madison	13
## 257	Gausman, Kevin	8
## 258	Boyd, Matthew	13
## 259	Eovaldi, Nathan	5
## 260	Senzatela, Antonio	14
## 261	Bauer, Trevor	11
## 262	Flaherty, Jack	11
## 263	Nola, Aaron	8
## 264	Keuchel, Dallas	11
## 265	Gibson, Kyle	9
## 266	Bieber, Shane	3
## 267	Strasburg, Stephen	1
## 268	Nola, Aaron	3
## 269	Yarbrough, Ryan	8
## 270	López, Pablo	8
## 271	Luzardo, Jesús	1
## 272	Bauer, Trevor	1

## 273	Senzatela, Antonio	11
## 274	Flaherty, Jack	14
## 275	Means, John	3
## 276	Dunn, Justin	14
## 277	Snell, Blake	14
## 278	Ryu, Hyun Jin	12
## 279	Keuchel, Dallas	13
## 280	Castillo, Luis	1
## 281	Bumgarner, Madison	13
## 282	Boyd, Matthew	1
## 283	Hendricks, Kyle	6
## 284	Eovaldi, Nathan	14
## 285	Gausman, Kevin	14
## 286	Yarbrough, Ryan	14
## 287	Means, John	14
## 288	Snell, Blake	4
## 289	Eovaldi, Nathan	9
## 290	Luzardo, Jesús	13
## 291	Flaherty, Jack	11
## 292	Senzatela, Antonio	9
## 293	Castillo, Luis	13
## 294	Gausman, Kevin	11
## 295	Hendricks, Kyle	13
## 296	Nola, Aaron	4
## 297	Ryu, Hyun Jin	9
## 298	Bumgarner, Madison	9
## 299	Dunn, Justin	11
## 300	Gibson, Kyle	6
## 301	Strasburg, Stephen	1
## 302	Boyd, Matthew	3
## 303	Bieber, Shane	14
## 304	Bauer, Trevor	11
## 305	Keuchel, Dallas	2
## 306	López, Pablo	4
## 307	Yarbrough, Ryan	9
## 308	Gibson, Kyle	6
## 309	Hendricks, Kyle	2
## 310	Nola, Aaron	14
## 311	Bieber, Shane	5
## 312	Flaherty, Jack	14
## 313	Bumgarner, Madison	8
## 314	Dunn, Justin	11
## 315	Luzardo, Jesús	13
## 316	Ryu, Hyun Jin	3
## 317	Bauer, Trevor	5
## 318	Castillo, Luis	11
## 319	Keuchel, Dallas	4
## 320	Means, John	6
## 321	Boyd, Matthew	6
## 322	Gausman, Kevin	13
## 323	López, Pablo	13
## 324	Eovaldi, Nathan	13
## 325	Senzatela, Antonio	3
## 326	Snell, Blake	8

## 327	Strasburg, Stephen	14
## 328	Hendricks, Kyle	14
## 329	Eovaldi, Nathan	14
## 330	Boyd, Matthew	9
## 331	Snell, Blake	2
## 332	Peterson, David	7
## 333	Senzatela, Antonio	4
## 334	Gausman, Kevin	2
## 335	Bauer, Trevor	12
## 336	Flaherty, Jack	6
## 337	Castillo, Luis	5
## 338	López, Pablo	7
## 339	Nola, Aaron	6
## 340	Luzardo, Jesús	8
## 341	Bieber, Shane	14
## 342	Ryu, Hyun Jin	9
## 343	Yarbrough, Ryan	5
## 344	Dunn, Justin	14
## 345	Strasburg, Stephen	14
## 346	Keuchel, Dallas	5
## 347	Gibson, Kyle	14
## 348	Means, John	6
## 349	Bumgarner, Madison	7
## 350	Ryu, Hyun Jin	14
## 351	Bauer, Trevor	14
## 352	Keuchel, Dallas	2
## 353	Boyd, Matthew	14
## 354	Gausman, Kevin	3
## 355	Senzatela, Antonio	8
## 356	Yarbrough, Ryan	13
## 357	Bumgarner, Madison	12
## 358	Nola, Aaron	4
## 359	Strasburg, Stephen	7
## 360	Bieber, Shane	11
## 361	Castillo, Luis	14
## 362	Snell, Blake	8
## 363	Means, John	12
## 364	Hendricks, Kyle	7
## 365	Peterson, David	7
## 366	Flaherty, Jack	11
## 367	Luzardo, Jesús	1
## 368	Gibson, Kyle	11
## 369	Eovaldi, Nathan	14
## 370	López, Pablo	11
## 371	Dunn, Justin	11
## 372	Gausman, Kevin	14
## 373	Eovaldi, Nathan	14
## 374	Hendricks, Kyle	12
## 375	Bumgarner, Madison	5
## 376	Peterson, David	8
## 377	Snell, Blake	5
## 378	Bieber, Shane	5
## 379	Bauer, Trevor	9
## 380	Keuchel, Dallas	11

## 381	Nola, Aaron	5
## 382	Ryu, Hyun Jin	7
## 383	Flaherty, Jack	5
## 384	Boyd, Matthew	6
## 385	Senzatela, Antonio	8
## 386	Strasburg, Stephen	6
## 387	Dunn, Justin	13
## 388	Castillo, Luis	7
## 389	Gibson, Kyle	6
## 390	Luzardo, Jesús	12
## 391	López, Pablo	6
## 392	Yarbrough, Ryan	4
## 393	Means, John	4
## 394	Flaherty, Jack	8
## 395	Strasburg, Stephen	5
## 396	Nola, Aaron	11
## 397	Means, John	11
## 398	Yarbrough, Ryan	14
## 399	Bumgarner, Madison	13
## 400	Luzardo, Jesús	4
## 401	López, Pablo	13
## 402	Senzatela, Antonio	13
## 403	Boyd, Matthew	5
## 404	Keuchel, Dallas	11
## 405	Maeda, Kenta	6
## 406	Castillo, Luis	13
## 407	Gausman, Kevin	8
## 408	Dunn, Justin	14
## 409	Gibson, Kyle	6
## 410	Bieber, Shane	1
## 411	Snell, Blake	5
## 412	Peterson, David	12
## 413	Eovaldi, Nathan	4
## 414	Bauer, Trevor	6
## 415	Hendricks, Kyle	9
## 416	Ryu, Hyun Jin	9
## 417	Luzardo, Jesús	4
## 418	López, Pablo	6
## 419	Bumgarner, Madison	13
## 420	Flaherty, Jack	11
## 421	Boyd, Matthew	13
## 422	Peterson, David	2
## 423	Dunn, Justin	13
## 424	Eovaldi, Nathan	7
## 425	Gausman, Kevin	13
## 426	Maeda, Kenta	9
## 427	Snell, Blake	13
## 428	Bieber, Shane	5
## 429	Strasburg, Stephen	14
## 430	Means, John	4
## 431	Keuchel, Dallas	13
## 432	Yarbrough, Ryan	1
## 433	Taillon, Jameson	5
## 434	Ryu, Hyun Jin	6

## 435	Senzatela, Antonio	4
## 436	Nola, Aaron	13
## 437	Woodruff, Brandon	12
## 438	Gibson, Kyle	14
## 439	Bauer, Trevor	11
## 440	Castillo, Luis	14
## 441	Hendricks, Kyle	14
## 442	Means, John	11
## 443	Peterson, David	12
## 444	Boyd, Matthew	8
## 445	Strasburg, Stephen	11
## 446	Gausman, Kevin	7
## 447	Senzatela, Antonio	8
## 448	Taillon, Jameson	12
## 449	Flaherty, Jack	11
## 450	Eovaldi, Nathan	5
## 451	Bieber, Shane	12
## 452	Woodruff, Brandon	11
## 453	Yarbrough, Ryan	14
## 454	Ryu, Hyun Jin	5
## 455	Bumgarner, Madison	5
## 456	Nola, Aaron	12
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## 466	Keuchel, Dallas	13
## 467	Nola, Aaron	11
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## 1741	Boyd, Matthew	4
## 1742	Foster, Matt	7
## 1743	Yarbrough, Ryan	4
## 1744	Lucchesi, Joey	12
## 1745	Dunn, Justin	14
## 1746	Bumgarner, Madison	8
## 1747	Fried, Max	1
## 1748	Fedde, Erick	6
## 1749	Ryu, Hyun Jin	11
## 1750	Keuchel, Dallas	13
## 1751	Junis, Jakob	13
## 1752	Valdez, César	4
## 1753	Eovaldi, Nathan	9
## 1754	Means, John	14
## 1755	Smith, Caleb	9
## 1756	Gibson, Kyle	9
## 1757	Bieber, Shane	6
## 1758	Colomé, Alex	4
## 1759	Maeda, Kenta	8
## 1760	López, Pablo	11
## 1761	Tomlin, Josh	5
## 1762	Gausman, Kevin	5
## 1763	Taylor, Josh	11
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## 1768	Kuhl, Chad	14
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## 1771	Hendricks, Kyle	4
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## 1775	Flaherty, Jack	5
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## 1777	Taylor, Josh	13
## 1778	Fedde, Erick	14
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## 1783	Yarbrough, Ryan	13
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## 1792	Hendricks, Kyle	4
## 1793	Brogdon, Connor	1
## 1794	Bumgarner, Madison	13
## 1795	Smith, Caleb	11
## 1796	Foster, Matt	12
## 1797	Gausman, Kevin	14
## 1798	Tomlin, Josh	14
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## 1802	Flaherty, Jack	11
## 1803	Junis, Jakob	4
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## 1805	Bieber, Shane	14
## 1806	Valdez, César	5
## 1807	Fried, Max	13
## 1808	Dunn, Justin	6
## 1809	McHugh, Collin	9
## 1810	Rainey, Tanner	5
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## 1812	Gibson, Kyle	4
## 1813	Castillo, Luis	7
## 1814	Eovaldi, Nathan	12
## 1815	López, Pablo	11
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## 1819	Yarbrough, Ryan	14
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## 1823	Rainey, Tanner	14
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## 1828	Senzatela, Antonio	9
## 1829	Keuchel, Dallas	12
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## 1832	Junis, Jakob	9
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## 1834	Bauer, Trevor	14
## 1835	Lucchesi, Joey	11
## 1836	Gausman, Kevin	9
## 1837	Bieber, Shane	9
## 1838	Taillon, Jameson	14

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## 1841	Foster, Matt	7
## 1842	Brogdon, Connor	8
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## 1855	Pop, Zach	4
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## 1859	Green, Chad	14
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## 1864	Foster, Matt	12
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## 1867	Flaherty, Jack	11
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## 1869	Fedde, Erick	14
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## 1881	Colomé, Alex	14
## 1882	Lucchesi, Joey	8
## 1883	Kuhl, Chad	3
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## 1891	Bieber, Shane	4
## 1892	Gibson, Kyle	11

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## 1895	Bauer, Trevor	14
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## 1897	Woodruff, Brandon	11
## 1898	Pop, Zach	11
## 1899	Snell, Blake	14
## 1900	Means, John	4
## 1901	Barlow, Scott	6
## 1902	Fried, Max	2
## 1903	Senzatela, Antonio	11
## 1904	Keuchel, Dallas	5
## 1905	Rainey, Tanner	5
## 1906	Castillo, Luis	11
## 1907	Gausman, Kevin	13
## 1908	Yarbrough, Ryan	2
## 1909	Peterson, David	13
## 1910	Brogdon, Connor	11
## 1911	Senzatela, Antonio	8
## 1912	Kuhl, Chad	8
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## 1915	Green, Chad	11
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## 1917	McHugh, Collin	14
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## 1920	Hicks, Jordan	14
## 1921	Woodruff, Brandon	5
## 1922	Strasburg, Stephen	9
## 1923	Feyereisen, J.P.	14
## 1924	Valdez, César	14
## 1925	Bauer, Trevor	12
## 1926	Bumgarner, Madison	12
## 1927	Boyd, Matthew	9
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## 1931	Hendricks, Kyle	14
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## 1933	López, Pablo	12
## 1934	Gibson, Kyle	4
## 1935	Snell, Blake	2
## 1936	Flaherty, Jack	3
## 1937	Junis, Jakob	12
## 1938	Foster, Matt	3
## 1939	Barlow, Scott	14
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## 1943	Fedde, Erick	4
## 1944	Luzardo, Jesús	7
## 1945	Means, John	5
## 1946	Vest, Will	13

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## 1956	Yarbrough, Ryan	14
## 1957	Senzatela, Antonio	12
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## 1959	Smith, Caleb	9
## 1960	Gibson, Kyle	12
## 1961	Hahn, Jesse	11
## 1962	Rainey, Tanner	14
## 1963	López, Pablo	13
## 1964	Ryu, Hyun Jin	14
## 1965	Ynoa, Huascar	14
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## 1968	Means, John	2
## 1969	Snell, Blake	14
## 1970	Tomlin, Josh	14
## 1971	Bauer, Trevor	1
## 1972	Hendricks, Kyle	1
## 1973	Gausman, Kevin	2
## 1974	Taillon, Jameson	2
## 1975	Woodruff, Brandon	14
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## 1978	Trivino, Lou	2
## 1979	Maeda, Kenta	3
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## 1983	Bush, Matt	1
## 1984	Hicks, Jordan	9
## 1985	Pop, Zach	11
## 1986	Brogdon, Connor	11
## 1987	Stratton, Chris	14
## 1988	Taylor, Josh	13
## 1989	Bieber, Shane	11
## 1990	Flaherty, Jack	3
## 1991	Bumgarner, Madison	12
## 1992	Valdez, César	7
## 1993	Castillo, Luis	13
## 1994	McHugh, Collin	14
## 1995	Barlow, Scott	14
## 1996	Feyereisen, J.P.	9
## 1997	Fedde, Erick	14
## 1998	Boyd, Matthew	5
## 1999	Kuhl, Chad	5
## 2000	Foster, Matt	13

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##	2002	Vest, Will	14
##	2003	Taillon, Jameson	3
##	2004	Feyereisen, J.P.	14
##	2005	Bieber, Shane	11
##	2006	Woodruff, Brandon	9
##	2007	Hahn, Jesse	9
##	2008	Gausman, Kevin	7
##	2009	Strasburg, Stephen	1
##	2010	Foster, Matt	11
##	2011	Brogdon, Connor	11
##	2012	Bumgarner, Madison	12
##	2013	Valdez, César	2
##	2014	Stratton, Chris	11
##	2015	Dunn, Justin	14
##	2016	Yarbrough, Ryan	5
##	2017	Smith, Caleb	4
##	2018	Bush, Matt	14
##	2019	Keuchel, Dallas	6
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##	2021	Bauer, Trevor	14
##	2022	Boyd, Matthew	5
##	2023	Fedde, Erick	14
##	2024	Tomlin, Josh	6
##	2025	Graveman, Kendall	9
##	2026	Maeda, Kenta	13
##	2027	Rainey, Tanner	13
##	2028	Luzardo, Jesús	13
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##	2031	Gibson, Kyle	1
##	2032	Taylor, Josh	11
##	2033	Kuhl, Chad	9
##	2034	Pop, Zach	13
##	2035	Hendricks, Kyle	14
##	2036	Williams, Devin	14
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##	2038	Means, John	3
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##	2043	Trivino, Lou	14
##	2044	McHugh, Collin	14
##	2045	Bradley, Archie	4
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##	2047	Vest, Will	11
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##	2050	Hicks, Jordan	2
##	2051	Peterson, David	5
##	2052	Flaherty, Jack	6
##	2053	Senzatela, Antonio	2
##	2054	Barlow, Scott	11

## 2055	Snell, Blake	4
## 2056	Foster, Matt	5
## 2057	Peterson, David	8
## 2058	Lucchesi, Joey	3
## 2059	Strasburg, Stephen	9
## 2060	Cisnero, José	3
## 2061	Keuchel, Dallas	14
## 2062	Valdez, César	8
## 2063	Fedde, Erick	1
## 2064	Kuhl, Chad	12
## 2065	Bumgarner, Madison	1
## 2066	Junis, Jakob	9
## 2067	Williams, Devin	13
## 2068	Snell, Blake	4
## 2069	Means, John	13
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## 2071	Gausman, Kevin	13
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## 2074	Bieber, Shane	2
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## 2078	Hendricks, Kyle	14
## 2079	Bauer, Trevor	14
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## 2082	Mills, Alec	9
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## 2084	Yarbrough, Ryan	1
## 2085	Woodruff, Brandon	5
## 2086	Flaherty, Jack	14
## 2087	Castillo, Luis	11
## 2088	Eovaldi, Nathan	11
## 2089	Gibson, Kyle	6
## 2090	McHugh, Collin	8
## 2091	Green, Chad	11
## 2092	Feyereisen, J.P.	9
## 2093	Fried, Max	4
## 2094	Graveman, Kendall	11
## 2095	Trivino, Lou	1
## 2096	Nola, Aaron	6
## 2097	Hahn, Jesse	5
## 2098	Jackson, Luke	9
## 2099	Maeda, Kenta	4
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## 2102	Tomlin, Josh	1
## 2103	Cabrera, Génesis	14
## 2104	Bush, Matt	14
## 2105	Barlow, Scott	11
## 2106	Tate, Dillon	6
## 2107	Rainey, Tanner	13
## 2108	Stratton, Chris	5

##	2109	Hicks, Jordan	12
##	2110	Taillon, Jameson	5
##	2111	Taylor, Josh	14
##	2112	Ynoa, Huascar	12
##	2113	Jansen, Kenley	11
##	2114	Ryu, Hyun Jin	12
##	2115	Hicks, Jordan	8
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##	2121	Tomlin, Josh	6
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##	2123	Keuchel, Dallas	14
##	2124	Fedde, Erick	14
##	2125	Bush, Matt	14
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##	2127	Cisnero, José	3
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##	2130	Taylor, Josh	7
##	2131	Williams, Devin	7
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##	2138	Scott, Tanner	13
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##	2141	Foster, Matt	2
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##	2145	Gibson, Kyle	14
##	2146	Junis, Jakob	6
##	2147	Flaherty, Jack	13
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##	2149	Graveman, Kendall	11
##	2150	Trivino, Lou	11
##	2151	Hendricks, Kyle	11
##	2152	Ryu, Hyun Jin	7
##	2153	Senzatela, Antonio	14
##	2154	Suero, Wander	2
##	2155	Jansen, Kenley	12
##	2156	Lucchesi, Joey	2
##	2157	Colomé, Alex	11
##	2158	Boyd, Matthew	14
##	2159	Smith, Will	13
##	2160	Valdez, César	14
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##	2162	Bauer, Trevor	3

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## 2166	Means, John	6
## 2167	Green, Chad	11
## 2168	Strasburg, Stephen	13
## 2169	McHugh, Collin	11
## 2170	Jackson, Luke	14
## 2171	Fried, Max	6
## 2172	Smith, Caleb	4
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## 2174	Ynoa, Huascar	7
## 2175	Castillo, Luis	14
## 2176	Betances, Dellin	3
## 2177	Tate, Dillon	6
## 2178	Valdez, César	5
## 2179	Hicks, Jordan	9
## 2180	Brogdon, Connor	12
## 2181	Trivino, Lou	11
## 2182	Cisnero, José	14
## 2183	Barlow, Scott	9
## 2184	Taylor, Josh	13
## 2185	Foster, Matt	13
## 2186	Tomlin, Josh	14
## 2187	Tate, Dillon	14
## 2188	Gibson, Kyle	8
## 2189	Yarbrough, Ryan	14
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## 2192	Stratton, Chris	6
## 2193	Snell, Blake	14
## 2194	Strasburg, Stephen	4
## 2195	Flaherty, Jack	3
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## 2198	Hendricks, Kyle	14
## 2199	Feliz, Michael	14
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## 2201	Jansen, Kenley	12
## 2202	Kuhl, Chad	4
## 2203	Fedde, Erick	2
## 2204	Peterson, David	8
## 2205	López, Pablo	14
## 2206	Woodruff, Brandon	14
## 2207	Garrett, Amir	13
## 2208	Bauer, Trevor	5
## 2209	Smith, Caleb	6
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## 2212	Castillo, Luis	7
## 2213	Mills, Alec	12
## 2214	Gausman, Kevin	11
## 2215	Scott, Tanner	13
## 2216	Ryu, Hyun Jin	11



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##	2218	Holland, Greg	9
##	2219	Graveman, Kendall	9
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##	2221	Nola, Aaron	11
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##	2224	Green, Chad	3
##	2225	McHugh, Collin	14
##	2226	Boyd, Matthew	9
##	2227	Bush, Matt	14
##	2228	Hahn, Jesse	14
##	2229	Williams, Devin	2
##	2230	Colomé, Alex	11
##	2231	Nelson, Nick	7
##	2232	Taillon, Jameson	7
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##	2234	Maeda, Kenta	11
##	2235	Means, John	4
##	2236	Dunn, Justin	11
##	2237	Pomeranz, Drew	12
##	2238	Junis, Jakob	5
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##	2242	Jackson, Luke	2
##	2243	Rainey, Tanner	14
##	2244	Betances, Dellin	12
##	2245	Feyereisen, J.P.	12
##	2246	Cabrera, Génesis	12
##	2247	López, Pablo	7
##	2248	Feliz, Michael	14
##	2249	Luzardo, Jesús	14
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##	2252	Trivino, Lou	2
##	2253	Nola, Aaron	12
##	2254	Bieber, Shane	14
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##	2256	Dunn, Justin	11
##	2257	Flaherty, Jack	6
##	2258	Maeda, Kenta	14
##	2259	Bush, Matt	14
##	2260	Pop, Zach	14
##	2261	Bauer, Trevor	14
##	2262	Barlow, Scott	12
##	2263	Hahn, Jesse	9
##	2264	Foster, Matt	11
##	2265	Colomé, Alex	8
##	2266	Kuhl, Chad	3
##	2267	Fried, Max	11
##	2268	Rainey, Tanner	14
##	2269	Castillo, Luis	14
##	2270	Fedde, Erick	13

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## 2273	Pomeranz, Drew	12
## 2274	Lucchesi, Joey	14
## 2275	Tate, Dillon	8
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## 2277	Williams, Devin	11
## 2278	Means, John	14
## 2279	Mills, Alec	11
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## 2281	Barnes, Jacob	3
## 2282	Brogdon, Connor	11
## 2283	Stratton, Chris	3
## 2284	Smith, Caleb	2
## 2285	Valdez, César	8
## 2286	Junis, Jakob	4
## 2287	Ynoa, Huascar	13
## 2288	Feyereisen, J.P.	14
## 2289	Betances, Dellin	14
## 2290	Jackson, Luke	13
## 2291	McHugh, Collin	14
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## 2293	Woodruff, Brandon	9
## 2294	Garrett, Amir	3
## 2295	Gausman, Kevin	11
## 2296	Vest, Will	8
## 2297	Hicks, Jordan	3
## 2298	Nelson, Nick	7
## 2299	Knebel, Corey	3
## 2300	Boyd, Matthew	6
## 2301	Suero, Wander	1
## 2302	Peterson, David	13
## 2303	Jansen, Kenley	12
## 2304	Scott, Tanner	7
## 2305	Cisnero, José	12
## 2306	Kennedy, Ian	4
## 2307	Gibson, Kyle	7
## 2308	Hendricks, Kyle	14
## 2309	Strasburg, Stephen	1
## 2310	Yarbrough, Ryan	12
## 2311	Taillon, Jameson	13
## 2312	Eovaldi, Nathan	6
## 2313	Ryu, Hyun Jin	4
## 2314	Holland, Greg	14
## 2315	Bumgarner, Madison	1
## 2316	Bradley, Archie	7
## 2317	Taylor, Josh	12
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## 2319	Gausman, Kevin	4
## 2320	Bradley, Archie	14
## 2321	Smith, Will	4
## 2322	Holland, Greg	4
## 2323	Maeda, Kenta	14
## 2324	Cisnero, José	9

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##	2327	Knebel, Corey	14
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##	2329	Brogdon, Connor	11
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##	2331	Boyd, Matthew	13
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##	2333	Gibson, Kyle	14
##	2334	Nelson, Nick	13
##	2335	McHugh, Collin	14
##	2336	Tomlin, Josh	4
##	2337	Garrett, Amir	8
##	2338	Rainey, Tanner	2
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##	2342	Hicks, Jordan	13
##	2343	Peterson, David	12
##	2344	Foster, Matt	4
##	2345	Nola, Aaron	5
##	2346	Barlow, Scott	9
##	2347	Colomé, Alex	3
##	2348	Barnes, Jacob	12
##	2349	Dunn, Justin	5
##	2350	Jackson, Luke	5
##	2351	Kennedy, Ian	1
##	2352	Williams, Taylor	14
##	2353	Snell, Blake	7
##	2354	Bauer, Trevor	14
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##	2356	Means, John	2
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##	2360	Cabrera, Génesis	7
##	2361	Flaherty, Jack	14
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##	2366	Strasburg, Stephen	9
##	2367	Williams, Devin	11
##	2368	Suero, Wander	5
##	2369	Valdez, César	13
##	2370	Betances, Dellin	14
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##	2372	Yarbrough, Ryan	1
##	2373	Lucchesi, Joey	14
##	2374	Woodruff, Brandon	9
##	2375	Bush, Matt	2
##	2376	Fried, Max	1
##	2377	Hahn, Jesse	5
##	2378	Bieber, Shane	14

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## 2380	Eovaldi, Nathan	6
## 2381	Hader, Josh	6
## 2382	Kuhl, Chad	11
## 2383	Keuchel, Dallas	1
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## 2385	Feyereisen, J.P.	6
## 2386	Vest, Will	14
## 2387	Ryu, Hyun Jin	7
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## 2389	Trivino, Lou	13
## 2390	Trivino, Lou	9
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## 2392	Ryu, Hyun Jin	4
## 2393	Colomé, Alex	8
## 2394	Gibson, Kyle	9
## 2395	Bednar, David	7
## 2396	Eovaldi, Nathan	11
## 2397	Yarbrough, Ryan	14
## 2398	Smith, Will	13
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## 2401	Maeda, Kenta	9
## 2402	Senzatela, Antonio	4
## 2403	Smith, Caleb	13
## 2404	Jackson, Luke	14
## 2405	Junis, Jakob	14
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## 2408	Nelson, Nick	4
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## 2410	Bradley, Archie	8
## 2411	Cabrera, Génesis	2
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## 2413	Garrett, Amir	14
## 2414	Hendricks, Kyle	1
## 2415	Bieber, Shane	2
## 2416	Bauer, Trevor	1
## 2417	Williams, Devin	11
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## 2419	Suero, Wander	12
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## 2421	Pomeranz, Drew	14
## 2422	Castillo, Luis	14
## 2423	Hahn, Jesse	9
## 2424	Taillon, Jameson	5
## 2425	Boyd, Matthew	6
## 2426	Valdez, César	14
## 2427	Tomlin, Josh	14
## 2428	Kennedy, Ian	13
## 2429	Betances, Dellin	7
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## 2431	Taylor, Josh	7
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## 2453	Rainey, Tanner	13
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## 2455	Stratton, Chris	2
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## 2594	Flaherty, Jack	13

## 2595	Garrett, Amir	14
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## 2611	Nelson, Jimmy	7
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## 2613	McGowin, Kyle	14
## 2614	Vest, Will	11
## 2615	Barlow, Scott	12
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## 2620	Green, Chad	5
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## 2627	Graveman, Kendall	13
## 2628	Hader, Josh	8
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## 2630	Williams, Devin	5
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## 2633	Bieber, Shane	14
## 2634	Suero, Wander	11
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## 2639	Clase, Emmanuel	11
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## 2658	Pomeranz, Drew	8
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## 2676	Means, John	4
## 2677	McGowin, Kyle	14
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## 2696	Trivino, Lou	5
## 2697	Woodruff, Brandon	13
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## 2701	Hill, Tim	6
## 2702	Smith, Will	13

## 2703	Bauer, Trevor	14
## 2704	Peterson, David	13
## 2705	Scott, Tanner	14
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## 2707	Jansen, Kenley	12
## 2708	Graveman, Kendall	3
## 2709	Brogdon, Connor	3
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## 2713	Gibson, Kyle	7
## 2714	Hahn, Jesse	9
## 2715	Hendricks, Kyle	8
## 2716	Eovaldi, Nathan	12
## 2717	Fried, Max	13
## 2718	Ryu, Hyun Jin	5
## 2719	Bush, Matt	12
## 2720	Rogers, Tyler	11
## 2721	Luzardo, Jesús	5
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## 2725	Hader, Josh	12
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## 2727	Bauer, Trevor	9
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## 2751	Hicks, Jordan	14
## 2752	Rainey, Tanner	4
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## 2759	Robles, Hansel	7
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## 2772	Swarzak, Anthony	14
## 2773	Pop, Zach	14
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## 2779	Gibson, Kyle	14
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## 2783	Jansen, Kenley	2
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## 2792	Chafin, Andrew	7
## 2793	Williams, Taylor	14
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## 2797	Castillo, Luis	13
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## 2805	Snell, Blake	13
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## 2808	Means, John	3
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## 2838	Fedde, Erick	9
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## 2840	Strasburg, Stephen	7
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## 2842	Woodruff, Brandon	4
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## 2852	Fried, Max	12
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## 2863	Gausman, Kevin	8
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##	2891	O'Day, Darren	9
##	2892	Romo, Sergio	6
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##	2914	Brogdon, Connor	11
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##	2917	Valdez, César	14
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## 2922	Fedde, Erick	7
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## 3003	Ynoa, Huascar	7
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## 3006	Robles, Hansel	14
## 3007	Taylor, Josh	13
## 3008	Bieber, Shane	14
## 3009	Maeda, Kenta	9
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## 3013	Hader, Josh	11
## 3014	Foster, Matt	3
## 3015	Rogers, Tyler	5
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## 3018	Armstrong, Shawn	13
## 3019	Weathers, Ryan	7
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## 3021	Luzardo, Jesús	13
## 3022	Montero, Rafael	11
## 3023	Chapman, Aroldis	7
## 3024	Nelson, Nick	8
## 3025	Strasburg, Stephen	11
## 3026	Workman, Brandon	11

## 3027	Avilán, Luis	13
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## 3029	Sheffield, Jordan	14
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## 3032	McGowin, Kyle	14
## 3033	Nola, Aaron	2
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## 3037	Robles, Hansel	2
## 3038	Holland, Greg	13
## 3039	Rogers, Tyler	12
## 3040	Pomeranz, Drew	12
## 3041	Smith, Will	6
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## 3122	Cisnero, José	12
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## 3124	Jansen, Kenley	3
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## 3128	Scott, Tanner	3
## 3129	Melancon, Mark	14
## 3130	Hahn, Jesse	5
## 3131	Jackson, Luke	6
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## 3134	Williams, Taylor	3

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## 3323	Bush, Matt	1
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## 3331	Mayza, Tim	12
## 3332	Petit, Yusmeiro	2
## 3333	Boyd, Matthew	12
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Phillip Evans doubles (1) on a line drive to right

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Kyle Farmer doubles (1) on a sharp line drive to left fielder Ph

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Kyle Farmer doubles (1) on a sharp line drive to left fielder Ph.

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Hunter Ren

Kyle Farmer doubles (1) on a sharp line drive to left fielder Ph

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Hunter Res

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Hunter Re

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Hunter Res

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Nick Senzel doubles (2)

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Nick Senzel doubles (2)

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Nick Senzel doubles (2)

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Nick Senzel doubles (2)

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Padres challenged (play at 1st), call on the field was overturned: Mike Yastr

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Paul Goldsch  
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## 3071 Reds challenged (tag play), call on the field was upheld: Jonathan India singles on a sharp line

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Paul Goldsch

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Paul Goldsch

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##	p_throws	home_team	away_team	plate_x	plate_z	inning_topbot	launch_speed
## 1	R	OAK	LAD	0.88	2.73	Bot	NA
## 2	R	OAK	LAD	2.06	1.01	Bot	NA
## 3	R	OAK	LAD	1.35	1.94	Bot	NA
## 4	R	OAK	LAD	-0.36	2.40	Bot	NA
## 5	R	OAK	LAD	0.87	2.29	Bot	89.2
## 6	R	OAK	LAD	1.77	1.12	Bot	NA
## 7	L	OAK	LAD	0.36	2.40	Top	77.5
## 8	R	OAK	LAD	0.62	2.21	Bot	87.7
## 9	R	CLE	KC	0.01	2.62	Top	109.4
## 10	R	OAK	LAD	-0.09	2.46	Bot	74.5
## 11	L	OAK	LAD	-1.49	2.68	Top	NA
## 12	R	OAK	LAD	-0.31	3.68	Bot	NA
## 13	L	OAK	LAD	0.53	4.01	Top	NA
## 14	R	CLE	KC	1.26	0.31	Top	NA
## 15	L	OAK	LAD	-1.06	1.87	Top	NA
## 16	R	OAK	LAD	-0.26	2.54	Bot	NA
## 17	R	CLE	KC	1.01	1.59	Top	NA
## 18	R	MIA	STL	0.90	2.72	Bot	102.6
## 19	R	CLE	KC	0.98	1.35	Top	NA
## 20	R	MIA	STL	-0.32	3.05	Bot	76.5
## 21	R	OAK	LAD	-0.94	3.07	Bot	NA
## 22	L	OAK	LAD	-0.86	3.35	Top	NA
## 23	L	COL	ARI	0.29	2.51	Bot	92.0
## 24	L	OAK	LAD	0.80	2.74	Top	89.4
## 25	R	MIA	STL	0.70	3.89	Bot	NA
## 26	R	OAK	LAD	-0.22	3.59	Bot	NA
## 27	R	CLE	KC	0.66	2.34	Top	99.7
## 28	R	MIA	STL	-1.05	3.11	Top	103.9
## 29	L	OAK	LAD	-0.04	3.71	Top	NA
## 30	R	OAK	LAD	-0.07	3.11	Bot	NA

## 31	R	CLE	KC	0.86	1.36	Top	NA
## 32	R	MIA	STL	-0.16	2.07	Top	81.4
## 33	R	MIA	STL	0.01	2.96	Bot	NA
## 34	L	COL	ARI	0.43	1.57	Bot	65.3
## 35	R	MIA	STL	0.60	3.52	Top	NA
## 36	R	MIA	STL	0.27	1.92	Bot	96.0
## 37	R	OAK	LAD	0.96	0.85	Bot	NA
## 38	L	OAK	LAD	-0.96	2.29	Top	NA
## 39	L	COL	ARI	0.67	2.66	Bot	NA
## 40	R	CLE	KC	-0.91	3.56	Top	NA
## 41	R	SD	SF	-0.85	1.26	Bot	NA
## 42	L	DET	MIN	0.21	1.53	Top	NA
## 43	R	MIA	STL	-1.49	3.14	Top	NA
## 44	R	COL	ARI	1.62	0.87	Top	NA
## 45	L	COL	ARI	-1.24	0.60	Bot	NA
## 46	L	OAK	LAD	-0.75	1.83	Top	NA
## 47	R	OAK	LAD	0.10	2.86	Bot	108.9
## 48	R	MIA	STL	-0.24	1.22	Bot	NA
## 49	R	CLE	KC	-0.51	2.02	Top	59.2
## 50	R	SD	SF	0.50	2.88	Bot	71.9
## 51	R	COL	ARI	0.01	1.66	Top	97.8
## 52	R	CLE	KC	-1.01	3.25	Top	NA
## 53	R	OAK	LAD	0.80	0.99	Bot	NA
## 54	R	MIA	STL	1.03	-0.11	Bot	NA
## 55	R	MIA	STL	-1.32	0.54	Top	NA
## 56	L	OAK	LAD	0.94	2.59	Top	NA
## 57	L	COL	ARI	-0.01	2.79	Bot	74.2
## 58	L	DET	MIN	-0.46	1.52	Top	NA
## 59	R	MIA	STL	0.85	0.86	Bot	NA
## 60	R	COL	ARI	-0.54	2.86	Top	NA
## 61	R	CLE	KC	0.88	0.70	Top	NA
## 62	L	OAK	LAD	0.33	2.00	Top	75.7
## 63	L	COL	ARI	0.88	1.90	Bot	NA
## 64	L	DET	MIN	0.82	2.39	Top	69.6
## 65	R	OAK	LAD	0.90	2.06	Bot	NA
## 66	R	MIA	STL	-0.73	3.48	Top	NA
## 67	R	SD	SF	0.08	2.01	Bot	NA
## 68	R	SEA	CWS	-1.09	2.38	Top	NA
## 69	L	OAK	LAD	0.38	3.49	Top	77.3
## 70	L	COL	ARI	-1.59	2.39	Bot	NA
## 71	R	SD	SF	0.73	3.06	Bot	NA
## 72	L	DET	MIN	-2.17	1.81	Top	NA
## 73	R	MIA	STL	-0.43	2.18	Bot	89.8
## 74	R	COL	ARI	0.80	1.57	Top	NA
## 75	L	SEA	CWS	0.60	1.83	Bot	70.2
## 76	R	CLE	KC	-0.28	2.16	Top	NA
## 77	R	MIA	STL	0.15	3.02	Top	79.7
## 78	L	NYN	BAL	0.56	3.09	Bot	115.7
## 79	R	OAK	LAD	0.29	0.92	Bot	NA
## 80	R	SD	SF	0.12	4.31	Bot	NA
## 81	L	OAK	LAD	-0.42	3.63	Top	NA
## 82	L	DET	MIN	1.04	1.23	Top	66.6
## 83	R	SEA	CWS	0.38	0.59	Top	NA
## 84	R	MIA	STL	0.25	2.43	Bot	NA

## 85	L	COL	ARI	0.39	2.00	Bot	68.0
## 86	R	COL	ARI	-0.68	1.74	Top	NA
## 87	R	OAK	LAD	0.69	1.28	Bot	NA
## 88	R	PHI	NYM	-0.81	2.36	Top	NA
## 89	R	MIA	STL	-0.42	2.63	Top	93.8
## 90	L	NYN	BAL	-0.42	2.45	Bot	70.6
## 91	R	CLE	KC	0.62	1.40	Top	NA
## 92	L	SEA	CWS	-0.73	0.36	Bot	NA
## 93	R	PHI	NYM	0.30	0.52	Top	NA
## 94	L	DET	MIN	0.22	2.50	Top	NA
## 95	R	SD	SF	-0.92	2.18	Bot	94.9
## 96	L	SEA	CWS	-0.33	1.47	Bot	NA
## 97	L	COL	ARI	-0.21	0.42	Bot	NA
## 98	R	MIA	STL	0.97	1.23	Bot	86.5
## 99	L	NYN	BAL	-1.80	1.99	Bot	NA
## 100	R	OAK	LAD	0.55	3.14	Bot	90.6
## 101	L	OAK	LAD	-0.01	3.58	Top	NA
## 102	R	COL	ARI	-0.28	2.47	Top	102.8
## 103	R	SEA	CWS	-0.25	1.28	Top	NA
## 104	R	MIA	STL	0.42	0.58	Top	NA
## 105	R	BOS	TB	0.07	1.73	Top	57.6
## 106	R	CLE	KC	0.96	2.11	Top	NA
## 107	R	COL	ARI	-0.08	1.86	Top	NA
## 108	L	SEA	CWS	-0.77	3.60	Bot	NA
## 109	R	BOS	TB	-0.59	1.85	Top	97.6
## 110	L	TEX	TOR	-0.83	1.82	Bot	86.3
## 111	L	COL	ARI	0.18	3.38	Bot	78.3
## 112	L	DET	MIN	-0.83	1.35	Top	NA
## 113	R	MIA	STL	-1.56	1.66	Top	NA
## 114	R	CLE	KC	-0.09	2.85	Top	77.2
## 115	L	OAK	LAD	-1.18	2.06	Top	NA
## 116	R	OAK	LAD	-0.14	2.23	Bot	79.2
## 117	R	MIA	STL	0.00	3.51	Bot	NA
## 118	R	SD	SF	0.85	1.44	Bot	NA
## 119	R	PHI	NYM	-0.25	2.31	Top	73.4
## 120	R	SEA	CWS	-0.24	1.03	Top	NA
## 121	L	NYN	BAL	1.77	2.63	Bot	NA
## 122	L	TEX	TOR	0.55	1.00	Bot	40.5
## 123	L	DET	MIN	1.21	2.72	Top	76.6
## 124	R	BOS	TB	0.52	3.90	Top	NA
## 125	L	NYN	BAL	-1.59	2.40	Bot	NA
## 126	L	BOS	TB	-0.76	2.20	Bot	79.8
## 127	R	SEA	CWS	0.39	1.78	Top	79.5
## 128	R	COL	ARI	-1.42	2.80	Top	NA
## 129	L	SEA	CWS	-0.06	2.82	Bot	NA
## 130	L	OAK	LAD	-0.32	4.14	Top	NA
## 131	R	OAK	LAD	-0.08	2.15	Bot	85.3
## 132	L	COL	ARI	0.19	1.21	Bot	NA
## 133	R	MIA	STL	-0.26	2.91	Top	73.5
## 134	R	SD	SF	-0.53	2.65	Bot	102.6
## 135	R	PHI	NYM	-0.50	3.98	Top	NA
## 136	R	MIA	STL	0.92	2.63	Bot	NA
## 137	R	CLE	KC	1.03	2.42	Top	NA
## 138	R	OAK	LAD	-0.96	3.54	Bot	NA

## 139	L	SEA	CWS	-1.77	0.46	Bot	NA
## 140	R	COL	ARI	-0.51	2.60	Top	65.3
## 141	L	DET	MIN	0.19	2.52	Top	75.7
## 142	R	BOS	TB	-0.06	3.70	Top	NA
## 143	R	CLE	KC	1.48	1.26	Top	NA
## 144	R	SD	SF	0.74	2.66	Bot	67.1
## 145	R	SEA	CWS	-1.20	3.55	Top	NA
## 146	L	BOS	TB	-1.37	2.88	Bot	NA
## 147	L	OAK	LAD	-0.51	2.38	Top	94.8
## 148	L	NYN	BAL	0.81	2.71	Bot	NA
## 149	L	TEX	TOR	0.73	2.49	Bot	NA
## 150	R	MIA	STL	-0.48	2.75	Bot	NA
## 151	L	COL	ARI	1.08	3.42	Bot	81.2
## 152	R	MIA	STL	-1.30	2.73	Top	NA
## 153	R	PHI	NYN	-0.43	0.89	Top	61.4
## 154	L	SEA	CWS	-0.91	1.06	Bot	NA
## 155	L	DET	MIN	0.14	1.26	Top	NA
## 156	L	COL	ARI	-0.11	2.17	Bot	71.1
## 157	L	NYN	BAL	-1.60	1.16	Bot	NA
## 158	L	TEX	TOR	1.16	2.41	Bot	NA
## 159	R	PHI	NYN	-0.32	2.02	Top	NA
## 160	L	OAK	LAD	-0.50	2.04	Top	62.2
## 161	R	COL	ARI	0.96	1.00	Top	78.4
## 162	L	BOS	TB	-1.12	2.25	Bot	NA
## 163	R	SD	SF	0.01	1.52	Bot	NA
## 164	R	OAK	LAD	-0.81	5.12	Bot	NA
## 165	R	CLE	KC	1.05	2.16	Top	NA
## 166	R	SEA	CWS	-0.08	1.13	Top	77.8
## 167	R	MIA	STL	-0.46	1.68	Top	NA
## 168	R	BOS	TB	0.45	1.55	Top	NA
## 169	L	SD	SF	-0.25	2.98	Top	81.8
## 170	R	MIA	STL	1.66	1.46	Bot	NA
## 171	R	BOS	TB	-0.67	3.39	Top	NA
## 172	R	CLE	KC	0.68	2.41	Top	NA
## 173	L	SD	SF	-0.33	1.45	Top	NA
## 174	R	SEA	CWS	1.12	1.59	Top	NA
## 175	R	COL	ARI	-0.07	2.97	Top	NA
## 176	R	MIA	STL	-0.48	3.19	Top	NA
## 177	L	BOS	TB	-0.31	2.76	Bot	60.4
## 178	R	MIA	STL	1.12	0.76	Bot	NA
## 179	R	PHI	NYN	1.95	0.86	Top	NA
## 180	L	DET	MIN	1.20	3.14	Top	NA
## 181	L	OAK	LAD	-0.07	2.04	Top	91.0
## 182	R	OAK	LAD	-0.02	3.32	Bot	77.4
## 183	L	NYN	BAL	0.19	3.21	Bot	NA
## 184	L	SEA	CWS	0.05	2.89	Bot	85.4
## 185	L	TEX	TOR	-1.16	0.61	Bot	NA
## 186	R	SD	SF	-0.91	2.45	Bot	NA
## 187	L	COL	ARI	0.23	2.57	Bot	88.2
## 188	L	BOS	TB	-0.58	1.98	Bot	91.3
## 189	R	BOS	TB	-1.47	3.54	Top	NA
## 190	L	COL	ARI	-0.84	1.21	Bot	NA
## 191	R	OAK	LAD	0.52	2.49	Bot	NA
## 192	R	SEA	CWS	-0.17	1.16	Top	NA

## 193	R	WSH	ATL	-0.20	1.92	Top	87.7
## 194	R	COL	ARI	1.16	1.47	Top	NA
## 195	L	OAK	LAD	0.51	2.96	Top	NA
## 196	L	TEX	TOR	0.17	2.99	Bot	NA
## 197	L	DET	MIN	0.75	2.64	Top	NA
## 198	R	MIA	STL	0.05	3.29	Bot	68.4
## 199	L	SD	SF	-1.51	0.38	Top	NA
## 200	R	CLE	KC	1.84	2.89	Top	NA
## 201	L	SEA	CWS	-0.25	0.45	Bot	NA
## 202	R	CHC	MIL	0.92	1.81	Top	NA
## 203	L	NYN	BAL	-1.15	2.23	Bot	NA
## 204	R	SD	SF	-0.89	2.20	Bot	NA
## 205	R	MIA	STL	-0.48	2.47	Top	NA
## 206	R	PHI	NYM	0.43	2.34	Top	82.9
## 207	R	SD	SF	-0.31	1.31	Bot	109.1
## 208	L	DET	MIN	-0.51	0.28	Top	NA
## 209	R	MIA	STL	-1.20	1.96	Top	89.5
## 210	L	SD	SF	0.67	0.42	Top	NA
## 211	L	SEA	CWS	0.77	1.27	Bot	109.5
## 212	L	TEX	TOR	-1.04	2.32	Bot	NA
## 213	R	CLE	KC	0.75	2.28	Top	55.5
## 214	R	MIA	STL	-0.10	1.77	Bot	75.0
## 215	R	SEA	CWS	-1.44	1.09	Top	NA
## 216	L	OAK	LAD	-0.77	1.83	Top	NA
## 217	R	BOS	TB	0.44	3.36	Top	NA
## 218	R	WSH	ATL	0.95	1.24	Top	NA
## 219	R	COL	ARI	-0.20	2.56	Top	72.0
## 220	R	PHI	NYM	0.19	1.13	Top	67.5
## 221	R	CHC	MIL	0.94	0.81	Top	NA
## 222	L	COL	ARI	-0.61	4.26	Bot	NA
## 223	R	OAK	LAD	-0.36	2.97	Bot	92.0
## 224	L	NYN	BAL	-0.20	3.34	Bot	NA
## 225	L	BOS	TB	-1.07	1.80	Bot	70.4
## 226	R	CLE	KC	1.60	0.75	Top	NA
## 227	L	COL	ARI	-0.16	2.51	Bot	65.5
## 228	L	DET	MIN	-0.18	1.48	Top	NA
## 229	R	SD	SF	-1.45	3.40	Bot	NA
## 230	R	CHC	MIL	0.47	2.05	Top	NA
## 231	R	COL	ARI	-0.43	3.10	Top	NA
## 232	L	SD	SF	-0.04	2.65	Top	NA
## 233	R	PHI	NYM	0.39	2.74	Top	105.8
## 234	L	OAK	LAD	0.27	3.28	Top	86.7
## 235	R	BOS	TB	0.20	2.67	Top	78.7
## 236	L	SEA	CWS	0.61	0.33	Bot	NA
## 237	R	SEA	CWS	-1.80	1.67	Top	NA
## 238	R	MIA	STL	-2.43	4.70	Bot	NA
## 239	L	NYN	BAL	0.66	1.87	Bot	72.3
## 240	L	BOS	TB	0.90	1.22	Bot	NA
## 241	R	OAK	LAD	-0.68	3.43	Bot	NA
## 242	L	TEX	TOR	1.53	2.56	Bot	NA
## 243	R	WSH	ATL	1.20	1.70	Top	NA
## 244	R	MIA	STL	0.57	0.40	Top	NA
## 245	R	WSH	ATL	0.28	0.51	Top	NA
## 246	R	MIA	STL	-0.43	2.00	Top	71.3

## 247	R	CHC	MIL	0.15	2.17	Top	NA
## 248	L	BOS	TB	-0.53	2.37	Bot	82.3
## 249	L	SD	SF	0.35	1.99	Top	97.7
## 250	L	NYN	BAL	0.49	0.37	Bot	NA
## 251	R	CLE	KC	0.78	1.07	Top	NA
## 252	R	TEX	TOR	0.52	2.56	Top	97.0
## 253	R	SEA	CWS	-0.55	1.57	Top	NA
## 254	L	TEX	TOR	1.41	1.85	Bot	NA
## 255	L	OAK	LAD	0.02	2.92	Top	76.3
## 256	L	COL	ARI	-1.97	0.72	Bot	NA
## 257	R	SD	SF	-0.23	1.95	Bot	NA
## 258	L	DET	MIN	-1.01	1.77	Top	90.6
## 259	R	BOS	TB	-0.27	2.86	Top	NA
## 260	R	COL	ARI	0.59	1.31	Top	NA
## 261	R	OAK	LAD	-1.55	3.45	Bot	NA
## 262	R	MIA	STL	-0.50	4.05	Bot	NA
## 263	R	PHI	NYM	-0.15	1.67	Top	NA
## 264	L	SEA	CWS	-0.98	2.78	Bot	73.9
## 265	R	TEX	TOR	0.39	2.08	Top	75.3
## 266	R	CLE	KC	0.80	3.59	Top	NA
## 267	R	WSH	ATL	-0.33	3.21	Top	NA
## 268	R	PHI	NYM	0.68	3.53	Top	NA
## 269	L	BOS	TB	0.17	1.59	Bot	104.2
## 270	R	MIA	STL	-0.02	1.64	Top	NA
## 271	L	OAK	LAD	-0.44	2.99	Top	79.9
## 272	R	OAK	LAD	-0.80	3.07	Bot	NA
## 273	R	COL	ARI	-1.07	2.63	Top	NA
## 274	R	MIA	STL	1.15	1.74	Bot	NA
## 275	L	NYN	BAL	0.53	2.86	Bot	NA
## 276	R	SEA	CWS	0.46	1.41	Top	NA
## 277	L	SD	SF	0.05	1.15	Top	NA
## 278	L	TEX	TOR	0.88	3.30	Bot	NA
## 279	L	SEA	CWS	-2.08	0.89	Bot	NA
## 280	R	CIN	PIT	-0.70	3.09	Top	NA
## 281	L	COL	ARI	-1.94	2.50	Bot	NA
## 282	L	DET	MIN	-0.43	3.17	Top	75.0
## 283	R	CHC	MIL	0.36	2.86	Top	83.6
## 284	R	BOS	TB	0.46	1.46	Top	NA
## 285	R	SD	SF	0.13	0.69	Bot	NA
## 286	L	BOS	TB	1.08	1.44	Bot	NA
## 287	L	NYN	BAL	0.40	1.46	Bot	NA
## 288	L	SD	SF	-0.36	2.60	Top	90.3
## 289	R	BOS	TB	0.63	1.53	Top	NA
## 290	L	OAK	LAD	-1.51	1.21	Top	NA
## 291	R	MIA	STL	-0.54	4.15	Bot	NA
## 292	R	COL	ARI	0.35	1.45	Top	NA
## 293	R	CIN	PIT	-0.65	1.20	Top	NA
## 294	R	SD	SF	-1.10	2.87	Bot	NA
## 295	R	CHC	MIL	-0.32	1.41	Top	80.1
## 296	R	PHI	NYM	-0.57	2.46	Top	93.8
## 297	L	TEX	TOR	0.42	1.96	Bot	NA
## 298	L	COL	ARI	0.65	2.06	Bot	97.2
## 299	R	SEA	CWS	-2.12	3.07	Top	NA
## 300	R	TEX	TOR	0.70	2.36	Top	NA



## 301	R	WSH	ATL	-0.55	3.02	Top	73.9
## 302	L	DET	MIN	0.42	2.91	Top	NA
## 303	R	CLE	KC	1.75	1.38	Top	NA
## 304	R	OAK	LAD	-1.21	4.39	Bot	NA
## 305	L	SEA	CWS	-0.25	3.04	Bot	NA
## 306	R	MIA	STL	-0.80	2.34	Top	90.5
## 307	L	BOS	TB	0.31	2.06	Bot	NA
## 308	R	TEX	TOR	0.35	2.34	Top	78.6
## 309	R	CHC	MIL	-0.05	3.05	Top	66.5
## 310	R	PHI	NYM	0.46	1.19	Top	NA
## 311	R	CLE	KC	0.00	2.74	Top	NA
## 312	R	MIA	STL	0.85	1.47	Bot	NA
## 313	L	COL	ARI	-0.05	1.99	Bot	103.9
## 314	R	SEA	CWS	-1.99	2.65	Top	NA
## 315	L	OAK	LAD	-1.07	1.26	Top	NA
## 316	L	TEX	TOR	0.67	3.51	Bot	24.4
## 317	R	OAK	LAD	-0.24	2.52	Bot	84.7
## 318	R	CIN	PIT	-1.38	4.37	Top	NA
## 319	L	SEA	CWS	-0.41	2.71	Bot	84.1
## 320	L	NYN	BAL	0.36	2.67	Bot	NA
## 321	L	DET	MIN	0.35	2.09	Top	104.1
## 322	R	SD	SF	-0.55	0.91	Bot	NA
## 323	R	MIA	STL	-1.08	1.36	Top	NA
## 324	R	BOS	TB	-0.31	1.02	Top	NA
## 325	R	COL	ARI	0.68	2.93	Top	74.2
## 326	L	SD	SF	-0.22	1.69	Top	NA
## 327	R	WSH	ATL	0.01	1.32	Top	NA
## 328	R	CHC	MIL	2.21	1.31	Top	NA
## 329	R	BOS	TB	0.16	0.60	Top	NA
## 330	L	DET	MIN	0.37	2.02	Top	NA
## 331	L	SD	SF	-0.28	2.91	Top	86.2
## 332	L	PHI	NYM	-0.44	2.18	Bot	34.4
## 333	R	COL	ARI	-0.76	2.53	Top	75.7
## 334	R	SD	SF	0.15	3.45	Bot	90.2
## 335	R	OAK	LAD	0.04	3.45	Bot	NA
## 336	R	MIA	STL	0.64	2.44	Bot	NA
## 337	R	CIN	PIT	0.06	2.12	Top	99.5
## 338	R	MIA	STL	-0.60	1.91	Top	100.2
## 339	R	PHI	NYM	0.49	2.28	Top	NA
## 340	L	OAK	LAD	-0.10	1.73	Top	61.6
## 341	R	CLE	KC	0.99	0.90	Top	NA
## 342	L	TEX	TOR	0.48	1.89	Bot	100.2
## 343	L	BOS	TB	-0.02	2.49	Bot	NA
## 344	R	SEA	CWS	1.43	1.57	Top	NA
## 345	R	WSH	ATL	0.62	0.23	Top	NA
## 346	L	SEA	CWS	0.24	2.59	Bot	92.1
## 347	R	TEX	TOR	1.05	0.77	Top	NA
## 348	L	NYN	BAL	0.75	2.59	Bot	62.6
## 349	L	COL	ARI	-0.68	1.90	Bot	87.3
## 350	L	TEX	TOR	0.51	0.96	Bot	NA
## 351	R	OAK	LAD	1.04	1.34	Bot	NA
## 352	L	SEA	CWS	0.11	3.05	Bot	NA
## 353	L	DET	MIN	0.90	1.91	Top	79.8
## 354	R	SD	SF	0.74	2.94	Bot	102.6

## 355	R	COL	ARI	-0.14	1.62	Top	NA
## 356	L	BOS	TB	-1.40	2.06	Bot	NA
## 357	L	COL	ARI	1.54	3.27	Bot	NA
## 358	R	PHI	NYM	-0.64	2.19	Top	73.5
## 359	R	WSH	ATL	-0.53	2.01	Top	NA
## 360	R	CLE	KC	-0.44	3.57	Top	100.2
## 361	R	CIN	PIT	1.33	0.34	Top	NA
## 362	L	SD	SF	-0.01	1.54	Top	NA
## 363	L	NYN	BAL	0.47	4.04	Bot	NA
## 364	R	CHC	MIL	-0.39	2.18	Top	64.6
## 365	L	PHI	NYM	-0.44	1.43	Bot	NA
## 366	R	MIA	STL	-0.50	3.81	Bot	NA
## 367	L	OAK	LAD	-0.79	2.83	Top	NA
## 368	R	TEX	TOR	-1.26	3.27	Top	NA
## 369	R	BOS	TB	1.06	2.09	Top	NA
## 370	R	MIA	STL	-1.37	2.43	Top	NA
## 371	R	SEA	CWS	-1.02	3.57	Top	48.5
## 372	R	SD	SF	0.93	2.47	Bot	NA
## 373	R	BOS	TB	0.41	0.53	Top	NA
## 374	R	CHC	MIL	0.67	3.92	Top	NA
## 375	L	COL	ARI	0.10	2.50	Bot	74.3
## 376	L	PHI	NYM	0.01	1.74	Bot	96.5
## 377	L	SD	SF	-0.25	2.47	Top	80.5
## 378	R	CLE	KC	0.03	2.30	Top	NA
## 379	R	OAK	LAD	0.66	1.85	Bot	90.1
## 380	L	SEA	CWS	-1.01	2.85	Bot	NA
## 381	R	PHI	NYM	-0.02	2.39	Top	NA
## 382	L	TEX	TOR	-0.51	1.67	Bot	NA
## 383	R	MIA	STL	0.26	2.30	Bot	62.2
## 384	L	DET	MIN	0.30	2.90	Top	NA
## 385	R	COL	ARI	0.06	2.06	Top	83.8
## 386	R	WSH	ATL	0.72	2.16	Top	NA
## 387	R	SEA	CWS	-1.06	1.77	Top	NA
## 388	R	CIN	PIT	-0.30	1.74	Top	NA
## 389	R	TEX	TOR	0.50	2.20	Top	NA
## 390	L	OAK	LAD	0.01	3.82	Top	NA
## 391	R	MIA	STL	0.47	2.41	Top	NA
## 392	L	BOS	TB	-0.29	2.49	Bot	96.8
## 393	L	NYN	BAL	-0.39	2.18	Bot	NA
## 394	R	MIA	STL	-0.11	1.35	Bot	NA
## 395	R	WSH	ATL	-0.25	2.39	Top	103.5
## 396	R	PHI	NYM	-1.84	2.99	Top	NA
## 397	L	NYN	BAL	-0.99	2.89	Bot	74.4
## 398	L	BOS	TB	0.92	2.15	Bot	NA
## 399	L	COL	ARI	-1.32	0.79	Bot	NA
## 400	L	OAK	LAD	-0.75	2.38	Top	NA
## 401	R	MIA	STL	-0.18	0.28	Top	NA
## 402	R	COL	ARI	-0.02	1.24	Top	NA
## 403	L	DET	MIN	0.25	2.52	Top	108.1
## 404	L	SEA	CWS	-1.11	2.60	Bot	77.0
## 405	R	DET	MIN	0.40	2.82	Bot	91.7
## 406	R	CIN	PIT	-0.71	1.16	Top	74.1
## 407	R	SD	SF	-0.13	2.18	Bot	NA
## 408	R	SEA	CWS	0.52	0.20	Top	NA

## 409	R	TEX	TOR	0.55	2.30	Top	76.4
## 410	R	CLE	KC	-0.64	2.86	Top	NA
## 411	L	SD	SF	-0.24	2.25	Top	NA
## 412	L	PHI	NYM	1.54	2.77	Bot	NA
## 413	R	BOS	TB	-0.33	2.20	Top	88.6
## 414	R	OAK	LAD	0.77	2.58	Bot	NA
## 415	R	CHC	MIL	0.34	1.73	Top	90.5
## 416	L	TEX	TOR	0.61	1.58	Bot	NA
## 417	L	OAK	LAD	-0.28	2.51	Top	99.0
## 418	R	MIA	STL	0.66	2.35	Top	68.1
## 419	L	COL	ARI	-1.55	2.01	Bot	NA
## 420	R	MIA	STL	-0.07	3.55	Bot	NA
## 421	L	DET	MIN	-0.15	0.95	Top	NA
## 422	L	PHI	NYM	-0.09	3.13	Bot	NA
## 423	R	SEA	CWS	-0.87	2.06	Top	NA
## 424	R	BOS	TB	-0.59	1.94	Top	NA
## 425	R	SD	SF	-2.08	2.50	Bot	NA
## 426	R	DET	MIN	0.32	1.85	Bot	NA
## 427	L	SD	SF	-1.25	0.94	Top	NA
## 428	R	CLE	KC	-0.16	2.15	Top	NA
## 429	R	WSH	ATL	0.70	1.14	Top	NA
## 430	L	NYN	BAL	-0.73	2.15	Bot	NA
## 431	L	SEA	CWS	-0.30	0.94	Bot	NA
## 432	L	BOS	TB	-0.74	2.91	Bot	92.6
## 433	R	NYN	BAL	0.27	2.47	Top	NA
## 434	L	TEX	TOR	0.41	2.37	Bot	98.6
## 435	R	COL	ARI	-0.38	2.35	Top	105.3
## 436	R	PHI	NYM	-1.28	2.63	Top	NA
## 437	R	CHC	MIL	0.96	3.40	Bot	75.9
## 438	R	TEX	TOR	1.22	1.21	Top	NA
## 439	R	OAK	LAD	-0.22	4.02	Bot	NA
## 440	R	CIN	PIT	0.05	0.89	Top	NA
## 441	R	CHC	MIL	1.34	2.04	Top	NA
## 442	L	NYN	BAL	-1.03	2.69	Bot	NA
## 443	L	PHI	NYM	1.11	2.47	Bot	64.4
## 444	L	DET	MIN	0.27	1.94	Top	47.6
## 445	R	WSH	ATL	-0.79	4.59	Top	NA
## 446	R	SD	SF	-0.73	2.02	Bot	99.3
## 447	R	COL	ARI	0.25	1.55	Top	88.3
## 448	R	NYN	BAL	0.96	3.23	Top	70.5
## 449	R	MIA	STL	-1.76	3.55	Bot	NA
## 450	R	BOS	TB	0.26	2.20	Top	98.9
## 451	R	CLE	KC	0.68	3.83	Top	NA
## 452	R	CHC	MIL	-1.39	3.37	Bot	NA
## 453	L	BOS	TB	1.60	2.45	Bot	NA
## 454	L	TEX	TOR	0.01	1.86	Bot	NA
## 455	L	COL	ARI	0.17	2.54	Bot	NA
## 456	R	PHI	NYM	0.53	3.87	Top	30.2
## 457	R	CHC	MIL	0.58	1.30	Top	NA
## 458	R	DET	MIN	-0.31	1.34	Bot	89.1
## 459	L	OAK	LAD	-0.40	1.66	Top	NA
## 460	R	MIA	STL	-0.17	2.30	Top	71.0
## 461	R	CIN	PIT	-0.39	2.43	Top	NA
## 462	R	TEX	TOR	-0.46	1.99	Top	100.8

## 463	R	OAK	LAD	0.66	1.68	Bot	70.5
## 464	L	SD	SF	0.33	-0.08	Top	NA
## 465	R	SEA	CWS	0.68	1.26	Top	NA
## 466	L	SEA	CWS	-0.08	0.44	Bot	NA
## 467	R	PHI	NYM	-1.41	3.57	Top	NA
## 468	L	SEA	CWS	-0.51	2.94	Bot	70.3
## 469	L	SD	SF	-0.60	1.67	Top	NA
## 470	R	CHC	MIL	-0.21	2.28	Top	75.7
## 471	R	CIN	PIT	0.06	2.38	Top	100.8
## 472	R	MIA	STL	-0.22	1.65	Bot	NA
## 473	R	NYN	BAL	0.10	2.93	Top	NA
## 474	R	WSH	ATL	0.40	3.14	Top	NA
## 475	R	COL	ARI	0.18	2.37	Top	75.1
## 476	R	CIN	PIT	0.31	2.06	Bot	109.8
## 477	L	OAK	LAD	-1.00	3.18	Top	NA
## 478	L	TEX	TOR	-0.42	2.75	Bot	NA
## 479	R	TEX	TOR	0.07	1.24	Top	NA
## 480	R	OAK	LAD	0.99	1.37	Bot	NA
## 481	L	PHI	NYM	1.15	0.57	Bot	NA
## 482	L	COL	ARI	0.99	4.05	Bot	NA
## 483	R	MIA	STL	-0.65	2.65	Top	NA
## 484	R	BOS	TB	0.29	3.13	Top	NA
## 485	L	NYN	BAL	0.11	3.25	Bot	102.9
## 486	R	CHC	MIL	1.07	-0.46	Bot	NA
## 487	R	DET	MIN	0.22	1.39	Bot	NA
## 488	L	BOS	TB	-0.18	1.39	Bot	NA
## 489	R	CLE	KC	-0.62	2.35	Top	76.4
## 490	L	DET	MIN	-0.71	1.73	Top	NA
## 491	R	SEA	CWS	-0.52	0.87	Top	NA
## 492	R	SD	SF	0.19	0.50	Bot	NA
## 493	R	CIN	PIT	0.55	1.88	Top	95.6
## 494	R	TEX	TOR	0.88	1.37	Top	NA
## 495	L	SEA	CWS	0.30	1.82	Bot	85.8
## 496	R	SD	SF	0.28	2.70	Bot	NA
## 497	L	SD	SF	-0.71	3.08	Top	NA
## 498	R	MIA	STL	0.85	0.32	Bot	NA
## 499	L	BOS	TB	0.19	0.95	Bot	82.0
## 500	L	TEX	TOR	-0.67	2.82	Bot	NA
## 501	R	PHI	NYM	0.02	3.29	Top	97.5
## 502	R	OAK	LAD	-0.57	4.00	Bot	NA
## 503	L	COL	ARI	-0.45	1.62	Bot	85.3
## 504	R	WSH	ATL	-0.40	1.48	Top	95.7
## 505	L	DET	MIN	-1.06	1.30	Top	NA
## 506	R	NYN	BAL	-0.53	2.00	Top	90.6
## 507	R	SEA	CWS	0.08	4.22	Top	NA
## 508	R	CHC	MIL	-1.31	2.20	Bot	73.5
## 509	L	OAK	LAD	-1.10	2.45	Top	98.3
## 510	R	MIA	STL	1.55	1.92	Top	NA
## 511	R	COL	ARI	-0.45	2.53	Top	97.5
## 512	R	DET	MIN	-0.04	2.13	Bot	103.0
## 513	L	PHI	NYM	0.62	1.66	Bot	NA
## 514	R	CIN	PIT	1.93	2.08	Bot	NA
## 515	L	NYN	BAL	0.04	2.13	Bot	80.2
## 516	R	BOS	TB	0.46	1.80	Top	NA

## 517	R	CLE	KC	1.01	3.32	Top	92.5
## 518	R	CHC	MIL	-0.05	4.04	Top	NA
## 519	R	COL	ARI	-0.57	2.21	Top	NA
## 520	L	BOS	TB	0.47	1.72	Bot	56.6
## 521	R	SEA	CWS	0.99	1.50	Top	84.8
## 522	R	CIN	PIT	0.90	4.00	Bot	NA
## 523	R	CHC	MIL	2.12	3.38	Bot	NA
## 524	R	OAK	LAD	1.44	0.99	Bot	NA
## 525	L	PHI	NYM	1.85	4.56	Bot	NA
## 526	R	CIN	PIT	-0.74	2.26	Top	75.0
## 527	L	NYN	BAL	0.35	3.74	Bot	NA
## 528	R	CHC	MIL	1.29	1.52	Top	NA
## 529	R	CLE	KC	1.60	0.06	Top	NA
## 530	R	NYN	BAL	1.17	3.60	Top	102.7
## 531	R	TEX	TOR	1.48	1.37	Top	NA
## 532	R	WSH	ATL	1.55	1.08	Top	NA
## 533	R	DET	MIN	-1.66	2.17	Bot	NA
## 534	L	SD	SF	-0.09	2.43	Top	NA
## 535	L	DET	MIN	0.10	2.45	Top	99.2
## 536	L	COL	ARI	-0.96	1.68	Bot	NA
## 537	R	PHI	NYM	0.46	2.56	Top	84.2
## 538	L	OAK	LAD	0.32	3.04	Top	NA
## 539	L	TEX	TOR	-1.14	1.94	Bot	NA
## 540	R	MIA	STL	0.24	0.14	Bot	NA
## 541	L	SEA	CWS	0.46	1.94	Bot	73.6
## 542	R	SD	SF	-0.43	1.71	Bot	81.9
## 543	R	MIA	STL	-0.53	1.47	Top	70.9
## 544	R	BOS	TB	-0.20	3.27	Top	NA
## 545	R	COL	ARI	0.79	1.45	Top	NA
## 546	L	PHI	NYM	-0.44	1.95	Bot	90.5
## 547	R	DET	MIN	-0.49	1.68	Bot	NA
## 548	L	SD	SF	0.39	1.40	Top	NA
## 549	R	CHC	MIL	-0.38	1.95	Bot	NA
## 550	L	TEX	TOR	-0.31	1.66	Bot	NA
## 551	R	CLE	KC	1.10	1.12	Top	NA
## 552	L	OAK	LAD	0.48	4.12	Top	NA
## 553	L	NYN	BAL	0.31	3.77	Bot	NA
## 554	R	CIN	PIT	-1.70	2.93	Bot	NA
## 555	R	NYN	BAL	-0.79	3.16	Top	NA
## 556	R	CIN	PIT	0.12	1.59	Top	NA
## 557	R	OAK	LAD	0.39	2.12	Bot	51.3
## 558	R	SEA	CWS	-1.42	2.26	Top	NA
## 559	L	SEA	CWS	0.30	1.27	Bot	NA
## 560	L	BOS	TB	1.80	1.84	Bot	NA
## 561	R	SD	SF	-0.73	2.50	Bot	NA
## 562	R	PHI	NYM	-0.78	3.06	Top	NA
## 563	R	BOS	TB	0.80	1.34	Top	NA
## 564	R	CHC	MIL	0.43	2.53	Top	NA
## 565	R	MIA	STL	-0.23	2.01	Bot	100.1
## 566	L	DET	MIN	1.53	3.39	Top	NA
## 567	L	COL	ARI	0.94	3.48	Bot	NA
## 568	R	WSH	ATL	-0.17	2.27	Top	93.7
## 569	R	MIA	STL	0.20	2.01	Top	NA
## 570	R	TEX	TOR	1.08	1.56	Top	NA

## 571	R	MIA	STL	-0.14	2.01	Top	NA
## 572	L	TEX	TOR	0.62	1.99	Bot	93.9
## 573	R	CHC	MIL	-0.99	4.35	Top	NA
## 574	R	CIN	PIT	-0.32	1.53	Top	NA
## 575	R	COL	ARI	0.03	1.73	Top	NA
## 576	L	DET	MIN	0.99	3.26	Top	NA
## 577	L	SEA	CWS	-0.45	1.19	Bot	NA
## 578	L	SD	SF	-0.08	2.59	Top	86.4
## 579	R	WSH	ATL	0.50	1.93	Bot	99.4
## 580	R	CLE	KC	0.78	2.33	Top	76.5
## 581	R	PHI	NYM	-0.51	4.07	Top	NA
## 582	R	CHC	MIL	-0.65	2.27	Bot	NA
## 583	R	MIA	STL	-0.86	1.30	Bot	NA
## 584	L	BOS	TB	1.72	0.36	Bot	NA
## 585	L	PHI	NYM	-0.60	2.51	Bot	NA
## 586	R	SEA	CWS	0.48	3.48	Top	64.8
## 587	R	SD	SF	-0.58	2.10	Bot	80.7
## 588	L	COL	ARI	-0.83	1.31	Bot	NA
## 589	R	WSH	ATL	-0.85	2.18	Top	NA
## 590	R	OAK	LAD	-0.14	2.56	Bot	NA
## 591	R	CIN	PIT	2.29	0.61	Bot	NA
## 592	L	NYN	BAL	1.34	2.97	Bot	NA
## 593	R	DET	MIN	-1.25	3.13	Bot	NA
## 594	L	OAK	LAD	1.10	2.77	Top	NA
## 595	R	NYN	BAL	0.58	1.58	Top	NA
## 596	R	TEX	TOR	2.61	0.34	Top	NA
## 597	R	BOS	TB	0.79	0.39	Top	NA
## 598	L	SEA	CWS	0.58	1.52	Bot	NA
## 599	L	PHI	NYM	0.05	0.54	Bot	NA
## 600	R	CIN	PIT	2.92	1.43	Bot	NA
## 601	R	BOS	TB	0.32	1.95	Top	NA
## 602	R	SEA	CWS	-0.25	1.55	Top	NA
## 603	L	DET	MIN	0.24	2.98	Top	93.1
## 604	R	NYN	BAL	1.01	1.22	Top	NA
## 605	R	OAK	LAD	0.36	1.54	Bot	NA
## 606	R	MIA	STL	0.42	2.05	Bot	56.4
## 607	R	SD	SF	0.31	2.70	Bot	69.8
## 608	L	BOS	TB	-0.51	3.37	Bot	68.3
## 609	R	CHC	MIL	0.18	2.88	Bot	89.6
## 610	R	DET	MIN	-0.52	3.05	Bot	NA
## 611	L	SD	SF	-0.55	2.03	Top	NA
## 612	R	CLE	KC	-0.84	3.16	Top	NA
## 613	R	WSH	ATL	-0.54	1.28	Bot	NA
## 614	R	COL	ARI	0.91	0.08	Top	NA
## 615	L	NYN	BAL	-0.84	4.28	Bot	NA
## 616	L	COL	ARI	0.58	3.19	Bot	25.5
## 617	R	TEX	TOR	0.01	2.41	Top	95.5
## 618	L	TEX	TOR	0.81	1.84	Bot	NA
## 619	R	CIN	PIT	0.28	3.46	Top	79.7
## 620	R	WSH	ATL	1.09	0.15	Top	NA
## 621	L	OAK	LAD	-0.68	2.10	Top	NA
## 622	R	PHI	NYM	1.11	2.53	Top	NA
## 623	R	CHC	MIL	1.15	1.71	Top	NA
## 624	R	MIA	STL	0.85	2.37	Top	64.7

## 625	L	BOS	TB	-1.68	3.87	Bot	NA
## 626	R	CHC	MIL	0.12	2.45	Top	NA
## 627	L	TEX	TOR	0.07	1.83	Bot	88.6
## 628	L	SEA	CWS	-0.81	4.18	Bot	NA
## 629	R	OAK	LAD	0.53	2.02	Bot	98.8
## 630	R	CIN	PIT	2.24	0.83	Bot	NA
## 631	R	MIA	STL	0.56	1.85	Bot	NA
## 632	R	SEA	CWS	-0.52	3.01	Top	NA
## 633	R	CIN	PIT	0.02	2.75	Top	NA
## 634	L	SD	SF	1.60	2.14	Top	NA
## 635	L	DET	MIN	-0.84	1.47	Top	NA
## 636	R	NYN	BAL	0.95	1.93	Top	NA
## 637	L	OAK	LAD	0.51	1.60	Top	79.4
## 638	L	PHI	NYN	-0.30	2.66	Bot	69.1
## 639	R	BOS	TB	0.86	1.82	Top	49.5
## 640	R	COL	ARI	-1.32	2.81	Top	NA
## 641	R	DET	MIN	-1.33	2.13	Bot	NA
## 642	L	COL	ARI	-0.61	1.13	Bot	NA
## 643	R	CHC	MIL	-1.23	1.87	Bot	NA
## 644	R	WSH	ATL	1.27	0.77	Top	NA
## 645	R	SD	SF	-0.57	1.55	Bot	NA
## 646	R	MIA	STL	1.68	2.73	Top	NA
## 647	R	TEX	TOR	0.14	2.16	Top	NA
## 648	R	CLE	KC	-0.04	4.09	Top	NA
## 649	R	WSH	ATL	2.18	0.95	Bot	NA
## 650	R	PHI	NYN	-0.38	1.84	Top	NA
## 651	L	NYN	BAL	-0.07	2.20	Bot	NA
## 652	L	COL	ARI	0.63	3.37	Bot	NA
## 653	R	CLE	KC	1.12	0.72	Top	NA
## 654	L	SD	SF	1.64	1.73	Top	NA
## 655	L	DET	MIN	-1.45	0.54	Top	NA
## 656	R	SEA	CWS	0.03	1.49	Top	75.6
## 657	R	MIA	STL	-0.70	2.60	Bot	82.5
## 658	L	SEA	CWS	0.47	1.52	Bot	80.9
## 659	R	SD	SF	1.14	2.62	Bot	NA
## 660	R	OAK	LAD	0.00	2.29	Bot	79.7
## 661	R	CHC	MIL	0.09	2.07	Top	59.1
## 662	R	MIA	STL	0.29	2.36	Top	73.5
## 663	L	PHI	NYN	0.95	3.19	Bot	NA
## 664	L	OAK	LAD	-0.33	2.37	Top	82.8
## 665	R	CIN	PIT	0.81	1.81	Bot	NA
## 666	R	PHI	NYN	-0.60	3.12	Top	76.3
## 667	R	DET	MIN	-1.42	2.36	Bot	NA
## 668	R	CHC	MIL	-0.30	3.27	Bot	80.7
## 669	R	NYN	BAL	0.23	1.55	Top	NA
## 670	L	BOS	TB	0.93	2.41	Bot	NA
## 671	R	BOS	TB	1.34	2.26	Top	NA
## 672	L	TEX	TOR	-1.03	2.50	Bot	78.8
## 673	L	NYN	BAL	0.90	1.60	Bot	NA
## 674	R	COL	ARI	-0.23	2.51	Top	94.8
## 675	R	CIN	PIT	0.02	2.08	Top	105.6
## 676	R	WSH	ATL	1.41	4.13	Bot	NA
## 677	R	WSH	ATL	0.82	1.78	Top	74.8
## 678	R	TEX	TOR	-0.17	2.09	Top	NA

## 679	L	NYN	BAL	-0.21	1.57	Bot	50.7
## 680	R	CHC	MIL	0.37	2.49	Bot	93.9
## 681	L	OAK	LAD	0.18	1.62	Top	79.4
## 682	R	MIA	STL	-0.23	2.51	Top	107.2
## 683	R	CIN	PIT	0.62	1.73	Bot	NA
## 684	R	WSH	ATL	0.50	2.34	Bot	66.8
## 685	R	CLE	KC	-0.24	3.92	Top	NA
## 686	R	BOS	TB	0.61	2.45	Top	NA
## 687	R	PHI	NYM	-0.29	2.10	Top	NA
## 688	R	COL	ARI	-0.32	3.20	Top	NA
## 689	R	SEA	CWS	0.64	1.54	Top	NA
## 690	L	BOS	TB	0.25	2.79	Bot	86.2
## 691	L	SEA	CWS	0.04	3.02	Bot	NA
## 692	L	SD	SF	0.19	1.54	Top	89.7
## 693	R	NYN	BAL	-0.81	3.19	Top	NA
## 694	L	DET	MIN	-1.03	2.89	Top	NA
## 695	R	WSH	ATL	0.94	2.14	Top	NA
## 696	L	TEX	TOR	-1.27	2.20	Bot	NA
## 697	R	TEX	TOR	-0.61	3.54	Top	NA
## 698	R	SD	SF	1.06	3.12	Bot	NA
## 699	L	COL	ARI	-0.54	3.67	Bot	NA
## 700	R	CIN	PIT	-0.65	2.51	Top	NA
## 701	R	OAK	LAD	1.39	0.29	Bot	NA
## 702	R	CHC	MIL	-1.35	2.50	Top	NA
## 703	L	PHI	NYM	-0.70	1.79	Bot	NA
## 704	R	DET	MIN	0.15	2.17	Bot	NA
## 705	R	MIA	STL	-0.39	2.27	Bot	NA
## 706	R	MIA	STL	-0.26	2.79	Bot	96.0
## 707	L	PHI	NYM	-0.02	0.24	Bot	23.4
## 708	R	DET	MIN	-0.64	2.48	Bot	105.5
## 709	L	SD	SF	0.58	4.26	Top	NA
## 710	R	TEX	TOR	-0.80	2.49	Top	93.6
## 711	R	PHI	NYM	1.07	2.56	Top	NA
## 712	R	COL	ARI	1.24	0.53	Top	NA
## 713	R	WSH	ATL	-0.10	2.24	Bot	50.0
## 714	R	CIN	PIT	-0.61	3.94	Top	NA
## 715	R	MIA	STL	0.28	2.41	Top	93.9
## 716	R	NYN	BAL	-0.09	0.99	Top	NA
## 717	L	DET	MIN	-0.18	2.77	Top	92.3
## 718	R	WSH	ATL	0.56	2.18	Top	NA
## 719	L	SEA	CWS	0.56	2.90	Bot	76.5
## 720	R	SD	SF	0.32	2.05	Bot	98.8
## 721	L	NYN	BAL	-1.27	3.04	Bot	NA
## 722	L	TEX	TOR	0.01	2.11	Bot	NA
## 723	L	OAK	LAD	-0.50	2.32	Top	NA
## 724	R	CHC	MIL	-0.55	3.33	Top	NA
## 725	R	BOS	TB	-0.46	2.38	Top	81.8
## 726	R	CIN	PIT	1.10	2.39	Bot	NA
## 727	R	CLE	KC	0.98	1.51	Top	NA
## 728	R	OAK	LAD	-0.07	0.87	Bot	NA
## 729	R	CHC	MIL	-0.23	2.11	Bot	80.4
## 730	L	BOS	TB	0.99	1.22	Bot	91.1
## 731	L	COL	ARI	-0.03	1.62	Bot	98.9
## 732	R	SEA	CWS	-1.49	3.73	Top	NA



## 733	R	WSH	ATL	0.58	1.63	Top	97.0
## 734	R	BOS	TB	0.08	0.82	Top	NA
## 735	L	TEX	TOR	0.39	3.08	Bot	100.4
## 736	R	WSH	ATL	0.65	1.58	Bot	NA
## 737	L	SEA	CWS	0.12	1.49	Bot	NA
## 738	L	OAK	LAD	0.86	2.28	Top	NA
## 739	L	COL	ARI	0.20	2.09	Bot	94.8
## 740	R	CLE	KC	1.03	1.19	Top	NA
## 741	R	MIA	STL	-0.96	2.62	Top	NA
## 742	L	BOS	TB	0.08	2.08	Bot	61.2
## 743	R	MIA	STL	-0.35	2.69	Bot	68.4
## 744	R	NYN	BAL	1.00	0.83	Top	NA
## 745	R	COL	ARI	1.41	1.38	Top	NA
## 746	R	CIN	PIT	0.47	2.94	Bot	90.0
## 747	R	PHI	NYN	0.28	3.24	Top	NA
## 748	L	PHI	NYN	0.79	2.09	Bot	92.1
## 749	R	CIN	PIT	0.30	2.67	Top	71.7
## 750	R	TEX	TOR	0.06	2.88	Top	104.9
## 751	R	SEA	CWS	-1.65	3.32	Top	NA
## 752	R	OAK	LAD	-0.18	3.77	Bot	91.5
## 753	R	CHC	MIL	-0.91	0.91	Bot	NA
## 754	L	NYN	BAL	-1.18	2.10	Bot	NA
## 755	R	SD	SF	0.42	1.78	Bot	42.5
## 756	L	DET	MIN	0.35	2.16	Top	NA
## 757	R	DET	MIN	0.10	1.06	Bot	NA
## 758	L	SD	SF	-0.47	1.71	Top	38.1
## 759	R	CHC	MIL	0.31	2.42	Top	60.9
## 760	R	OAK	LAD	0.40	1.90	Bot	NA
## 761	R	CIN	PIT	-0.32	3.14	Top	NA
## 762	R	MIA	STL	0.74	1.66	Bot	NA
## 763	R	CHC	MIL	0.81	2.00	Top	66.7
## 764	R	DET	MIN	0.48	1.36	Bot	107.6
## 765	L	SEA	CWS	1.57	3.33	Bot	NA
## 766	R	CHC	MIL	0.13	2.06	Bot	107.3
## 767	R	WSH	ATL	1.04	0.47	Top	NA
## 768	L	BOS	TB	0.01	1.05	Bot	NA
## 769	R	TEX	TOR	0.68	1.24	Top	NA
## 770	L	OAK	LAD	-0.34	2.04	Top	NA
## 771	R	BOS	TB	-0.45	2.04	Top	NA
## 772	L	TEX	TOR	-0.21	2.99	Bot	98.0
## 773	R	MIA	STL	-1.56	2.79	Top	NA
## 774	R	SD	SF	-0.51	2.25	Bot	79.7
## 775	R	CLE	KC	1.50	-0.25	Top	NA
## 776	R	WSH	ATL	0.81	1.25	Bot	NA
## 777	L	SD	SF	-1.15	0.80	Top	NA
## 778	L	COL	ARI	0.25	1.89	Bot	102.8
## 779	R	PHI	NYN	0.49	3.36	Top	NA
## 780	R	NYN	BAL	-0.88	2.81	Top	80.8
## 781	L	PHI	NYN	0.61	1.61	Bot	NA
## 782	L	DET	MIN	0.43	3.50	Top	93.3
## 783	L	NYN	BAL	-0.24	3.97	Bot	NA
## 784	R	CIN	PIT	0.09	2.54	Bot	NA
## 785	R	COL	ARI	1.13	0.18	Top	NA
## 786	R	SEA	CWS	-0.20	2.96	Top	84.1

## 787	R	MIA	STL	-0.47	2.75	Top	NA
## 788	R	BOS	TB	0.27	0.70	Top	67.9
## 789	L	DET	MIN	0.95	2.58	Top	45.4
## 790	L	OAK	LAD	0.23	3.73	Top	NA
## 791	R	CIN	PIT	-0.65	3.84	Bot	NA
## 792	R	WSH	ATL	-1.40	1.79	Top	NA
## 793	R	WSH	ATL	0.93	0.60	Bot	NA
## 794	L	SEA	CWS	-1.67	1.55	Bot	NA
## 795	L	NYN	BAL	0.47	2.34	Bot	NA
## 796	L	SD	SF	0.45	2.22	Top	NA
## 797	R	MIA	STL	-0.29	1.52	Bot	NA
## 798	L	COL	ARI	2.80	2.21	Bot	NA
## 799	L	PHI	NYM	0.00	2.14	Bot	NA
## 800	R	COL	ARI	-0.27	1.88	Top	NA
## 801	R	CLE	KC	0.56	1.76	Top	NA
## 802	R	TEX	TOR	0.12	1.82	Top	NA
## 803	R	PHI	NYM	-0.49	3.76	Top	NA
## 804	R	SD	SF	2.42	1.16	Bot	NA
## 805	R	CHC	MIL	-0.73	2.94	Top	NA
## 806	R	DET	MIN	-1.62	2.52	Bot	NA
## 807	R	CIN	PIT	0.35	1.97	Top	78.5
## 808	L	BOS	TB	0.09	1.54	Bot	NA
## 809	L	TEX	TOR	-0.11	3.37	Bot	NA
## 810	R	NYN	BAL	0.39	2.96	Top	69.4
## 811	R	CHC	MIL	-0.26	1.06	Bot	NA
## 812	R	OAK	LAD	1.40	0.99	Bot	NA
## 813	R	SEA	CWS	0.45	1.68	Top	NA
## 814	L	TEX	TOR	1.37	2.30	Bot	59.7
## 815	R	BOS	TB	0.42	1.63	Top	NA
## 816	L	SEA	CWS	-0.66	3.31	Bot	NA
## 817	L	NYN	BAL	-0.12	2.14	Bot	56.3
## 818	R	WSH	ATL	-0.14	2.11	Top	NA
## 819	R	NYN	BAL	0.57	1.40	Top	NA
## 820	L	SD	SF	1.14	2.79	Top	NA
## 821	L	PHI	NYM	-0.09	2.25	Bot	63.8
## 822	R	SD	SF	-0.88	2.11	Bot	100.4
## 823	R	TEX	TOR	1.57	2.37	Top	NA
## 824	R	PHI	NYM	-1.13	2.54	Top	NA
## 825	R	SEA	CWS	0.37	2.22	Top	NA
## 826	R	MIA	STL	0.03	2.39	Top	NA
## 827	R	CLE	KC	0.76	1.06	Top	NA
## 828	R	CHC	MIL	-0.07	1.99	Top	22.5
## 829	R	COL	ARI	1.23	2.01	Top	NA
## 830	L	COL	ARI	0.79	2.03	Bot	66.0
## 831	R	CHC	MIL	-1.45	2.10	Bot	NA
## 832	R	CIN	PIT	-0.01	1.97	Top	NA
## 833	R	DET	MIN	-0.55	3.06	Bot	NA
## 834	R	WSH	ATL	0.15	1.37	Bot	NA
## 835	L	DET	MIN	0.61	2.10	Top	105.4
## 836	R	MIA	STL	0.71	1.68	Bot	78.3
## 837	R	CIN	PIT	1.09	1.23	Bot	NA
## 838	L	BOS	TB	0.06	1.09	Bot	100.5
## 839	R	OAK	LAD	1.29	1.05	Bot	NA
## 840	L	OAK	LAD	-1.68	1.84	Top	NA

## 841	R	BOS	TB	-0.60	3.02	Top	84.7
## 842	L	BOS	TB	-0.05	1.76	Bot	NA
## 843	R	TEX	TOR	0.29	1.63	Top	67.5
## 844	R	MIA	STL	1.31	3.12	Top	NA
## 845	R	CHC	MIL	-0.21	2.06	Bot	NA
## 846	L	PHI	NYM	-0.40	1.99	Bot	NA
## 847	R	CIN	PIT	1.58	1.79	Bot	NA
## 848	L	SD	SF	-0.11	-0.33	Top	NA
## 849	R	CIN	PIT	-0.07	0.86	Top	NA
## 850	R	DET	MIN	1.18	1.78	Bot	NA
## 851	L	NYN	BAL	0.34	2.55	Bot	NA
## 852	R	PHI	NYM	1.40	1.29	Top	NA
## 853	R	NYN	BAL	0.47	0.76	Top	NA
## 854	R	SD	SF	-0.90	3.50	Bot	NA
## 855	R	SEA	CWS	-0.85	3.50	Top	NA
## 856	L	DET	MIN	1.05	3.14	Top	96.6
## 857	L	SEA	CWS	-0.22	2.14	Bot	NA
## 858	R	CLE	KC	0.80	3.00	Bot	NA
## 859	R	WSH	ATL	-0.57	2.45	Top	95.4
## 860	R	COL	ARI	0.46	1.74	Top	84.1
## 861	R	OAK	LAD	1.34	0.16	Bot	NA
## 862	R	CLE	KC	0.03	1.87	Top	NA
## 863	L	OAK	LAD	-0.90	0.74	Top	NA
## 864	R	MIA	STL	0.78	2.51	Bot	84.0
## 865	R	CHC	MIL	-0.88	2.72	Top	74.6
## 866	L	COL	ARI	-0.56	2.29	Bot	101.3
## 867	R	WSH	ATL	-0.19	1.14	Bot	NA
## 868	L	TEX	TOR	-0.70	2.74	Bot	103.7
## 869	R	WSH	ATL	0.54	0.55	Top	NA
## 870	L	TEX	TOR	-0.40	3.17	Bot	NA
## 871	R	CIN	PIT	0.35	2.70	Bot	97.1
## 872	R	DET	MIN	-1.34	2.65	Bot	NA
## 873	L	NYN	BAL	-1.76	2.18	Bot	NA
## 874	R	CLE	KC	0.55	0.81	Top	NA
## 875	R	CLE	KC	1.12	2.10	Bot	70.1
## 876	L	OAK	LAD	-0.72	3.35	Top	70.0
## 877	R	PHI	NYM	-0.19	1.98	Top	NA
## 878	R	TEX	TOR	0.96	1.04	Top	NA
## 879	R	BOS	TB	-0.79	2.90	Top	77.0
## 880	R	MIA	STL	-0.66	1.72	Top	71.4
## 881	L	COL	ARI	-1.63	1.40	Bot	NA
## 882	R	OAK	LAD	-0.83	3.11	Bot	NA
## 883	L	PHI	NYM	-0.34	-0.02	Bot	NA
## 884	R	NYN	BAL	-0.24	2.21	Top	NA
## 885	R	SEA	CWS	0.04	0.85	Top	75.5
## 886	L	SEA	CWS	0.64	3.40	Bot	NA
## 887	R	CIN	PIT	-0.70	3.77	Top	NA
## 888	R	COL	ARI	0.78	1.18	Top	NA
## 889	L	BOS	TB	0.90	1.74	Bot	NA
## 890	L	DET	MIN	0.62	3.46	Top	76.6
## 891	R	CHC	MIL	1.05	2.05	Bot	NA
## 892	R	CHC	MIL	0.64	1.97	Top	87.8
## 893	R	SD	SF	-0.37	2.59	Bot	70.2
## 894	R	MIA	STL	0.35	2.31	Bot	NA

## 895	L	SD	SF	0.41	0.95	Top	NA
## 896	R	WSH	ATL	0.60	1.33	Bot	NA
## 897	R	SD	SF	1.40	0.52	Bot	NA
## 898	L	DET	MIN	-0.22	0.57	Top	NA
## 899	L	SD	SF	0.71	1.48	Top	NA
## 900	L	PHI	NYM	-0.45	1.92	Bot	NA
## 901	R	CHC	MIL	0.65	3.08	Top	NA
## 902	R	OAK	LAD	-0.56	2.74	Bot	NA
## 903	R	WSH	ATL	-0.41	0.17	Top	NA
## 904	L	NYN	BAL	-1.12	1.53	Bot	NA
## 905	R	DET	MIN	-1.14	1.81	Bot	NA
## 906	R	SEA	CWS	0.69	1.89	Top	NA
## 907	R	CLE	KC	1.24	1.24	Bot	NA
## 908	R	PHI	NYM	0.98	4.08	Top	NA
## 909	R	MIA	STL	-0.87	3.43	Top	NA
## 910	R	WSH	ATL	2.05	-0.05	Bot	NA
## 911	R	CLE	KC	-0.47	1.74	Top	NA
## 912	R	TEX	TOR	0.57	0.34	Top	NA
## 913	R	CIN	PIT	-1.85	4.60	Bot	NA
## 914	L	OAK	LAD	0.13	2.56	Top	NA
## 915	R	MIA	STL	1.41	1.51	Bot	NA
## 916	R	COL	ARI	0.19	2.15	Top	NA
## 917	R	NYN	BAL	0.49	1.70	Top	NA
## 918	L	BOS	TB	-1.01	1.82	Bot	NA
## 919	R	CHC	MIL	1.50	2.27	Bot	78.8
## 920	L	SEA	CWS	-0.15	2.15	Bot	83.5
## 921	L	TEX	TOR	-0.50	1.50	Bot	NA
## 922	R	BOS	TB	-0.45	2.09	Top	NA
## 923	R	CIN	PIT	0.19	1.09	Top	88.2
## 924	L	COL	ARI	-2.19	1.09	Bot	NA
## 925	L	SD	SF	1.34	2.05	Top	NA
## 926	R	WSH	ATL	0.95	1.52	Bot	NA
## 927	R	CLE	KC	0.01	2.01	Bot	88.8
## 928	R	SD	SF	0.34	1.55	Bot	NA
## 929	R	DET	MIN	-0.58	2.54	Bot	NA
## 930	R	CHC	MIL	0.90	3.29	Bot	NA
## 931	L	OAK	LAD	0.60	2.38	Top	88.3
## 932	L	BOS	TB	-0.10	3.08	Bot	104.9
## 933	L	SEA	CWS	-0.48	2.38	Bot	78.3
## 934	L	COL	ARI	-0.55	1.42	Bot	NA
## 935	R	CIN	PIT	-0.72	2.26	Top	NA
## 936	L	NYN	BAL	-1.41	2.69	Bot	60.4
## 937	L	PHI	NYM	1.23	1.80	Bot	NA
## 938	R	WSH	ATL	0.92	2.69	Top	NA
## 939	R	SEA	CWS	0.07	1.55	Top	NA
## 940	R	MIA	STL	-0.82	2.31	Top	66.2
## 941	R	COL	ARI	1.74	1.59	Top	NA
## 942	R	NYN	BAL	1.00	0.45	Top	NA
## 943	R	TEX	TOR	0.58	1.62	Top	NA
## 944	R	CHC	MIL	-1.24	2.36	Top	78.3
## 945	R	OAK	LAD	-1.10	3.94	Bot	NA
## 946	R	CIN	PIT	1.30	2.65	Bot	NA
## 947	R	CLE	KC	-0.68	2.54	Top	NA
## 948	R	MIA	STL	-1.04	1.76	Bot	NA

## 949	L	DET	MIN	0.02	1.48	Top	85.0
## 950	L	TEX	TOR	0.59	1.43	Bot	NA
## 951	R	PHI	NYM	0.01	3.27	Top	NA
## 952	R	BOS	TB	1.94	0.52	Top	NA
## 953	R	CLE	KC	-0.84	2.72	Bot	NA
## 954	R	SEA	CWS	0.66	1.21	Top	NA
## 955	L	TEX	TOR	0.66	2.12	Bot	NA
## 956	L	PHI	NYM	1.06	1.93	Bot	82.6
## 957	R	CLE	KC	1.01	2.20	Top	87.5
## 958	L	SEA	CWS	1.37	1.82	Bot	NA
## 959	L	NYN	BAL	-0.92	2.86	Bot	NA
## 960	R	CHC	MIL	0.55	1.55	Bot	67.6
## 961	L	SD	SF	-0.76	1.77	Top	NA
## 962	R	TEX	TOR	0.57	2.91	Top	NA
## 963	R	OAK	LAD	1.26	3.56	Bot	NA
## 964	L	OAK	LAD	0.36	2.72	Top	100.2
## 965	R	COL	ARI	-0.37	2.34	Top	90.7
## 966	R	WSH	ATL	-0.51	1.82	Bot	NA
## 967	R	CIN	PIT	0.23	2.40	Bot	NA
## 968	R	BOS	TB	-0.76	3.63	Top	79.0
## 969	L	COL	ARI	-2.11	1.03	Bot	NA
## 970	R	SD	SF	0.13	1.18	Bot	70.7
## 971	R	CHC	MIL	-0.03	1.59	Top	NA
## 972	R	WSH	ATL	1.47	2.66	Top	NA
## 973	R	DET	MIN	0.21	2.95	Bot	94.6
## 974	R	MIA	STL	-0.11	1.89	Top	104.1
## 975	R	PHI	NYM	-0.41	3.98	Top	NA
## 976	R	CIN	PIT	-0.19	2.29	Top	70.7
## 977	R	NYN	BAL	0.19	2.49	Top	77.1
## 978	L	DET	MIN	-1.75	-0.38	Top	NA
## 979	L	BOS	TB	-0.23	1.67	Bot	75.0
## 980	R	MIA	STL	1.70	1.62	Bot	NA
## 981	R	MIA	STL	1.06	2.41	Bot	NA
## 982	R	WSH	ATL	-0.39	0.97	Bot	NA
## 983	R	TEX	TOR	1.13	1.70	Top	NA
## 984	R	OAK	LAD	0.51	2.46	Bot	NA
## 985	R	PHI	NYM	0.05	1.94	Top	102.0
## 986	L	COL	ARI	-1.32	1.84	Bot	NA
## 987	R	CLE	KC	1.70	1.48	Bot	NA
## 988	R	COL	ARI	0.95	3.21	Top	NA
## 989	L	DET	MIN	0.05	1.13	Top	27.1
## 990	R	CHC	MIL	-0.49	1.71	Bot	NA
## 991	R	SEA	CWS	1.32	2.36	Top	NA
## 992	R	CIN	PIT	-0.56	3.78	Top	NA
## 993	R	CHC	MIL	-1.18	2.08	Top	63.6
## 994	R	WSH	ATL	-0.26	0.75	Top	NA
## 995	L	OAK	LAD	0.33	0.88	Top	NA
## 996	R	DET	MIN	-1.43	4.56	Bot	NA
## 997	L	TEX	TOR	1.18	1.59	Bot	NA
## 998	R	CIN	PIT	1.23	1.68	Bot	NA
## 999	R	MIA	STL	-1.20	2.15	Top	85.6
## 1000	R	NYN	BAL	0.38	3.01	Top	85.0
## 1001	L	BOS	TB	1.50	1.89	Bot	NA
## 1002	L	NYN	BAL	-1.52	2.43	Bot	NA

## 1003	R	SD	SF	-0.29	2.68	Bot	106.5
## 1004	L	SEA	CWS	-0.20	2.47	Bot	107.1
## 1005	R	CLE	KC	0.26	1.54	Top	NA
## 1006	L	SD	SF	0.20	1.64	Top	NA
## 1007	R	BOS	TB	0.53	2.07	Top	72.7
## 1008	L	PHI	NYM	0.72	2.79	Bot	NA
## 1009	L	SD	SF	1.17	1.51	Top	NA
## 1010	R	CLE	KC	-0.40	2.51	Bot	NA
## 1011	R	CIN	PIT	-1.95	2.28	Top	NA
## 1012	L	BOS	TB	-1.39	2.99	Bot	NA
## 1013	R	OAK	LAD	0.98	2.16	Bot	NA
## 1014	R	DET	MIN	-0.10	2.43	Bot	105.7
## 1015	R	CHC	MIL	0.19	2.47	Bot	84.4
## 1016	L	NYN	BAL	-0.40	3.24	Bot	NA
## 1017	R	CHC	MIL	-0.78	2.67	Top	NA
## 1018	L	PHI	NYM	0.15	1.57	Bot	NA
## 1019	R	CIN	PIT	0.90	2.26	Bot	NA
## 1020	R	CLE	KC	0.49	3.24	Top	93.5
## 1021	R	PHI	NYM	0.36	2.67	Top	76.4
## 1022	R	BOS	TB	0.51	1.90	Top	NA
## 1023	R	TEX	TOR	0.28	1.07	Top	NA
## 1024	L	DET	MIN	1.07	3.07	Top	100.2
## 1025	L	TEX	TOR	-0.39	2.37	Bot	NA
## 1026	L	COL	ARI	-1.74	1.34	Bot	NA
## 1027	R	MIA	STL	0.40	4.09	Top	NA
## 1028	L	OAK	LAD	-1.27	4.20	Top	NA
## 1029	R	SEA	CWS	-0.12	2.43	Top	94.8
## 1030	R	WSH	ATL	0.49	1.05	Top	NA
## 1031	R	SD	SF	-1.25	2.48	Bot	NA
## 1032	R	WSH	ATL	0.67	3.76	Bot	NA
## 1033	L	SEA	CWS	-0.32	1.06	Bot	75.1
## 1034	R	MIA	STL	-0.36	2.95	Bot	78.2
## 1035	R	COL	ARI	-0.01	2.10	Top	102.4
## 1036	R	NYN	BAL	1.81	1.40	Top	NA
## 1037	R	CHC	MIL	-1.24	2.63	Top	NA
## 1038	R	MIA	STL	-0.74	2.37	Top	NA
## 1039	R	CHC	MIL	0.62	1.96	Bot	NA
## 1040	L	SD	SF	0.23	1.55	Top	NA
## 1041	R	WSH	ATL	0.80	0.91	Top	NA
## 1042	L	COL	ARI	0.60	2.92	Bot	101.3
## 1043	L	PHI	NYM	-1.17	0.90	Bot	NA
## 1044	R	CIN	PIT	-1.51	3.07	Top	NA
## 1045	R	CLE	KC	0.44	1.00	Bot	NA
## 1046	L	BOS	TB	-0.63	2.07	Bot	89.7
## 1047	R	MIA	STL	-0.78	1.50	Bot	NA
## 1048	R	SEA	CWS	-1.11	3.82	Top	NA
## 1049	R	NYN	BAL	0.08	2.92	Top	109.7
## 1050	R	SD	SF	-1.56	1.66	Bot	NA
## 1051	R	CIN	PIT	-0.96	2.36	Bot	83.7
## 1052	R	TEX	TOR	1.13	1.33	Top	NA
## 1053	R	WSH	ATL	1.13	3.40	Bot	59.7
## 1054	L	DET	MIN	0.15	1.95	Top	NA
## 1055	L	OAK	LAD	-0.33	3.35	Top	NA
## 1056	R	OAK	LAD	-1.57	3.61	Bot	NA

## 1057	R	CLE	KC	-0.75	2.74	Top	113.1
## 1058	R	COL	ARI	0.60	1.80	Top	101.4
## 1059	L	NYN	BAL	0.71	2.17	Bot	101.7
## 1060	R	BOS	TB	0.31	2.43	Top	NA
## 1061	R	PHI	NYM	-1.38	2.03	Top	NA
## 1062	L	SEA	CWS	-0.28	-0.05	Bot	NA
## 1063	R	DET	MIN	0.14	2.04	Bot	91.0
## 1064	L	TEX	TOR	0.28	2.19	Bot	89.4
## 1065	R	CLE	KC	0.85	2.25	Top	NA
## 1066	L	SEA	CWS	0.22	1.43	Bot	NA
## 1067	R	CIN	PIT	-0.26	1.38	Top	89.0
## 1068	R	COL	ARI	-1.38	2.61	Top	NA
## 1069	R	CHC	MIL	-0.68	2.15	Top	97.5
## 1070	R	BOS	TB	-0.37	3.13	Top	NA
## 1071	L	OAK	LAD	0.82	3.26	Top	77.5
## 1072	R	WSH	ATL	0.40	2.59	Top	NA
## 1073	R	OAK	LAD	-0.58	3.20	Bot	NA
## 1074	R	TEX	TOR	-0.62	2.41	Top	NA
## 1075	L	COL	ARI	-0.38	3.70	Bot	NA
## 1076	R	CHC	MIL	-0.53	3.73	Bot	NA
## 1077	R	DET	MIN	0.69	2.77	Bot	66.2
## 1078	L	PHI	NYM	0.24	1.53	Bot	NA
## 1079	R	CLE	KC	-0.87	1.74	Bot	NA
## 1080	L	BOS	TB	-0.46	2.40	Bot	NA
## 1081	R	MIA	STL	-1.30	3.01	Top	59.5
## 1082	R	MIA	STL	0.48	1.66	Bot	12.2
## 1083	R	SEA	CWS	-0.40	2.75	Top	73.6
## 1084	R	NYN	BAL	-0.48	2.14	Top	67.6
## 1085	L	NYN	BAL	1.49	1.60	Bot	NA
## 1086	L	TEX	TOR	0.64	2.28	Bot	NA
## 1087	R	CIN	PIT	0.33	3.92	Bot	NA
## 1088	L	SD	SF	-0.89	0.21	Top	NA
## 1089	R	PHI	NYM	-1.12	1.73	Top	NA
## 1090	R	WSH	ATL	0.34	2.02	Bot	64.6
## 1091	R	SD	SF	-0.62	2.41	Bot	NA
## 1092	L	DET	MIN	0.51	1.03	Top	NA
## 1093	R	NYN	BAL	-0.47	3.64	Top	NA
## 1094	R	SD	SF	-0.48	3.46	Bot	NA
## 1095	L	DET	MIN	1.35	0.42	Top	NA
## 1096	L	SEA	CWS	1.05	1.37	Bot	NA
## 1097	R	CHC	MIL	-1.15	2.45	Bot	NA
## 1098	R	BOS	TB	-1.03	2.08	Top	NA
## 1099	R	TEX	TOR	-1.09	2.25	Top	76.6
## 1100	R	OAK	LAD	-0.38	1.39	Bot	NA
## 1101	R	DET	MIN	1.05	2.31	Bot	NA
## 1102	R	CIN	PIT	-0.05	3.56	Bot	NA
## 1103	L	PHI	NYM	-0.77	1.76	Bot	NA
## 1104	L	NYN	BAL	0.16	2.37	Bot	73.6
## 1105	R	SEA	CWS	-0.12	2.28	Top	96.1
## 1106	L	SD	SF	0.22	2.45	Top	63.2
## 1107	L	BOS	TB	1.38	1.45	Bot	NA
## 1108	L	COL	ARI	-0.12	2.10	Bot	NA
## 1109	R	WSH	ATL	2.03	1.41	Bot	NA
## 1110	R	PHI	NYM	1.08	2.86	Top	74.7

## 1111	L	OAK	LAD	-0.23	3.63	Top	NA
## 1112	L	TEX	TOR	1.39	3.45	Bot	NA
## 1113	R	CLE	KC	0.96	2.44	Top	104.5
## 1114	R	CIN	PIT	0.45	1.16	Top	NA
## 1115	R	CLE	KC	-0.63	1.82	Bot	NA
## 1116	R	MIA	STL	0.18	2.15	Top	NA
## 1117	R	CHC	MIL	0.86	1.40	Top	76.3
## 1118	L	WSH	ATL	-0.64	2.60	Bot	78.9
## 1119	R	WSH	ATL	0.56	2.21	Top	92.0
## 1120	R	MIA	STL	0.55	-1.15	Bot	NA
## 1121	R	COL	ARI	-0.28	2.00	Top	71.9
## 1122	R	SD	SF	-0.62	1.42	Bot	NA
## 1123	R	CIN	PIT	-0.16	2.37	Top	71.5
## 1124	R	DET	MIN	-0.22	2.11	Bot	NA
## 1125	R	MIA	STL	1.94	1.75	Bot	NA
## 1126	R	BOS	TB	0.35	1.58	Top	NA
## 1127	R	OAK	LAD	0.17	2.90	Bot	69.7
## 1128	L	PHI	NYM	-0.54	2.68	Bot	105.8
## 1129	R	WSH	ATL	0.11	1.66	Top	NA
## 1130	R	PHI	NYM	-0.17	1.83	Top	65.2
## 1131	R	COL	ARI	-1.30	2.05	Top	NA
## 1132	L	NYN	BAL	1.07	2.60	Bot	NA
## 1133	L	TEX	TOR	-0.44	4.22	Bot	NA
## 1134	R	SEA	CWS	0.73	3.32	Top	NA
## 1135	R	NYN	BAL	0.67	3.44	Top	NA
## 1136	R	CHC	MIL	0.05	2.60	Bot	82.5
## 1137	R	TEX	TOR	0.76	3.77	Top	83.4
## 1138	R	CHC	MIL	1.38	1.91	Top	NA
## 1139	R	MIA	STL	-0.73	2.06	Top	93.5
## 1140	L	DET	MIN	-0.10	1.67	Top	NA
## 1141	L	COL	ARI	-1.46	2.31	Bot	NA
## 1142	L	OAK	LAD	-0.76	2.58	Top	48.2
## 1143	R	WSH	ATL	0.36	2.96	Bot	85.9
## 1144	R	CIN	PIT	-0.99	3.86	Bot	NA
## 1145	R	CLE	KC	-1.28	2.33	Top	NA
## 1146	L	WSH	ATL	-0.93	3.30	Bot	NA
## 1147	L	SD	SF	-0.89	-0.08	Top	NA
## 1148	R	CLE	KC	-0.96	4.38	Bot	NA
## 1149	L	SEA	CWS	0.37	1.07	Bot	NA
## 1150	L	BOS	TB	0.42	2.87	Bot	79.7
## 1151	L	SEA	CWS	0.80	1.80	Bot	82.1
## 1152	R	MIA	STL	-0.23	1.51	Bot	63.8
## 1153	R	COL	ARI	0.66	1.67	Top	NA
## 1154	L	PHI	NYM	0.94	0.41	Bot	NA
## 1155	L	NYN	BAL	0.93	3.42	Bot	NA
## 1156	L	DET	MIN	0.21	1.67	Top	105.7
## 1157	R	DET	MIN	1.43	1.96	Bot	NA
## 1158	R	WSH	ATL	1.46	1.88	Top	NA
## 1159	R	CHC	MIL	0.27	1.76	Top	NA
## 1160	R	CLE	KC	0.17	3.49	Bot	94.7
## 1161	R	CLE	KC	0.24	2.28	Top	NA
## 1162	R	BOS	TB	-0.34	1.25	Top	NA
## 1163	L	OAK	LAD	-1.07	2.26	Top	NA
## 1164	R	WSH	ATL	0.05	2.66	Bot	NA



## 1165	R	SEA	CWS	-0.08	2.61	Top	96.3
## 1166	R	TEX	TOR	0.87	2.24	Top	73.8
## 1167	R	CIN	PIT	-0.60	2.34	Top	NA
## 1168	L	COL	ARI	0.58	3.24	Bot	102.0
## 1169	R	CHC	MIL	-0.09	1.61	Bot	NA
## 1170	L	SD	SF	-0.71	1.48	Top	80.4
## 1171	R	SD	SF	-0.32	1.37	Bot	NA
## 1172	R	PHI	NYM	-0.91	4.58	Top	NA
## 1173	R	OAK	LAD	0.64	1.89	Bot	NA
## 1174	L	WSH	ATL	-0.40	2.34	Bot	89.9
## 1175	R	MIA	STL	-0.09	1.74	Top	NA
## 1176	L	BOS	TB	0.08	1.41	Bot	NA
## 1177	L	TEX	TOR	0.00	2.55	Bot	NA
## 1178	R	NYN	BAL	-0.30	4.46	Top	NA
## 1179	R	CIN	PIT	0.30	3.46	Bot	NA
## 1180	R	CLE	KC	-0.21	3.01	Top	80.7
## 1181	L	SD	SF	-1.19	1.19	Top	NA
## 1182	R	DET	MIN	0.71	2.52	Bot	NA
## 1183	L	SEA	CWS	0.56	2.98	Bot	NA
## 1184	R	WSH	ATL	-1.07	2.02	Top	NA
## 1185	R	OAK	LAD	-0.13	2.59	Bot	NA
## 1186	R	CHC	MIL	-0.47	3.34	Top	NA
## 1187	L	COL	ARI	-1.83	-0.37	Bot	NA
## 1188	R	MIA	STL	0.88	3.43	Bot	63.0
## 1189	R	MIA	STL	-0.13	1.27	Top	NA
## 1190	L	DET	MIN	0.41	1.66	Top	76.1
## 1191	L	PHI	NYM	0.10	1.61	Bot	NA
## 1192	R	CLE	KC	-0.33	3.80	Bot	NA
## 1193	L	OAK	LAD	-0.62	1.59	Top	NA
## 1194	R	CIN	PIT	-1.04	3.43	Bot	NA
## 1195	L	NYN	BAL	-0.20	1.93	Bot	NA
## 1196	R	BOS	TB	0.99	1.71	Top	NA
## 1197	R	TEX	TOR	1.95	0.73	Top	NA
## 1198	R	SD	SF	-0.50	1.39	Bot	NA
## 1199	R	CIN	PIT	-1.77	2.92	Top	NA
## 1200	R	CHC	MIL	0.59	2.60	Bot	NA
## 1201	R	SEA	CWS	0.17	1.06	Top	NA
## 1202	R	NYN	BAL	-0.10	3.11	Top	NA
## 1203	R	COL	ARI	-2.13	2.68	Top	NA
## 1204	L	WSH	ATL	-0.55	2.65	Bot	100.0
## 1205	L	BOS	TB	0.34	1.59	Bot	NA
## 1206	R	WSH	ATL	1.22	3.19	Bot	NA
## 1207	L	TEX	TOR	0.36	2.68	Bot	73.1
## 1208	R	PHI	NYM	-0.39	1.70	Top	87.7
## 1209	R	WSH	ATL	0.16	2.20	Bot	94.5
## 1210	L	DET	MIN	-0.62	3.37	Top	62.0
## 1211	L	NYN	BAL	0.61	2.75	Bot	NA
## 1212	L	OAK	LAD	-1.30	2.23	Top	NA
## 1213	R	CHC	MIL	0.52	0.77	Bot	41.8
## 1214	R	NYN	BAL	-0.02	3.74	Top	NA
## 1215	L	SD	SF	0.39	2.46	Top	NA
## 1216	L	TEX	TOR	1.21	2.11	Bot	NA
## 1217	R	WSH	ATL	-0.57	2.64	Top	102.1
## 1218	L	WSH	ATL	1.52	3.89	Bot	NA

## 1219	R	SD	SF	-0.27	2.51	Bot	88.4
## 1220	R	BOS	TB	0.92	1.40	Top	NA
## 1221	R	CLE	KC	-1.22	3.59	Top	NA
## 1222	R	DET	MIN	0.65	0.77	Bot	NA
## 1223	R	WSH	ATL	-0.22	1.65	Top	NA
## 1224	R	PHI	NYM	-0.49	3.64	Top	NA
## 1225	R	SEA	CWS	0.55	0.87	Top	NA
## 1226	R	MIA	STL	0.61	0.86	Top	NA
## 1227	R	MIA	STL	0.76	0.92	Bot	NA
## 1228	R	CHC	MIL	-0.64	1.82	Top	90.3
## 1229	L	BOS	TB	-0.88	0.99	Bot	NA
## 1230	R	OAK	LAD	1.04	2.27	Bot	NA
## 1231	R	COL	ARI	0.20	3.04	Top	82.9
## 1232	R	CIN	PIT	2.60	0.45	Bot	NA
## 1233	L	PHI	NYM	0.28	1.95	Bot	91.3
## 1234	R	TEX	TOR	0.85	1.28	Top	NA
## 1235	L	SEA	CWS	0.56	2.59	Bot	69.3
## 1236	R	CLE	KC	0.77	1.83	Bot	NA
## 1237	R	BOS	TB	0.79	1.88	Bot	80.3
## 1238	R	CIN	PIT	0.37	2.01	Top	92.6
## 1239	L	COL	ARI	-1.34	2.04	Bot	75.4
## 1240	R	CHC	MIL	-0.32	2.42	Top	NA
## 1241	L	TEX	TOR	0.59	2.49	Bot	89.8
## 1242	R	BOS	TB	1.16	0.74	Top	NA
## 1243	R	BOS	TB	-0.18	2.16	Bot	102.2
## 1244	R	TEX	TOR	-1.51	2.55	Top	NA
## 1245	R	WSH	ATL	-0.59	3.97	Bot	NA
## 1246	R	WSH	ATL	-0.05	1.43	Top	NA
## 1247	L	BOS	TB	-1.78	2.81	Bot	NA
## 1248	L	SD	SF	1.63	3.01	Top	NA
## 1249	R	CLE	KC	-0.64	1.79	Top	NA
## 1250	R	CIN	PIT	0.95	1.11	Bot	NA
## 1251	R	OAK	LAD	-0.18	2.65	Bot	NA
## 1252	R	PHI	NYM	-2.02	3.39	Top	NA
## 1253	L	DET	MIN	0.23	2.11	Top	NA
## 1254	R	NYN	BAL	-0.13	2.26	Top	105.1
## 1255	R	CLE	KC	0.79	2.38	Bot	NA
## 1256	R	COL	ARI	0.21	1.50	Top	92.3
## 1257	R	CHC	MIL	0.65	3.28	Bot	NA
## 1258	L	WSH	ATL	-0.22	3.24	Bot	104.9
## 1259	R	MIA	STL	0.11	2.24	Bot	88.7
## 1260	R	SEA	CWS	0.30	1.94	Top	NA
## 1261	L	NYN	BAL	-0.18	3.88	Bot	NA
## 1262	R	WSH	ATL	-0.66	3.12	Top	NA
## 1263	L	PHI	NYM	0.88	2.69	Bot	NA
## 1264	R	DET	MIN	1.95	1.62	Bot	NA
## 1265	R	SD	SF	1.63	2.99	Bot	NA
## 1266	L	OAK	LAD	-1.12	1.97	Top	NA
## 1267	R	MIA	STL	-1.23	1.99	Top	NA
## 1268	L	SEA	CWS	-0.11	3.35	Bot	NA
## 1269	R	CIN	PIT	0.28	3.87	Top	NA
## 1270	L	COL	ARI	-1.13	1.71	Bot	NA
## 1271	L	BOS	TB	-0.98	2.77	Bot	NA
## 1272	R	CIN	PIT	0.80	2.69	Bot	NA

## 1273	R	CLE	KC	0.40	3.28	Top	NA
## 1274	R	TEX	TOR	-0.44	2.38	Top	94.7
## 1275	R	CHC	MIL	0.57	2.20	Bot	NA
## 1276	R	CHC	MIL	-0.37	3.65	Top	NA
## 1277	R	WSH	ATL	0.54	2.98	Top	102.9
## 1278	R	BOS	TB	0.69	1.44	Bot	84.5
## 1279	R	MIA	STL	-0.07	1.75	Top	NA
## 1280	R	SD	SF	-0.26	-0.52	Bot	NA
## 1281	L	DET	MIN	0.11	2.19	Top	NA
## 1282	R	BOS	TB	0.42	0.75	Top	NA
## 1283	R	SEA	CWS	0.42	1.16	Top	NA
## 1284	L	TEX	TOR	-0.91	1.34	Bot	NA
## 1285	R	PHI	NYM	0.64	1.39	Top	NA
## 1286	R	DET	MIN	-0.29	1.75	Bot	NA
## 1287	L	OAK	LAD	0.22	2.12	Top	109.1
## 1288	L	SEA	CWS	-0.18	2.67	Bot	74.3
## 1289	R	WSH	ATL	0.42	3.20	Bot	94.0
## 1290	L	SD	SF	2.00	2.15	Top	NA
## 1291	L	WSH	ATL	-1.52	0.69	Bot	NA
## 1292	R	CLE	KC	-0.20	4.13	Bot	76.0
## 1293	R	MIA	STL	1.09	2.24	Bot	96.4
## 1294	R	NYN	BAL	-1.02	4.22	Top	NA
## 1295	L	COL	ARI	0.51	2.24	Bot	NA
## 1296	R	OAK	LAD	-1.08	2.93	Bot	NA
## 1297	L	PHI	NYM	-0.36	2.40	Bot	NA
## 1298	R	CIN	PIT	0.09	3.52	Top	NA
## 1299	R	COL	ARI	-0.56	3.02	Top	100.1
## 1300	L	NYN	BAL	0.27	2.99	Bot	63.1
## 1301	R	WSH	ATL	-0.23	2.90	Top	70.7
## 1302	R	WSH	ATL	0.77	1.94	Top	74.9
## 1303	R	TEX	TOR	-0.39	3.42	Top	91.6
## 1304	L	SD	SF	-0.69	2.08	Top	67.9
## 1305	R	PHI	NYM	-0.26	1.75	Top	73.2
## 1306	L	BOS	TB	-0.18	2.80	Bot	100.5
## 1307	R	COL	ARI	1.14	0.75	Top	NA
## 1308	L	SEA	CWS	-0.61	2.86	Bot	NA
## 1309	R	SEA	CWS	-0.10	1.34	Top	NA
## 1310	R	BOS	TB	0.89	1.67	Bot	51.9
## 1311	R	WSH	ATL	0.83	1.46	Bot	NA
## 1312	L	WSH	ATL	0.34	2.71	Bot	104.2
## 1313	L	NYN	BAL	0.89	1.51	Bot	NA
## 1314	R	DET	MIN	-0.06	3.31	Bot	95.1
## 1315	R	CIN	PIT	0.77	1.78	Bot	NA
## 1316	R	MIA	STL	0.13	3.19	Bot	NA
## 1317	R	WSH	ATL	-0.97	2.07	Top	NA
## 1318	R	CLE	KC	-0.11	2.78	Bot	96.7
## 1319	R	BOS	TB	1.24	2.05	Top	NA
## 1320	L	OAK	LAD	1.19	2.42	Top	NA
## 1321	R	MIA	STL	-0.80	2.71	Top	NA
## 1322	L	PHI	NYM	0.11	2.21	Bot	72.0
## 1323	R	CIN	PIT	-0.32	1.99	Top	NA
## 1324	R	CLE	KC	-1.04	2.71	Top	NA
## 1325	R	CHC	MIL	-2.10	2.75	Top	NA
## 1326	L	DET	MIN	-0.37	1.57	Top	NA

## 1327	R	OAK	LAD	0.61	2.69	Bot	NA
## 1328	L	TEX	TOR	0.72	1.92	Bot	80.4
## 1329	L	COL	ARI	-0.24	3.75	Bot	NA
## 1330	R	NYN	BAL	0.97	3.88	Top	NA
## 1331	R	SD	SF	-0.22	3.58	Bot	89.5
## 1332	R	CHC	MIL	-0.59	2.84	Bot	94.1
## 1333	R	CHC	MIL	0.51	2.37	Bot	NA
## 1334	L	DET	MIN	1.28	2.75	Top	77.7
## 1335	L	TEX	TOR	0.51	2.00	Bot	89.2
## 1336	R	MIA	STL	-0.83	2.87	Top	NA
## 1337	R	COL	ARI	0.47	2.23	Top	65.6
## 1338	R	OAK	LAD	-0.38	2.63	Bot	NA
## 1339	R	BOS	TB	-0.87	2.91	Bot	NA
## 1340	L	SD	SF	-0.56	-0.30	Top	NA
## 1341	R	WSH	ATL	1.32	1.53	Bot	NA
## 1342	R	WSH	ATL	-0.88	2.80	Top	NA
## 1343	R	PHI	NYM	-0.27	0.97	Top	NA
## 1344	R	DET	MIN	0.79	2.15	Bot	69.3
## 1345	R	SEA	CWS	-1.22	2.51	Top	NA
## 1346	R	TEX	TOR	0.27	1.75	Top	NA
## 1347	R	WSH	ATL	-0.58	0.91	Top	90.7
## 1348	L	BOS	TB	0.79	3.10	Bot	NA
## 1349	R	CIN	PIT	-0.66	2.16	Bot	NA
## 1350	R	BOS	TB	-0.79	2.84	Top	70.1
## 1351	R	CHC	MIL	-0.04	2.19	Top	89.6
## 1352	R	CLE	KC	-0.46	2.52	Bot	98.0
## 1353	R	SD	SF	0.20	0.15	Bot	NA
## 1354	R	CIN	PIT	0.49	1.79	Top	89.3
## 1355	L	OAK	LAD	1.30	1.59	Top	NA
## 1356	R	MIA	STL	-0.48	3.50	Bot	NA
## 1357	R	NYN	BAL	-0.17	2.10	Top	NA
## 1358	L	COL	ARI	0.72	2.92	Bot	NA
## 1359	R	CLE	KC	-0.25	0.77	Top	NA
## 1360	L	PHI	NYM	-0.46	1.90	Bot	NA
## 1361	L	NYN	BAL	-0.15	2.22	Bot	108.0
## 1362	L	WSH	ATL	1.49	2.34	Bot	NA
## 1363	L	SEA	CWS	0.39	2.18	Bot	NA
## 1364	L	TEX	TOR	0.69	3.10	Bot	NA
## 1365	L	COL	ARI	-0.37	2.42	Bot	103.7
## 1366	L	WSH	ATL	-0.24	1.47	Bot	67.3
## 1367	R	NYN	BAL	-0.69	2.55	Top	NA
## 1368	R	WSH	ATL	0.32	0.45	Top	NA
## 1369	R	TEX	TOR	1.03	2.67	Top	NA
## 1370	L	PHI	NYM	1.19	1.94	Bot	NA
## 1371	L	NYN	BAL	-0.72	1.91	Bot	NA
## 1372	R	DET	MIN	0.21	1.61	Bot	NA
## 1373	R	MIA	STL	-0.72	1.34	Top	NA
## 1374	L	SEA	CWS	-1.01	2.18	Bot	NA
## 1375	R	CLE	KC	-0.30	3.27	Bot	NA
## 1376	R	WSH	ATL	0.83	1.33	Top	83.5
## 1377	L	SD	SF	0.21	2.08	Top	NA
## 1378	R	WSH	ATL	1.16	0.75	Bot	NA
## 1379	R	BOS	TB	-1.60	3.45	Bot	NA
## 1380	R	COL	ARI	-0.85	2.61	Top	NA

## 1381	R	CIN	PIT	-1.34	3.52	Bot	NA
## 1382	R	BOS	TB	0.46	1.40	Top	NA
## 1383	R	MIA	STL	1.83	0.48	Bot	NA
## 1384	R	OAK	LAD	0.39	1.25	Bot	NA
## 1385	L	OAK	LAD	-0.07	3.16	Top	87.9
## 1386	R	SD	SF	-0.68	1.80	Bot	NA
## 1387	R	CHC	MIL	0.81	2.40	Bot	NA
## 1388	R	SEA	CWS	-0.86	3.70	Top	NA
## 1389	L	BOS	TB	0.59	3.03	Bot	NA
## 1390	R	CLE	KC	0.94	0.12	Top	NA
## 1391	R	CHC	MIL	0.85	1.60	Top	62.2
## 1392	R	PHI	NYM	-0.64	2.84	Top	NA
## 1393	R	CIN	PIT	-0.13	2.47	Top	72.4
## 1394	L	DET	MIN	0.98	2.24	Top	78.2
## 1395	R	CHC	MIL	-0.40	3.00	Top	77.5
## 1396	R	NYN	BAL	0.52	3.11	Top	59.3
## 1397	R	CIN	PIT	0.34	0.62	Bot	NA
## 1398	R	BOS	TB	-0.03	1.13	Bot	84.2
## 1399	R	PHI	NYM	0.99	4.04	Top	NA
## 1400	L	OAK	LAD	0.20	3.40	Top	83.8
## 1401	R	TEX	TOR	-1.77	3.07	Top	NA
## 1402	R	MIA	STL	0.16	1.74	Top	NA
## 1403	R	OAK	LAD	0.60	1.91	Bot	NA
## 1404	L	SEA	CWS	1.13	3.92	Bot	NA
## 1405	R	BOS	TB	1.12	0.29	Top	NA
## 1406	L	TEX	TOR	-1.09	2.06	Bot	NA
## 1407	R	SD	SF	0.69	1.29	Bot	NA
## 1408	L	COL	ARI	-0.14	2.51	Bot	96.9
## 1409	R	CHC	MIL	-0.70	2.52	Bot	99.2
## 1410	R	SEA	CWS	0.86	0.63	Top	NA
## 1411	L	NYN	BAL	-0.03	1.41	Bot	NA
## 1412	R	WSH	ATL	-0.21	1.85	Top	92.6
## 1413	L	PHI	NYM	1.30	1.78	Bot	NA
## 1414	R	WSH	ATL	1.74	1.20	Bot	NA
## 1415	R	COL	ARI	-0.02	2.98	Top	75.1
## 1416	L	DET	MIN	0.09	2.25	Top	85.9
## 1417	L	BOS	TB	0.84	2.89	Bot	NA
## 1418	R	CLE	KC	0.47	2.26	Top	88.0
## 1419	L	WSH	ATL	0.45	4.27	Bot	NA
## 1420	R	WSH	ATL	-0.95	2.03	Top	NA
## 1421	L	SD	SF	-0.32	0.22	Top	NA
## 1422	R	DET	MIN	0.77	2.29	Bot	NA
## 1423	R	CLE	KC	1.21	1.74	Bot	NA
## 1424	R	MIA	STL	-0.35	2.74	Bot	NA
## 1425	R	CIN	PIT	-0.33	2.57	Top	65.6
## 1426	L	OAK	LAD	-0.72	2.66	Top	NA
## 1427	R	WSH	ATL	-0.52	3.32	Top	NA
## 1428	L	SEA	CWS	-0.97	1.88	Bot	NA
## 1429	R	OAK	LAD	0.90	2.31	Bot	NA
## 1430	R	MIA	STL	0.82	2.52	Bot	NA
## 1431	R	MIA	STL	-0.04	0.91	Top	NA
## 1432	R	CLE	KC	2.17	-0.26	Top	NA
## 1433	L	BOS	TB	1.28	1.78	Bot	NA
## 1434	R	PHI	NYM	0.23	2.42	Top	NA

## 1435	L	PHI	NYM	0.28	1.54	Bot	76.7
## 1436	R	SEA	CWS	-1.04	1.80	Top	NA
## 1437	L	NYN	BAL	-0.22	1.97	Bot	104.3
## 1438	R	CIN	PIT	-0.41	3.94	Bot	NA
## 1439	R	CHC	MIL	-0.16	3.62	Bot	NA
## 1440	R	SD	SF	0.17	2.21	Bot	61.0
## 1441	R	WSH	ATL	0.27	1.21	Bot	64.9
## 1442	R	BOS	TB	0.87	1.45	Top	76.3
## 1443	R	CLE	KC	-1.20	4.47	Bot	NA
## 1444	L	WSH	ATL	0.37	2.99	Bot	78.5
## 1445	L	SD	SF	0.57	1.61	Top	NA
## 1446	R	TEX	TOR	1.09	2.51	Top	NA
## 1447	L	DET	MIN	-0.91	1.87	Top	NA
## 1448	L	TEX	TOR	0.73	2.06	Bot	86.3
## 1449	R	BOS	TB	0.72	2.15	Bot	71.8
## 1450	R	NYN	BAL	-0.19	3.65	Top	74.7
## 1451	R	WSH	ATL	-1.54	2.69	Top	75.0
## 1452	R	CIN	PIT	1.25	2.18	Top	NA
## 1453	R	CHC	MIL	0.10	2.50	Top	103.7
## 1454	L	COL	ARI	-0.54	2.76	Bot	88.4
## 1455	R	DET	MIN	-0.81	3.14	Bot	74.4
## 1456	R	COL	ARI	0.94	1.20	Top	NA
## 1457	R	SD	SF	-1.10	3.73	Bot	NA
## 1458	R	CHC	MIL	1.37	1.27	Bot	NA
## 1459	L	PHI	NYM	-0.83	0.99	Bot	NA
## 1460	L	TEX	TOR	0.75	2.20	Bot	NA
## 1461	L	WSH	ATL	0.74	2.97	Bot	NA
## 1462	R	CLE	KC	-0.08	1.62	Bot	NA
## 1463	R	BOS	TB	1.10	2.97	Bot	NA
## 1464	R	BOS	TB	-0.68	3.18	Top	NA
## 1465	L	DET	MIN	0.72	1.72	Top	74.4
## 1466	R	WSH	ATL	1.64	0.80	Bot	NA
## 1467	L	COL	ARI	0.22	3.18	Bot	NA
## 1468	R	TEX	TOR	-0.03	3.51	Top	92.2
## 1469	L	SD	SF	0.98	2.06	Top	NA
## 1470	R	CIN	PIT	-0.44	3.41	Top	NA
## 1471	R	WSH	ATL	-1.59	2.73	Top	NA
## 1472	L	NYN	BAL	-1.25	1.84	Bot	NA
## 1473	R	CIN	PIT	2.62	-0.06	Bot	NA
## 1474	L	BOS	TB	1.71	1.61	Bot	NA
## 1475	R	CHC	MIL	0.90	0.66	Top	NA
## 1476	R	NYN	BAL	-0.19	2.09	Top	NA
## 1477	R	OAK	LAD	1.38	2.31	Bot	NA
## 1478	R	DET	MIN	0.26	2.16	Bot	NA
## 1479	R	PHI	NYM	0.22	1.74	Top	NA
## 1480	R	COL	ARI	0.10	1.71	Top	NA
## 1481	R	WSH	ATL	-0.05	4.32	Top	NA
## 1482	R	MIA	STL	1.46	2.59	Top	NA
## 1483	L	OAK	LAD	-0.78	3.40	Top	NA
## 1484	R	MIA	STL	-0.81	2.69	Bot	NA
## 1485	R	CLE	KC	2.00	0.28	Top	NA
## 1486	L	SEA	CWS	-0.43	2.85	Bot	73.9
## 1487	R	SEA	CWS	0.75	2.08	Top	75.8
## 1488	R	OAK	LAD	-0.32	4.37	Bot	NA

## 1489	L	SD	SF	-0.28	1.79	Top	NA
## 1490	R	CIN	PIT	0.11	2.41	Bot	NA
## 1491	R	BOS	TB	0.25	2.77	Top	NA
## 1492	L	WSH	ATL	-0.95	1.63	Bot	NA
## 1493	L	DET	MIN	1.46	1.40	Top	NA
## 1494	R	SEA	CWS	-0.01	2.11	Top	NA
## 1495	R	PHI	NYM	-0.09	2.43	Top	74.4
## 1496	L	OAK	LAD	-0.75	1.91	Top	NA
## 1497	L	SEA	CWS	0.84	2.13	Bot	NA
## 1498	R	CIN	PIT	0.24	2.69	Top	NA
## 1499	R	CLE	KC	-0.64	1.89	Bot	NA
## 1500	R	BOS	TB	0.77	2.12	Bot	87.3
## 1501	R	WSH	ATL	0.63	3.02	Bot	104.0
## 1502	R	SD	SF	-0.16	1.12	Bot	71.9
## 1503	L	BOS	TB	-0.34	2.62	Bot	NA
## 1504	R	TEX	TOR	-0.50	2.21	Top	NA
## 1505	L	PHI	NYM	-0.03	3.41	Bot	96.8
## 1506	L	NYN	BAL	-1.21	3.39	Bot	NA
## 1507	L	TEX	TOR	0.47	1.63	Bot	95.9
## 1508	R	NYN	BAL	-1.05	2.63	Top	NA
## 1509	R	CHC	MIL	0.58	1.67	Top	NA
## 1510	R	DET	MIN	0.33	2.09	Bot	NA
## 1511	R	CLE	KC	0.11	2.22	Top	86.7
## 1512	R	WSH	ATL	-1.16	2.12	Top	NA
## 1513	R	COL	ARI	-0.24	1.88	Top	NA
## 1514	L	COL	ARI	-1.35	2.59	Bot	NA
## 1515	R	MIA	STL	1.31	1.64	Bot	NA
## 1516	L	PHI	NYM	-1.39	-0.72	Bot	NA
## 1517	R	WSH	ATL	1.02	1.70	Top	83.7
## 1518	R	MIA	STL	-0.30	2.75	Top	NA
## 1519	R	CHC	MIL	-0.04	3.32	Bot	NA
## 1520	R	SD	SF	0.36	1.98	Bot	NA
## 1521	R	SEA	CWS	-0.31	2.05	Top	NA
## 1522	L	WSH	ATL	-0.44	1.57	Bot	NA
## 1523	R	CIN	PIT	0.49	0.29	Bot	NA
## 1524	R	MIA	STL	-0.01	2.85	Bot	84.0
## 1525	R	CIN	PIT	0.69	2.42	Top	NA
## 1526	R	BOS	TB	-0.58	1.06	Bot	NA
## 1527	R	TEX	TOR	0.44	2.78	Top	75.4
## 1528	L	OAK	LAD	-0.06	1.60	Top	79.5
## 1529	L	PHI	NYM	1.92	2.19	Bot	NA
## 1530	R	CHC	MIL	-1.37	2.96	Top	NA
## 1531	R	WSH	ATL	0.51	2.71	Bot	74.3
## 1532	L	PHI	NYM	-0.78	2.26	Bot	NA
## 1533	R	BOS	TB	-0.49	1.98	Top	72.4
## 1534	R	CHC	MIL	0.77	1.04	Bot	NA
## 1535	R	DET	MIN	-1.09	1.85	Bot	79.5
## 1536	L	TEX	TOR	-0.53	3.30	Bot	NA
## 1537	R	CLE	KC	-0.25	3.31	Bot	NA
## 1538	L	BOS	TB	1.15	2.59	Bot	71.5
## 1539	R	CLE	KC	-0.71	2.77	Top	79.9
## 1540	R	PHI	NYM	-0.47	1.99	Top	NA
## 1541	L	SEA	CWS	1.93	2.62	Bot	NA
## 1542	L	NYN	BAL	-0.56	2.91	Bot	107.4

## 1543	L	DET	MIN	-0.42	1.10	Top	NA
## 1544	R	WSH	ATL	0.32	1.01	Top	NA
## 1545	R	OAK	LAD	-0.66	2.33	Bot	NA
## 1546	R	WSH	ATL	-0.22	3.20	Top	NA
## 1547	R	COL	ARI	1.43	1.74	Top	NA
## 1548	L	COL	ARI	0.17	2.96	Bot	NA
## 1549	L	SD	SF	-0.97	2.08	Top	NA
## 1550	R	NYN	BAL	-0.44	1.13	Top	NA
## 1551	R	MIA	STL	-0.38	2.73	Top	NA
## 1552	R	PHI	NYM	-1.35	3.19	Top	NA
## 1553	L	TEX	TOR	-0.45	2.11	Bot	NA
## 1554	L	COL	ARI	-0.56	0.76	Bot	NA
## 1555	R	NYN	BAL	-1.53	3.31	Top	NA
## 1556	R	TEX	TOR	1.74	1.46	Top	NA
## 1557	R	BOS	TB	-0.09	1.54	Bot	63.1
## 1558	L	SD	SF	-0.64	2.33	Top	NA
## 1559	L	NYN	BAL	1.04	1.99	Bot	68.0
## 1560	R	CHC	MIL	0.54	-0.23	Bot	NA
## 1561	R	CHC	MIL	0.38	1.59	Top	NA
## 1562	R	PHI	NYM	-1.62	3.78	Top	NA
## 1563	L	PHI	NYM	-1.06	1.04	Bot	107.0
## 1564	R	MIA	STL	1.08	2.84	Top	NA
## 1565	L	COL	ARI	-0.56	1.32	Bot	NA
## 1566	L	DET	MIN	0.41	1.43	Top	NA
## 1567	L	SEA	CWS	-0.83	0.00	Bot	NA
## 1568	R	CIN	PIT	-0.58	2.47	Bot	NA
## 1569	L	PHI	NYM	-0.55	3.43	Bot	NA
## 1570	R	SEA	CWS	-0.49	4.02	Bot	99.6
## 1571	R	CLE	KC	0.81	1.36	Top	NA
## 1572	R	WSH	ATL	-0.36	2.34	Top	89.9
## 1573	R	SEA	CWS	0.50	1.17	Top	NA
## 1574	R	WSH	ATL	0.32	3.19	Bot	NA
## 1575	R	OAK	LAD	0.39	2.16	Bot	NA
## 1576	R	CLE	KC	0.41	2.72	Bot	76.9
## 1577	L	OAK	LAD	-0.21	2.36	Top	78.4
## 1578	R	MIA	STL	0.24	2.69	Bot	91.8
## 1579	R	WSH	ATL	-0.13	0.38	Top	NA
## 1580	R	BOS	TB	-1.48	3.84	Top	NA
## 1581	R	CIN	PIT	-0.28	2.05	Top	90.3
## 1582	R	COL	ARI	-0.10	2.88	Top	80.4
## 1583	R	SD	SF	-1.24	2.68	Bot	NA
## 1584	L	BOS	TB	-0.44	2.70	Bot	91.5
## 1585	R	DET	MIN	-0.13	3.21	Bot	80.9
## 1586	L	WSH	ATL	-0.27	2.99	Bot	58.6
## 1587	L	NYN	BAL	0.42	2.08	Bot	NA
## 1588	R	CHC	MIL	0.83	3.08	Top	NA
## 1589	L	TEX	TOR	-1.07	1.93	Bot	NA
## 1590	R	CLE	KC	0.51	0.90	Bot	NA
## 1591	R	CHC	MIL	0.88	2.81	Bot	97.8
## 1592	R	CLE	KC	0.61	1.34	Top	NA
## 1593	L	OAK	LAD	0.04	1.05	Top	NA
## 1594	R	WSH	ATL	1.20	0.96	Bot	NA
## 1595	R	BOS	TB	0.66	2.21	Bot	72.7
## 1596	R	MIA	STL	0.39	2.23	Bot	76.1



## 1597	R	SEA	CWS	1.22	2.20	Top	NA
## 1598	R	OAK	LAD	-0.17	3.79	Bot	NA
## 1599	R	DET	MIN	-0.28	2.54	Bot	103.6
## 1600	L	BOS	TB	1.53	2.84	Bot	NA
## 1601	R	CIN	PIT	0.05	1.38	Top	87.3
## 1602	L	PHI	NYM	0.46	2.57	Bot	78.4
## 1603	R	WSH	ATL	-0.03	1.76	Bot	NA
## 1604	R	WSH	ATL	-0.09	1.48	Top	107.4
## 1605	R	CIN	PIT	1.47	0.91	Bot	NA
## 1606	R	SEA	CWS	-0.13	0.21	Bot	NA
## 1607	L	WSH	ATL	0.15	2.41	Bot	NA
## 1608	R	TEX	TOR	-0.43	3.16	Top	NA
## 1609	L	SEA	CWS	0.35	2.59	Bot	80.1
## 1610	R	WSH	ATL	-0.29	1.37	Top	NA
## 1611	R	COL	ARI	0.97	1.76	Top	NA
## 1612	R	PHI	NYM	0.46	1.17	Top	NA
## 1613	R	MIA	STL	-0.33	1.87	Top	NA
## 1614	R	BOS	TB	-0.39	4.03	Top	NA
## 1615	R	NYN	BAL	-0.34	2.22	Top	94.2
## 1616	R	SD	SF	-0.37	2.37	Bot	88.7
## 1617	L	PHI	NYM	1.00	2.12	Bot	76.9
## 1618	L	COL	ARI	-1.21	2.35	Bot	NA
## 1619	L	SD	SF	0.46	2.78	Top	NA
## 1620	L	DET	MIN	0.39	1.93	Top	NA
## 1621	L	COL	ARI	-0.19	3.64	Bot	70.3
## 1622	R	PHI	NYM	0.63	3.26	Top	NA
## 1623	R	CIN	PIT	0.58	2.27	Top	NA
## 1624	L	NYN	BAL	-0.47	3.05	Bot	91.0
## 1625	R	CIN	PIT	1.67	1.47	Bot	NA
## 1626	R	MIA	STL	-0.14	2.50	Top	NA
## 1627	R	WSH	ATL	0.74	3.03	Bot	81.1
## 1628	L	SD	SF	-0.55	1.25	Top	NA
## 1629	R	DET	MIN	-0.93	2.98	Bot	NA
## 1630	R	TEX	TOR	1.62	0.64	Top	NA
## 1631	R	CLE	KC	-0.28	2.13	Bot	68.0
## 1632	R	WSH	ATL	0.63	2.48	Top	72.9
## 1633	L	OAK	LAD	-0.28	1.44	Top	NA
## 1634	L	TEX	TOR	0.54	3.18	Bot	NA
## 1635	L	COL	ARI	0.18	2.96	Bot	73.9
## 1636	R	SEA	CWS	-0.38	3.46	Bot	77.1
## 1637	R	WSH	ATL	0.56	2.70	Top	NA
## 1638	R	MIA	STL	-1.70	3.13	Bot	NA
## 1639	R	WSH	ATL	-0.94	2.05	Bot	83.4
## 1640	R	BOS	TB	0.42	1.76	Top	NA
## 1641	L	COL	ARI	1.02	2.49	Bot	90.1
## 1642	R	CLE	KC	-0.25	2.28	Top	NA
## 1643	R	CHC	MIL	0.30	2.97	Bot	67.2
## 1644	L	DET	MIN	0.44	3.51	Top	NA
## 1645	R	NYN	BAL	0.82	1.35	Top	NA
## 1646	L	BOS	TB	0.48	0.73	Bot	NA
## 1647	R	CHC	MIL	-0.35	1.64	Top	NA
## 1648	L	PHI	NYM	-1.15	1.89	Bot	NA
## 1649	R	SD	SF	-0.20	2.00	Bot	NA
## 1650	L	WSH	ATL	-0.95	2.29	Bot	NA

## 1651	L	PHI	NYM	0.18	1.60	Bot	80.5
## 1652	R	PHI	NYM	0.30	3.65	Top	NA
## 1653	R	PHI	NYM	-0.37	4.60	Top	NA
## 1654	R	DET	MIN	-0.31	2.00	Bot	NA
## 1655	R	COL	ARI	0.40	2.13	Top	NA
## 1656	L	SEA	CWS	0.82	2.05	Bot	NA
## 1657	R	BOS	TB	1.15	2.08	Bot	70.1
## 1658	R	SEA	CWS	-0.48	3.37	Top	NA
## 1659	R	OAK	LAD	0.00	4.09	Bot	NA
## 1660	R	SEA	CWS	1.01	-0.10	Bot	NA
## 1661	R	DET	MIN	-1.05	1.64	Bot	NA
## 1662	L	TEX	TOR	-0.39	1.49	Bot	NA
## 1663	L	SEA	CWS	-0.11	3.03	Bot	NA
## 1664	R	OAK	LAD	0.25	2.15	Bot	NA
## 1665	R	NYN	BAL	0.24	1.32	Bot	NA
## 1666	L	DET	MIN	-0.67	2.49	Top	NA
## 1667	L	COL	ARI	0.31	3.06	Bot	NA
## 1668	L	NYN	BAL	-1.04	3.57	Bot	NA
## 1669	R	CHC	MIL	-0.74	1.94	Top	NA
## 1670	R	MIA	STL	-0.12	2.59	Bot	80.3
## 1671	L	COL	ARI	-1.19	1.50	Bot	NA
## 1672	R	SD	SF	-0.50	2.94	Bot	NA
## 1673	L	OAK	LAD	-1.26	1.58	Top	NA
## 1674	R	BOS	TB	-0.68	2.78	Bot	NA
## 1675	R	WSH	ATL	1.07	-0.45	Bot	NA
## 1676	R	WSH	ATL	0.29	3.06	Top	91.4
## 1677	R	BOS	TB	0.41	1.84	Top	NA
## 1678	R	MIA	STL	-0.49	4.18	Top	NA
## 1679	L	WSH	ATL	-0.48	2.55	Bot	NA
## 1680	R	CLE	KC	0.20	3.10	Bot	74.3
## 1681	R	CHC	MIL	0.19	2.26	Bot	NA
## 1682	R	TEX	TOR	0.41	1.78	Top	NA
## 1683	L	PHI	NYM	-1.02	1.90	Bot	93.3
## 1684	R	CLE	KC	0.63	2.57	Top	91.5
## 1685	R	COL	ARI	0.51	1.02	Top	NA
## 1686	R	PHI	NYM	-0.40	3.19	Top	NA
## 1687	R	CIN	PIT	1.11	2.06	Top	NA
## 1688	R	WSH	ATL	1.21	1.83	Bot	NA
## 1689	R	WSH	ATL	0.39	2.06	Top	79.6
## 1690	L	BOS	TB	0.09	2.07	Bot	NA
## 1691	R	PHI	NYM	-1.40	3.34	Top	79.1
## 1692	R	NYN	BAL	-0.80	3.82	Top	NA
## 1693	R	SEA	CWS	-0.38	1.58	Top	NA
## 1694	R	DET	MIN	0.42	1.17	Bot	NA
## 1695	L	PHI	NYM	-0.24	1.73	Bot	NA
## 1696	L	SD	SF	-0.46	3.94	Top	NA
## 1697	R	CIN	PIT	1.47	0.28	Bot	NA
## 1698	R	WSH	ATL	1.80	2.00	Top	NA
## 1699	R	NYN	BAL	-1.04	2.63	Top	NA
## 1700	L	NYN	BAL	0.51	3.00	Bot	NA
## 1701	R	CIN	PIT	0.00	3.99	Top	34.6
## 1702	R	BOS	TB	0.25	0.76	Bot	NA
## 1703	R	COL	ARI	0.15	2.55	Top	99.0
## 1704	R	WSH	ATL	0.14	1.79	Bot	71.6

## 1705	R	WSH	ATL	1.25	3.22	Bot	NA
## 1706	L	PHI	NYM	-0.21	2.83	Bot	70.7
## 1707	R	CHC	MIL	0.45	2.16	Bot	74.8
## 1708	R	SEA	CWS	1.04	0.69	Top	NA
## 1709	L	COL	ARI	1.08	4.86	Bot	NA
## 1710	R	SEA	CWS	-1.24	0.63	Bot	NA
## 1711	R	CHC	MIL	-0.47	1.72	Top	NA
## 1712	L	TEX	TOR	-0.67	2.89	Bot	101.4
## 1713	R	BOS	TB	0.39	2.07	Top	70.6
## 1714	R	DET	MIN	0.72	2.91	Bot	57.6
## 1715	L	BOS	TB	-1.50	1.09	Top	NA
## 1716	L	SD	SF	0.37	1.46	Top	65.5
## 1717	L	DET	MIN	-0.87	3.18	Top	NA
## 1718	R	TEX	TOR	0.49	1.41	Top	NA
## 1719	L	SEA	CWS	-1.30	0.69	Bot	NA
## 1720	R	PHI	NYM	-1.29	2.50	Top	NA
## 1721	R	CLE	KC	0.06	3.66	Bot	NA
## 1722	R	CLE	KC	0.93	1.80	Top	NA
## 1723	R	NYN	BAL	-0.56	1.71	Bot	63.5
## 1724	R	CIN	PIT	1.18	3.14	Bot	NA
## 1725	R	MIA	STL	-0.12	3.02	Bot	NA
## 1726	R	DET	MIN	0.85	-1.13	Bot	NA
## 1727	R	SD	SF	0.12	3.19	Bot	100.3
## 1728	R	OAK	LAD	0.00	3.46	Bot	NA
## 1729	R	MIA	STL	-0.92	1.99	Top	NA
## 1730	L	WSH	ATL	-0.73	2.44	Bot	NA
## 1731	L	OAK	LAD	-0.80	1.23	Top	NA
## 1732	R	WSH	ATL	1.61	1.64	Top	NA
## 1733	R	PHI	NYM	0.72	2.41	Top	30.4
## 1734	L	PHI	NYM	-0.43	2.63	Bot	NA
## 1735	L	COL	ARI	-0.17	2.41	Bot	NA
## 1736	L	BOS	TB	-0.37	2.46	Bot	100.9
## 1737	L	SD	SF	-0.85	0.05	Top	NA
## 1738	R	BOS	TB	-0.84	2.55	Bot	NA
## 1739	L	PHI	NYM	-0.83	2.06	Bot	NA
## 1740	R	PHI	NYM	0.21	3.63	Top	NA
## 1741	L	DET	MIN	-0.49	2.57	Top	NA
## 1742	R	SEA	CWS	-0.57	2.01	Bot	NA
## 1743	L	BOS	TB	-0.30	2.66	Bot	60.5
## 1744	L	PHI	NYM	0.70	3.63	Bot	NA
## 1745	R	SEA	CWS	1.25	1.57	Top	NA
## 1746	L	COL	ARI	-0.08	1.58	Bot	NA
## 1747	L	WSH	ATL	-0.82	3.56	Bot	NA
## 1748	R	WSH	ATL	0.62	2.47	Top	NA
## 1749	L	TEX	TOR	-0.32	3.93	Bot	NA
## 1750	L	SEA	CWS	-1.09	1.94	Bot	NA
## 1751	R	CLE	KC	-1.92	1.40	Bot	NA
## 1752	R	NYN	BAL	-0.67	2.64	Bot	80.3
## 1753	R	BOS	TB	0.42	1.95	Top	72.3
## 1754	L	NYN	BAL	1.03	1.80	Bot	NA
## 1755	L	COL	ARI	0.55	1.88	Bot	79.5
## 1756	R	TEX	TOR	0.71	1.90	Top	NA
## 1757	R	CLE	KC	0.76	2.35	Top	NA
## 1758	R	DET	MIN	-0.29	2.54	Bot	98.9

## 1759	R	DET	MIN	0.04	1.77	Bot	68.2
## 1760	R	MIA	STL	-1.14	2.76	Top	54.0
## 1761	R	WSH	ATL	0.01	2.30	Bot	NA
## 1762	R	SD	SF	0.04	2.49	Bot	103.2
## 1763	L	BOS	TB	-1.49	2.85	Top	NA
## 1764	R	PHI	NYM	0.07	1.33	Top	NA
## 1765	R	COL	ARI	1.97	0.80	Top	NA
## 1766	R	WSH	ATL	-0.09	1.77	Top	NA
## 1767	L	OAK	LAD	-2.35	0.68	Top	NA
## 1768	R	CIN	PIT	2.70	-0.64	Bot	NA
## 1769	R	NYY	BAL	0.50	2.65	Top	104.9
## 1770	R	CIN	PIT	0.46	2.29	Top	87.0
## 1771	R	CHC	MIL	-0.71	2.63	Top	NA
## 1772	R	OAK	LAD	1.87	0.77	Bot	NA
## 1773	R	CHC	MIL	0.21	1.64	Bot	NA
## 1774	R	WSH	ATL	1.28	1.56	Bot	NA
## 1775	R	MIA	STL	0.17	2.41	Bot	104.2
## 1776	R	COL	ARI	0.47	2.24	Top	96.2
## 1777	L	BOS	TB	-1.16	0.28	Top	NA
## 1778	R	WSH	ATL	1.89	1.54	Top	NA
## 1779	L	TEX	TOR	0.90	2.08	Bot	82.0
## 1780	R	CIN	PIT	-0.64	2.78	Bot	79.0
## 1781	L	NYY	BAL	0.87	3.87	Bot	NA
## 1782	R	OAK	LAD	0.04	2.90	Top	NA
## 1783	L	BOS	TB	-1.52	2.12	Bot	NA
## 1784	R	OAK	LAD	-0.03	2.81	Bot	112.4
## 1785	R	NYY	BAL	-0.73	1.69	Top	NA
## 1786	L	SD	SF	-1.15	-0.17	Top	NA
## 1787	L	OAK	LAD	-0.28	2.41	Top	NA
## 1788	L	PHI	NYM	-1.05	2.48	Bot	NA
## 1789	R	WSH	ATL	2.18	1.69	Bot	NA
## 1790	R	DET	MIN	0.88	1.01	Bot	NA
## 1791	R	WSH	ATL	-0.79	1.41	Top	NA
## 1792	R	CHC	MIL	-0.47	2.49	Top	78.3
## 1793	R	PHI	NYM	-0.73	3.08	Top	NA
## 1794	L	COL	ARI	-0.87	1.71	Bot	NA
## 1795	L	COL	ARI	-0.98	2.93	Bot	NA
## 1796	R	SEA	CWS	0.31	3.58	Bot	78.1
## 1797	R	SD	SF	1.29	1.82	Bot	NA
## 1798	R	WSH	ATL	0.25	1.00	Bot	NA
## 1799	L	DET	MIN	-0.46	2.18	Top	97.1
## 1800	L	PHI	NYM	0.57	2.03	Bot	NA
## 1801	R	DET	MIN	0.25	1.84	Bot	85.1
## 1802	R	MIA	STL	-0.10	3.77	Bot	77.8
## 1803	R	CLE	KC	-0.68	2.20	Bot	NA
## 1804	L	SEA	CWS	-0.93	2.37	Bot	NA
## 1805	R	CLE	KC	1.58	-0.18	Top	NA
## 1806	R	NYY	BAL	0.00	2.24	Bot	99.4
## 1807	L	WSH	ATL	-1.61	1.92	Bot	NA
## 1808	R	SEA	CWS	0.68	2.42	Top	111.9
## 1809	R	BOS	TB	0.55	2.03	Bot	NA
## 1810	R	WSH	ATL	-0.19	2.26	Top	102.6
## 1811	R	CHC	MIL	-0.47	3.96	Bot	NA
## 1812	R	TEX	TOR	-0.66	2.34	Top	82.3

## 1813	R	CIN	PIT	-0.68	1.70	Top	99.7
## 1814	R	BOS	TB	0.97	2.61	Top	NA
## 1815	R	MIA	STL	-1.74	2.90	Top	69.5
## 1816	R	PHI	NYM	1.73	-0.53	Top	NA
## 1817	L	TEX	TOR	0.47	1.87	Bot	NA
## 1818	R	WSH	ATL	1.29	0.39	Top	NA
## 1819	L	BOS	TB	1.08	1.73	Bot	84.3
## 1820	R	BOS	TB	0.22	2.02	Top	39.8
## 1821	L	COL	ARI	0.21	1.44	Bot	85.8
## 1822	R	MIA	STL	-0.95	2.83	Top	NA
## 1823	R	WSH	ATL	0.43	0.82	Top	NA
## 1824	L	DET	MIN	-1.82	0.40	Top	NA
## 1825	L	SD	SF	-0.22	0.31	Top	NA
## 1826	R	DET	MIN	-0.52	2.57	Bot	106.7
## 1827	R	WSH	ATL	0.92	1.05	Bot	NA
## 1828	R	COL	ARI	0.41	1.56	Top	NA
## 1829	L	SEA	CWS	1.06	2.50	Bot	47.7
## 1830	L	COL	ARI	-1.35	1.97	Bot	NA
## 1831	R	OAK	LAD	-0.19	2.36	Top	72.6
## 1832	R	CLE	KC	0.49	1.91	Bot	98.3
## 1833	R	NYN	BAL	1.40	3.01	Bot	NA
## 1834	R	OAK	LAD	0.92	1.59	Bot	NA
## 1835	L	PHI	NYM	-1.42	2.44	Bot	NA
## 1836	R	SD	SF	0.36	1.91	Bot	NA
## 1837	R	CLE	KC	0.36	1.65	Top	NA
## 1838	R	NYN	BAL	1.60	1.74	Top	NA
## 1839	R	WSH	ATL	-0.07	1.10	Bot	NA
## 1840	L	WSH	ATL	-0.95	3.19	Bot	NA
## 1841	R	SEA	CWS	-0.72	1.81	Bot	NA
## 1842	R	PHI	NYM	-0.19	1.58	Top	68.3
## 1843	R	PHI	NYM	1.38	1.87	Top	NA
## 1844	R	DET	MIN	-1.09	3.06	Bot	NA
## 1845	R	CHC	MIL	0.08	1.81	Bot	95.0
## 1846	L	BOS	TB	-0.95	2.85	Top	NA
## 1847	R	BOS	TB	0.30	1.93	Bot	NA
## 1848	R	CIN	PIT	-0.27	1.10	Top	NA
## 1849	R	MIA	STL	-1.45	2.56	Bot	NA
## 1850	R	WSH	ATL	-0.28	2.26	Top	99.1
## 1851	L	OAK	LAD	-0.22	2.24	Top	106.5
## 1852	L	NYN	BAL	-1.38	3.20	Bot	NA
## 1853	R	CHC	MIL	-1.20	2.86	Top	NA
## 1854	L	PHI	NYM	0.41	0.33	Bot	NA
## 1855	R	MIA	STL	-0.49	2.88	Top	102.2
## 1856	R	TEX	TOR	-1.51	2.26	Top	NA
## 1857	R	SEA	CWS	0.79	0.38	Top	NA
## 1858	R	CIN	PIT	0.45	1.51	Bot	NA
## 1859	R	NYN	BAL	1.79	0.92	Top	NA
## 1860	R	WSH	ATL	-0.61	2.51	Top	53.8
## 1861	L	BOS	TB	-0.79	2.30	Top	NA
## 1862	R	BOS	TB	0.33	1.20	Top	NA
## 1863	R	SD	SF	-0.20	4.29	Bot	NA
## 1864	R	SEA	CWS	0.66	4.03	Bot	NA
## 1865	R	NYN	BAL	1.56	1.88	Bot	NA
## 1866	R	MIA	STL	-1.01	1.70	Top	77.7

## 1867	R	MIA	STL	-1.16	3.72	Bot	NA
## 1868	R	NYN	BAL	-0.10	1.24	Top	NA
## 1869	R	WSH	ATL	0.01	1.24	Top	NA
## 1870	L	COL	ARI	0.13	2.57	Bot	NA
## 1871	R	WSH	ATL	1.44	0.45	Top	NA
## 1872	R	CIN	PIT	-0.64	2.44	Top	NA
## 1873	L	BOS	TB	-1.16	2.42	Bot	71.7
## 1874	R	PHI	NYM	-0.55	2.64	Top	NA
## 1875	L	PHI	NYM	-1.18	1.18	Bot	NA
## 1876	R	WSH	ATL	-0.47	1.14	Bot	NA
## 1877	R	DET	MIN	-0.19	1.74	Bot	99.7
## 1878	L	OAK	LAD	-1.22	0.52	Top	NA
## 1879	R	WSH	ATL	1.00	2.80	Bot	NA
## 1880	R	CHC	MIL	0.22	2.86	Top	NA
## 1881	R	DET	MIN	0.16	1.23	Bot	NA
## 1882	L	PHI	NYM	0.09	1.66	Bot	64.1
## 1883	R	CIN	PIT	0.66	2.75	Bot	78.1
## 1884	R	CLE	KC	-1.37	3.30	Bot	NA
## 1885	L	SEA	CWS	-0.74	1.44	Bot	NA
## 1886	R	SEA	CWS	-0.30	2.10	Top	66.4
## 1887	L	DET	MIN	-0.20	3.65	Top	NA
## 1888	L	COL	ARI	-0.41	2.60	Bot	NA
## 1889	L	TEX	TOR	-0.87	2.77	Bot	67.3
## 1890	R	BOS	TB	-0.53	1.70	Bot	NA
## 1891	R	CLE	KC	-0.63	2.47	Top	NA
## 1892	R	TEX	TOR	-1.18	2.58	Top	NA
## 1893	R	PHI	NYM	0.83	1.40	Top	34.4
## 1894	R	NYN	BAL	1.85	1.56	Top	NA
## 1895	R	OAK	LAD	1.33	0.93	Bot	NA
## 1896	R	OAK	LAD	-0.66	2.50	Top	75.0
## 1897	R	CHC	MIL	-1.17	3.29	Bot	NA
## 1898	R	MIA	STL	-2.00	2.36	Top	NA
## 1899	L	SD	SF	0.80	1.10	Top	NA
## 1900	L	NYN	BAL	-0.54	2.80	Bot	51.2
## 1901	R	CLE	KC	0.35	2.26	Bot	NA
## 1902	L	WSH	ATL	-0.06	3.16	Bot	90.6
## 1903	R	COL	ARI	-0.84	2.79	Top	62.4
## 1904	L	SEA	CWS	-0.03	2.83	Bot	72.9
## 1905	R	WSH	ATL	-0.17	2.58	Top	95.9
## 1906	R	CIN	PIT	-0.87	3.54	Top	NA
## 1907	R	SD	SF	-1.56	2.16	Bot	NA
## 1908	L	BOS	TB	0.22	2.86	Bot	61.3
## 1909	L	PHI	NYM	-1.09	1.63	Bot	NA
## 1910	R	PHI	NYM	-0.38	4.03	Top	NA
## 1911	R	COL	ARI	-0.07	1.80	Top	NA
## 1912	R	CIN	PIT	0.09	1.52	Bot	NA
## 1913	R	PHI	NYM	-0.64	2.76	Top	NA
## 1914	L	PHI	NYM	-0.28	2.61	Bot	58.7
## 1915	R	NYN	BAL	-0.17	4.00	Top	71.2
## 1916	R	MIA	STL	0.79	2.45	Top	NA
## 1917	R	BOS	TB	1.42	1.00	Bot	NA
## 1918	L	TEX	TOR	0.80	1.86	Bot	77.3
## 1919	L	BOS	TB	-0.69	2.67	Top	70.6
## 1920	R	MIA	STL	1.18	2.31	Bot	75.5

## 1921	R	CHC	MIL	0.26	2.63	Bot	NA
## 1922	R	WSH	ATL	0.45	2.13	Top	NA
## 1923	R	CHC	MIL	1.43	1.49	Bot	NA
## 1924	R	NYN	BAL	0.10	1.26	Bot	NA
## 1925	R	OAK	LAD	0.11	3.62	Bot	NA
## 1926	L	COL	ARI	0.82	3.97	Bot	NA
## 1927	L	DET	MIN	0.43	2.10	Top	NA
## 1928	L	WSH	ATL	-0.81	1.97	Bot	NA
## 1929	R	WSH	ATL	0.87	1.56	Bot	NA
## 1930	R	SEA	CWS	0.62	1.14	Top	NA
## 1931	R	CHC	MIL	1.01	1.86	Top	95.0
## 1932	L	COL	ARI	-0.24	1.80	Bot	NA
## 1933	R	MIA	STL	0.14	3.93	Top	NA
## 1934	R	TEX	TOR	-0.78	2.36	Top	NA
## 1935	L	SD	SF	0.02	3.06	Top	100.5
## 1936	R	MIA	STL	0.36	2.95	Bot	99.8
## 1937	R	CLE	KC	0.01	3.72	Bot	NA
## 1938	R	SEA	CWS	0.58	2.92	Bot	85.1
## 1939	R	CLE	KC	0.92	-0.20	Bot	NA
## 1940	R	BOS	TB	-0.12	1.33	Top	92.8
## 1941	R	WSH	ATL	0.60	1.90	Bot	NA
## 1942	R	NYN	BAL	0.13	3.01	Top	NA
## 1943	R	WSH	ATL	-0.36	2.46	Top	NA
## 1944	L	OAK	LAD	-0.78	1.73	Top	NA
## 1945	L	NYN	BAL	-0.03	2.82	Bot	NA
## 1946	R	SEA	CWS	-0.91	2.03	Top	93.3
## 1947	R	DET	MIN	-0.98	1.93	Bot	NA
## 1948	R	OAK	LAD	-1.57	2.86	Top	NA
## 1949	R	DET	MIN	0.54	0.06	Bot	NA
## 1950	R	CLE	KC	0.01	3.31	Top	73.0
## 1951	R	BOS	TB	-0.17	1.88	Top	79.3
## 1952	R	DET	MIN	0.63	0.30	Bot	NA
## 1953	R	CLE	KC	0.28	1.03	Bot	NA
## 1954	R	SEA	CWS	1.00	2.82	Top	NA
## 1955	R	WSH	ATL	0.48	2.48	Top	74.6
## 1956	L	BOS	TB	1.49	1.85	Bot	NA
## 1957	R	COL	ARI	0.99	2.57	Top	NA
## 1958	R	CHC	MIL	-0.19	3.35	Bot	84.3
## 1959	L	COL	ARI	0.49	2.30	Bot	NA
## 1960	R	TEX	TOR	1.02	2.69	Top	NA
## 1961	R	CLE	KC	-0.92	3.30	Bot	96.4
## 1962	R	WSH	ATL	1.16	-0.50	Top	NA
## 1963	R	MIA	STL	-0.29	1.37	Top	NA
## 1964	L	TEX	TOR	1.20	2.47	Bot	73.8
## 1965	R	WSH	ATL	0.53	1.14	Bot	58.7
## 1966	L	PHI	NYM	-0.37	1.53	Bot	NA
## 1967	R	PHI	NYM	-0.68	1.31	Top	77.3
## 1968	L	NYN	BAL	-0.13	3.00	Bot	NA
## 1969	L	SD	SF	0.84	1.74	Top	NA
## 1970	R	WSH	ATL	0.18	1.21	Bot	NA
## 1971	R	OAK	LAD	-0.50	3.29	Bot	NA
## 1972	R	CHC	MIL	-0.81	3.09	Top	60.3
## 1973	R	SD	SF	-0.18	3.14	Bot	77.2
## 1974	R	NYN	BAL	0.02	2.94	Top	NA

## 1975	R	CHC	MIL	0.76	1.23	Bot	NA
## 1976	L	WSH	ATL	0.12	2.99	Bot	NA
## 1977	L	OAK	LAD	-0.75	1.84	Top	NA
## 1978	R	OAK	LAD	-0.10	2.79	Top	NA
## 1979	R	DET	MIN	0.61	3.00	Bot	69.3
## 1980	R	NYN	BAL	0.01	2.76	Top	71.0
## 1981	L	SEA	CWS	-1.08	2.97	Bot	NA
## 1982	L	PHI	NYN	-1.10	1.31	Bot	NA
## 1983	R	TEX	TOR	-0.64	3.21	Top	85.7
## 1984	R	MIA	STL	0.81	1.85	Bot	NA
## 1985	R	MIA	STL	-0.41	3.78	Top	NA
## 1986	R	PHI	NYN	-1.27	4.54	Top	NA
## 1987	R	CIN	PIT	0.15	0.58	Bot	NA
## 1988	L	BOS	TB	-1.16	2.03	Top	NA
## 1989	R	CLE	KC	-0.66	4.61	Top	NA
## 1990	R	MIA	STL	0.54	3.27	Bot	NA
## 1991	L	COL	ARI	0.12	4.32	Bot	NA
## 1992	R	NYN	BAL	-0.33	2.17	Bot	NA
## 1993	R	CIN	PIT	-0.15	1.45	Top	NA
## 1994	R	BOS	TB	1.24	1.68	Bot	NA
## 1995	R	CLE	KC	1.31	1.46	Bot	NA
## 1996	R	CHC	MIL	0.55	2.06	Bot	73.5
## 1997	R	WSH	ATL	1.51	1.64	Top	NA
## 1998	L	DET	MIN	-0.20	2.22	Top	NA
## 1999	R	CIN	PIT	-0.04	2.45	Bot	97.7
## 2000	R	SEA	CWS	-0.15	0.36	Bot	NA
## 2001	R	PHI	NYN	-0.02	3.29	Top	NA
## 2002	R	SEA	CWS	0.16	0.66	Top	36.4
## 2003	R	NYN	BAL	0.68	3.47	Top	79.0
## 2004	R	CHC	MIL	1.72	1.39	Bot	NA
## 2005	R	CLE	KC	-0.94	3.56	Top	NA
## 2006	R	CHC	MIL	0.41	1.89	Bot	NA
## 2007	R	CLE	KC	0.31	1.44	Bot	67.5
## 2008	R	SD	SF	-0.37	2.04	Bot	NA
## 2009	R	WSH	ATL	-0.72	3.06	Top	88.9
## 2010	R	SEA	CWS	-0.01	3.85	Bot	78.5
## 2011	R	PHI	NYN	-1.57	3.89	Top	NA
## 2012	L	COL	ARI	0.46	3.81	Bot	NA
## 2013	R	NYN	BAL	-0.21	3.33	Bot	NA
## 2014	R	CIN	PIT	-0.43	4.08	Bot	NA
## 2015	R	SEA	CWS	1.24	0.44	Top	NA
## 2016	L	BOS	TB	0.15	2.48	Bot	NA
## 2017	L	COL	ARI	-0.33	2.67	Bot	NA
## 2018	R	TEX	TOR	1.74	0.53	Top	NA
## 2019	L	SEA	CWS	0.82	2.48	Bot	83.2
## 2020	R	CLE	KC	0.91	1.58	Bot	NA
## 2021	R	OAK	LAD	1.09	1.51	Bot	NA
## 2022	L	DET	MIN	-0.20	2.70	Top	67.4
## 2023	R	WSH	ATL	1.03	1.61	Top	NA
## 2024	R	WSH	ATL	0.43	2.75	Bot	76.1
## 2025	R	SEA	CWS	0.36	1.93	Top	100.8
## 2026	R	DET	MIN	-1.31	1.34	Bot	NA
## 2027	R	WSH	ATL	-0.83	2.06	Top	NA
## 2028	L	OAK	LAD	-1.39	1.20	Top	NA



## 2029	R	NYN	BAL	0.06	2.24	Top	NA
## 2030	L	PHI	NYM	-0.19	0.61	Bot	NA
## 2031	R	TEX	TOR	-0.28	3.13	Top	69.4
## 2032	L	BOS	TB	-1.67	2.90	Top	NA
## 2033	R	CIN	PIT	0.54	2.00	Bot	NA
## 2034	R	MIA	STL	-0.97	1.63	Top	82.0
## 2035	R	CHC	MIL	1.00	1.04	Top	NA
## 2036	R	CHC	MIL	0.48	1.19	Bot	NA
## 2037	R	WSH	ATL	0.55	3.04	Bot	73.6
## 2038	L	NYN	BAL	0.31	2.95	Bot	101.7
## 2039	R	CIN	PIT	-1.05	3.96	Top	NA
## 2040	R	BOS	TB	-0.88	3.05	Top	NA
## 2041	L	WSH	ATL	-0.50	1.93	Bot	82.0
## 2042	R	MIA	STL	0.87	3.05	Top	NA
## 2043	R	OAK	LAD	0.25	1.02	Top	NA
## 2044	R	BOS	TB	2.45	1.66	Bot	NA
## 2045	R	PHI	NYM	-0.49	2.42	Top	NA
## 2046	L	TEX	TOR	0.28	1.39	Bot	NA
## 2047	R	SEA	CWS	-1.58	2.81	Top	NA
## 2048	R	PHI	NYM	0.86	3.09	Top	55.7
## 2049	R	DET	MIN	-0.62	1.78	Bot	71.5
## 2050	R	MIA	STL	0.20	3.31	Bot	88.7
## 2051	L	PHI	NYM	0.25	2.76	Bot	110.9
## 2052	R	MIA	STL	0.70	2.33	Bot	98.0
## 2053	R	COL	ARI	0.16	3.07	Top	78.4
## 2054	R	CLE	KC	-1.14	3.51	Bot	NA
## 2055	L	SD	SF	-0.40	2.21	Top	83.6
## 2056	R	SEA	CWS	0.26	2.20	Bot	70.9
## 2057	L	PHI	NYM	-0.20	2.12	Bot	NA
## 2058	L	PHI	NYM	0.66	3.29	Bot	NA
## 2059	R	WSH	ATL	0.77	1.70	Top	NA
## 2060	R	DET	MIN	0.37	2.95	Top	79.4
## 2061	L	SEA	CWS	0.38	1.14	Bot	75.1
## 2062	R	NYN	BAL	-0.12	1.77	Bot	NA
## 2063	R	WSH	ATL	-0.40	2.91	Top	88.6
## 2064	R	CIN	PIT	0.12	4.18	Bot	NA
## 2065	L	COL	ARI	-0.50	3.41	Bot	NA
## 2066	R	CLE	KC	0.37	1.60	Bot	NA
## 2067	R	CHC	MIL	-0.98	1.59	Bot	NA
## 2068	L	SD	SF	-0.44	2.76	Top	100.4
## 2069	L	NYN	BAL	-1.33	2.00	Bot	NA
## 2070	R	DET	MIN	-1.23	2.23	Bot	NA
## 2071	R	SD	SF	-0.50	1.20	Bot	NA
## 2072	L	OAK	LAD	0.11	2.05	Top	76.3
## 2073	L	DET	MIN	0.27	1.42	Top	NA
## 2074	R	CLE	KC	-0.20	3.23	Top	79.1
## 2075	R	COL	ARI	-1.23	3.08	Top	NA
## 2076	R	SEA	CWS	-0.13	2.94	Top	88.2
## 2077	R	PHI	NYM	0.73	0.85	Top	NA
## 2078	R	CHC	MIL	0.85	1.65	Top	NA
## 2079	R	OAK	LAD	1.43	1.55	Bot	NA
## 2080	L	COL	ARI	-1.01	1.97	Bot	NA
## 2081	R	MIA	STL	-0.82	2.54	Top	73.9
## 2082	R	CHC	MIL	0.78	2.01	Top	93.9

## 2083	R	SEA	CWS	-0.28	1.85	Top	NA
## 2084	L	BOS	TB	-0.34	3.60	Bot	NA
## 2085	R	CHC	MIL	-0.24	2.43	Bot	NA
## 2086	R	MIA	STL	1.31	-0.19	Bot	NA
## 2087	R	CIN	PIT	-1.07	2.79	Top	76.2
## 2088	R	BOS	TB	-0.98	4.46	Top	NA
## 2089	R	TEX	TOR	0.76	2.43	Top	NA
## 2090	R	BOS	TB	0.11	1.87	Bot	106.9
## 2091	R	NYN	BAL	-1.38	3.93	Top	NA
## 2092	R	CHC	MIL	0.59	1.91	Bot	75.9
## 2093	L	WSH	ATL	-0.68	2.10	Bot	NA
## 2094	R	SEA	CWS	-2.46	2.97	Top	NA
## 2095	R	OAK	LAD	-0.33	3.12	Top	NA
## 2096	R	PHI	NYM	0.44	2.43	Top	73.5
## 2097	R	CLE	KC	0.08	2.63	Bot	88.7
## 2098	R	WSH	ATL	0.78	2.10	Bot	40.4
## 2099	R	DET	MIN	-0.75	2.76	Bot	NA
## 2100	R	MIA	STL	-0.65	2.32	Top	NA
## 2101	R	PHI	NYM	-1.34	1.96	Top	NA
## 2102	R	WSH	ATL	-0.51	3.02	Bot	NA
## 2103	L	MIA	STL	0.97	1.59	Bot	75.5
## 2104	R	TEX	TOR	1.44	1.92	Top	NA
## 2105	R	CLE	KC	-1.12	2.92	Bot	NA
## 2106	R	NYN	BAL	0.39	2.18	Bot	91.3
## 2107	R	WSH	ATL	-0.16	1.41	Top	NA
## 2108	R	CIN	PIT	-0.06	2.22	Bot	74.1
## 2109	R	MIA	STL	0.90	2.88	Bot	85.1
## 2110	R	NYN	BAL	0.17	2.34	Top	72.8
## 2111	L	BOS	TB	0.04	0.94	Top	NA
## 2112	R	WSH	ATL	0.48	4.87	Bot	NA
## 2113	R	OAK	LAD	-0.96	2.71	Bot	48.8
## 2114	L	TEX	TOR	1.03	3.86	Bot	NA
## 2115	R	MIA	STL	0.24	1.77	Bot	55.3
## 2116	R	DET	MIN	0.53	1.93	Bot	93.9
## 2117	R	SEA	CWS	-0.70	1.65	Top	NA
## 2118	R	WSH	ATL	0.06	1.41	Top	NA
## 2119	L	SD	SF	0.59	3.04	Top	NA
## 2120	L	PHI	NYM	-0.32	1.19	Bot	NA
## 2121	R	WSH	ATL	0.79	2.45	Bot	87.7
## 2122	R	CHC	MIL	1.43	2.66	Bot	NA
## 2123	L	SEA	CWS	0.43	0.96	Bot	NA
## 2124	R	WSH	ATL	1.30	1.54	Top	NA
## 2125	R	TEX	TOR	1.00	1.15	Top	NA
## 2126	R	CHC	MIL	-0.91	2.12	Top	68.1
## 2127	R	DET	MIN	0.30	3.47	Top	NA
## 2128	R	BOS	TB	-0.45	3.07	Top	78.3
## 2129	R	CHC	MIL	0.49	2.01	Bot	88.0
## 2130	L	BOS	TB	-0.40	2.18	Top	NA
## 2131	R	CHC	MIL	-0.36	1.47	Bot	NA
## 2132	R	PHI	NYM	-0.53	2.46	Top	109.0
## 2133	R	CLE	KC	-1.20	3.21	Bot	NA
## 2134	R	SD	SF	0.47	3.40	Bot	NA
## 2135	R	MIA	STL	-1.52	1.87	Top	NA
## 2136	L	COL	ARI	1.48	2.21	Bot	68.0

## 2137	R	CLE	KC	0.03	2.09	Bot	70.9
## 2138	L	NYN	BAL	-1.01	1.22	Bot	NA
## 2139	R	PHI	NYM	-0.22	3.35	Top	72.5
## 2140	R	NYN	BAL	0.16	0.69	Top	NA
## 2141	R	SEA	CWS	0.09	3.27	Bot	78.4
## 2142	R	CIN	PIT	-0.70	2.36	Bot	NA
## 2143	R	CLE	KC	-1.23	3.92	Top	NA
## 2144	L	BOS	TB	0.48	2.00	Bot	82.2
## 2145	R	TEX	TOR	1.25	0.27	Top	NA
## 2146	R	CLE	KC	0.60	2.71	Bot	NA
## 2147	R	MIA	STL	-0.90	2.01	Bot	NA
## 2148	R	CIN	PIT	-0.89	3.67	Bot	NA
## 2149	R	SEA	CWS	-1.54	3.00	Top	54.9
## 2150	R	OAK	LAD	-1.32	2.58	Top	NA
## 2151	R	CHC	MIL	-1.46	2.46	Top	70.0
## 2152	L	TEX	TOR	-0.28	2.03	Bot	101.1
## 2153	R	COL	ARI	1.96	0.56	Top	NA
## 2154	R	WSH	ATL	0.18	2.92	Top	NA
## 2155	R	OAK	LAD	1.18	3.60	Bot	NA
## 2156	L	PHI	NYM	-0.25	2.92	Bot	NA
## 2157	R	DET	MIN	-1.06	3.02	Bot	NA
## 2158	L	DET	MIN	0.36	1.05	Top	NA
## 2159	L	WSH	ATL	-1.07	1.56	Bot	77.5
## 2160	R	NYN	BAL	1.53	0.39	Bot	NA
## 2161	R	MIA	STL	-0.43	2.41	Top	80.8
## 2162	R	OAK	LAD	0.34	3.02	Bot	NA
## 2163	R	SEA	CWS	-0.56	1.78	Top	NA
## 2164	L	OAK	LAD	-0.42	2.30	Top	76.3
## 2165	R	PHI	NYM	-0.07	1.87	Top	NA
## 2166	L	NYN	BAL	0.42	2.39	Bot	71.2
## 2167	R	NYN	BAL	-1.08	3.70	Top	NA
## 2168	R	WSH	ATL	-0.28	0.79	Top	NA
## 2169	R	BOS	TB	-1.02	2.73	Bot	NA
## 2170	R	WSH	ATL	0.14	1.01	Bot	NA
## 2171	L	WSH	ATL	0.32	2.73	Bot	NA
## 2172	L	COL	ARI	-0.58	2.57	Bot	NA
## 2173	L	MIA	STL	1.77	3.22	Bot	NA
## 2174	R	WSH	ATL	-0.51	2.04	Bot	NA
## 2175	R	CIN	PIT	0.40	1.50	Top	90.2
## 2176	R	PHI	NYM	0.65	2.89	Bot	85.0
## 2177	R	NYN	BAL	0.40	2.69	Bot	NA
## 2178	R	NYN	BAL	0.12	2.40	Bot	65.5
## 2179	R	MIA	STL	0.68	1.73	Bot	NA
## 2180	R	PHI	NYM	0.01	3.70	Top	NA
## 2181	R	OAK	LAD	-1.68	3.49	Top	NA
## 2182	R	DET	MIN	1.06	1.76	Top	82.6
## 2183	R	CLE	KC	0.80	1.69	Bot	NA
## 2184	L	BOS	TB	-0.87	1.32	Top	NA
## 2185	R	SEA	CWS	-1.46	2.05	Bot	NA
## 2186	R	WSH	ATL	1.00	1.61	Bot	NA
## 2187	R	NYN	BAL	0.82	1.19	Bot	NA
## 2188	R	TEX	TOR	-0.07	1.52	Top	NA
## 2189	L	BOS	TB	0.37	0.24	Bot	NA
## 2190	R	COL	ARI	-0.63	1.78	Top	NA

## 2191	R	CLE	KC	0.66	3.08	Top	NA
## 2192	R	CIN	PIT	0.81	2.61	Bot	76.6
## 2193	L	SD	SF	1.04	2.35	Top	72.4
## 2194	R	WSH	ATL	-0.60	2.67	Top	NA
## 2195	R	MIA	STL	0.67	3.24	Bot	94.5
## 2196	L	MIA	STL	-0.41	1.93	Bot	101.2
## 2197	R	WSH	ATL	0.64	1.55	Top	NA
## 2198	R	CHC	MIL	1.32	0.89	Top	NA
## 2199	R	CIN	PIT	1.72	1.05	Bot	NA
## 2200	R	PHI	NYM	-0.36	1.86	Top	103.2
## 2201	R	OAK	LAD	1.46	3.39	Bot	NA
## 2202	R	CIN	PIT	-0.43	2.53	Bot	91.2
## 2203	R	WSH	ATL	-0.25	2.92	Top	88.2
## 2204	L	PHI	NYM	0.17	1.94	Bot	NA
## 2205	R	MIA	STL	0.77	1.24	Top	NA
## 2206	R	CHC	MIL	0.26	0.84	Bot	NA
## 2207	L	CIN	PIT	-0.24	1.38	Top	NA
## 2208	R	OAK	LAD	-0.18	2.58	Bot	102.3
## 2209	L	COL	ARI	0.38	2.56	Bot	76.3
## 2210	R	SEA	CWS	-0.33	1.35	Top	96.8
## 2211	R	WSH	ATL	-0.40	2.50	Bot	87.4
## 2212	R	CIN	PIT	-0.64	2.22	Top	NA
## 2213	R	CHC	MIL	1.41	2.92	Top	NA
## 2214	R	SD	SF	-1.01	3.42	Bot	NA
## 2215	L	NYN	BAL	-0.54	1.02	Bot	NA
## 2216	L	TEX	TOR	-0.84	2.75	Bot	88.0
## 2217	L	PHI	NYM	-0.46	2.74	Bot	NA
## 2218	R	CLE	KC	0.51	2.03	Bot	69.5
## 2219	R	SEA	CWS	0.33	1.97	Top	90.4
## 2220	L	WSH	ATL	-1.56	0.22	Bot	NA
## 2221	R	PHI	NYM	-1.64	3.30	Top	NA
## 2222	R	MIA	STL	-0.49	1.35	Top	NA
## 2223	L	COL	ARI	-0.43	2.85	Bot	NA
## 2224	R	NYN	BAL	0.29	3.06	Top	66.9
## 2225	R	BOS	TB	0.40	1.28	Bot	NA
## 2226	L	DET	MIN	0.69	2.08	Top	NA
## 2227	R	TEX	TOR	1.43	1.10	Top	NA
## 2228	R	CLE	KC	0.02	0.45	Bot	NA
## 2229	R	CHC	MIL	-0.02	2.82	Bot	NA
## 2230	R	DET	MIN	-0.92	3.37	Bot	NA
## 2231	R	NYN	BAL	-0.70	1.62	Top	NA
## 2232	R	NYN	BAL	-0.36	1.56	Top	NA
## 2233	L	SEA	CWS	2.23	3.70	Bot	NA
## 2234	R	DET	MIN	-1.71	3.00	Bot	67.1
## 2235	L	NYN	BAL	-0.64	2.74	Bot	NA
## 2236	R	SEA	CWS	-0.99	2.92	Top	NA
## 2237	L	SD	SF	0.14	3.62	Top	101.8
## 2238	R	CLE	KC	-0.24	2.21	Bot	106.7
## 2239	L	OAK	LAD	-0.87	2.66	Top	NA
## 2240	L	WSH	ATL	-0.47	2.13	Bot	NA
## 2241	R	BOS	TB	-0.61	2.19	Top	89.1
## 2242	R	WSH	ATL	0.16	2.92	Bot	74.5
## 2243	R	WSH	ATL	1.16	0.57	Top	NA
## 2244	R	PHI	NYM	1.29	2.82	Bot	NA

## 2245	R	CHC	MIL	0.15	3.93	Bot	67.4
## 2246	L	MIA	STL	1.42	5.33	Bot	NA
## 2247	R	MIA	STL	-0.70	2.04	Top	88.0
## 2248	R	CIN	PIT	0.46	0.92	Bot	NA
## 2249	L	OAK	LAD	0.22	0.90	Top	NA
## 2250	L	SEA	CWS	1.39	2.23	Bot	NA
## 2251	L	SD	SF	0.54	0.98	Top	NA
## 2252	R	OAK	LAD	0.12	3.21	Top	90.4
## 2253	R	PHI	NYM	1.21	3.55	Top	NA
## 2254	R	CLE	KC	0.85	1.84	Top	NA
## 2255	R	WSH	ATL	0.85	2.36	Bot	NA
## 2256	R	SEA	CWS	-2.57	2.72	Top	NA
## 2257	R	MIA	STL	0.35	2.56	Bot	NA
## 2258	R	DET	MIN	1.48	0.62	Bot	NA
## 2259	R	TEX	TOR	0.99	1.77	Top	NA
## 2260	R	MIA	STL	0.51	1.06	Top	NA
## 2261	R	OAK	LAD	1.08	0.92	Bot	NA
## 2262	R	CLE	KC	1.03	3.10	Bot	81.5
## 2263	R	CLE	KC	0.33	1.50	Bot	NA
## 2264	R	SEA	CWS	-0.17	4.05	Bot	NA
## 2265	R	DET	MIN	0.00	1.91	Bot	109.7
## 2266	R	CIN	PIT	0.61	3.33	Bot	NA
## 2267	L	WSH	ATL	-0.41	3.76	Bot	73.4
## 2268	R	WSH	ATL	1.76	0.37	Top	NA
## 2269	R	CIN	PIT	0.35	1.46	Top	NA
## 2270	R	WSH	ATL	-1.70	1.99	Top	NA
## 2271	R	NYY	BAL	0.52	3.90	Top	NA
## 2272	R	COL	ARI	-0.68	3.17	Top	NA
## 2273	L	SD	SF	0.17	3.69	Top	NA
## 2274	L	PHI	NYM	0.40	1.22	Bot	NA
## 2275	R	NYY	BAL	-0.16	2.03	Bot	110.1
## 2276	L	WSH	ATL	-1.18	2.07	Bot	NA
## 2277	R	CHC	MIL	-1.29	3.56	Bot	NA
## 2278	L	NYY	BAL	1.27	2.28	Bot	NA
## 2279	R	CHC	MIL	-1.10	3.66	Top	NA
## 2280	L	BOS	TB	-0.33	1.34	Top	97.8
## 2281	R	PHI	NYM	0.39	2.96	Bot	83.4
## 2282	R	PHI	NYM	-0.22	4.71	Top	NA
## 2283	R	CIN	PIT	0.40	2.76	Bot	101.4
## 2284	L	COL	ARI	-0.12	3.49	Bot	NA
## 2285	R	NYY	BAL	-0.25	2.07	Bot	71.7
## 2286	R	CLE	KC	-0.78	2.49	Bot	114.7
## 2287	R	WSH	ATL	-0.90	2.10	Bot	NA
## 2288	R	CHC	MIL	1.27	1.18	Bot	NA
## 2289	R	PHI	NYM	2.57	1.74	Bot	NA
## 2290	R	WSH	ATL	-0.76	1.14	Bot	NA
## 2291	R	BOS	TB	0.49	1.14	Bot	NA
## 2292	R	SEA	CWS	-0.58	3.90	Top	NA
## 2293	R	CHC	MIL	0.35	1.91	Bot	101.2
## 2294	L	CIN	PIT	0.75	2.82	Top	NA
## 2295	R	SD	SF	-1.18	2.81	Bot	NA
## 2296	R	SEA	CWS	0.16	1.51	Top	NA
## 2297	R	MIA	STL	0.66	2.99	Bot	NA
## 2298	R	NYY	BAL	-0.43	2.10	Top	NA

## 2299	R	OAK	LAD	0.57	2.90	Bot	94.4
## 2300	L	DET	MIN	0.76	2.48	Top	96.4
## 2301	R	WSH	ATL	-0.45	3.33	Top	NA
## 2302	L	PHI	NYM	-0.09	1.41	Bot	NA
## 2303	R	OAK	LAD	0.16	3.65	Bot	NA
## 2304	L	NYN	BAL	-0.78	1.58	Bot	NA
## 2305	R	DET	MIN	1.52	2.99	Top	NA
## 2306	R	TEX	TOR	-0.48	2.90	Top	NA
## 2307	R	TEX	TOR	-0.46	1.93	Top	80.9
## 2308	R	CHC	MIL	2.06	-0.99	Top	NA
## 2309	R	WSH	ATL	-0.53	3.06	Top	NA
## 2310	L	BOS	TB	1.88	2.56	Bot	NA
## 2311	R	NYN	BAL	-0.91	1.31	Top	NA
## 2312	R	BOS	TB	0.61	2.10	Top	NA
## 2313	L	TEX	TOR	-0.74	2.35	Bot	NA
## 2314	R	CLE	KC	1.72	0.03	Bot	NA
## 2315	L	COL	ARI	-0.31	3.14	Bot	71.9
## 2316	R	PHI	NYM	-0.37	1.62	Top	53.4
## 2317	L	BOS	TB	0.89	2.62	Top	52.4
## 2318	R	COL	ARI	-0.02	1.48	Top	NA
## 2319	R	SD	SF	-0.42	2.28	Bot	91.5
## 2320	R	PHI	NYM	0.87	0.33	Top	NA
## 2321	L	WSH	ATL	-0.82	2.34	Bot	64.4
## 2322	R	CLE	KC	-0.58	2.67	Bot	NA
## 2323	R	DET	MIN	1.00	2.02	Bot	NA
## 2324	R	DET	MIN	0.82	1.89	Top	NA
## 2325	R	CIN	PIT	0.16	1.13	Bot	NA
## 2326	R	CHC	MIL	-0.97	3.04	Top	66.8
## 2327	R	OAK	LAD	1.23	2.13	Bot	NA
## 2328	R	CIN	PIT	0.65	1.80	Bot	NA
## 2329	R	PHI	NYM	-0.09	3.51	Top	94.8
## 2330	L	COL	ARI	1.04	3.58	Bot	NA
## 2331	L	DET	MIN	-0.27	1.28	Top	91.6
## 2332	R	WSH	ATL	1.53	2.76	Top	NA
## 2333	R	TEX	TOR	0.44	1.00	Top	NA
## 2334	R	NYN	BAL	-0.27	-0.70	Top	NA
## 2335	R	BOS	TB	1.83	1.86	Bot	NA
## 2336	R	WSH	ATL	-0.46	2.69	Bot	86.9
## 2337	L	CIN	PIT	-0.20	2.09	Top	NA
## 2338	R	WSH	ATL	0.13	3.46	Top	82.1
## 2339	L	COL	ARI	0.10	2.36	Bot	NA
## 2340	R	WSH	ATL	0.23	1.84	Bot	NA
## 2341	R	MIA	STL	-0.50	0.99	Top	NA
## 2342	R	MIA	STL	-0.35	1.01	Bot	NA
## 2343	L	PHI	NYM	2.69	3.83	Bot	NA
## 2344	R	SEA	CWS	-0.41	2.29	Bot	74.9
## 2345	R	PHI	NYM	-0.02	2.66	Top	NA
## 2346	R	CLE	KC	0.73	1.50	Bot	NA
## 2347	R	DET	MIN	0.59	3.40	Bot	NA
## 2348	R	PHI	NYM	1.02	3.20	Bot	72.0
## 2349	R	SEA	CWS	0.09	2.41	Top	NA
## 2350	R	WSH	ATL	0.17	2.43	Bot	NA
## 2351	R	TEX	TOR	-0.72	3.23	Top	NA
## 2352	R	SD	SF	0.86	2.10	Top	NA

## 2353	L	SD	SF	-0.59	1.73	Top	102.2
## 2354	R	OAK	LAD	0.32	1.20	Bot	NA
## 2355	R	SEA	CWS	-2.32	4.10	Top	NA
## 2356	L	NYN	BAL	0.12	3.40	Bot	NA
## 2357	L	NYN	BAL	-1.32	1.78	Bot	NA
## 2358	R	OAK	LAD	1.02	3.61	Bot	NA
## 2359	R	NYN	BAL	0.72	2.11	Top	NA
## 2360	L	MIA	STL	-0.33	2.13	Bot	78.2
## 2361	R	MIA	STL	1.92	0.57	Bot	NA
## 2362	R	MIA	STL	-0.08	1.60	Top	NA
## 2363	R	NYN	BAL	1.03	2.06	Top	NA
## 2364	R	CLE	KC	1.24	1.74	Bot	NA
## 2365	R	CHC	MIL	-0.89	3.07	Top	NA
## 2366	R	WSH	ATL	0.38	2.13	Top	NA
## 2367	R	CHC	MIL	-0.64	4.58	Bot	NA
## 2368	R	WSH	ATL	-0.06	2.36	Top	76.2
## 2369	R	NYN	BAL	-0.76	1.41	Bot	NA
## 2370	R	PHI	NYM	0.89	2.00	Bot	93.5
## 2371	L	SD	SF	0.45	2.87	Top	78.4
## 2372	L	BOS	TB	-0.31	3.08	Bot	NA
## 2373	L	PHI	NYM	1.12	1.48	Bot	NA
## 2374	R	CHC	MIL	0.74	2.07	Bot	67.5
## 2375	R	TEX	TOR	0.05	3.18	Top	NA
## 2376	L	WSH	ATL	-0.48	2.90	Bot	NA
## 2377	R	CLE	KC	0.23	2.29	Bot	107.9
## 2378	R	CLE	KC	1.07	1.34	Top	NA
## 2379	R	CIN	PIT	0.64	2.02	Top	84.2
## 2380	R	BOS	TB	0.33	2.64	Top	32.5
## 2381	L	CHC	MIL	0.70	2.20	Bot	NA
## 2382	R	CIN	PIT	-0.32	3.74	Bot	NA
## 2383	L	SEA	CWS	-0.76	3.17	Bot	55.4
## 2384	R	NYN	BAL	0.44	5.21	Bot	NA
## 2385	R	CHC	MIL	0.54	2.80	Bot	NA
## 2386	R	SEA	CWS	0.97	1.13	Top	NA
## 2387	L	TEX	TOR	-0.39	1.73	Bot	NA
## 2388	L	OAK	LAD	1.22	2.70	Top	NA
## 2389	R	OAK	LAD	-0.14	1.13	Top	NA
## 2390	R	OAK	LAD	0.77	1.97	Top	83.1
## 2391	R	PHI	NYM	-0.52	3.64	Top	NA
## 2392	L	TEX	TOR	-0.30	2.55	Bot	108.8
## 2393	R	DET	MIN	-0.06	1.57	Bot	NA
## 2394	R	TEX	TOR	0.45	2.15	Top	77.9
## 2395	R	CIN	PIT	-0.46	1.78	Bot	NA
## 2396	R	BOS	TB	-1.33	3.79	Top	NA
## 2397	L	BOS	TB	1.25	1.17	Bot	66.3
## 2398	L	WSH	ATL	-2.31	1.31	Bot	NA
## 2399	R	OAK	LAD	0.71	0.91	Bot	NA
## 2400	R	CHC	MIL	-0.34	1.75	Bot	NA
## 2401	R	DET	MIN	0.40	1.94	Bot	49.9
## 2402	R	COL	ARI	-0.57	2.22	Top	81.2
## 2403	L	COL	ARI	-0.18	1.46	Bot	NA
## 2404	R	WSH	ATL	1.54	1.16	Bot	NA
## 2405	R	CLE	KC	1.00	1.46	Bot	NA
## 2406	R	MIA	STL	-0.05	3.53	Bot	75.2

## 2407	R	CIN	PIT	-0.78	3.62	Bot	NA
## 2408	R	NYN	BAL	-0.44	2.28	Top	NA
## 2409	R	SEA	CWS	-0.69	4.36	Top	NA
## 2410	R	PHI	NYM	0.25	2.02	Top	NA
## 2411	L	MIA	STL	0.04	3.42	Bot	71.7
## 2412	R	CHC	MIL	1.26	0.28	Bot	NA
## 2413	L	CIN	PIT	0.38	1.34	Top	NA
## 2414	R	CHC	MIL	-0.31	2.87	Top	NA
## 2415	R	CLE	KC	0.14	3.36	Top	75.5
## 2416	R	OAK	LAD	-0.53	2.97	Bot	76.3
## 2417	R	CHC	MIL	-0.38	3.73	Bot	NA
## 2418	R	SEA	CWS	0.09	1.37	Top	NA
## 2419	R	WSH	ATL	0.21	3.94	Top	NA
## 2420	L	PHI	NYM	-1.24	0.88	Bot	NA
## 2421	L	SD	SF	0.04	1.37	Top	64.5
## 2422	R	CIN	PIT	1.16	2.77	Top	NA
## 2423	R	CLE	KC	0.52	1.66	Bot	105.5
## 2424	R	NYN	BAL	0.01	2.26	Top	99.6
## 2425	L	DET	MIN	0.49	2.28	Top	79.1
## 2426	R	NYN	BAL	2.27	1.12	Bot	NA
## 2427	R	WSH	ATL	0.30	0.40	Bot	NA
## 2428	R	TEX	TOR	-1.65	2.14	Top	NA
## 2429	R	PHI	NYM	-0.41	1.90	Bot	NA
## 2430	L	CHC	MIL	0.83	5.52	Bot	NA
## 2431	L	BOS	TB	-0.77	1.79	Top	NA
## 2432	R	CIN	PIT	-0.06	3.25	Bot	103.0
## 2433	L	WSH	ATL	-0.87	1.89	Bot	NA
## 2434	R	DET	MIN	-0.25	2.26	Top	105.6
## 2435	R	WSH	ATL	-0.02	2.56	Top	NA
## 2436	L	SEA	CWS	-0.89	1.36	Bot	86.6
## 2437	R	NYN	BAL	0.97	1.75	Top	NA
## 2438	R	MIA	STL	-0.33	1.64	Bot	NA
## 2439	R	CLE	KC	-0.25	2.38	Bot	90.9
## 2440	R	PHI	NYM	-0.73	3.65	Top	80.5
## 2441	R	SD	SF	-0.08	2.08	Bot	108.9
## 2442	R	WSH	ATL	-0.27	2.44	Top	NA
## 2443	R	TEX	TOR	0.22	3.15	Top	NA
## 2444	R	NYN	BAL	-0.09	2.61	Bot	66.7
## 2445	L	PHI	NYM	-0.25	-0.45	Bot	NA
## 2446	R	MIA	STL	1.24	0.18	Top	NA
## 2447	R	OAK	LAD	0.55	2.82	Bot	69.1
## 2448	R	SEA	CWS	1.18	2.00	Top	NA
## 2449	R	MIA	STL	-0.24	1.14	Top	NA
## 2450	R	WSH	ATL	1.18	0.78	Bot	NA
## 2451	R	CHC	MIL	-0.72	3.22	Top	103.4
## 2452	L	SD	SF	-0.18	3.56	Top	103.6
## 2453	R	WSH	ATL	-0.55	0.84	Top	NA
## 2454	R	OAK	LAD	-0.72	3.09	Bot	103.3
## 2455	R	CIN	PIT	0.15	3.07	Bot	94.9
## 2456	L	NYN	BAL	1.33	4.13	Bot	NA
## 2457	R	SEA	CWS	-0.43	2.08	Bot	NA
## 2458	R	CHC	MIL	-0.47	4.38	Top	NA
## 2459	L	COL	ARI	-0.62	3.93	Bot	NA
## 2460	R	CLE	KC	-0.52	2.21	Bot	NA



## 2461	R	SD	SF	-0.41	2.11	Top	92.1
## 2462	R	PHI	NYM	1.32	1.74	Bot	NA
## 2463	L	NYN	BAL	0.95	2.22	Bot	105.1
## 2464	R	BOS	TB	0.38	2.27	Bot	57.6
## 2465	L	OAK	LAD	0.18	0.87	Top	NA
## 2466	R	CHC	MIL	-0.44	2.48	Top	75.2
## 2467	R	CIN	PIT	0.03	2.74	Bot	82.3
## 2468	L	COL	ARI	-0.97	2.31	Bot	94.7
## 2469	R	CLE	KC	-0.75	2.78	Bot	NA
## 2470	R	CHC	MIL	-1.01	2.29	Bot	NA
## 2471	R	PHI	NYM	-0.07	2.93	Top	83.1
## 2472	R	CHC	MIL	-0.50	2.32	Bot	NA
## 2473	R	PHI	NYM	0.97	2.89	Bot	NA
## 2474	R	OAK	LAD	-0.01	1.71	Bot	NA
## 2475	L	SD	SF	1.06	2.07	Top	NA
## 2476	R	MIA	STL	0.02	3.82	Top	NA
## 2477	L	MIA	STL	1.23	3.67	Bot	NA
## 2478	R	WSH	ATL	-1.03	3.54	Top	NA
## 2479	R	SEA	CWS	-0.81	0.66	Top	NA
## 2480	L	WSH	ATL	-0.78	2.24	Bot	71.8
## 2481	R	MIA	STL	0.12	3.65	Bot	NA
## 2482	R	CIN	PIT	-0.27	2.23	Top	96.4
## 2483	R	CLE	KC	1.50	0.80	Top	NA
## 2484	R	CHC	MIL	-0.33	1.94	Top	100.7
## 2485	R	CLE	KC	-0.20	3.10	Bot	77.5
## 2486	R	CLE	KC	-1.23	3.08	Bot	94.3
## 2487	L	CIN	PIT	-0.45	1.41	Top	NA
## 2488	L	NYN	BAL	-0.04	3.67	Bot	NA
## 2489	R	CIN	PIT	0.53	2.40	Bot	NA
## 2490	R	SD	SF	2.57	0.48	Top	NA
## 2491	L	SEA	CWS	-1.01	2.57	Bot	NA
## 2492	R	MIA	STL	-0.96	1.89	Top	NA
## 2493	R	TEX	TOR	0.11	0.45	Top	NA
## 2494	R	CHC	MIL	-0.94	1.54	Top	NA
## 2495	L	BOS	TB	-0.56	2.48	Top	NA
## 2496	R	SD	SF	0.35	3.01	Bot	NA
## 2497	R	SEA	CWS	-0.57	3.23	Bot	NA
## 2498	L	TEX	TOR	0.63	2.88	Bot	NA
## 2499	R	PHI	NYM	-0.23	1.98	Top	107.9
## 2500	R	CIN	PIT	0.20	0.88	Bot	82.8
## 2501	R	SEA	CWS	0.31	1.38	Top	NA
## 2502	R	NYN	BAL	0.48	2.88	Bot	NA
## 2503	R	OAK	LAD	-0.08	2.46	Bot	99.3
## 2504	R	SEA	CWS	-0.53	1.34	Top	NA
## 2505	R	PHI	NYM	-1.14	2.12	Top	NA
## 2506	R	OAK	LAD	0.69	4.21	Top	NA
## 2507	R	DET	MIN	-0.07	2.63	Top	NA
## 2508	R	WSH	ATL	0.74	2.49	Bot	69.4
## 2509	R	BOS	TB	0.83	2.58	Bot	NA
## 2510	L	PHI	NYM	-0.50	2.44	Bot	56.7
## 2511	R	BOS	TB	0.74	1.06	Top	NA
## 2512	L	PHI	NYM	0.54	1.85	Bot	116.3
## 2513	R	OAK	LAD	-1.28	2.94	Bot	NA
## 2514	R	DET	MIN	0.30	1.15	Bot	103.8

## 2515	L	NYY	BAL	0.58	2.80	Bot	NA
## 2516	R	NYY	BAL	0.72	3.68	Top	27.5
## 2517	R	DET	MIN	-0.02	2.10	Bot	NA
## 2518	L	SD	SF	-0.58	1.96	Top	81.5
## 2519	R	PHI	NYM	2.76	0.69	Bot	NA
## 2520	R	TEX	TOR	1.76	1.11	Top	NA
## 2521	R	TEX	TOR	1.98	1.94	Top	NA
## 2522	R	WSH	ATL	-0.08	2.39	Bot	94.2
## 2523	L	CHC	MIL	-0.25	3.23	Bot	77.8
## 2524	L	OAK	LAD	-0.67	-0.12	Top	NA
## 2525	R	WSH	ATL	1.28	1.83	Top	NA
## 2526	R	WSH	ATL	0.16	2.89	Top	NA
## 2527	R	SD	SF	-0.09	1.46	Bot	NA
## 2528	R	CIN	PIT	-0.73	3.75	Bot	NA
## 2529	L	BOS	TB	1.23	3.88	Bot	NA
## 2530	L	WSH	ATL	-1.35	1.02	Bot	NA
## 2531	R	NYY	BAL	-0.44	1.97	Bot	115.9
## 2532	R	WSH	ATL	0.86	2.61	Bot	68.3
## 2533	R	OAK	LAD	1.07	2.92	Bot	NA
## 2534	R	NYY	BAL	-1.28	2.66	Top	59.3
## 2535	R	COL	ARI	0.89	1.77	Bot	85.2
## 2536	R	CLE	KC	0.74	1.93	Bot	72.3
## 2537	R	CHC	MIL	-0.97	2.42	Bot	NA
## 2538	L	COL	ARI	-1.89	2.85	Bot	NA
## 2539	R	WSH	ATL	-0.15	3.16	Top	85.1
## 2540	L	DET	MIN	0.30	1.97	Top	73.4
## 2541	R	NYY	BAL	0.73	0.64	Top	NA
## 2542	R	COL	ARI	-1.47	2.43	Top	NA
## 2543	R	MIA	STL	-0.21	1.15	Bot	NA
## 2544	L	NYY	BAL	0.52	2.16	Top	NA
## 2545	R	SEA	CWS	-1.38	2.15	Top	67.3
## 2546	R	CHC	MIL	0.20	1.16	Top	NA
## 2547	L	BOS	TB	0.37	2.90	Bot	NA
## 2548	L	WSH	ATL	0.03	2.19	Bot	NA
## 2549	L	COL	ARI	0.17	2.06	Bot	NA
## 2550	R	WSH	ATL	-0.05	1.32	Top	NA
## 2551	R	PHI	NYM	-0.73	2.22	Top	NA
## 2552	R	TEX	TOR	-0.73	3.48	Top	NA
## 2553	R	CLE	KC	0.70	1.23	Top	NA
## 2554	R	WSH	ATL	0.84	1.25	Bot	NA
## 2555	R	NYY	BAL	-0.66	2.01	Bot	102.8
## 2556	R	CIN	PIT	-0.21	3.43	Top	NA
## 2557	L	PHI	NYM	-0.17	1.97	Bot	75.7
## 2558	R	OAK	LAD	-1.02	2.96	Bot	NA
## 2559	R	SD	SF	2.24	4.08	Bot	NA
## 2560	R	TEX	TOR	1.14	1.42	Top	65.1
## 2561	L	NYY	BAL	-0.69	2.61	Top	NA
## 2562	R	WSH	ATL	-1.52	2.92	Bot	NA
## 2563	R	COL	ARI	0.65	1.75	Bot	89.5
## 2564	R	NYY	BAL	-0.23	4.11	Bot	NA
## 2565	R	WSH	ATL	-0.87	3.73	Top	NA
## 2566	L	SEA	CWS	0.83	0.62	Bot	NA
## 2567	R	MIA	STL	-0.18	2.43	Bot	91.5
## 2568	R	BOS	TB	-0.41	3.37	Bot	NA

## 2569	R	COL	ARI	-0.73	2.26	Top	77.6
## 2570	R	CHC	MIL	-0.71	1.42	Bot	NA
## 2571	R	MIA	STL	-0.09	1.82	Top	75.0
## 2572	R	NYN	BAL	-0.98	3.64	Top	75.5
## 2573	L	NYN	BAL	-1.12	3.21	Bot	NA
## 2574	R	MIA	STL	0.57	1.36	Top	NA
## 2575	L	COL	ARI	-0.73	1.22	Bot	NA
## 2576	R	DET	MIN	-0.07	3.59	Bot	NA
## 2577	R	PHI	NYN	-0.12	3.09	Top	81.4
## 2578	R	SD	SF	1.17	1.18	Top	NA
## 2579	R	WSH	ATL	1.62	1.90	Top	NA
## 2580	R	CIN	PIT	0.99	3.13	Top	77.1
## 2581	R	OAK	LAD	0.61	1.27	Bot	NA
## 2582	L	SD	SF	0.62	1.38	Top	NA
## 2583	L	BOS	TB	-0.13	1.49	Top	112.6
## 2584	R	TEX	TOR	-0.12	1.78	Top	NA
## 2585	R	CLE	KC	-0.88	1.67	Bot	NA
## 2586	R	SEA	CWS	-0.62	1.28	Top	86.6
## 2587	R	OAK	LAD	0.70	2.73	Bot	NA
## 2588	R	SD	SF	1.06	3.18	Bot	NA
## 2589	R	SEA	CWS	-0.02	2.26	Bot	100.1
## 2590	L	NYN	BAL	0.91	2.39	Bot	NA
## 2591	R	DET	MIN	1.19	-0.05	Top	NA
## 2592	R	WSH	ATL	1.51	0.99	Top	NA
## 2593	R	PHI	NYN	2.05	2.71	Bot	NA
## 2594	R	MIA	STL	-1.11	0.65	Bot	NA
## 2595	L	CIN	PIT	0.90	2.29	Top	NA
## 2596	R	CIN	PIT	1.41	4.12	Bot	NA
## 2597	R	PHI	NYN	-0.60	2.42	Bot	66.6
## 2598	R	CIN	PIT	1.75	1.07	Bot	NA
## 2599	R	CLE	KC	0.82	2.37	Bot	68.6
## 2600	L	WSH	ATL	-0.69	1.22	Top	NA
## 2601	L	WSH	ATL	-0.25	2.21	Bot	NA
## 2602	L	SD	SF	-1.40	1.44	Top	NA
## 2603	R	NYN	BAL	-0.79	1.85	Bot	NA
## 2604	L	WSH	ATL	-1.82	1.10	Bot	NA
## 2605	R	BOS	TB	-0.48	3.13	Top	NA
## 2606	R	CHC	MIL	2.14	0.60	Bot	NA
## 2607	R	OAK	LAD	-0.37	1.16	Top	84.8
## 2608	L	PHI	NYN	0.72	2.34	Bot	100.1
## 2609	R	CLE	KC	0.13	0.57	Top	NA
## 2610	L	DET	MIN	0.25	2.34	Top	73.1
## 2611	R	OAK	LAD	-0.53	1.93	Bot	NA
## 2612	R	CIN	PIT	1.14	1.49	Bot	NA
## 2613	R	WSH	ATL	0.28	0.75	Top	NA
## 2614	R	SEA	CWS	-1.19	2.60	Top	NA
## 2615	R	CLE	KC	0.86	2.85	Bot	NA
## 2616	R	SEA	CWS	-0.18	1.74	Top	NA
## 2617	L	OAK	LAD	0.76	2.96	Top	86.5
## 2618	L	MIA	STL	-0.50	2.93	Bot	97.6
## 2619	R	COL	ARI	-0.76	1.95	Top	NA
## 2620	R	NYN	BAL	0.14	2.83	Top	NA
## 2621	R	WSH	ATL	0.97	0.69	Bot	NA
## 2622	R	DET	MIN	0.71	2.88	Bot	78.9

## 2623	L	TEX	TOR	-1.25	0.73	Bot	NA
## 2624	R	PHI	NYM	0.20	3.39	Top	NA
## 2625	R	CLE	KC	-1.54	3.16	Bot	NA
## 2626	R	CHC	MIL	1.03	2.57	Top	NA
## 2627	R	SEA	CWS	-1.45	2.11	Top	NA
## 2628	L	CHC	MIL	0.27	1.89	Bot	64.4
## 2629	R	CIN	PIT	0.29	1.80	Bot	62.9
## 2630	R	CHC	MIL	0.03	2.59	Bot	109.9
## 2631	R	NYN	BAL	1.58	1.42	Top	NA
## 2632	R	CHC	MIL	-0.95	4.79	Top	NA
## 2633	R	CLE	KC	0.70	1.47	Top	NA
## 2634	R	WSH	ATL	-0.85	3.74	Top	81.3
## 2635	L	MIA	STL	0.53	2.16	Bot	NA
## 2636	R	SEA	CWS	-0.02	1.96	Top	NA
## 2637	L	CIN	PIT	0.53	0.98	Top	NA
## 2638	R	WSH	ATL	0.25	1.12	Top	NA
## 2639	R	CLE	KC	-1.99	2.60	Top	NA
## 2640	R	CLE	KC	0.12	2.03	Bot	108.2
## 2641	R	CIN	PIT	2.01	1.74	Top	NA
## 2642	R	SEA	CWS	-0.40	0.04	Bot	NA
## 2643	R	MIA	STL	-0.58	2.21	Top	55.4
## 2644	L	PHI	NYM	-0.21	1.17	Bot	88.9
## 2645	R	NYN	BAL	-0.10	2.09	Bot	62.7
## 2646	R	DET	MIN	-0.53	3.23	Bot	NA
## 2647	R	COL	ARI	-1.44	2.12	Top	NA
## 2648	L	SD	SF	-1.02	1.54	Top	NA
## 2649	R	OAK	LAD	1.07	3.35	Bot	NA
## 2650	R	PHI	NYM	0.38	3.33	Top	NA
## 2651	R	WSH	ATL	0.83	2.11	Top	NA
## 2652	R	NYN	BAL	1.61	2.68	Bot	NA
## 2653	R	PHI	NYM	-0.90	3.68	Bot	NA
## 2654	R	CHC	MIL	-1.02	2.87	Bot	NA
## 2655	R	WSH	ATL	0.41	1.80	Bot	91.7
## 2656	L	WSH	ATL	0.04	2.69	Top	81.9
## 2657	L	WSH	ATL	-0.45	1.80	Top	NA
## 2658	L	SD	SF	-0.11	1.77	Top	NA
## 2659	R	NYN	BAL	0.81	2.06	Top	NA
## 2660	R	OAK	LAD	1.22	2.13	Bot	NA
## 2661	R	PHI	NYM	-1.10	1.41	Top	NA
## 2662	R	CHC	MIL	1.04	1.15	Bot	NA
## 2663	R	CIN	PIT	0.57	3.85	Bot	NA
## 2664	R	MIA	STL	0.26	1.90	Bot	NA
## 2665	R	CLE	KC	0.28	1.58	Bot	NA
## 2666	R	WSH	ATL	-0.35	0.93	Top	NA
## 2667	R	COL	ARI	-0.02	0.92	Top	NA
## 2668	R	SD	SF	0.20	2.50	Bot	94.6
## 2669	R	BOS	TB	0.12	2.75	Bot	98.7
## 2670	R	CIN	PIT	0.43	1.30	Bot	NA
## 2671	L	BOS	TB	0.43	1.92	Top	101.3
## 2672	R	CHC	MIL	-0.30	2.65	Top	104.0
## 2673	R	SEA	CWS	-0.14	2.59	Top	NA
## 2674	R	CHC	MIL	0.71	2.21	Top	NA
## 2675	L	BOS	TB	-0.41	1.92	Bot	NA
## 2676	L	NYN	BAL	-0.39	2.55	Bot	NA

## 2677	R	WSH	ATL	0.87	1.65	Top	NA
## 2678	L	COL	ARI	-0.53	2.44	Bot	NA
## 2679	R	PHI	NYM	0.87	3.32	Bot	NA
## 2680	L	SEA	CWS	-0.78	1.60	Bot	NA
## 2681	R	NYN	BAL	1.00	2.01	Top	NA
## 2682	R	MIA	STL	-1.03	4.70	Top	NA
## 2683	R	NYN	BAL	0.60	-0.39	Top	NA
## 2684	R	CIN	PIT	0.08	2.39	Top	NA
## 2685	L	WSH	ATL	0.33	3.54	Bot	NA
## 2686	R	SEA	CWS	-0.46	1.86	Top	NA
## 2687	R	NYN	BAL	0.01	1.30	Bot	NA
## 2688	R	TEX	TOR	0.28	2.34	Top	NA
## 2689	R	WSH	ATL	0.57	0.47	Bot	NA
## 2690	L	COL	ARI	0.81	2.65	Bot	NA
## 2691	R	DET	MIN	-0.18	1.93	Bot	71.7
## 2692	L	DET	MIN	0.77	3.88	Top	NA
## 2693	R	DET	MIN	-1.94	3.34	Top	NA
## 2694	R	MIA	STL	-0.05	0.19	Bot	NA
## 2695	L	NYN	BAL	0.50	4.17	Top	NA
## 2696	R	OAK	LAD	-0.14	2.78	Top	77.4
## 2697	R	CHC	MIL	-0.84	2.07	Bot	NA
## 2698	R	COL	ARI	-0.03	3.63	Bot	NA
## 2699	R	SD	SF	0.32	1.50	Top	NA
## 2700	L	CHC	MIL	0.80	3.16	Bot	84.1
## 2701	L	SD	SF	0.45	2.20	Top	NA
## 2702	L	WSH	ATL	-1.68	1.37	Bot	NA
## 2703	R	OAK	LAD	1.27	2.24	Bot	NA
## 2704	L	PHI	NYM	-1.50	1.18	Bot	NA
## 2705	L	NYN	BAL	0.38	0.72	Bot	NA
## 2706	R	CLE	KC	0.09	3.22	Bot	74.9
## 2707	R	OAK	LAD	0.30	4.10	Bot	90.0
## 2708	R	SEA	CWS	0.75	2.73	Top	NA
## 2709	R	PHI	NYM	0.68	2.96	Top	NA
## 2710	R	CIN	PIT	0.80	2.23	Bot	NA
## 2711	R	WSH	ATL	0.87	0.98	Bot	NA
## 2712	R	CIN	PIT	0.04	2.83	Bot	NA
## 2713	R	TEX	TOR	-0.70	2.02	Top	113.6
## 2714	R	CLE	KC	0.83	1.64	Bot	87.9
## 2715	R	CHC	MIL	-0.19	2.15	Top	89.0
## 2716	R	BOS	TB	0.35	3.34	Top	NA
## 2717	L	WSH	ATL	-1.00	1.96	Bot	61.7
## 2718	L	TEX	TOR	0.04	2.63	Bot	NA
## 2719	R	TEX	TOR	0.31	3.57	Top	NA
## 2720	R	SD	SF	-1.16	2.73	Bot	NA
## 2721	L	OAK	LAD	-0.17	2.22	Top	NA
## 2722	R	DET	MIN	1.71	1.38	Top	NA
## 2723	R	TEX	TOR	-0.70	2.13	Top	100.4
## 2724	R	CIN	PIT	0.93	2.68	Bot	NA
## 2725	L	CHC	MIL	0.74	4.15	Bot	NA
## 2726	R	SEA	CWS	-1.88	2.99	Top	NA
## 2727	R	OAK	LAD	0.73	2.01	Bot	NA
## 2728	R	MIA	STL	1.46	0.84	Bot	NA
## 2729	R	NYN	BAL	-0.91	2.55	Bot	NA
## 2730	L	SEA	CWS	-1.20	1.70	Bot	NA

## 2731	R	PHI	NYM	-0.67	3.85	Bot	NA
## 2732	R	CLE	KC	-0.18	1.82	Top	71.7
## 2733	R	CLE	KC	1.12	2.59	Bot	NA
## 2734	L	OAK	LAD	0.19	1.86	Top	NA
## 2735	R	CIN	PIT	0.00	0.96	Bot	62.6
## 2736	L	WSH	ATL	-1.00	2.58	Bot	NA
## 2737	R	BOS	TB	0.11	3.46	Top	NA
## 2738	R	CHC	MIL	1.07	2.44	Bot	NA
## 2739	L	DET	MIN	-1.03	0.40	Top	NA
## 2740	R	CHC	MIL	0.33	1.63	Top	NA
## 2741	R	CHC	MIL	0.63	2.56	Top	64.0
## 2742	L	SD	SF	0.06	1.47	Top	81.0
## 2743	R	CHC	MIL	-1.06	2.71	Bot	NA
## 2744	R	CLE	KC	-0.01	1.26	Top	96.0
## 2745	R	COL	ARI	-0.15	0.91	Top	NA
## 2746	R	PHI	NYM	-0.06	3.80	Top	NA
## 2747	R	OAK	LAD	0.18	3.25	Bot	NA
## 2748	R	SEA	CWS	-1.24	2.00	Top	NA
## 2749	R	DET	MIN	0.99	1.35	Bot	NA
## 2750	L	BOS	TB	0.94	2.22	Bot	58.3
## 2751	R	MIA	STL	0.51	0.25	Bot	NA
## 2752	R	WSH	ATL	-0.35	2.32	Top	104.8
## 2753	L	WSH	ATL	-1.33	2.46	Bot	NA
## 2754	R	WSH	ATL	-0.16	1.99	Bot	NA
## 2755	R	SEA	CWS	-0.32	3.57	Bot	74.9
## 2756	R	OAK	LAD	0.11	1.06	Top	NA
## 2757	R	PHI	NYM	-0.82	4.15	Top	NA
## 2758	L	TEX	TOR	0.71	1.79	Bot	NA
## 2759	R	DET	MIN	-0.81	2.11	Bot	65.5
## 2760	R	WSH	ATL	-0.08	1.60	Top	NA
## 2761	R	CIN	PIT	-0.55	1.89	Bot	82.4
## 2762	R	DET	MIN	-1.41	1.74	Bot	NA
## 2763	R	WSH	ATL	0.69	2.01	Bot	76.1
## 2764	L	BOS	TB	-0.05	1.68	Top	NA
## 2765	L	WSH	ATL	-1.02	0.80	Top	NA
## 2766	R	SEA	CWS	-0.26	2.51	Top	71.9
## 2767	R	NYN	BAL	-1.47	3.39	Top	NA
## 2768	R	WSH	ATL	1.25	1.87	Top	NA
## 2769	R	WSH	ATL	-0.90	1.78	Top	NA
## 2770	R	CHC	MIL	-0.97	3.32	Top	NA
## 2771	R	WSH	ATL	0.12	1.86	Bot	105.8
## 2772	R	COL	ARI	0.63	1.36	Bot	NA
## 2773	R	MIA	STL	1.25	1.93	Top	NA
## 2774	R	WSH	ATL	0.76	0.51	Top	NA
## 2775	R	CLE	KC	0.42	1.68	Bot	NA
## 2776	R	CHC	MIL	0.61	2.39	Bot	NA
## 2777	R	CLE	KC	0.68	0.72	Bot	NA
## 2778	R	SD	SF	-0.37	2.15	Bot	NA
## 2779	R	TEX	TOR	1.56	1.57	Top	NA
## 2780	R	TEX	TOR	1.24	0.07	Top	NA
## 2781	L	PHI	NYM	0.62	2.83	Bot	79.2
## 2782	R	CIN	PIT	0.39	1.27	Top	NA
## 2783	R	OAK	LAD	0.13	3.46	Bot	NA
## 2784	L	WSH	ATL	0.27	2.23	Bot	NA

## 2785	R	NYN	BAL	-0.04	1.08	Top	65.2
## 2786	R	NYN	BAL	-0.80	2.62	Bot	92.8
## 2787	L	SD	SF	-0.16	1.55	Top	88.7
## 2788	R	BOS	TB	1.50	2.15	Bot	NA
## 2789	R	CLE	KC	0.65	3.26	Bot	NA
## 2790	R	OAK	LAD	0.05	3.13	Bot	100.9
## 2791	L	COL	ARI	-0.32	3.34	Bot	NA
## 2792	L	CHC	MIL	-0.30	2.12	Top	NA
## 2793	R	SD	SF	0.00	1.36	Top	NA
## 2794	R	MIA	STL	-0.51	1.86	Top	90.8
## 2795	L	COL	ARI	-0.90	1.98	Bot	92.8
## 2796	L	WSH	ATL	-0.43	1.41	Top	NA
## 2797	R	CIN	PIT	-1.16	2.30	Top	95.0
## 2798	R	CIN	PIT	0.94	0.10	Bot	NA
## 2799	L	WSH	ATL	0.16	2.61	Bot	NA
## 2800	L	NYN	BAL	-1.71	2.20	Bot	NA
## 2801	R	NYN	BAL	-0.11	0.86	Top	NA
## 2802	R	CLE	KC	1.56	0.34	Top	NA
## 2803	L	NYN	BAL	-0.81	2.63	Top	NA
## 2804	R	NYN	BAL	0.42	1.15	Bot	NA
## 2805	L	SD	SF	-0.82	1.06	Top	NA
## 2806	L	CIN	PIT	-0.16	2.30	Top	94.8
## 2807	L	PHI	NYM	0.60	3.04	Bot	76.3
## 2808	L	NYN	BAL	0.41	3.75	Bot	NA
## 2809	R	PHI	NYM	-0.51	1.82	Bot	78.7
## 2810	L	MIA	STL	0.65	2.85	Bot	NA
## 2811	R	MIA	STL	-1.51	1.48	Top	NA
## 2812	R	PHI	NYM	0.71	1.91	Top	NA
## 2813	R	SD	SF	0.00	1.79	Bot	NA
## 2814	R	COL	ARI	0.38	2.71	Top	NA
## 2815	R	MIA	STL	0.41	3.16	Top	NA
## 2816	R	WSH	ATL	0.61	1.88	Bot	NA
## 2817	R	SEA	CWS	-0.57	3.86	Top	NA
## 2818	R	SD	SF	1.74	1.72	Top	NA
## 2819	L	SEA	CWS	0.44	1.75	Bot	NA
## 2820	R	CLE	KC	-1.00	2.45	Bot	NA
## 2821	R	COL	ARI	-0.17	1.48	Bot	NA
## 2822	R	DET	MIN	-0.35	2.49	Bot	64.6
## 2823	L	BOS	TB	-0.29	2.99	Top	69.2
## 2824	R	BOS	TB	0.72	2.14	Bot	60.8
## 2825	L	WSH	ATL	-0.51	2.47	Bot	NA
## 2826	R	SEA	CWS	-1.35	2.43	Top	NA
## 2827	L	PHI	NYM	-1.59	3.25	Bot	NA
## 2828	R	TEX	TOR	0.44	1.58	Top	NA
## 2829	L	PHI	NYM	1.25	3.89	Bot	NA
## 2830	R	NYN	BAL	0.33	0.85	Top	NA
## 2831	R	CHC	MIL	1.74	0.73	Bot	NA
## 2832	R	CIN	PIT	-0.08	2.98	Top	NA
## 2833	L	TEX	TOR	-0.45	2.70	Bot	NA
## 2834	R	MIA	STL	-0.80	1.86	Top	NA
## 2835	R	NYN	BAL	-1.59	1.98	Top	NA
## 2836	L	SD	SF	0.32	2.69	Top	NA
## 2837	R	SEA	CWS	0.20	3.38	Top	NA
## 2838	R	WSH	ATL	0.41	2.12	Top	NA

## 2839	R	MIA	STL	-0.17	-0.83	Bot	NA
## 2840	R	WSH	ATL	-0.53	2.04	Top	98.6
## 2841	R	DET	MIN	0.32	0.80	Bot	NA
## 2842	R	CHC	MIL	-0.50	2.55	Bot	76.7
## 2843	L	BOS	TB	-0.35	3.08	Bot	NA
## 2844	R	CLE	KC	-0.26	3.35	Bot	93.6
## 2845	R	CHC	MIL	0.54	2.36	Top	NA
## 2846	R	OAK	LAD	0.98	2.56	Top	73.3
## 2847	L	MIA	STL	-0.16	3.47	Bot	NA
## 2848	R	MIA	STL	0.17	2.48	Top	NA
## 2849	L	COL	ARI	-1.02	2.98	Bot	NA
## 2850	R	SEA	CWS	-0.42	2.85	Top	81.4
## 2851	R	WSH	ATL	0.91	1.64	Bot	NA
## 2852	L	WSH	ATL	0.72	4.71	Bot	NA
## 2853	R	CLE	KC	1.29	0.36	Top	NA
## 2854	L	COL	ARI	-1.33	2.02	Bot	NA
## 2855	R	PHI	NYM	0.38	2.68	Bot	72.6
## 2856	R	CHC	MIL	0.01	1.62	Top	82.8
## 2857	R	BOS	TB	0.46	2.39	Top	101.7
## 2858	R	CIN	PIT	-0.39	2.95	Bot	98.4
## 2859	R	CIN	PIT	0.11	2.61	Top	71.0
## 2860	R	PHI	NYM	-0.31	0.60	Top	NA
## 2861	R	CLE	KC	-0.21	2.16	Bot	69.2
## 2862	L	WSH	ATL	-1.00	1.95	Bot	NA
## 2863	R	SD	SF	-0.24	1.62	Bot	NA
## 2864	R	MIA	STL	-0.22	2.25	Top	77.3
## 2865	R	TEX	TOR	-0.11	3.04	Top	NA
## 2866	R	CIN	PIT	0.59	1.60	Bot	NA
## 2867	R	PHI	NYM	-0.65	2.07	Top	83.9
## 2868	R	CHC	MIL	0.24	3.40	Bot	NA
## 2869	R	DET	MIN	1.61	2.65	Top	NA
## 2870	R	COL	ARI	0.24	2.68	Top	89.8
## 2871	R	WSH	ATL	-0.34	3.05	Bot	94.6
## 2872	L	CHC	MIL	1.14	2.81	Bot	NA
## 2873	R	CIN	PIT	-0.44	3.07	Bot	NA
## 2874	R	DET	MIN	1.12	0.19	Bot	NA
## 2875	R	NYN	BAL	0.61	1.23	Top	NA
## 2876	R	OAK	LAD	0.71	2.40	Bot	NA
## 2877	R	NYN	BAL	-0.06	1.76	Bot	113.0
## 2878	L	OAK	LAD	-0.86	0.13	Top	NA
## 2879	L	NYN	BAL	-1.27	1.13	Bot	NA
## 2880	R	NYN	BAL	1.55	0.55	Top	NA
## 2881	R	PHI	NYM	0.46	1.84	Bot	NA
## 2882	L	WSH	ATL	-0.23	1.44	Bot	96.5
## 2883	R	CLE	KC	-0.81	4.36	Bot	NA
## 2884	R	SEA	CWS	-1.26	3.50	Top	NA
## 2885	R	CHC	MIL	-1.39	3.21	Top	NA
## 2886	R	WSH	ATL	0.21	2.84	Bot	94.3
## 2887	R	TEX	TOR	0.97	3.39	Top	NA
## 2888	R	COL	ARI	-0.29	1.80	Top	99.9
## 2889	R	OAK	LAD	0.19	1.82	Bot	78.0
## 2890	R	WSH	ATL	0.23	2.44	Bot	98.7
## 2891	R	NYN	BAL	0.49	1.89	Top	67.9
## 2892	R	OAK	LAD	0.54	2.26	Top	85.3



## 2893	R	SD	SF	0.96	3.09	Top	65.2
## 2894	R	SD	SF	0.18	3.45	Bot	96.2
## 2895	L	WSH	ATL	-0.21	1.87	Top	NA
## 2896	L	NYN	BAL	0.56	5.96	Top	NA
## 2897	R	NYN	BAL	-0.30	2.64	Bot	83.4
## 2898	R	WSH	ATL	-0.25	3.52	Top	78.0
## 2899	L	CHC	MIL	0.05	3.34	Top	74.3
## 2900	R	CLE	KC	1.27	4.09	Top	NA
## 2901	R	OAK	LAD	0.12	0.21	Bot	NA
## 2902	R	CIN	PIT	1.34	1.09	Bot	NA
## 2903	L	SD	SF	-0.92	0.83	Top	NA
## 2904	R	SEA	CWS	-0.07	3.40	Bot	NA
## 2905	L	NYN	BAL	0.55	2.53	Bot	107.7
## 2906	R	WSH	ATL	0.70	2.84	Top	NA
## 2907	R	CLE	KC	1.33	-0.39	Top	NA
## 2908	L	SD	SF	0.16	2.91	Top	92.4
## 2909	R	WSH	ATL	-0.82	1.37	Top	NA
## 2910	L	SEA	CWS	0.52	1.89	Top	87.1
## 2911	R	MIA	STL	0.43	1.80	Bot	NA
## 2912	R	CHC	MIL	0.53	2.21	Top	74.9
## 2913	L	WSH	ATL	-1.73	1.05	Top	NA
## 2914	R	PHI	NYM	-0.47	4.18	Top	NA
## 2915	L	CIN	PIT	-0.28	3.06	Top	NA
## 2916	L	SEA	CWS	0.27	1.66	Bot	102.1
## 2917	R	NYN	BAL	1.22	0.21	Bot	NA
## 2918	R	WSH	ATL	-0.08	2.83	Top	NA
## 2919	R	OAK	LAD	-0.08	2.36	Bot	78.1
## 2920	R	MIA	STL	-0.07	3.75	Top	NA
## 2921	L	DET	MIN	-0.64	1.69	Top	83.5
## 2922	R	WSH	ATL	-0.44	2.02	Top	88.4
## 2923	R	NYN	BAL	2.27	1.30	Bot	NA
## 2924	L	SEA	CWS	-1.29	2.18	Top	NA
## 2925	L	SD	SF	0.18	3.46	Top	84.9
## 2926	R	CLE	KC	0.06	1.92	Bot	92.4
## 2927	R	PHI	NYM	-0.62	2.78	Bot	NA
## 2928	R	OAK	LAD	0.95	1.86	Bot	67.2
## 2929	R	OAK	LAD	0.17	1.53	Bot	102.7
## 2930	R	MIA	STL	-0.64	1.41	Bot	85.5
## 2931	R	NYN	BAL	0.86	1.20	Top	NA
## 2932	L	SEA	CWS	-1.68	2.00	Bot	NA
## 2933	R	MIA	STL	-1.70	3.34	Top	NA
## 2934	R	CIN	PIT	0.60	3.52	Top	NA
## 2935	R	BOS	TB	0.81	1.69	Top	NA
## 2936	L	SD	SF	1.00	3.81	Top	NA
## 2937	R	TEX	TOR	-0.48	2.94	Top	88.8
## 2938	L	NYN	BAL	-0.07	1.29	Bot	NA
## 2939	L	WSH	ATL	-1.38	1.53	Bot	NA
## 2940	R	CIN	PIT	-0.35	1.00	Bot	NA
## 2941	L	WSH	ATL	2.51	3.95	Top	NA
## 2942	R	TEX	TOR	0.28	2.75	Top	NA
## 2943	R	CLE	KC	-0.90	2.58	Bot	95.9
## 2944	R	CLE	KC	0.22	3.34	Top	76.7
## 2945	R	NYN	BAL	0.46	2.05	Top	NA
## 2946	R	CLE	KC	0.54	2.31	Bot	NA

## 2947	R	MIA	STL	0.14	2.69	Top	70.9
## 2948	R	DET	MIN	0.06	2.88	Bot	75.1
## 2949	R	COL	ARI	-0.57	2.52	Top	78.9
## 2950	R	OAK	LAD	0.33	2.76	Bot	NA
## 2951	L	COL	ARI	1.18	3.71	Bot	NA
## 2952	R	SD	SF	1.00	1.73	Top	NA
## 2953	R	NYN	BAL	0.71	2.78	Top	NA
## 2954	L	COL	ARI	-0.27	2.58	Bot	NA
## 2955	R	WSH	ATL	0.43	1.53	Bot	73.7
## 2956	R	NYN	BAL	1.36	0.65	Top	NA
## 2957	R	WSH	ATL	-0.57	3.99	Top	NA
## 2958	L	CHC	MIL	0.47	2.35	Top	NA
## 2959	L	WSH	ATL	-0.16	3.01	Bot	71.5
## 2960	L	BOS	TB	0.03	1.99	Bot	89.7
## 2961	R	CIN	PIT	-0.14	0.03	Bot	NA
## 2962	R	OAK	LAD	-0.14	2.76	Bot	75.6
## 2963	R	SD	SF	-0.36	2.16	Top	NA
## 2964	L	NYN	BAL	1.99	4.53	Bot	NA
## 2965	R	CHC	MIL	-1.28	2.63	Top	84.7
## 2966	R	CHC	MIL	-0.38	2.62	Bot	106.5
## 2967	L	PHI	NYM	1.41	2.10	Bot	68.0
## 2968	R	WSH	ATL	1.35	2.98	Bot	NA
## 2969	R	COL	ARI	-1.16	2.68	Top	NA
## 2970	R	WSH	ATL	-1.38	2.06	Top	NA
## 2971	R	CHC	MIL	0.41	2.35	Bot	101.9
## 2972	L	SEA	CWS	-1.54	0.56	Bot	NA
## 2973	R	CLE	KC	-0.26	1.69	Bot	95.0
## 2974	R	OAK	LAD	-0.43	2.54	Top	NA
## 2975	R	NYN	BAL	-0.84	3.05	Bot	NA
## 2976	L	CIN	PIT	0.61	2.51	Top	NA
## 2977	R	CLE	KC	0.47	0.81	Top	NA
## 2978	R	PHI	NYM	0.63	2.75	Top	NA
## 2979	R	TEX	TOR	-0.73	3.36	Top	91.1
## 2980	R	WSH	ATL	-0.36	2.51	Bot	86.9
## 2981	R	CHC	MIL	0.56	1.91	Bot	NA
## 2982	L	WSH	ATL	0.08	0.40	Bot	NA
## 2983	R	PHI	NYM	-0.73	1.68	Top	NA
## 2984	L	WSH	ATL	-1.16	1.35	Bot	NA
## 2985	R	CHC	MIL	-0.13	1.71	Top	NA
## 2986	R	MIA	STL	-1.77	2.36	Bot	NA
## 2987	R	BOS	TB	-0.03	2.27	Bot	109.3
## 2988	L	PHI	NYM	0.74	1.74	Bot	83.5
## 2989	R	NYN	BAL	-0.61	4.69	Top	NA
## 2990	R	WSH	ATL	0.92	1.85	Top	66.0
## 2991	R	CIN	PIT	-0.85	1.65	Top	94.2
## 2992	R	DET	MIN	0.55	3.26	Top	79.5
## 2993	R	PHI	NYM	-0.53	2.02	Top	67.2
## 2994	R	PHI	NYM	-0.49	2.95	Bot	NA
## 2995	R	CIN	PIT	-0.78	3.27	Bot	74.3
## 2996	L	MIA	STL	0.25	2.00	Bot	NA
## 2997	R	COL	ARI	1.20	3.30	Bot	NA
## 2998	R	WSH	ATL	0.05	2.84	Top	NA
## 2999	R	CHC	MIL	1.16	-0.42	Top	NA
## 3000	L	SD	SF	0.34	2.84	Top	86.0

## 3001	R	MIA	STL	0.71	2.49	Top	NA
## 3002	R	SD	SF	-0.53	0.79	Bot	NA
## 3003	R	WSH	ATL	-0.75	1.95	Bot	NA
## 3004	R	MIA	STL	-0.53	2.50	Top	103.8
## 3005	L	TEX	TOR	-1.62	1.86	Bot	NA
## 3006	R	DET	MIN	0.15	1.31	Bot	NA
## 3007	L	BOS	TB	-1.51	2.02	Top	NA
## 3008	R	CLE	KC	0.85	0.37	Top	NA
## 3009	R	DET	MIN	0.47	2.08	Bot	68.2
## 3010	R	CIN	PIT	0.24	1.75	Bot	NA
## 3011	R	OAK	LAD	0.63	2.38	Top	84.2
## 3012	R	SEA	CWS	-0.80	3.17	Top	83.9
## 3013	L	CHC	MIL	-0.10	4.25	Bot	NA
## 3014	R	SEA	CWS	0.76	3.51	Bot	NA
## 3015	R	SD	SF	-0.06	2.21	Bot	NA
## 3016	L	DET	MIN	-0.39	2.00	Top	NA
## 3017	R	SEA	CWS	-1.38	3.24	Top	NA
## 3018	R	NYN	BAL	-0.84	2.37	Bot	NA
## 3019	L	SD	SF	-0.78	1.64	Top	73.4
## 3020	R	SEA	CWS	1.05	1.17	Top	NA
## 3021	L	OAK	LAD	-1.05	0.91	Top	NA
## 3022	R	SEA	CWS	-1.67	2.72	Top	NA
## 3023	L	NYN	BAL	-0.30	1.65	Top	NA
## 3024	R	NYN	BAL	-0.27	1.89	Top	95.2
## 3025	R	WSH	ATL	-1.06	4.41	Top	NA
## 3026	R	CHC	MIL	-1.08	3.34	Top	NA
## 3027	L	WSH	ATL	-2.07	2.01	Top	NA
## 3028	R	CLE	KC	-0.62	2.45	Bot	NA
## 3029	R	COL	ARI	0.96	0.17	Top	NA
## 3030	R	NYN	BAL	-0.07	0.58	Top	NA
## 3031	R	OAK	LAD	-0.08	3.28	Bot	NA
## 3032	R	WSH	ATL	1.19	2.02	Top	72.4
## 3033	R	PHI	NYM	-0.01	3.42	Top	NA
## 3034	R	SEA	CWS	-1.21	1.57	Top	NA
## 3035	R	CLE	KC	0.78	1.53	Top	NA
## 3036	R	PHI	NYM	-0.01	3.59	Top	79.5
## 3037	R	DET	MIN	-0.21	3.13	Bot	81.3
## 3038	R	CLE	KC	-0.63	1.33	Bot	NA
## 3039	R	SD	SF	0.95	3.37	Bot	NA
## 3040	L	SD	SF	0.14	4.11	Top	NA
## 3041	L	WSH	ATL	0.31	2.46	Bot	86.6
## 3042	L	CIN	PIT	0.21	2.76	Top	102.4
## 3043	R	NYN	BAL	-0.03	3.02	Top	71.0
## 3044	R	CIN	PIT	0.79	1.00	Bot	NA
## 3045	R	WSH	ATL	0.39	2.88	Bot	NA
## 3046	R	CHC	MIL	0.70	3.00	Top	NA
## 3047	L	MIA	STL	0.71	3.28	Bot	NA
## 3048	L	NYN	BAL	-0.12	2.72	Top	77.1
## 3049	R	CHC	MIL	1.38	1.95	Bot	NA
## 3050	R	CHC	MIL	-0.10	1.99	Top	NA
## 3051	R	SEA	CWS	0.81	0.99	Top	70.0
## 3052	L	WSH	ATL	-0.65	1.80	Top	NA
## 3053	R	TEX	TOR	0.50	-0.90	Top	NA
## 3054	R	WSH	ATL	1.28	1.92	Top	NA

## 3055	R	CHC	MIL	0.14	3.40	Top	NA
## 3056	R	CLE	KC	0.70	4.25	Top	NA
## 3057	R	MIA	STL	-0.27	1.97	Top	73.2
## 3058	R	DET	MIN	0.52	1.84	Bot	NA
## 3059	L	WSH	ATL	-0.35	1.98	Bot	NA
## 3060	R	OAK	LAD	-0.17	2.22	Top	98.3
## 3061	R	OAK	LAD	0.59	1.60	Top	NA
## 3062	R	NYN	BAL	0.29	1.12	Bot	66.5
## 3063	L	CHC	MIL	-0.76	1.43	Top	NA
## 3064	R	BOS	TB	0.56	2.91	Top	85.5
## 3065	R	NYN	BAL	-0.73	2.70	Bot	NA
## 3066	R	MIA	STL	-0.11	2.52	Top	NA
## 3067	R	SEA	CWS	-0.71	0.47	Top	NA
## 3068	R	WSH	ATL	-0.09	1.92	Top	NA
## 3069	L	WSH	ATL	-0.88	3.20	Bot	65.0
## 3070	R	OAK	LAD	1.29	2.17	Bot	NA
## 3071	R	CIN	PIT	-0.09	3.17	Bot	109.5
## 3072	R	WSH	ATL	-0.99	3.19	Bot	81.8
## 3073	R	NYN	BAL	1.87	1.69	Bot	NA
## 3074	R	WSH	ATL	-0.11	2.19	Top	87.7
## 3075	R	MIA	STL	-1.88	4.22	Top	NA
## 3076	R	OAK	LAD	0.67	3.17	Bot	83.0
## 3077	L	NYN	BAL	0.52	2.85	Bot	74.2
## 3078	R	WSH	ATL	-1.37	2.19	Top	NA
## 3079	R	BOS	TB	-0.05	2.10	Bot	NA
## 3080	R	NYN	BAL	0.87	2.67	Top	110.9
## 3081	L	DET	MIN	0.30	2.44	Top	NA
## 3082	L	TEX	TOR	-1.84	1.94	Bot	NA
## 3083	R	PHI	NYM	1.83	2.36	Bot	NA
## 3084	R	COL	ARI	-0.13	2.53	Bot	NA
## 3085	R	CHC	MIL	0.08	3.56	Top	NA
## 3086	R	CIN	PIT	0.18	0.63	Bot	NA
## 3087	R	CIN	PIT	-1.12	2.81	Bot	NA
## 3088	L	BOS	TB	0.29	2.55	Top	84.0
## 3089	L	SEA	CWS	-0.49	1.91	Top	NA
## 3090	R	MIA	STL	-0.24	1.05	Bot	NA
## 3091	L	SD	SF	-0.33	2.56	Top	75.5
## 3092	L	SEA	CWS	0.49	1.83	Bot	NA
## 3093	R	CHC	MIL	-0.57	1.97	Bot	76.5
## 3094	R	TEX	TOR	-0.85	2.49	Top	NA
## 3095	L	WSH	ATL	-0.87	0.35	Top	NA
## 3096	R	CIN	PIT	1.31	3.10	Top	NA
## 3097	R	PHI	NYM	-0.38	1.68	Top	94.5
## 3098	L	SEA	CWS	1.38	2.94	Bot	NA
## 3099	L	PHI	NYM	-1.12	1.86	Bot	NA
## 3100	L	SD	SF	0.07	2.19	Top	NA
## 3101	L	BOS	TB	-1.22	3.30	Bot	NA
## 3102	R	NYN	BAL	-1.09	3.39	Top	NA
## 3103	R	SD	SF	-0.96	3.14	Bot	NA
## 3104	R	MIA	STL	-0.86	1.00	Top	NA
## 3105	R	PHI	NYM	1.01	1.27	Bot	NA
## 3106	R	MIA	STL	0.23	2.13	Bot	NA
## 3107	R	TEX	TOR	0.77	2.05	Top	NA
## 3108	R	SEA	CWS	-1.19	2.31	Bot	84.6

## 3109	L	WSH	ATL	-0.53	3.36	Bot	NA
## 3110	L	SD	SF	-0.13	0.66	Top	NA
## 3111	R	PHI	NYM	-0.56	2.46	Top	NA
## 3112	R	OAK	LAD	-0.09	0.71	Top	NA
## 3113	R	DET	MIN	0.91	2.58	Bot	91.4
## 3114	R	CLE	KC	0.29	2.37	Bot	90.0
## 3115	L	CHC	MIL	-2.21	0.16	Bot	NA
## 3116	R	NYN	BAL	1.51	1.49	Top	NA
## 3117	R	NYN	BAL	0.35	1.97	Top	68.7
## 3118	L	COL	ARI	-0.07	1.98	Bot	77.8
## 3119	R	SEA	CWS	-1.12	4.40	Top	NA
## 3120	R	CIN	PIT	1.22	1.22	Top	NA
## 3121	R	COL	ARI	-0.41	2.28	Top	NA
## 3122	R	DET	MIN	1.04	2.59	Top	84.3
## 3123	L	OAK	LAD	-1.53	1.52	Top	NA
## 3124	R	OAK	LAD	0.35	2.96	Bot	21.9
## 3125	L	COL	ARI	-0.44	2.01	Bot	103.1
## 3126	R	WSH	ATL	-0.63	3.28	Bot	NA
## 3127	R	CLE	KC	0.97	3.27	Top	81.7
## 3128	L	NYN	BAL	0.40	2.95	Bot	96.0
## 3129	R	SD	SF	0.34	0.72	Top	NA
## 3130	R	CLE	KC	-0.01	2.20	Bot	103.9
## 3131	R	WSH	ATL	0.82	2.47	Bot	NA
## 3132	R	WSH	ATL	-0.33	3.41	Top	NA
## 3133	R	CHC	MIL	0.39	2.91	Bot	NA
## 3134	R	SD	SF	0.43	3.20	Top	NA
## 3135	L	PHI	NYM	-0.97	1.69	Bot	65.4
## 3136	R	DET	MIN	-0.51	2.74	Top	NA
## 3137	R	MIA	STL	0.24	3.29	Bot	NA
## 3138	L	SD	SF	0.70	3.55	Top	NA
## 3139	L	NYN	BAL	2.11	2.60	Bot	NA
## 3140	R	SD	SF	-0.71	0.01	Bot	NA
## 3141	R	SEA	CWS	-0.57	1.16	Top	NA
## 3142	R	OAK	LAD	-0.15	2.85	Top	NA
## 3143	R	TEX	TOR	-1.16	1.87	Top	NA
## 3144	R	OAK	LAD	2.04	2.63	Bot	NA
## 3145	L	NYN	BAL	-0.31	4.63	Top	NA
## 3146	R	OAK	LAD	1.37	2.86	Top	NA
## 3147	R	NYN	BAL	0.13	1.82	Bot	84.9
## 3148	R	MIA	STL	-0.59	2.77	Top	78.0
## 3149	R	COL	ARI	0.52	2.15	Top	102.4
## 3150	R	WSH	ATL	1.27	1.25	Bot	NA
## 3151	L	NYN	BAL	-0.73	0.65	Bot	NA
## 3152	R	WSH	ATL	0.01	2.34	Top	76.0
## 3153	L	PHI	NYM	-0.64	0.67	Bot	NA
## 3154	R	CIN	PIT	-1.28	4.35	Bot	NA
## 3155	L	PHI	NYM	-1.33	0.82	Bot	NA
## 3156	R	CHC	MIL	1.15	0.62	Top	NA
## 3157	L	SEA	CWS	0.95	1.88	Bot	10.0
## 3158	R	OAK	LAD	0.21	2.89	Bot	NA
## 3159	R	CIN	PIT	0.35	1.36	Bot	NA
## 3160	L	COL	ARI	1.76	2.99	Bot	NA
## 3161	R	NYN	BAL	0.57	2.18	Bot	88.5
## 3162	R	OAK	LAD	-1.01	4.14	Bot	NA

## 3163	L	WSH	ATL	-0.61	2.82	Bot	NA
## 3164	L	CHC	MIL	0.44	1.78	Top	NA
## 3165	R	DET	MIN	-1.51	2.84	Bot	NA
## 3166	R	CLE	KC	0.76	2.30	Top	NA
## 3167	R	SEA	CWS	0.07	-0.04	Bot	NA
## 3168	R	SD	SF	0.29	2.28	Bot	66.4
## 3169	R	CLE	KC	-0.80	1.54	Bot	NA
## 3170	R	COL	ARI	1.40	1.58	Bot	77.6
## 3171	R	SD	SF	0.06	2.51	Top	65.9
## 3172	R	CLE	KC	-0.12	3.96	Bot	NA
## 3173	L	SD	SF	1.44	1.90	Top	36.3
## 3174	R	WSH	ATL	0.25	1.00	Bot	NA
## 3175	R	TEX	TOR	0.02	3.45	Top	79.2
## 3176	L	SD	SF	0.20	1.76	Top	NA
## 3177	R	NYN	BAL	-0.21	0.20	Top	NA
## 3178	R	PHI	NYM	0.08	1.96	Top	83.3
## 3179	R	PHI	NYM	0.62	2.55	Bot	NA
## 3180	R	CLE	KC	0.26	2.64	Top	NA
## 3181	R	NYN	BAL	-0.74	1.38	Top	70.7
## 3182	L	CIN	PIT	-0.07	0.53	Top	NA
## 3183	L	SEA	CWS	-0.58	1.52	Bot	NA
## 3184	L	WSH	ATL	-2.30	1.21	Bot	NA
## 3185	R	PHI	NYM	-0.80	3.49	Top	NA
## 3186	L	CHC	MIL	0.10	3.18	Bot	NA
## 3187	R	CLE	KC	-0.53	1.67	Bot	NA
## 3188	R	CIN	PIT	0.86	1.23	Bot	NA
## 3189	R	WSH	ATL	-0.03	0.58	Top	NA
## 3190	R	MIA	STL	-0.03	2.09	Top	97.2
## 3191	R	BOS	TB	-0.26	1.47	Bot	86.4
## 3192	R	CHC	MIL	0.55	1.88	Top	56.9
## 3193	L	DET	MIN	1.14	2.75	Top	101.8
## 3194	R	NYN	BAL	1.11	2.40	Top	NA
## 3195	L	SD	SF	0.75	2.10	Top	61.3
## 3196	R	MIA	STL	1.16	0.12	Bot	NA
## 3197	L	WSH	ATL	-0.79	1.95	Top	NA
## 3198	R	WSH	ATL	1.67	-0.51	Top	NA
## 3199	R	WSH	ATL	0.81	2.03	Top	68.6
## 3200	R	COL	ARI	2.27	-0.05	Top	NA
## 3201	R	SEA	CWS	-0.78	3.43	Bot	NA
## 3202	R	BOS	TB	-0.83	2.59	Top	62.6
## 3203	R	PHI	NYM	0.33	3.58	Top	NA
## 3204	R	NYN	BAL	-0.13	1.17	Bot	NA
## 3205	R	PHI	NYM	1.92	1.23	Bot	NA
## 3206	L	WSH	ATL	-0.75	2.47	Bot	76.0
## 3207	R	WSH	ATL	0.54	3.86	Top	NA
## 3208	R	MIA	STL	0.95	2.82	Top	NA
## 3209	R	CIN	PIT	-0.70	2.09	Top	72.5
## 3210	L	BOS	TB	-1.01	1.05	Top	NA
## 3211	R	CLE	KC	-0.62	3.10	Top	93.4
## 3212	L	MIA	STL	0.12	2.86	Bot	101.7
## 3213	R	NYN	BAL	-0.34	2.41	Top	NA
## 3214	L	BOS	TB	0.31	2.66	Bot	95.2
## 3215	R	CIN	PIT	1.19	2.05	Bot	NA
## 3216	R	PHI	NYM	-0.24	2.53	Top	101.5

## 3217	R	WSH	ATL	-0.51	3.80	Top	NA
## 3218	R	CHC	MIL	-0.56	2.34	Bot	NA
## 3219	L	OAK	LAD	0.90	1.86	Top	80.9
## 3220	R	CLE	KC	-1.00	2.69	Bot	NA
## 3221	R	SEA	CWS	-1.11	2.32	Top	NA
## 3222	L	OAK	LAD	-1.23	1.24	Top	NA
## 3223	R	WSH	ATL	-0.37	-0.28	Bot	NA
## 3224	R	CHC	MIL	0.08	0.79	Bot	NA
## 3225	R	WSH	ATL	0.49	2.92	Bot	106.3
## 3226	L	WSH	ATL	0.88	2.70	Top	NA
## 3227	L	CLE	KC	-0.62	2.08	Bot	92.4
## 3228	L	SEA	CWS	-1.27	1.55	Top	NA
## 3229	R	TEX	TOR	0.57	1.97	Top	NA
## 3230	R	CHC	MIL	0.83	2.02	Bot	NA
## 3231	R	CHC	MIL	-0.07	3.33	Top	NA
## 3232	R	DET	MIN	0.32	2.90	Bot	NA
## 3233	R	CHC	MIL	0.62	2.10	Top	75.6
## 3234	L	SD	SF	-0.18	2.00	Bot	91.6
## 3235	R	NYN	BAL	-0.64	2.04	Top	48.7
## 3236	R	SEA	CWS	0.61	1.51	Top	NA
## 3237	R	SD	SF	-0.50	2.35	Top	72.0
## 3238	L	TEX	TOR	-0.47	2.31	Bot	NA
## 3239	R	NYN	BAL	0.34	1.57	Top	105.5
## 3240	R	OAK	LAD	0.48	1.36	Top	36.0
## 3241	R	CIN	PIT	0.73	2.59	Top	79.4
## 3242	L	WSH	ATL	0.71	2.04	Bot	NA
## 3243	R	MIA	STL	0.13	2.35	Top	NA
## 3244	R	DET	MIN	1.34	0.63	Bot	NA
## 3245	R	OAK	LAD	0.97	3.45	Bot	NA
## 3246	L	COL	ARI	-1.37	2.02	Bot	NA
## 3247	R	SEA	CWS	-0.74	2.45	Top	73.4
## 3248	R	CHC	MIL	1.04	2.01	Top	NA
## 3249	L	SEA	CWS	0.19	1.83	Top	NA
## 3250	R	WSH	ATL	-0.16	2.45	Top	78.2
## 3251	L	WSH	ATL	-0.63	1.65	Bot	NA
## 3252	L	CHC	MIL	-1.43	2.15	Bot	NA
## 3253	R	COL	ARI	0.31	2.83	Top	88.0
## 3254	R	CIN	PIT	1.47	2.80	Bot	NA
## 3255	R	CLE	KC	1.41	1.76	Top	NA
## 3256	R	WSH	ATL	0.39	2.74	Bot	NA
## 3257	L	WSH	ATL	-0.49	1.92	Top	NA
## 3258	R	WSH	ATL	0.90	2.52	Top	73.2
## 3259	R	CHC	MIL	-0.79	3.73	Bot	NA
## 3260	R	CHC	MIL	-1.00	1.10	Bot	NA
## 3261	R	NYN	BAL	-1.33	2.85	Top	43.0
## 3262	L	PHI	NYM	0.47	3.21	Bot	NA
## 3263	R	WSH	ATL	-1.89	2.80	Top	NA
## 3264	R	OAK	LAD	-1.29	3.60	Bot	NA
## 3265	R	NYN	BAL	1.03	0.15	Top	NA
## 3266	R	SEA	CWS	-0.18	2.78	Top	86.8
## 3267	R	BOS	TB	1.07	1.76	Bot	NA
## 3268	R	CIN	PIT	-0.77	3.48	Bot	NA
## 3269	R	WSH	ATL	1.27	0.65	Bot	NA
## 3270	L	NYN	BAL	2.03	5.15	Top	NA

## 3271	R	CLE	KC	-0.75	3.05	Top	NA
## 3272	R	SD	SF	-0.54	2.66	Bot	99.6
## 3273	R	PHI	NYM	-1.53	2.59	Bot	NA
## 3274	R	OAK	LAD	0.53	0.33	Top	NA
## 3275	R	NYY	BAL	-0.40	2.65	Bot	90.2
## 3276	R	NYY	BAL	0.05	1.44	Top	62.6
## 3277	R	CLE	KC	-0.93	2.99	Bot	NA
## 3278	R	CIN	PIT	0.15	1.26	Top	27.9
## 3279	R	WSH	ATL	0.07	2.72	Top	64.8
## 3280	L	BOS	TB	-0.25	2.02	Top	NA
## 3281	R	CHC	MIL	-0.87	4.24	Bot	NA
## 3282	L	SD	SF	-0.25	1.80	Bot	NA
## 3283	R	OAK	LAD	1.46	1.58	Bot	NA
## 3284	R	COL	ARI	0.42	1.98	Top	NA
## 3285	R	WSH	ATL	0.30	3.14	Top	71.4
## 3286	L	MIA	STL	-0.38	2.62	Bot	NA
## 3287	R	MIA	STL	-1.60	2.29	Top	NA
## 3288	L	COL	ARI	-0.64	2.79	Bot	82.8
## 3289	L	OAK	LAD	0.24	2.11	Top	73.5
## 3290	R	CLE	KC	-0.12	2.71	Top	107.3
## 3291	R	CHC	MIL	0.04	3.68	Top	NA
## 3292	R	SD	SF	0.02	-0.74	Top	NA
## 3293	R	CIN	PIT	0.35	2.22	Top	NA
## 3294	R	COL	ARI	0.86	3.93	Bot	NA
## 3295	L	WSH	ATL	-0.77	2.86	Bot	NA
## 3296	L	CHC	MIL	0.82	2.14	Top	76.6
## 3297	L	SD	SF	1.12	3.84	Top	NA
## 3298	R	SEA	CWS	-0.98	1.64	Top	NA
## 3299	R	DET	MIN	-1.38	3.27	Bot	NA
## 3300	R	CLE	KC	1.21	0.81	Bot	NA
## 3301	L	WSH	ATL	-1.05	0.97	Top	NA
## 3302	L	SEA	CWS	1.64	1.41	Bot	NA
## 3303	R	SEA	CWS	1.07	3.05	Bot	NA
## 3304	R	MIA	STL	0.14	2.28	Top	NA
## 3305	R	OAK	LAD	-0.67	2.96	Bot	82.4
## 3306	L	SD	SF	0.31	0.67	Top	NA
## 3307	R	NYY	BAL	-0.42	2.85	Top	79.5
## 3308	R	PHI	NYM	0.24	1.29	Bot	NA
## 3309	R	PHI	NYM	0.06	2.07	Top	86.8
## 3310	R	MIA	STL	-0.09	1.20	Top	53.6
## 3311	R	SEA	CWS	0.96	2.68	Top	NA
## 3312	L	OAK	LAD	-0.94	1.19	Top	NA
## 3313	L	CLE	KC	-0.18	2.41	Bot	NA
## 3314	R	OAK	LAD	0.27	2.29	Top	NA
## 3315	R	CLE	KC	0.33	2.33	Top	90.6
## 3316	R	WSH	ATL	1.21	1.14	Bot	NA
## 3317	R	TEX	TOR	-0.47	1.25	Top	NA
## 3318	L	PHI	NYM	0.40	0.35	Bot	NA
## 3319	L	SD	SF	0.31	2.13	Bot	87.8
## 3320	L	CIN	PIT	0.32	2.08	Top	108.2
## 3321	L	NYY	BAL	-0.55	1.09	Bot	NA
## 3322	R	MIA	STL	-0.62	2.94	Top	NA
## 3323	R	TEX	TOR	-0.77	3.54	Top	78.7
## 3324	L	WSH	ATL	-1.49	0.52	Bot	NA



## 3325	R	PHI	NYM	-0.41	2.70	Top	73.3
## 3326	L	TEX	TOR	0.13	1.98	Bot	NA
## 3327	L	COL	ARI	0.31	3.70	Bot	NA
## 3328	R	PHI	NYM	-0.05	2.14	Top	91.1
## 3329	R	SD	SF	0.32	2.12	Top	75.0
## 3330	R	DET	MIN	-0.81	2.70	Top	NA
## 3331	L	TEX	TOR	1.17	2.97	Bot	47.2
## 3332	R	OAK	LAD	-0.02	3.22	Top	86.9
## 3333	L	DET	MIN	2.18	3.37	Top	NA
##	launch_angle	effective_speed	release_spin_rate	release_extension			
## 1	NA	96.3	2970	6.6			
## 2	NA	88.2	2763	6.5			
## 3	NA	87.1	2867	6.5			
## 4	NA	95.3	2837	6.6			
## 5	16	81.1	3057	6.4			
## 6	NA	82.9	2999	6.5			
## 7	20	89.6	2342	5.7			
## 8	36	85.3	2949	6.5			
## 9	7	86.9	2850	6.6			
## 10	15	94.6	2704	6.6			
## 11	NA	92.6	2388	5.7			
## 12	NA	94.6	2724	6.6			
## 13	NA	86.5	1844	5.8			
## 14	NA	88.4	2829	6.5			
## 15	NA	91.0	2262	5.8			
## 16	NA	97.1	2843	6.6			
## 17	NA	86.7	2919	6.4			
## 18	19	97.2	2265	6.9			
## 19	NA	87.5	2794	6.6			
## 20	13	95.8	2127	6.9			
## 21	NA	93.7	2819	6.5			
## 22	NA	92.3	2299	5.7			
## 23	46	90.8	2142	6.6			
## 24	-17	91.9	2258	5.7			
## 25	NA	96.1	2206	6.9			
## 26	NA	77.2	2874	6.3			
## 27	38	94.3	2391	6.6			
## 28	35	93.1	2078	7.0			
## 29	NA	95.6	2550	5.8			
## 30	NA	76.6	3098	6.4			
## 31	NA	87.3	2758	6.6			
## 32	-36	93.9	1973	6.9			
## 33	NA	96.2	2130	7.1			
## 34	40	84.5	2617	6.7			
## 35	NA	94.4	2098	6.8			
## 36	-13	84.3	2368	6.7			
## 37	NA	78.3	3168	6.4			
## 38	NA	95.4	2489	5.9			
## 39	NA	77.7	2733	5.9			
## 40	NA	95.0	2364	6.8			
## 41	NA	85.8	1513	6.5			
## 42	NA	78.4	2497	6.2			
## 43	NA	88.1	1991	6.7			
## 44	NA	86.9	2277	6.5			

## 45	NA	79.5	2776	6.4
## 46	NA	85.3	1792	5.7
## 47	30	95.3	2808	6.7
## 48	NA	77.8	2442	6.7
## 49	-74	84.9	2755	6.7
## 50	45	97.2	2386	6.5
## 51	-2	86.3	2164	6.1
## 52	NA	82.8	2462	6.4
## 53	NA	95.1	2553	6.7
## 54	NA	83.6	2462	6.8
## 55	NA	88.4	2004	6.8
## 56	NA	92.1	2341	5.7
## 57	71	90.4	3424	6.9
## 58	NA	78.6	2382	6.1
## 59	NA	85.5	2469	6.9
## 60	NA	93.1	2051	6.2
## 61	NA	85.2	2822	6.8
## 62	-6	86.7	1914	5.7
## 63	NA	84.8	2623	6.2
## 64	53	92.3	2412	6.2
## 65	NA	94.4	2707	6.6
## 66	NA	94.3	2119	6.9
## 67	NA	83.7	1486	6.4
## 68	NA	94.4	2575	6.5
## 69	22	93.8	2464	5.8
## 70	NA	90.2	1991	6.9
## 71	NA	94.4	2369	6.4
## 72	NA	74.6	2793	6.0
## 73	3	93.3	2272	6.8
## 74	NA	87.1	2178	6.2
## 75	40	78.2	1526	5.9
## 76	NA	95.2	2285	6.6
## 77	78	94.4	2005	6.9
## 78	2	82.2	2398	6.3
## 79	NA	93.5	2749	6.6
## 80	NA	94.4	2272	6.2
## 81	NA	92.1	2296	5.9
## 82	21	79.5	2001	6.1
## 83	NA	83.9	2434	6.3
## 84	NA	95.2	2287	7.0
## 85	59	88.4	2513	6.9
## 86	NA	85.9	2187	6.1
## 87	NA	92.0	2693	6.7
## 88	NA	79.3	2647	6.7
## 89	25	95.0	1945	6.8
## 90	68	92.6	2449	6.4
## 91	NA	84.1	2480	6.7
## 92	NA	87.6	2044	6.2
## 93	NA	86.2	1583	6.8
## 94	NA	72.9	2645	6.2
## 95	30	94.7	2396	6.5
## 96	NA	86.7	1989	6.2
## 97	NA	84.6	1899	6.7
## 98	31	85.3	2427	7.0

## 99	NA	91.3	2435	6.5
## 100	78	95.3	2902	6.6
## 101	NA	92.4	2310	5.8
## 102	15	93.1	2096	6.2
## 103	NA	84.0	2442	6.2
## 104	NA	88.8	1960	6.7
## 105	-40	93.8	2335	6.5
## 106	NA	87.2	2785	6.6
## 107	NA	85.6	1997	6.1
## 108	NA	86.8	1907	5.9
## 109	-16	86.0	2236	6.5
## 110	-14	74.1	2538	6.4
## 111	78	86.0	2497	6.5
## 112	NA	79.6	2405	6.2
## 113	NA	89.0	1825	6.8
## 114	21	94.6	2352	6.6
## 115	NA	90.6	2392	5.9
## 116	66	94.6	2918	6.6
## 117	NA	93.3	2229	6.9
## 118	NA	93.9	2356	6.4
## 119	33	94.0	2335	6.8
## 120	NA	81.2	2733	6.2
## 121	NA	76.0	2454	5.9
## 122	31	76.3	1453	6.7
## 123	43	91.2	2336	6.1
## 124	NA	96.5	2097	6.6
## 125	NA	90.9	2445	6.3
## 126	-16	80.2	1965	6.3
## 127	60	81.1	2611	6.3
## 128	NA	84.9	2103	6.0
## 129	NA	86.2	1782	5.9
## 130	NA	91.8	2436	5.6
## 131	68	92.9	2901	6.6
## 132	NA	92.3	2742	7.6
## 133	68	95.2	2227	6.9
## 134	13	78.9	2337	6.2
## 135	NA	93.2	2373	7.0
## 136	NA	94.6	2207	7.1
## 137	NA	95.6	2495	6.7
## 138	NA	92.6	2746	6.5
## 139	NA	83.8	2006	6.2
## 140	11	84.1	2107	5.9
## 141	53	89.7	2240	6.1
## 142	NA	98.5	2171	6.5
## 143	NA	87.1	2694	6.5
## 144	44	94.2	2288	6.2
## 145	NA	93.9	2422	6.5
## 146	NA	80.0	2164	6.5
## 147	35	81.5	2537	5.6
## 148	NA	82.7	2280	6.4
## 149	NA	74.1	1405	6.7
## 150	NA	94.2	2245	6.8
## 151	45	89.2	2480	6.4
## 152	NA	95.4	2091	6.9

## 153	-43	85.5	1535	6.7
## 154	NA	76.0	2146	6.0
## 155	NA	79.6	1950	6.1
## 156	37	90.2	2013	6.6
## 157	NA	78.6	2484	6.4
## 158	NA	74.8	1586	7.0
## 159	NA	93.8	2336	6.8
## 160	19	77.1	2312	5.8
## 161	-45	85.5	2137	6.1
## 162	NA	82.1	2069	6.3
## 163	NA	83.9	1748	6.4
## 164	NA	93.7	2784	6.6
## 165	NA	95.1	2346	6.7
## 166	61	81.3	2537	6.3
## 167	NA	94.8	2130	6.7
## 168	NA	87.2	2242	6.5
## 169	-17	94.9	2417	6.8
## 170	NA	95.6	2364	7.0
## 171	NA	96.7	2141	6.8
## 172	NA	95.4	2458	6.7
## 173	NA	95.7	2356	7.0
## 174	NA	95.2	2539	6.6
## 175	NA	92.5	2088	6.0
## 176	NA	95.1	2146	6.8
## 177	41	81.9	2036	6.5
## 178	NA	85.0	2455	6.8
## 179	NA	79.0	2717	7.0
## 180	NA	88.8	2247	6.0
## 181	-6	80.5	1159	5.6
## 182	35	95.4	2845	6.6
## 183	NA	77.2	2450	6.2
## 184	88	85.0	2135	6.0
## 185	NA	73.6	2479	6.6
## 186	NA	92.8	2233	6.2
## 187	77	84.2	2547	6.2
## 188	-15	81.7	2030	6.3
## 189	NA	77.7	2119	6.5
## 190	NA	78.9	2645	6.0
## 191	NA	83.9	2931	6.5
## 192	NA	94.3	2442	6.6
## 193	-27	93.4	1973	7.2
## 194	NA	95.6	2185	6.5
## 195	NA	82.2	2387	5.7
## 196	NA	85.3	2097	6.6
## 197	NA	77.6	2010	5.9
## 198	48	93.9	2085	6.9
## 199	NA	89.7	2489	6.8
## 200	NA	95.7	2357	6.8
## 201	NA	79.4	1619	6.1
## 202	NA	79.0	1978	5.9
## 203	NA	90.4	2479	6.2
## 204	NA	97.1	2352	6.5
## 205	NA	94.6	2092	6.8
## 206	-17	80.5	2673	7.3

## 207	16	85.1	1509	6.3
## 208	NA	79.2	2087	6.2
## 209	-26	89.5	1931	6.7
## 210	NA	94.8	2419	6.9
## 211	-33	87.7	2031	6.2
## 212	NA	92.2	2089	6.9
## 213	-15	86.3	2690	6.4
## 214	-27	93.9	2084	6.8
## 215	NA	83.1	2552	6.3
## 216	NA	84.3	1803	5.6
## 217	NA	98.9	2115	6.6
## 218	NA	94.3	1967	7.3
## 219	61	93.1	1990	6.2
## 220	-59	85.7	1412	6.7
## 221	NA	79.3	1902	5.9
## 222	NA	89.7	1268	6.7
## 223	47	93.8	2877	6.6
## 224	NA	75.7	2508	6.1
## 225	5	81.5	2174	6.2
## 226	NA	87.1	2835	6.7
## 227	-3	85.8	2782	6.1
## 228	NA	80.7	2100	6.0
## 229	NA	97.2	2363	6.4
## 230	NA	73.3	2940	5.8
## 231	NA	93.6	1932	6.3
## 232	NA	76.8	2402	6.5
## 233	13	88.9	2236	6.9
## 234	-21	94.4	2323	5.9
## 235	46	98.2	2239	6.6
## 236	NA	80.8	1634	6.2
## 237	NA	80.8	2650	6.1
## 238	NA	70.6	2184	6.3
## 239	24	83.6	2424	6.5
## 240	NA	77.4	2031	6.3
## 241	NA	94.0	2756	6.5
## 242	NA	80.8	1510	6.9
## 243	NA	93.9	2133	7.3
## 244	NA	90.6	1931	6.8
## 245	NA	90.1	1546	7.2
## 246	32	94.7	2088	6.8
## 247	NA	79.1	2022	5.9
## 248	17	82.2	2097	6.3
## 249	-12	87.9	1584	6.9
## 250	NA	83.2	2443	6.4
## 251	NA	87.7	2789	6.4
## 252	20	89.2	2405	6.4
## 253	NA	81.5	2569	6.3
## 254	NA	83.7	1493	7.3
## 255	61	94.6	2600	5.9
## 256	NA	78.7	2792	5.9
## 257	NA	84.0	1403	6.1
## 258	-24	75.3	2722	6.1
## 259	NA	97.8	2254	6.6
## 260	NA	93.1	2004	6.4

## 261	NA	93.1	2733	6.6
## 262	NA	93.8	2126	6.6
## 263	NA	78.6	2640	6.7
## 264	9	84.7	2226	6.1
## 265	35	81.2	2443	6.6
## 266	NA	95.2	2456	6.6
## 267	NA	94.3	2005	7.2
## 268	NA	92.7	2371	7.2
## 269	7	79.0	2097	6.2
## 270	NA	94.9	2118	6.8
## 271	63	94.9	2515	5.9
## 272	NA	92.8	2775	6.5
## 273	NA	94.0	2068	6.1
## 274	NA	95.8	2121	7.0
## 275	NA	92.0	2465	6.1
## 276	NA	93.1	3543	6.7
## 277	NA	89.3	1676	6.8
## 278	NA	84.6	2089	6.6
## 279	NA	84.8	2232	6.1
## 280	NA	94.4	2146	5.4
## 281	NA	90.7	2497	6.9
## 282	71	92.2	2352	6.4
## 283	62	86.7	1827	6.0
## 284	NA	86.4	2275	6.6
## 285	NA	83.6	1541	6.3
## 286	NA	76.4	1938	6.3
## 287	NA	81.1	2296	6.0
## 288	-29	85.3	2447	6.6
## 289	NA	93.4	2378	6.5
## 290	NA	94.2	2529	5.8
## 291	NA	93.7	2060	6.9
## 292	NA	84.5	1967	6.1
## 293	NA	86.7	2001	5.4
## 294	NA	94.6	2404	6.4
## 295	-12	80.0	2122	5.9
## 296	17	92.9	2287	6.9
## 297	NA	72.2	2365	6.6
## 298	28	90.6	2569	6.6
## 299	NA	80.5	2582	6.2
## 300	NA	84.4	2557	6.6
## 301	28	93.6	1946	7.2
## 302	NA	80.6	1961	6.2
## 303	NA	87.3	2755	6.7
## 304	NA	81.2	2979	6.3
## 305	NA	76.9	2257	6.0
## 306	-33	94.2	1979	6.6
## 307	NA	82.1	2090	6.4
## 308	-57	80.8	2428	6.3
## 309	42	86.4	1976	6.0
## 310	NA	78.4	2606	6.8
## 311	NA	86.8	2616	6.5
## 312	NA	84.1	2359	7.1
## 313	19	79.1	2694	6.4
## 314	NA	80.3	2534	6.3

## 315	NA	93.6	2444	5.9
## 316	-40	75.3	1286	7.3
## 317	-6	93.0	2895	6.6
## 318	NA	94.6	2353	5.4
## 319	23	88.4	2236	6.0
## 320	NA	74.6	2404	6.0
## 321	19	79.4	2374	6.1
## 322	NA	83.5	1545	6.4
## 323	NA	87.6	1930	6.7
## 324	NA	86.1	2231	6.7
## 325	-13	93.9	2059	6.2
## 326	NA	93.5	2425	6.8
## 327	NA	89.1	1717	7.3
## 328	NA	73.1	2877	5.8
## 329	NA	90.3	1608	6.7
## 330	NA	78.6	2403	6.1
## 331	29	94.0	2343	6.9
## 332	-11	80.5	2258	6.6
## 333	73	85.9	2152	6.0
## 334	10	94.9	2366	6.5
## 335	NA	83.7	2902	6.3
## 336	NA	95.4	2138	7.2
## 337	10	86.1	1985	5.5
## 338	-1	88.5	1801	6.7
## 339	NA	79.2	2644	6.8
## 340	-53	83.9	2562	5.8
## 341	NA	87.3	2718	6.5
## 342	5	79.1	1532	6.7
## 343	NA	81.2	2095	6.2
## 344	NA	93.2	841	6.4
## 345	NA	88.2	1503	7.4
## 346	24	87.3	1983	6.1
## 347	NA	83.9	2547	6.5
## 348	-45	81.6	2261	6.2
## 349	14	85.9	2591	6.7
## 350	NA	73.2	2619	6.4
## 351	NA	82.4	2851	6.4
## 352	NA	88.1	2058	6.1
## 353	12	80.9	2009	6.0
## 354	-1	96.1	2439	6.3
## 355	NA	93.5	2001	6.2
## 356	NA	82.5	2072	6.3
## 357	NA	91.9	2562	7.5
## 358	19	94.0	2235	7.1
## 359	NA	94.4	2093	7.2
## 360	23	92.9	2439	6.6
## 361	NA	85.4	2031	5.6
## 362	NA	83.8	2435	6.6
## 363	NA	75.7	2257	5.9
## 364	54	79.0	1978	5.7
## 365	NA	81.1	2219	6.8
## 366	NA	91.9	2121	6.8
## 367	NA	93.8	2389	5.9
## 368	NA	93.4	2245	6.4

## 369	NA	98.3	2191	6.6
## 370	NA	95.7	2069	6.8
## 371	63	94.8	2533	6.5
## 372	NA	94.4	2360	6.2
## 373	NA	86.0	2226	6.6
## 374	NA	85.5	1932	6.0
## 375	19	88.0	2629	6.9
## 376	7	78.3	2197	6.4
## 377	36	94.2	2470	6.8
## 378	NA	83.6	2548	6.5
## 379	-19	81.2	3204	6.4
## 380	NA	84.2	2213	6.1
## 381	NA	93.0	2222	7.0
## 382	NA	85.5	2075	6.6
## 383	-43	82.7	2322	6.9
## 384	NA	80.6	2288	6.2
## 385	-17	93.3	2039	6.2
## 386	NA	95.1	1954	7.3
## 387	NA	79.2	2495	6.1
## 388	NA	85.0	2059	5.4
## 389	NA	89.3	2356	6.3
## 390	NA	92.5	2322	5.6
## 391	NA	95.7	2094	6.9
## 392	43	70.2	2193	6.4
## 393	NA	80.3	2342	6.0
## 394	NA	93.4	2158	6.9
## 395	0	79.9	2708	6.9
## 396	NA	84.6	1461	6.7
## 397	72	78.6	2475	6.1
## 398	NA	70.0	2261	6.3
## 399	NA	90.5	2433	7.0
## 400	NA	94.1	2322	5.9
## 401	NA	88.7	1929	6.8
## 402	NA	92.1	2032	6.2
## 403	19	92.1	2431	6.2
## 404	38	85.0	2146	6.1
## 405	46	92.4	2435	6.0
## 406	12	85.1	1954	5.6
## 407	NA	93.8	2266	6.3
## 408	NA	79.6	2493	6.2
## 409	-9	88.4	2355	6.3
## 410	NA	94.2	2347	6.5
## 411	NA	94.2	2435	6.9
## 412	NA	90.9	2069	7.0
## 413	29	97.5	2296	6.7
## 414	NA	78.2	2963	6.5
## 415	15	79.1	2070	5.8
## 416	NA	79.2	1509	6.7
## 417	-1	92.1	2332	5.7
## 418	-17	94.8	2085	6.8
## 419	NA	77.7	2607	6.1
## 420	NA	83.0	2332	6.5
## 421	NA	79.8	2466	6.2
## 422	NA	81.1	2234	6.5



## 423	NA	79.8	2637	6.1
## 424	NA	78.2	2131	6.4
## 425	NA	94.8	2902	6.3
## 426	NA	82.6	2674	5.8
## 427	NA	86.9	2955	6.9
## 428	NA	88.6	1836	6.4
## 429	NA	88.3	1521	7.3
## 430	NA	85.6	2410	6.4
## 431	NA	80.4	1622	6.2
## 432	38	71.7	2309	6.3
## 433	NA	94.9	2557	6.8
## 434	-1	84.8	2057	6.4
## 435	-6	93.3	2099	6.3
## 436	NA	85.0	1467	6.6
## 437	51	97.5	2287	6.8
## 438	NA	93.6	2275	6.6
## 439	NA	94.5	2695	6.6
## 440	NA	85.3	1933	5.6
## 441	NA	79.4	1945	5.9
## 442	NA	91.4	2436	6.1
## 443	-33	91.9	2184	7.1
## 444	-54	80.5	2024	6.1
## 445	NA	92.8	2038	7.1
## 446	32	94.5	2315	6.3
## 447	38	87.4	2072	6.2
## 448	77	93.6	2571	6.7
## 449	NA	92.1	2147	6.5
## 450	34	89.5	1700	6.4
## 451	NA	94.0	2490	6.6
## 452	NA	97.0	2287	6.7
## 453	NA	85.6	1952	6.3
## 454	NA	71.5	2437	6.2
## 455	NA	84.7	2534	6.5
## 456	-53	91.6	2248	6.9
## 457	NA	77.8	1955	6.0
## 458	-34	90.3	2142	5.9
## 459	NA	92.6	2282	5.8
## 460	26	94.2	2111	6.9
## 461	NA	94.3	2253	5.6
## 462	1	81.7	2544	6.4
## 463	-44	86.8	2977	6.4
## 464	NA	80.0	2089	6.5
## 465	NA	94.6	1734	6.6
## 466	NA	78.8	1540	6.1
## 467	NA	91.1	2219	6.7
## 468	18	84.9	2157	6.1
## 469	NA	95.3	2390	6.8
## 470	75	78.4	2025	5.9
## 471	3	94.1	2237	5.4
## 472	NA	74.5	2268	6.6
## 473	NA	92.1	2583	6.7
## 474	NA	94.3	2031	7.3
## 475	50	92.1	1986	6.0
## 476	9	0.0	NA	NA

## 477	NA	94.8	2454	5.8
## 478	NA	0.0	NA	NA
## 479	NA	84.4	2534	6.6
## 480	NA	85.5	2869	6.5
## 481	NA	83.5	2018	6.9
## 482	NA	87.5	2414	6.2
## 483	NA	93.8	2100	6.7
## 484	NA	97.9	2199	6.6
## 485	7	92.7	2381	6.2
## 486	NA	87.0	2631	6.7
## 487	NA	92.3	2189	6.1
## 488	NA	86.1	1971	6.5
## 489	54	92.9	2480	6.4
## 490	NA	80.3	1976	6.2
## 491	NA	80.7	2502	6.1
## 492	NA	82.4	1695	6.1
## 493	-22	93.3	2284	5.7
## 494	NA	96.0	2433	6.7
## 495	-2	87.3	2035	6.2
## 496	NA	81.3	2400	6.1
## 497	NA	87.8	2423	6.9
## 498	NA	84.5	1600	6.9
## 499	17	76.7	2056	6.4
## 500	NA	86.6	2091	6.4
## 501	2	92.6	2184	7.1
## 502	NA	94.3	2877	6.5
## 503	19	86.0	2499	6.7
## 504	-10	80.2	2745	7.1
## 505	NA	80.3	1981	6.1
## 506	16	80.6	2916	6.7
## 507	NA	93.1	2533	6.4
## 508	-22	84.8	2608	6.6
## 509	42	92.0	2389	5.9
## 510	NA	94.2	2048	6.8
## 511	-19	96.5	2115	6.4
## 512	17	80.9	2516	5.7
## 513	NA	91.9	2236	7.0
## 514	NA	89.5	2435	6.6
## 515	59	92.5	2389	6.0
## 516	NA	78.2	2319	6.7
## 517	22	94.3	2336	6.7
## 518	NA	86.2	1897	5.9
## 519	NA	93.7	1999	6.2
## 520	-52	77.0	2096	6.4
## 521	-23	84.5	2463	6.4
## 522	NA	95.2	2158	6.7
## 523	NA	97.7	2485	6.9
## 524	NA	80.7	3041	6.4
## 525	NA	81.1	2276	6.9
## 526	-49	84.1	1913	5.5
## 527	NA	81.8	2181	6.3
## 528	NA	79.6	2102	5.8
## 529	NA	88.0	2893	6.7
## 530	17	88.0	2495	6.6

## 531	NA	94.8	2267	6.6
## 532	NA	89.0	1761	7.3
## 533	NA	83.8	1537	5.8
## 534	NA	85.0	2487	6.6
## 535	-7	79.1	1677	6.1
## 536	NA	86.4	2516	6.8
## 537	-14	85.7	1434	6.8
## 538	NA	91.4	2225	5.8
## 539	NA	78.6	1471	6.6
## 540	NA	74.5	2349	6.4
## 541	4	79.6	1645	6.1
## 542	-24	81.5	1424	6.2
## 543	-17	85.5	1814	6.6
## 544	NA	93.3	2420	6.8
## 545	NA	95.0	2050	6.3
## 546	43	81.7	2274	6.8
## 547	NA	84.3	1447	5.8
## 548	NA	89.0	1654	6.8
## 549	NA	97.1	2315	6.8
## 550	NA	0.0	NA	NA
## 551	NA	87.4	2711	6.5
## 552	NA	90.8	2267	5.8
## 553	NA	81.7	2220	6.0
## 554	NA	89.9	1570	6.5
## 555	NA	93.3	2437	6.7
## 556	NA	84.3	1944	5.6
## 557	-53	77.2	3023	6.3
## 558	NA	82.8	2405	6.4
## 559	NA	80.5	1651	6.0
## 560	NA	69.9	2280	6.1
## 561	NA	91.6	2184	6.2
## 562	NA	78.2	2547	6.6
## 563	NA	86.5	2283	6.6
## 564	NA	86.1	1951	6.0
## 565	30	83.3	2339	6.8
## 566	NA	91.4	2242	6.2
## 567	NA	89.0	2373	6.6
## 568	35	93.8	1927	7.4
## 569	NA	91.8	1952	6.6
## 570	NA	94.6	2232	6.7
## 571	NA	92.7	2016	6.6
## 572	-3	87.7	2059	6.6
## 573	NA	85.1	1920	5.9
## 574	NA	84.8	1934	5.7
## 575	NA	94.0	2090	6.2
## 576	NA	88.2	2166	6.1
## 577	NA	76.4	2357	6.0
## 578	-6	87.9	2447	6.7
## 579	-10	83.9	2491	6.1
## 580	41	87.6	2726	6.8
## 581	NA	92.3	2375	6.9
## 582	NA	97.1	2224	6.7
## 583	NA	76.1	2327	6.6
## 584	NA	77.6	1980	6.5

## 585	NA	80.3	2249	6.7
## 586	39	92.3	2420	6.4
## 587	41	84.3	1502	6.3
## 588	NA	77.6	2628	6.4
## 589	NA	88.8	1635	7.3
## 590	NA	83.8	2933	6.4
## 591	NA	88.7	2442	6.6
## 592	NA	92.0	2258	5.9
## 593	NA	83.8	1231	5.9
## 594	NA	89.0	2253	5.7
## 595	NA	87.2	2520	6.7
## 596	NA	84.3	2611	6.8
## 597	NA	79.7	2249	6.7
## 598	NA	80.2	1672	6.2
## 599	NA	91.1	2167	7.1
## 600	NA	89.2	2566	6.6
## 601	NA	78.0	2211	6.6
## 602	NA	80.3	2470	6.0
## 603	8	90.7	2373	6.2
## 604	NA	86.7	2624	6.8
## 605	NA	79.4	2945	6.4
## 606	-37	80.5	2328	6.6
## 607	44	95.0	2317	6.3
## 608	17	83.7	1942	6.4
## 609	6	96.6	2302	6.8
## 610	NA	82.5	2421	5.7
## 611	NA	95.1	2475	6.8
## 612	NA	93.7	2193	6.8
## 613	NA	83.2	2529	6.0
## 614	NA	88.2	1891	6.3
## 615	NA	92.9	2348	6.3
## 616	-73	91.0	2498	6.9
## 617	-9	83.0	2458	6.6
## 618	NA	92.6	2028	6.6
## 619	10	93.9	2252	5.4
## 620	NA	83.8	2838	7.2
## 621	NA	94.1	2532	5.7
## 622	NA	88.2	2213	6.8
## 623	NA	71.4	2877	5.7
## 624	-32	95.2	2070	6.8
## 625	NA	80.8	2007	6.2
## 626	NA	80.0	2037	5.9
## 627	52	80.9	1618	6.9
## 628	NA	88.9	2127	6.0
## 629	27	87.3	2925	6.4
## 630	NA	90.8	2483	6.6
## 631	NA	84.1	2359	6.7
## 632	NA	77.5	2498	6.2
## 633	NA	94.1	2344	5.5
## 634	NA	88.3	1648	6.6
## 635	NA	78.0	2383	6.2
## 636	NA	94.1	2439	6.9
## 637	-28	87.4	1902	5.7
## 638	57	79.3	2284	6.7

## 639	-56	97.4	2260	6.7
## 640	NA	79.0	2071	6.1
## 641	NA	85.0	1362	5.8
## 642	NA	76.9	2550	6.3
## 643	NA	86.2	1969	6.8
## 644	NA	82.0	2678	7.2
## 645	NA	81.6	1448	6.3
## 646	NA	92.7	2141	6.7
## 647	NA	90.5	2347	6.5
## 648	NA	92.8	2196	6.5
## 649	NA	84.8	2492	6.3
## 650	NA	77.6	2515	6.7
## 651	NA	83.8	2310	6.3
## 652	NA	84.9	2496	6.7
## 653	NA	89.2	1640	6.7
## 654	NA	89.2	1696	6.7
## 655	NA	78.4	2546	6.2
## 656	41	80.4	2535	6.3
## 657	-22	91.3	2100	6.7
## 658	-29	80.6	1545	6.2
## 659	NA	92.2	2368	6.3
## 660	68	93.9	2845	6.6
## 661	-58	86.1	1714	6.0
## 662	66	93.7	1988	6.7
## 663	NA	90.0	2041	6.9
## 664	8	95.6	2588	5.9
## 665	NA	93.9	2039	6.6
## 666	-10	93.5	2312	6.7
## 667	NA	84.1	1360	5.8
## 668	14	96.2	2205	6.7
## 669	NA	85.4	2643	6.6
## 670	NA	80.1	1997	6.0
## 671	NA	93.9	2382	6.6
## 672	-7	85.3	2058	6.6
## 673	NA	82.4	2310	6.3
## 674	-21	93.8	2133	6.0
## 675	-20	93.3	2075	5.6
## 676	NA	95.9	2247	6.1
## 677	46	95.2	2067	7.3
## 678	NA	93.3	2203	6.7
## 679	-68	82.4	2238	6.2
## 680	40	96.9	2319	6.7
## 681	-55	93.5	2580	5.7
## 682	20	79.1	2436	6.7
## 683	NA	94.6	1935	6.8
## 684	-47	84.4	2405	6.1
## 685	NA	93.6	2298	6.4
## 686	NA	99.4	2233	6.7
## 687	NA	77.4	2617	6.7
## 688	NA	86.5	2161	6.0
## 689	NA	80.2	2589	6.3
## 690	13	68.1	2164	6.3
## 691	NA	76.1	2228	5.9
## 692	0	80.7	2295	6.8

## 693	NA	78.6	2684	6.5
## 694	NA	78.0	2459	6.1
## 695	NA	94.8	2013	7.4
## 696	NA	86.7	2041	6.5
## 697	NA	94.1	2234	6.6
## 698	NA	94.8	2371	6.2
## 699	NA	83.3	2418	6.2
## 700	NA	84.0	1901	5.3
## 701	NA	87.7	2907	6.5
## 702	NA	85.6	1721	5.8
## 703	NA	94.0	2270	7.2
## 704	NA	82.0	2448	5.6
## 705	NA	80.1	2366	6.8
## 706	54	93.8	2153	7.0
## 707	43	81.7	2382	7.0
## 708	17	88.3	2147	5.8
## 709	NA	95.1	2410	6.7
## 710	11	93.3	2235	6.4
## 711	NA	92.8	2319	7.0
## 712	NA	88.3	1518	6.1
## 713	-57	84.6	2385	6.1
## 714	NA	93.1	2368	5.3
## 715	41	93.1	1926	6.7
## 716	NA	80.8	2808	6.7
## 717	-11	92.3	2360	6.2
## 718	NA	94.4	2064	7.3
## 719	-4	80.2	1727	6.1
## 720	9	82.5	2328	6.3
## 721	NA	93.6	2330	6.3
## 722	NA	72.2	2478	6.6
## 723	NA	94.3	2484	5.8
## 724	NA	85.9	1839	5.9
## 725	13	78.7	2116	6.4
## 726	NA	95.9	2111	6.7
## 727	NA	87.1	2749	6.6
## 728	NA	86.5	2912	6.6
## 729	59	95.6	2284	6.6
## 730	9	77.8	1993	6.3
## 731	5	78.4	2639	6.5
## 732	NA	92.3	2377	6.4
## 733	34	81.4	2792	6.9
## 734	NA	85.3	2291	6.7
## 735	9	86.1	2012	6.5
## 736	NA	84.2	2450	5.9
## 737	NA	81.1	1588	6.2
## 738	NA	86.7	1938	5.8
## 739	-13	77.7	2628	6.0
## 740	NA	86.8	2728	6.5
## 741	NA	93.2	1989	6.6
## 742	43	81.8	2050	6.4
## 743	48	92.8	2254	6.9
## 744	NA	88.9	2632	6.9
## 745	NA	80.4	2402	6.1
## 746	61	88.5	2413	6.4

## 747	NA	94.9	2338	7.1
## 748	14	93.4	2238	7.0
## 749	44	94.4	2251	5.5
## 750	-14	94.2	2152	6.6
## 751	NA	93.6	2462	6.6
## 752	61	95.5	2880	6.6
## 753	NA	96.3	2407	6.6
## 754	NA	83.3	2318	5.7
## 755	-30	82.6	2375	6.2
## 756	NA	92.0	2337	6.2
## 757	NA	89.5	2191	5.8
## 758	40	86.3	2513	6.7
## 759	-27	77.9	2021	5.9
## 760	NA	85.9	2999	6.4
## 761	NA	95.5	2241	5.6
## 762	NA	93.8	2189	7.0
## 763	54	77.9	1967	6.0
## 764	8	89.6	2374	5.9
## 765	NA	87.4	2031	6.1
## 766	3	96.0	2251	6.8
## 767	NA	81.8	2785	7.2
## 768	NA	78.4	2057	6.4
## 769	NA	89.2	2373	6.6
## 770	NA	93.4	2501	5.8
## 771	NA	86.2	2298	6.5
## 772	17	89.7	1842	6.6
## 773	NA	84.8	1969	6.5
## 774	-27	96.6	2311	6.2
## 775	NA	86.9	2919	6.6
## 776	NA	93.6	2295	6.2
## 777	NA	95.1	2472	6.8
## 778	14	84.8	2607	6.4
## 779	NA	88.9	2211	6.9
## 780	-31	81.6	2760	6.7
## 781	NA	91.8	2147	7.0
## 782	43	91.2	2363	6.1
## 783	NA	91.8	2395	6.1
## 784	NA	94.0	1965	6.8
## 785	NA	80.6	2253	6.3
## 786	65	77.8	2641	6.1
## 787	NA	94.9	2134	6.8
## 788	-22	79.5	2028	6.7
## 789	-59	78.8	1915	6.2
## 790	NA	91.7	2451	5.6
## 791	NA	90.1	2050	6.6
## 792	NA	93.8	2039	7.3
## 793	NA	84.2	2464	6.2
## 794	NA	85.5	2205	6.1
## 795	NA	83.6	2328	6.2
## 796	NA	96.0	2369	6.9
## 797	NA	90.7	2054	7.1
## 798	NA	84.1	1482	6.5
## 799	NA	91.5	2173	7.1
## 800	NA	87.4	2036	6.1

## 801	NA	85.3	2831	6.6
## 802	NA	85.8	1739	7.0
## 803	NA	94.0	2274	7.1
## 804	NA	83.9	1701	6.4
## 805	NA	85.8	1806	6.0
## 806	NA	74.9	2666	5.5
## 807	36	95.1	2365	5.6
## 808	NA	69.9	2178	5.9
## 809	NA	89.6	1840	6.7
## 810	42	95.2	2441	6.8
## 811	NA	97.3	2386	6.8
## 812	NA	86.9	2937	6.4
## 813	NA	85.3	2701	6.2
## 814	19	77.7	1493	6.7
## 815	NA	77.6	2030	6.5
## 816	NA	87.8	2006	6.1
## 817	-53	81.4	2175	6.0
## 818	NA	79.3	2707	6.9
## 819	NA	86.9	2690	6.7
## 820	NA	90.7	1733	6.9
## 821	12	83.7	2303	6.8
## 822	1	81.2	2372	6.4
## 823	NA	92.6	2168	6.6
## 824	NA	85.9	1536	6.6
## 825	NA	92.2	2282	6.5
## 826	NA	93.3	2103	6.8
## 827	NA	84.2	2561	6.5
## 828	-24	78.1	1889	6.0
## 829	NA	95.8	2117	6.1
## 830	-53	79.4	2641	6.3
## 831	NA	87.5	1953	6.7
## 832	NA	85.5	1997	5.6
## 833	NA	82.6	2443	5.7
## 834	NA	83.9	2566	6.0
## 835	17	93.2	2417	6.2
## 836	36	83.7	2344	7.0
## 837	NA	95.1	989	6.7
## 838	15	77.8	2040	6.5
## 839	NA	86.7	2997	6.6
## 840	NA	91.4	2456	5.8
## 841	-20	98.7	2059	6.6
## 842	NA	78.2	2033	6.6
## 843	45	84.3	2636	6.8
## 844	NA	94.8	2156	6.9
## 845	NA	84.8	2630	6.4
## 846	NA	92.6	2223	7.3
## 847	NA	94.7	2166	6.7
## 848	NA	87.7	2281	6.8
## 849	NA	86.6	1989	5.5
## 850	NA	91.1	2326	6.0
## 851	NA	90.6	2364	6.0
## 852	NA	81.4	2760	6.9
## 853	NA	80.8	2756	6.7
## 854	NA	95.3	2311	6.4



## 855	NA	92.3	2363	6.4
## 856	43	90.5	2271	6.1
## 857	NA	87.5	2033	5.9
## 858	NA	83.9	2632	5.8
## 859	38	94.3	2018	7.3
## 860	30	85.7	2037	6.1
## 861	NA	94.9	2717	6.6
## 862	NA	84.8	2369	6.6
## 863	NA	83.4	2624	5.7
## 864	43	95.0	2291	6.9
## 865	21	85.6	1809	5.9
## 866	11	87.1	2544	6.4
## 867	NA	82.2	2391	6.1
## 868	12	86.6	2008	6.5
## 869	NA	82.4	2716	7.1
## 870	NA	87.4	2018	6.5
## 871	15	93.6	1870	6.7
## 872	NA	81.9	2457	5.7
## 873	NA	90.5	2316	6.2
## 874	NA	83.7	2541	6.6
## 875	41	91.5	2386	6.1
## 876	34	92.2	2348	5.6
## 877	NA	85.9	1673	6.8
## 878	NA	84.4	2540	6.8
## 879	-46	88.8	1679	6.5
## 880	44	87.6	1918	6.8
## 881	NA	87.8	1760	6.6
## 882	NA	94.8	2839	6.4
## 883	NA	82.7	1983	7.0
## 884	NA	86.2	2613	6.6
## 885	-4	85.4	2676	6.2
## 886	NA	87.5	1927	6.0
## 887	NA	94.8	2191	5.4
## 888	NA	85.3	2003	6.2
## 889	NA	76.9	1974	6.4
## 890	-36	79.7	1925	6.1
## 891	NA	96.8	2444	6.7
## 892	-5	71.5	2820	5.7
## 893	66	94.7	2285	6.3
## 894	NA	94.0	2271	6.7
## 895	NA	89.1	1705	7.0
## 896	NA	84.4	2523	6.1
## 897	NA	82.8	1576	6.4
## 898	NA	80.7	2050	6.1
## 899	NA	94.3	2343	6.8
## 900	NA	82.4	2096	7.0
## 901	NA	86.3	1815	6.0
## 902	NA	93.9	2806	6.5
## 903	NA	93.9	2010	7.3
## 904	NA	74.7	2260	5.9
## 905	NA	84.9	1330	6.0
## 906	NA	94.1	2853	6.4
## 907	NA	92.1	2372	6.1
## 908	NA	93.7	2311	7.0

## 909	NA	95.0	2038	6.6
## 910	NA	85.5	2354	6.2
## 911	NA	83.1	2531	6.4
## 912	NA	82.0	2595	6.6
## 913	NA	95.2	2018	6.4
## 914	NA	91.8	2269	5.7
## 915	NA	82.8	2374	6.9
## 916	NA	84.9	2000	6.1
## 917	NA	88.3	2704	6.7
## 918	NA	85.8	1844	6.3
## 919	-20	97.8	2526	6.8
## 920	29	85.2	2161	6.0
## 921	NA	70.7	2455	6.4
## 922	NA	77.1	2193	6.4
## 923	-30	85.5	1987	5.6
## 924	NA	92.1	2563	6.9
## 925	NA	89.4	1711	6.8
## 926	NA	84.8	2542	6.2
## 927	47	83.6	2586	5.8
## 928	NA	93.7	2256	6.3
## 929	NA	77.3	2620	5.7
## 930	NA	98.3	2439	6.7
## 931	43	91.8	2293	5.7
## 932	27	83.0	1984	6.3
## 933	-40	84.8	2229	6.1
## 934	NA	91.2	2476	6.6
## 935	NA	95.8	2044	5.5
## 936	11	93.6	2339	6.4
## 937	NA	82.0	1835	6.9
## 938	NA	94.5	2035	7.3
## 939	NA	78.5	2461	6.1
## 940	-34	94.5	2117	6.8
## 941	NA	92.3	1964	6.2
## 942	NA	81.9	2967	6.7
## 943	NA	79.9	2501	6.4
## 944	14	86.0	1809	6.0
## 945	NA	93.5	2717	6.4
## 946	NA	89.4	2567	6.3
## 947	NA	83.1	2413	6.5
## 948	NA	92.3	2223	7.2
## 949	-23	79.3	2360	6.1
## 950	NA	86.5	1994	6.7
## 951	NA	93.5	2360	6.9
## 952	NA	80.4	2172	6.6
## 953	NA	89.6	2270	5.9
## 954	NA	80.1	2568	6.1
## 955	NA	77.7	1324	6.6
## 956	-8	82.9	2027	6.9
## 957	21	87.9	2734	6.5
## 958	NA	80.1	1481	6.1
## 959	NA	91.9	2286	6.3
## 960	-31	87.0	2619	6.6
## 961	NA	85.7	2454	6.6
## 962	NA	93.4	2276	6.5

## 963	NA	92.8	2834	6.6
## 964	39	94.3	2413	5.8
## 965	19	94.2	1875	6.3
## 966	NA	83.3	2484	6.0
## 967	NA	90.2	2402	6.4
## 968	-21	97.9	2099	6.4
## 969	NA	87.5	2626	6.5
## 970	27	80.4	2347	6.1
## 971	NA	87.4	1991	6.0
## 972	NA	94.6	2117	7.3
## 973	23	81.9	2526	5.7
## 974	1	87.3	1816	6.5
## 975	NA	89.1	2279	6.7
## 976	12	84.4	2009	5.7
## 977	48	95.2	2599	6.9
## 978	NA	80.7	2545	6.4
## 979	68	85.9	1796	6.5
## 980	NA	94.3	2262	6.8
## 981	NA	95.5	2189	6.8
## 982	NA	92.1	2043	6.2
## 983	NA	88.8	2466	6.3
## 984	NA	84.8	2999	6.4
## 985	6	84.8	1521	6.3
## 986	NA	86.7	2630	6.7
## 987	NA	83.9	2521	5.8
## 988	NA	92.0	1849	6.0
## 989	35	80.1	2189	6.2
## 990	NA	87.4	2573	6.6
## 991	NA	82.0	2633	6.1
## 992	NA	95.4	2261	5.6
## 993	65	78.1	2057	5.9
## 994	NA	89.3	1670	7.2
## 995	NA	85.7	2089	5.7
## 996	NA	75.1	2549	5.5
## 997	NA	77.5	1558	6.4
## 998	NA	89.6	2555	6.4
## 999	-17	86.8	1865	6.6
## 1000	54	94.5	2482	6.8
## 1001	NA	79.7	2072	6.2
## 1002	NA	91.6	2318	6.4
## 1003	-5	80.9	1469	6.4
## 1004	4	87.7	1984	5.9
## 1005	NA	86.3	2695	6.5
## 1006	NA	87.6	1737	6.9
## 1007	54	98.2	2053	6.8
## 1008	NA	77.4	2169	6.3
## 1009	NA	88.4	1715	6.7
## 1010	NA	82.4	2491	5.8
## 1011	NA	84.3	2999	5.4
## 1012	NA	83.5	2043	6.3
## 1013	NA	84.4	2931	6.5
## 1014	20	82.8	2451	5.8
## 1015	24	96.7	2312	6.8
## 1016	NA	75.5	2376	6.1

## 1017	NA	78.4	2082	5.9
## 1018	NA	90.2	2061	7.3
## 1019	NA	96.5	1985	6.8
## 1020	50	93.4	2338	6.5
## 1021	41	95.0	2284	7.0
## 1022	NA	79.1	2125	6.6
## 1023	NA	86.8	1733	6.8
## 1024	32	90.3	2305	6.1
## 1025	NA	86.3	1944	6.4
## 1026	NA	92.2	1508	6.9
## 1027	NA	94.0	2065	6.6
## 1028	NA	94.1	2478	5.8
## 1029	50	94.5	2377	6.3
## 1030	NA	80.5	2786	7.1
## 1031	NA	83.2	1432	6.3
## 1032	NA	95.4	2189	6.2
## 1033	-31	80.8	1576	6.3
## 1034	16	95.2	2259	7.0
## 1035	0	88.8	2072	6.0
## 1036	NA	88.8	2752	6.7
## 1037	NA	86.8	1930	6.0
## 1038	NA	93.9	2012	6.6
## 1039	NA	97.7	2322	6.9
## 1040	NA	94.0	2336	6.9
## 1041	NA	80.5	2751	7.1
## 1042	21	86.8	2544	6.9
## 1043	NA	82.4	2440	6.7
## 1044	NA	94.5	2236	5.4
## 1045	NA	89.6	2383	6.0
## 1046	17	81.3	2039	6.3
## 1047	NA	97.3	2266	6.9
## 1048	NA	93.6	2349	6.4
## 1049	20	93.7	2513	6.9
## 1050	NA	81.5	3016	6.1
## 1051	-30	94.2	1966	6.5
## 1052	NA	85.0	2548	6.4
## 1053	-79	97.1	2165	6.2
## 1054	NA	79.4	2010	6.2
## 1055	NA	93.3	2433	5.8
## 1056	NA	76.0	2871	6.3
## 1057	20	92.8	2244	6.6
## 1058	6	87.7	1999	6.4
## 1059	8	92.0	2484	6.2
## 1060	NA	86.1	2215	6.6
## 1061	NA	90.8	2153	6.9
## 1062	NA	80.1	1680	6.3
## 1063	44	91.0	2233	5.9
## 1064	30	87.7	1985	6.5
## 1065	NA	85.3	2742	6.4
## 1066	NA	87.5	2058	6.1
## 1067	-43	84.7	2990	5.4
## 1068	NA	84.9	2022	6.0
## 1069	16	87.0	1844	5.9
## 1070	NA	97.2	2128	6.5

## 1071	21	92.3	2288	5.7
## 1072	NA	79.7	2656	6.9
## 1073	NA	83.6	2993	6.4
## 1074	NA	86.3	1746	6.4
## 1075	NA	91.1	2553	6.7
## 1076	NA	96.8	2381	6.7
## 1077	79	82.0	2492	5.6
## 1078	NA	81.9	2273	6.8
## 1079	NA	90.0	2272	6.0
## 1080	NA	71.6	2103	6.3
## 1081	38	94.0	2076	6.7
## 1082	30	82.5	2448	6.6
## 1083	41	92.2	2289	6.4
## 1084	73	81.1	2705	6.7
## 1085	NA	91.8	2477	6.3
## 1086	NA	79.3	1459	6.6
## 1087	NA	93.1	1914	6.6
## 1088	NA	88.1	2520	6.7
## 1089	NA	90.6	2168	6.8
## 1090	58	85.5	2412	6.1
## 1091	NA	92.0	2199	6.2
## 1092	NA	79.1	1903	6.1
## 1093	NA	95.1	2379	6.8
## 1094	NA	82.0	2344	6.2
## 1095	NA	78.6	1946	6.0
## 1096	NA	80.2	1617	6.2
## 1097	NA	96.9	2368	6.7
## 1098	NA	98.3	2259	6.6
## 1099	-23	94.2	2216	6.6
## 1100	NA	80.4	3151	6.3
## 1101	NA	81.7	2493	5.6
## 1102	NA	96.8	2023	6.6
## 1103	NA	80.6	2302	6.8
## 1104	41	92.0	2451	6.4
## 1105	-4	78.4	3493	6.1
## 1106	12	79.2	2238	6.5
## 1107	NA	77.1	1967	6.5
## 1108	NA	85.9	2570	6.4
## 1109	NA	87.0	2430	6.2
## 1110	44	89.5	2236	6.9
## 1111	NA	82.8	2488	5.7
## 1112	NA	77.9	1414	6.5
## 1113	25	82.4	2465	6.5
## 1114	NA	85.0	2046	5.4
## 1115	NA	80.7	2459	5.6
## 1116	NA	79.5	2567	6.6
## 1117	53	79.5	1916	5.9
## 1118	-9	86.0	2555	6.3
## 1119	37	81.2	2720	7.1
## 1120	NA	77.0	2375	6.8
## 1121	-37	86.1	2052	6.5
## 1122	NA	92.5	2200	6.1
## 1123	49	95.1	2454	5.4
## 1124	NA	82.2	2479	5.8

## 1125	NA	83.6	2312	7.0
## 1126	NA	85.4	2173	6.6
## 1127	26	86.9	2887	6.4
## 1128	15	94.1	2098	7.4
## 1129	NA	94.0	2033	7.3
## 1130	-28	84.7	1587	6.8
## 1131	NA	86.6	2095	6.1
## 1132	NA	91.7	2443	6.1
## 1133	NA	87.5	2055	6.5
## 1134	NA	92.7	2251	6.5
## 1135	NA	86.1	2455	6.5
## 1136	12	97.1	2429	6.8
## 1137	70	93.8	2274	6.5
## 1138	NA	86.7	1835	6.0
## 1139	-26	87.9	1843	6.7
## 1140	NA	73.3	2640	6.1
## 1141	NA	91.6	2606	6.9
## 1142	-20	84.2	2442	5.7
## 1143	55	97.1	2120	6.2
## 1144	NA	95.2	2043	6.6
## 1145	NA	95.3	2371	6.8
## 1146	NA	86.6	2444	6.1
## 1147	NA	86.9	2539	6.8
## 1148	NA	89.9	2317	5.8
## 1149	NA	87.1	2004	6.2
## 1150	-24	83.5	2038	6.3
## 1151	18	80.4	1656	6.1
## 1152	-26	77.2	2509	6.8
## 1153	NA	86.1	2056	6.2
## 1154	NA	84.2	1988	7.1
## 1155	NA	92.9	2474	6.1
## 1156	6	78.5	1760	6.1
## 1157	NA	89.6	2274	5.9
## 1158	NA	95.1	2039	7.4
## 1159	NA	79.0	1983	6.0
## 1160	-27	88.5	2228	5.8
## 1161	NA	84.7	2588	6.5
## 1162	NA	86.1	2165	6.5
## 1163	NA	84.1	2544	5.9
## 1164	NA	92.9	2112	6.0
## 1165	-11	95.3	2401	6.7
## 1166	54	84.3	2439	6.5
## 1167	NA	94.7	2196	5.5
## 1168	0	91.5	2629	6.8
## 1169	NA	85.5	1941	6.9
## 1170	43	95.3	2422	6.8
## 1171	NA	85.1	1739	6.4
## 1172	NA	88.2	2272	6.7
## 1173	NA	96.2	2980	6.5
## 1174	14	94.2	1990	6.5
## 1175	NA	93.4	2044	6.8
## 1176	NA	78.2	2043	6.5
## 1177	NA	79.7	1432	6.7
## 1178	NA	94.1	2365	6.8

## 1179	NA	96.7	2013	6.6
## 1180	69	93.6	2339	6.6
## 1181	NA	85.3	2471	6.8
## 1182	NA	92.6	2292	6.1
## 1183	NA	77.9	2215	6.0
## 1184	NA	94.9	2061	7.2
## 1185	NA	94.7	3043	6.6
## 1186	NA	86.1	1843	5.9
## 1187	NA	81.5	2890	6.8
## 1188	50	94.2	2309	6.8
## 1189	NA	94.9	2055	6.9
## 1190	58	79.4	2462	6.1
## 1191	NA	83.3	1996	6.8
## 1192	NA	90.8	2213	5.8
## 1193	NA	84.1	2336	5.8
## 1194	NA	90.2	1653	6.7
## 1195	NA	92.5	2479	6.3
## 1196	NA	97.2	2072	6.8
## 1197	NA	85.4	3475	6.7
## 1198	NA	84.5	1661	6.4
## 1199	NA	93.9	3030	5.3
## 1200	NA	99.2	2520	6.8
## 1201	NA	84.7	2589	6.3
## 1202	NA	93.9	2387	6.7
## 1203	NA	85.0	2032	6.0
## 1204	18	73.7	2426	6.3
## 1205	NA	78.4	2088	6.3
## 1206	NA	95.5	2187	6.1
## 1207	-31	79.2	1376	6.7
## 1208	-16	85.6	1624	6.8
## 1209	43	83.5	2489	6.0
## 1210	62	91.5	2298	6.1
## 1211	NA	93.3	2439	6.2
## 1212	NA	94.9	2500	5.9
## 1213	34	90.1	2693	6.5
## 1214	NA	85.9	2580	6.5
## 1215	NA	87.1	2497	6.6
## 1216	NA	91.9	1931	6.6
## 1217	23	94.6	1824	6.8
## 1218	NA	72.1	2533	5.9
## 1219	61	82.1	2349	6.2
## 1220	NA	97.3	2146	6.7
## 1221	NA	94.7	2349	6.6
## 1222	NA	84.5	2426	5.9
## 1223	NA	81.1	2822	7.0
## 1224	NA	87.3	2255	6.7
## 1225	NA	84.0	2561	6.3
## 1226	NA	87.6	1898	6.7
## 1227	NA	74.3	2378	6.6
## 1228	25	79.4	2139	5.9
## 1229	NA	86.3	1896	6.3
## 1230	NA	81.1	3164	6.5
## 1231	-33	93.2	1952	6.3
## 1232	NA	90.5	2537	6.8

## 1233	-6	80.3	2268	6.8
## 1234	NA	83.0	2496	6.2
## 1235	47	87.7	1970	6.3
## 1236	NA	84.0	2590	5.8
## 1237	9	78.0	2711	6.6
## 1238	27	85.8	1942	5.6
## 1239	-17	87.9	2571	6.8
## 1240	NA	79.4	2105	5.9
## 1241	-5	78.1	1260	7.2
## 1242	NA	78.6	2058	6.6
## 1243	11	87.2	2507	6.6
## 1244	NA	93.1	2204	6.3
## 1245	NA	95.6	2182	5.9
## 1246	NA	93.9	1934	6.8
## 1247	NA	71.0	2208	6.3
## 1248	NA	88.7	1599	6.8
## 1249	NA	94.7	2399	6.8
## 1250	NA	83.5	2858	6.7
## 1251	NA	95.6	2888	6.5
## 1252	NA	93.2	2274	6.8
## 1253	NA	91.4	2423	6.2
## 1254	25	85.3	1799	6.5
## 1255	NA	82.2	2602	5.9
## 1256	0	94.9	2022	6.4
## 1257	NA	97.1	2295	6.7
## 1258	-1	95.7	2190	6.5
## 1259	-13	95.2	2211	6.9
## 1260	NA	94.6	2461	6.6
## 1261	NA	91.6	2443	6.1
## 1262	NA	80.5	2684	7.0
## 1263	NA	93.1	2175	7.1
## 1264	NA	91.5	2405	6.1
## 1265	NA	94.7	2360	6.3
## 1266	NA	81.4	2437	5.6
## 1267	NA	87.3	2042	6.6
## 1268	NA	74.8	2201	6.0
## 1269	NA	93.7	2354	5.5
## 1270	NA	88.3	2606	7.4
## 1271	NA	86.3	1838	6.3
## 1272	NA	97.1	2148	6.8
## 1273	NA	94.2	2381	6.7
## 1274	-4	95.6	2157	6.7
## 1275	NA	98.2	2434	6.7
## 1276	NA	79.3	2118	5.9
## 1277	42	93.9	2070	7.2
## 1278	18	78.2	2717	6.7
## 1279	NA	81.7	2445	6.9
## 1280	NA	84.9	1689	6.3
## 1281	NA	91.5	2270	6.2
## 1282	NA	89.3	1406	6.7
## 1283	NA	81.1	2662	6.2
## 1284	NA	87.1	2028	6.6
## 1285	NA	78.7	2604	6.7
## 1286	NA	83.6	2493	5.7



## 1287	4	94.8	2524	5.9
## 1288	-47	87.9	2082	6.3
## 1289	-31	95.5	2093	6.1
## 1290	NA	89.6	1689	6.6
## 1291	NA	90.7	2604	6.4
## 1292	31	89.0	2277	5.9
## 1293	14	82.3	2408	6.7
## 1294	NA	91.5	2396	6.5
## 1295	NA	78.8	2562	6.6
## 1296	NA	77.7	3092	6.3
## 1297	NA	83.0	2284	6.9
## 1298	NA	0.0	NA	NA
## 1299	57	85.7	1884	6.2
## 1300	-28	82.0	2291	6.1
## 1301	45	93.1	1969	6.7
## 1302	38	90.0	2041	6.7
## 1303	12	95.2	2214	6.6
## 1304	-37	96.8	2400	7.1
## 1305	-56	87.2	1458	7.0
## 1306	10	84.9	1797	6.2
## 1307	NA	94.0	2025	6.3
## 1308	NA	86.5	2029	6.1
## 1309	NA	94.0	2517	6.4
## 1310	-11	79.7	2632	6.5
## 1311	NA	96.0	2071	6.2
## 1312	11	76.0	2753	6.2
## 1313	NA	82.0	2388	6.5
## 1314	28	90.8	2339	5.8
## 1315	NA	91.2	2459	6.6
## 1316	NA	91.9	2104	6.8
## 1317	NA	87.2	1565	7.0
## 1318	56	90.8	2174	5.8
## 1319	NA	97.2	2126	6.7
## 1320	NA	94.1	2321	5.8
## 1321	NA	94.7	1959	6.8
## 1322	31	92.9	2233	7.1
## 1323	NA	85.9	1881	5.6
## 1324	NA	87.9	1763	6.5
## 1325	NA	86.7	2024	5.9
## 1326	NA	80.5	2442	6.2
## 1327	NA	84.3	2984	6.3
## 1328	-25	78.3	1432	6.6
## 1329	NA	86.8	2616	6.7
## 1330	NA	94.0	2421	6.7
## 1331	71	94.4	2320	6.1
## 1332	35	88.7	1904	6.9
## 1333	NA	84.3	2583	6.6
## 1334	25	92.0	2409	6.1
## 1335	24	90.0	1976	6.6
## 1336	NA	93.7	2047	6.7
## 1337	-9	87.1	2113	6.1
## 1338	NA	79.6	3195	6.3
## 1339	NA	88.1	2509	6.4
## 1340	NA	79.9	2304	6.7

## 1341	NA	94.7	2114	6.3
## 1342	NA	93.4	2005	7.2
## 1343	NA	85.6	1533	6.5
## 1344	-31	82.6	2510	5.6
## 1345	NA	93.9	2460	6.4
## 1346	NA	95.2	2222	6.6
## 1347	-4	87.5	1565	6.8
## 1348	NA	84.9	1722	6.2
## 1349	NA	88.5	1484	6.8
## 1350	-23	87.8	1360	6.5
## 1351	28	87.3	1918	6.1
## 1352	22	90.5	2239	5.9
## 1353	NA	82.9	1571	6.4
## 1354	25	85.7	1928	5.7
## 1355	NA	91.3	2389	5.6
## 1356	NA	91.6	2112	7.0
## 1357	NA	88.0	2571	6.7
## 1358	NA	77.7	2559	6.4
## 1359	NA	94.5	2303	6.8
## 1360	NA	91.7	2158	7.2
## 1361	3	92.4	2501	6.2
## 1362	NA	86.8	1518	6.2
## 1363	NA	86.2	2028	6.2
## 1364	NA	79.7	1460	6.8
## 1365	12	91.4	2579	6.7
## 1366	-29	77.0	2899	6.2
## 1367	NA	93.9	2365	6.7
## 1368	NA	81.4	2680	6.9
## 1369	NA	89.4	2323	6.8
## 1370	NA	92.4	2224	7.0
## 1371	NA	91.6	2397	6.3
## 1372	NA	84.6	1466	5.8
## 1373	NA	93.6	1831	6.7
## 1374	NA	83.7	2180	6.2
## 1375	NA	90.8	2204	5.8
## 1376	6	81.2	2259	6.8
## 1377	NA	86.3	2466	6.9
## 1378	NA	95.0	2162	6.2
## 1379	NA	78.2	2593	6.4
## 1380	NA	92.3	2012	6.2
## 1381	NA	94.5	2115	6.5
## 1382	NA	84.9	2035	6.6
## 1383	NA	83.0	2377	6.6
## 1384	NA	77.7	3090	6.4
## 1385	-17	93.0	2375	5.7
## 1386	NA	94.2	2328	6.2
## 1387	NA	98.5	2325	6.8
## 1388	NA	81.6	2662	6.1
## 1389	NA	84.1	2027	6.6
## 1390	NA	86.7	2903	6.6
## 1391	-63	79.2	2114	6.1
## 1392	NA	78.7	2633	6.6
## 1393	33	95.3	2277	5.5
## 1394	58	92.7	2454	6.2

## 1395	22	88.0	1829	6.0
## 1396	53	95.2	2402	6.7
## 1397	NA	84.6	2863	6.4
## 1398	32	74.6	2688	6.7
## 1399	NA	88.3	2296	7.0
## 1400	11	93.4	2415	5.7
## 1401	NA	93.6	2150	6.8
## 1402	NA	93.2	1955	6.8
## 1403	NA	92.9	2950	6.6
## 1404	NA	79.0	1643	6.2
## 1405	NA	85.2	2208	6.5
## 1406	NA	85.2	2074	6.5
## 1407	NA	80.1	2280	6.2
## 1408	30	87.8	2689	6.8
## 1409	-27	95.9	2320	6.8
## 1410	NA	80.7	2496	6.3
## 1411	NA	80.6	2338	6.2
## 1412	-23	92.1	2100	6.6
## 1413	NA	92.7	2120	7.0
## 1414	NA	85.3	2421	6.2
## 1415	30	87.5	2271	6.1
## 1416	5	80.0	2029	6.2
## 1417	NA	83.9	2069	6.6
## 1418	42	84.8	2140	6.5
## 1419	NA	96.0	2101	6.5
## 1420	NA	87.6	1516	7.1
## 1421	NA	83.0	2442	6.6
## 1422	NA	82.2	2590	5.7
## 1423	NA	91.8	2323	6.0
## 1424	NA	74.1	2361	6.4
## 1425	43	94.2	2289	5.5
## 1426	NA	92.5	2497	5.7
## 1427	NA	93.6	2018	7.1
## 1428	NA	84.7	2098	6.1
## 1429	NA	95.3	2929	6.6
## 1430	NA	80.7	2342	6.5
## 1431	NA	93.2	1885	6.7
## 1432	NA	88.0	2751	6.6
## 1433	NA	77.7	1999	6.4
## 1434	NA	93.5	2162	6.9
## 1435	11	82.3	2334	7.0
## 1436	NA	93.2	2370	6.5
## 1437	-6	91.4	2370	6.1
## 1438	NA	96.1	2329	6.6
## 1439	NA	85.6	2535	6.6
## 1440	-42	79.6	2320	5.8
## 1441	-37	83.9	2446	6.1
## 1442	25	78.7	2092	6.7
## 1443	NA	90.6	2180	5.8
## 1444	32	94.7	1951	6.3
## 1445	NA	78.0	2069	6.6
## 1446	NA	90.2	2367	6.6
## 1447	NA	80.5	2426	6.3
## 1448	-18	78.5	1440	7.1

## 1449	42	78.7	2730	6.5
## 1450	23	94.1	2508	6.7
## 1451	48	87.4	1697	6.7
## 1452	NA	94.4	2322	5.5
## 1453	-16	87.4	1789	6.0
## 1454	83	92.1	2630	6.6
## 1455	33	91.1	2175	5.9
## 1456	NA	87.9	2243	6.3
## 1457	NA	79.6	2334	6.1
## 1458	NA	88.3	2662	6.7
## 1459	NA	81.8	2301	7.0
## 1460	NA	79.2	1609	6.6
## 1461	NA	73.8	2511	6.2
## 1462	NA	85.4	1698	5.7
## 1463	NA	89.7	2209	6.6
## 1464	NA	95.5	2115	6.5
## 1465	19	92.9	2322	6.3
## 1466	NA	85.8	2445	6.1
## 1467	NA	86.4	2522	6.5
## 1468	12	92.6	2293	6.7
## 1469	NA	89.4	1700	6.8
## 1470	NA	94.7	2339	5.4
## 1471	NA	89.5	1667	7.1
## 1472	NA	91.5	2348	5.7
## 1473	NA	90.6	2689	6.7
## 1474	NA	78.8	2096	6.6
## 1475	NA	80.2	2085	5.9
## 1476	NA	94.0	2537	6.6
## 1477	NA	83.0	3050	6.5
## 1478	NA	0.0	NA	NA
## 1479	NA	78.3	2599	6.9
## 1480	NA	87.2	2059	6.2
## 1481	NA	94.7	1853	6.7
## 1482	NA	94.4	2041	6.9
## 1483	NA	92.4	2432	5.7
## 1484	NA	92.3	2124	6.7
## 1485	NA	88.5	2833	6.8
## 1486	-5	85.6	2238	5.9
## 1487	42	83.9	2472	6.3
## 1488	NA	82.1	3022	6.2
## 1489	NA	95.7	2406	6.8
## 1490	NA	97.3	2104	6.8
## 1491	NA	92.4	2293	6.5
## 1492	NA	75.8	2732	6.4
## 1493	NA	80.8	2095	6.1
## 1494	NA	92.8	2410	6.5
## 1495	12	93.5	2271	7.0
## 1496	NA	92.2	2436	5.7
## 1497	NA	80.3	1672	6.2
## 1498	NA	94.9	2228	5.4
## 1499	NA	79.4	2564	5.6
## 1500	43	77.3	2617	6.5
## 1501	11	94.1	2009	6.0
## 1502	-7	84.7	1661	6.4

## 1503	NA	71.0	2243	6.2
## 1504	NA	78.0	2493	6.0
## 1505	42	91.9	2241	6.5
## 1506	NA	90.0	2415	5.9
## 1507	30	90.9	1962	6.8
## 1508	NA	88.0	2048	6.6
## 1509	NA	87.1	1844	6.1
## 1510	NA	91.8	2247	6.0
## 1511	54	94.5	2395	6.6
## 1512	NA	95.9	2065	7.2
## 1513	NA	87.4	2190	6.1
## 1514	NA	91.9	2494	6.8
## 1515	NA	83.0	2353	6.8
## 1516	NA	82.9	2486	7.2
## 1517	-17	91.9	2123	6.9
## 1518	NA	94.0	2023	6.8
## 1519	NA	86.5	2588	6.6
## 1520	NA	92.0	2227	6.3
## 1521	NA	78.6	2505	6.1
## 1522	NA	74.8	2753	6.2
## 1523	NA	84.5	2899	6.5
## 1524	51	93.4	2135	6.9
## 1525	NA	93.8	2224	5.6
## 1526	NA	73.9	2666	6.5
## 1527	31	91.0	2389	6.5
## 1528	41	94.5	2492	5.8
## 1529	NA	94.0	2120	7.3
## 1530	NA	86.9	1839	5.9
## 1531	59	92.9	2017	6.1
## 1532	NA	92.7	2225	6.7
## 1533	21	90.1	1766	6.5
## 1534	NA	86.1	2659	6.5
## 1535	-1	84.4	1425	5.9
## 1536	NA	83.9	1958	6.4
## 1537	NA	82.9	2460	5.9
## 1538	49	77.6	1943	6.5
## 1539	11	94.0	2261	6.8
## 1540	NA	92.4	2185	7.1
## 1541	NA	87.8	1972	5.9
## 1542	6	92.9	2416	6.4
## 1543	NA	81.6	2476	6.1
## 1544	NA	83.0	2741	7.2
## 1545	NA	79.7	2914	6.5
## 1546	NA	90.2	1966	6.7
## 1547	NA	88.0	2186	6.2
## 1548	NA	86.6	2552	6.2
## 1549	NA	95.6	2395	6.9
## 1550	NA	87.7	2176	6.7
## 1551	NA	94.5	2031	6.6
## 1552	NA	76.2	2490	6.8
## 1553	NA	72.8	2448	6.4
## 1554	NA	84.7	2477	5.7
## 1555	NA	93.1	2610	6.5
## 1556	NA	88.7	2406	6.6

## 1557	24	78.2	2680	6.5
## 1558	NA	95.3	2400	6.9
## 1559	35	93.4	2547	6.3
## 1560	NA	87.1	2699	6.7
## 1561	NA	78.9	1981	6.0
## 1562	NA	95.3	2260	7.1
## 1563	-13	82.9	2451	6.9
## 1564	NA	91.6	2165	6.7
## 1565	NA	86.6	2575	6.3
## 1566	NA	80.1	2017	6.1
## 1567	NA	80.1	1695	6.3
## 1568	NA	91.5	2409	6.6
## 1569	NA	90.6	2246	6.5
## 1570	12	94.3	2287	6.1
## 1571	NA	83.5	2483	6.4
## 1572	32	94.1	1860	6.6
## 1573	NA	80.5	2469	6.3
## 1574	NA	94.9	2083	6.0
## 1575	NA	85.6	2996	6.4
## 1576	-20	91.3	2294	6.1
## 1577	15	94.7	2499	5.9
## 1578	30	93.6	2159	7.0
## 1579	NA	90.4	1484	7.3
## 1580	NA	78.8	1775	6.2
## 1581	18	83.9	1850	5.4
## 1582	25	96.7	1997	6.2
## 1583	NA	84.3	1666	6.3
## 1584	-20	82.4	1901	6.2
## 1585	10	91.9	2262	5.8
## 1586	49	84.1	2491	6.1
## 1587	NA	93.1	2525	6.3
## 1588	NA	88.1	1821	6.9
## 1589	NA	86.0	1882	6.7
## 1590	NA	91.8	2297	6.0
## 1591	12	96.7	2355	6.8
## 1592	NA	86.5	2780	6.6
## 1593	NA	94.7	2502	5.9
## 1594	NA	92.5	2084	6.0
## 1595	15	88.1	2448	6.6
## 1596	55	94.1	2217	6.9
## 1597	NA	93.1	2426	6.6
## 1598	NA	94.4	2872	6.6
## 1599	41	80.1	2348	5.7
## 1600	NA	83.4	1893	6.3
## 1601	-27	95.0	2058	5.6
## 1602	6	94.1	2223	7.3
## 1603	NA	87.9	2466	5.7
## 1604	-2	92.7	1797	6.8
## 1605	NA	91.4	2527	6.6
## 1606	NA	87.3	1724	6.2
## 1607	NA	70.0	2290	6.0
## 1608	NA	93.6	2198	6.5
## 1609	-11	87.8	2086	6.2
## 1610	NA	96.6	2100	7.3

## 1611	NA	96.1	1990	6.3
## 1612	NA	86.9	2013	7.2
## 1613	NA	92.7	2024	6.6
## 1614	NA	97.3	2116	6.4
## 1615	36	88.9	2651	6.5
## 1616	14	93.2	2354	6.1
## 1617	27	94.0	2388	6.7
## 1618	NA	91.0	2547	6.5
## 1619	NA	94.6	2400	6.8
## 1620	NA	80.3	1903	6.2
## 1621	60	90.8	2444	5.6
## 1622	NA	87.4	2294	6.7
## 1623	NA	94.7	2384	5.4
## 1624	41	92.0	2406	6.4
## 1625	NA	92.1	2604	6.7
## 1626	NA	87.5	1873	6.7
## 1627	40	92.4	2150	6.0
## 1628	NA	94.6	2400	6.9
## 1629	NA	80.7	2472	5.6
## 1630	NA	84.9	2580	6.5
## 1631	17	82.8	2475	5.6
## 1632	-45	79.9	2240	6.6
## 1633	NA	95.0	2526	6.0
## 1634	NA	84.8	1945	6.4
## 1635	50	90.7	2473	5.7
## 1636	33	95.4	2419	6.1
## 1637	NA	95.4	2056	7.2
## 1638	NA	92.1	2037	6.8
## 1639	-17	76.1	2685	5.7
## 1640	NA	97.5	2029	6.5
## 1641	1	87.5	2659	6.6
## 1642	NA	92.9	2236	6.6
## 1643	64	96.7	2345	6.6
## 1644	NA	92.7	2441	6.1
## 1645	NA	88.6	2550	6.6
## 1646	NA	77.7	2032	6.5
## 1647	NA	79.8	2125	5.9
## 1648	NA	94.8	2226	7.3
## 1649	NA	79.2	2277	6.1
## 1650	NA	94.3	2118	6.5
## 1651	36	81.5	2377	6.2
## 1652	NA	93.5	2332	6.9
## 1653	NA	96.2	2408	7.0
## 1654	NA	88.7	2016	6.0
## 1655	NA	86.5	1973	6.1
## 1656	NA	87.6	2084	6.2
## 1657	-8	80.6	2687	6.5
## 1658	NA	81.0	2557	6.1
## 1659	NA	93.8	2887	6.5
## 1660	NA	87.8	1760	6.3
## 1661	NA	85.0	1467	5.9
## 1662	NA	89.2	1852	6.6
## 1663	NA	87.6	2020	6.1
## 1664	NA	84.9	2854	6.4

## 1665	NA	79.3	1951	5.7
## 1666	NA	82.2	2364	6.1
## 1667	NA	90.1	2508	5.7
## 1668	NA	92.8	2460	6.2
## 1669	NA	79.5	2141	5.9
## 1670	65	91.4	2265	6.9
## 1671	NA	80.1	2711	6.8
## 1672	NA	90.9	2231	6.2
## 1673	NA	94.2	2567	5.9
## 1674	NA	86.5	2595	6.6
## 1675	NA	77.2	2718	5.7
## 1676	19	95.0	1937	6.8
## 1677	NA	79.4	1908	6.5
## 1678	NA	95.4	2097	7.0
## 1679	NA	93.5	2050	6.5
## 1680	60	90.6	2248	5.8
## 1681	NA	97.2	2376	6.8
## 1682	NA	83.2	2486	6.3
## 1683	-26	85.1	2477	7.0
## 1684	-4	95.0	2373	6.6
## 1685	NA	88.0	2061	6.1
## 1686	NA	86.2	1419	6.7
## 1687	NA	84.8	2014	5.5
## 1688	NA	95.2	2252	6.0
## 1689	11	95.2	2018	7.3
## 1690	NA	86.9	1974	6.4
## 1691	-14	96.6	2264	7.1
## 1692	NA	79.7	2910	6.4
## 1693	NA	80.0	2442	6.3
## 1694	NA	93.2	2093	6.4
## 1695	NA	78.6	2262	6.2
## 1696	NA	95.1	2344	6.8
## 1697	NA	83.5	2787	6.7
## 1698	NA	94.8	2058	7.4
## 1699	NA	93.1	2438	6.6
## 1700	NA	93.5	2516	6.3
## 1701	67	91.3	2316	5.6
## 1702	NA	79.8	2714	6.5
## 1703	3	94.3	2052	6.1
## 1704	13	86.6	2584	5.7
## 1705	NA	96.4	2223	5.9
## 1706	28	94.2	2140	7.2
## 1707	58	96.4	2373	6.8
## 1708	NA	94.0	2340	6.6
## 1709	NA	90.5	2440	5.4
## 1710	NA	87.9	1825	6.1
## 1711	NA	79.3	2114	5.9
## 1712	8	86.7	1951	6.5
## 1713	7	87.6	2147	6.5
## 1714	30	89.9	2274	5.7
## 1715	NA	88.6	2350	6.8
## 1716	-32	78.8	2330	6.6
## 1717	NA	93.0	2392	6.2
## 1718	NA	93.7	2256	6.5



## 1719	NA	85.4	2152	6.1
## 1720	NA	84.3	1596	6.8
## 1721	NA	90.9	2305	6.0
## 1722	NA	95.4	2373	6.7
## 1723	-21	75.9	1850	5.3
## 1724	NA	90.0	2527	6.6
## 1725	NA	94.3	2401	6.7
## 1726	NA	90.3	2037	6.3
## 1727	32	91.4	2225	6.2
## 1728	NA	83.8	2958	6.3
## 1729	NA	87.4	1972	6.6
## 1730	NA	94.3	2045	6.6
## 1731	NA	82.7	2499	5.9
## 1732	NA	92.1	2139	6.9
## 1733	-44	90.7	2396	7.3
## 1734	NA	92.3	2346	6.6
## 1735	NA	91.9	2575	6.9
## 1736	13	81.4	2091	6.2
## 1737	NA	84.6	2453	6.7
## 1738	NA	79.2	2615	6.4
## 1739	NA	93.5	2145	7.3
## 1740	NA	92.6	2355	6.8
## 1741	NA	92.3	2381	6.4
## 1742	NA	94.9	2453	6.1
## 1743	21	82.1	2131	6.1
## 1744	NA	91.7	2302	6.6
## 1745	NA	94.0	1262	6.6
## 1746	NA	86.8	2708	6.7
## 1747	NA	93.5	2070	6.8
## 1748	NA	96.3	1756	7.0
## 1749	NA	86.4	2002	6.5
## 1750	NA	86.6	1876	6.1
## 1751	NA	87.1	1867	5.9
## 1752	-33	76.8	2001	5.5
## 1753	5	94.3	2299	6.5
## 1754	NA	81.3	2330	6.1
## 1755	23	90.7	2499	5.6
## 1756	NA	90.6	2554	6.3
## 1757	NA	95.2	2391	6.7
## 1758	-15	88.7	2083	6.1
## 1759	46	81.5	2421	5.7
## 1760	-33	87.4	1968	6.7
## 1761	NA	89.7	2211	5.9
## 1762	21	94.7	2275	6.4
## 1763	NA	94.9	2303	6.8
## 1764	NA	87.0	2303	7.1
## 1765	NA	94.4	2146	6.5
## 1766	NA	94.8	2146	7.3
## 1767	NA	82.9	2637	5.9
## 1768	NA	91.2	2645	6.8
## 1769	-9	88.9	2649	6.8
## 1770	43	94.3	2382	5.6
## 1771	NA	86.6	1933	6.0
## 1772	NA	87.3	2782	6.5

## 1773	NA	96.6	2339	6.7
## 1774	NA	86.1	2547	6.1
## 1775	14	92.1	2360	6.9
## 1776	30	89.0	2094	6.2
## 1777	NA	87.1	2335	6.8
## 1778	NA	89.9	2127	6.8
## 1779	17	79.4	1509	6.7
## 1780	-25	95.7	2082	6.7
## 1781	NA	91.9	2501	5.9
## 1782	NA	96.1	2220	6.7
## 1783	NA	87.3	1838	6.4
## 1784	11	94.2	2837	6.5
## 1785	NA	81.9	2750	6.7
## 1786	NA	83.5	2470	6.8
## 1787	NA	92.2	2590	6.0
## 1788	NA	92.6	2248	6.6
## 1789	NA	85.5	2454	6.0
## 1790	NA	95.6	2082	6.5
## 1791	NA	90.2	1463	7.1
## 1792	-38	86.3	1778	6.1
## 1793	NA	96.9	2548	7.3
## 1794	NA	78.9	2791	6.4
## 1795	NA	90.4	2455	5.9
## 1796	25	94.3	2343	6.0
## 1797	NA	94.2	2294	6.5
## 1798	NA	86.6	2523	5.9
## 1799	11	80.8	2386	6.2
## 1800	NA	87.1	2140	7.1
## 1801	10	89.2	2222	6.0
## 1802	10	92.2	2222	6.9
## 1803	NA	79.1	2443	5.4
## 1804	NA	89.4	1991	6.2
## 1805	NA	85.0	2557	6.6
## 1806	11	83.9	2021	5.7
## 1807	NA	94.9	2111	6.5
## 1808	9	94.3	2455	6.6
## 1809	NA	79.9	2691	6.5
## 1810	39	94.2	2475	6.2
## 1811	NA	96.6	2458	6.7
## 1812	-2	91.4	2182	6.2
## 1813	-15	85.6	2037	5.3
## 1814	NA	97.3	2172	6.6
## 1815	63	95.3	1974	6.7
## 1816	NA	79.2	2684	6.8
## 1817	NA	89.4	2094	6.6
## 1818	NA	83.8	2769	7.3
## 1819	30	78.1	2049	6.3
## 1820	23	96.4	2094	6.7
## 1821	43	78.3	2932	5.5
## 1822	NA	94.4	1985	6.7
## 1823	NA	85.6	2274	6.3
## 1824	NA	78.8	2508	6.2
## 1825	NA	85.0	2485	6.6
## 1826	17	95.5	2223	6.4

## 1827	NA	86.3	2467	6.1
## 1828	NA	86.8	2095	6.1
## 1829	-59	80.1	1719	6.1
## 1830	NA	87.7	2733	6.9
## 1831	27	94.5	1970	6.7
## 1832	-6	90.1	2335	5.9
## 1833	NA	76.2	1615	5.5
## 1834	NA	86.0	2952	6.5
## 1835	NA	93.0	2329	6.4
## 1836	NA	81.6	2310	6.2
## 1837	NA	95.3	2393	6.7
## 1838	NA	88.4	2753	6.8
## 1839	NA	86.3	2521	5.8
## 1840	NA	94.4	2104	6.6
## 1841	NA	86.8	1670	5.9
## 1842	-40	85.9	2148	7.1
## 1843	NA	95.5	2325	7.1
## 1844	NA	82.8	2528	5.6
## 1845	19	96.9	2484	6.7
## 1846	NA	94.3	2283	6.8
## 1847	NA	81.3	2632	6.6
## 1848	NA	85.8	1899	5.4
## 1849	NA	90.5	2178	6.7
## 1850	29	95.4	1903	6.9
## 1851	6	95.0	2576	5.8
## 1852	NA	92.2	2474	5.8
## 1853	NA	86.0	1814	6.0
## 1854	NA	84.9	2012	6.9
## 1855	26	94.0	2198	6.3
## 1856	NA	92.2	2210	6.4
## 1857	NA	83.8	2451	6.5
## 1858	NA	94.8	1987	6.8
## 1859	NA	81.8	2666	6.6
## 1860	78	84.0	2236	6.0
## 1861	NA	94.3	2411	6.8
## 1862	NA	88.5	2197	6.4
## 1863	NA	94.9	2357	6.3
## 1864	NA	94.7	2307	6.2
## 1865	NA	78.2	1662	5.8
## 1866	-4	86.9	1962	6.9
## 1867	NA	72.2	2370	6.2
## 1868	NA	81.1	2875	6.7
## 1869	NA	96.1	1909	6.9
## 1870	NA	90.5	2583	6.8
## 1871	NA	82.5	2759	7.2
## 1872	NA	83.9	1868	5.4
## 1873	-13	71.7	2265	6.2
## 1874	NA	95.6	2326	7.2
## 1875	NA	84.1	2478	7.1
## 1876	NA	95.0	2159	6.1
## 1877	18	82.5	1376	5.8
## 1878	NA	86.2	2073	5.8
## 1879	NA	87.1	2695	5.8
## 1880	NA	86.4	1860	5.9

## 1881	NA	90.8	2161	6.3
## 1882	73	91.8	2254	6.6
## 1883	-4	90.0	2537	6.5
## 1884	NA	83.0	2404	5.7
## 1885	NA	86.2	2144	6.0
## 1886	61	78.8	2470	6.0
## 1887	NA	91.0	2434	6.1
## 1888	NA	89.9	2457	5.6
## 1889	21	71.4	2377	6.5
## 1890	NA	90.6	2194	6.6
## 1891	NA	94.7	2282	6.8
## 1892	NA	84.0	1825	6.1
## 1893	36	79.5	2745	6.8
## 1894	NA	81.5	2692	6.7
## 1895	NA	86.1	2862	6.4
## 1896	40	94.5	2058	6.8
## 1897	NA	84.0	1888	6.6
## 1898	NA	95.5	2081	6.2
## 1899	NA	79.3	2295	6.7
## 1900	-71	77.6	2582	5.9
## 1901	NA	85.6	2295	6.5
## 1902	-9	99.0	2274	6.6
## 1903	46	86.9	1800	6.3
## 1904	39	87.6	2052	6.2
## 1905	-25	94.0	2368	6.0
## 1906	NA	94.0	2175	5.3
## 1907	NA	86.3	1925	6.3
## 1908	27	80.5	2112	6.1
## 1909	NA	85.0	2431	7.2
## 1910	NA	97.3	2324	7.1
## 1911	NA	87.1	2080	6.4
## 1912	NA	97.0	2108	6.7
## 1913	NA	91.0	2206	7.1
## 1914	54	79.0	2208	6.2
## 1915	38	94.5	2553	6.5
## 1916	NA	93.9	2147	6.4
## 1917	NA	87.9	2545	6.7
## 1918	-37	78.0	1496	6.7
## 1919	28	87.5	2319	6.8
## 1920	25	91.4	2454	6.4
## 1921	NA	98.5	2417	6.9
## 1922	NA	81.4	2843	6.9
## 1923	NA	94.1	2610	6.2
## 1924	NA	77.7	1682	5.6
## 1925	NA	95.0	2882	6.5
## 1926	NA	86.5	2563	6.6
## 1927	NA	91.3	2425	6.2
## 1928	NA	75.5	2794	6.4
## 1929	NA	84.3	2534	5.9
## 1930	NA	93.5	2485	6.6
## 1931	10	79.8	1994	6.1
## 1932	NA	90.4	2453	5.8
## 1933	NA	95.1	2104	6.8
## 1934	NA	92.0	2203	6.2

## 1935	23	88.1	2494	6.7
## 1936	-3	95.9	2251	6.8
## 1937	NA	91.3	2364	5.9
## 1938	48	95.1	2416	6.2
## 1939	NA	90.1	2382	6.8
## 1940	22	86.0	2143	6.6
## 1941	NA	86.8	2568	5.8
## 1942	NA	94.0	2464	6.8
## 1943	NA	91.1	2161	6.6
## 1944	NA	95.4	2637	6.0
## 1945	NA	91.9	2521	5.8
## 1946	-11	84.7	1617	6.1
## 1947	NA	83.6	1360	5.7
## 1948	NA	76.6	2444	6.4
## 1949	NA	89.5	2263	6.3
## 1950	64	95.2	2197	6.4
## 1951	61	93.5	2195	6.6
## 1952	NA	90.3	2184	6.4
## 1953	NA	82.8	2658	5.8
## 1954	NA	79.8	2601	6.2
## 1955	56	94.3	2113	7.3
## 1956	NA	76.9	1947	6.2
## 1957	NA	87.1	2104	6.2
## 1958	-21	95.5	2422	7.2
## 1959	NA	83.1	2427	5.4
## 1960	NA	84.7	2574	6.4
## 1961	24	93.4	2119	6.5
## 1962	NA	86.3	2309	6.2
## 1963	NA	87.8	2018	6.7
## 1964	53	80.1	1555	6.5
## 1965	-41	86.8	2435	6.1
## 1966	NA	92.0	2317	6.6
## 1967	11	85.1	1560	6.7
## 1968	NA	91.1	2475	6.0
## 1969	NA	79.1	2389	6.6
## 1970	NA	85.9	2541	5.7
## 1971	NA	78.5	2991	6.4
## 1972	73	87.3	1818	5.9
## 1973	13	95.8	2402	6.3
## 1974	NA	93.7	2533	6.8
## 1975	NA	97.8	2363	6.8
## 1976	NA	73.6	2746	6.1
## 1977	NA	95.4	2485	5.9
## 1978	NA	89.1	1888	6.8
## 1979	62	91.6	2339	5.8
## 1980	40	94.3	2604	6.5
## 1981	NA	85.7	2105	6.0
## 1982	NA	83.5	2270	7.1
## 1983	50	94.5	2774	6.1
## 1984	NA	102.0	2063	6.5
## 1985	NA	94.2	2278	6.0
## 1986	NA	95.4	2348	7.1
## 1987	NA	83.8	3158	6.6
## 1988	NA	93.7	2412	6.8

## 1989	NA	83.1	2534	6.5
## 1990	NA	95.3	2291	6.9
## 1991	NA	87.0	2577	6.8
## 1992	NA	74.7	1681	5.3
## 1993	NA	85.6	1928	5.6
## 1994	NA	87.7	2514	6.5
## 1995	NA	86.8	2386	6.8
## 1996	54	93.6	2568	6.1
## 1997	NA	91.1	2106	6.8
## 1998	NA	78.4	1934	6.2
## 1999	11	90.5	2488	6.4
## 2000	NA	85.8	1786	6.1
## 2001	NA	93.7	2211	6.9
## 2002	28	82.8	1561	6.1
## 2003	68	93.6	2434	6.7
## 2004	NA	86.4	2998	6.1
## 2005	NA	81.9	2519	6.4
## 2006	NA	97.3	2373	6.7
## 2007	-27	76.6	3258	6.3
## 2008	NA	84.1	1632	6.4
## 2009	25	94.5	2121	7.1
## 2010	51	94.2	2370	6.0
## 2011	NA	83.9	2130	7.2
## 2012	NA	78.3	2584	7.0
## 2013	NA	76.6	1695	5.5
## 2014	NA	93.8	2451	6.5
## 2015	NA	86.4	2477	6.5
## 2016	NA	79.7	2066	6.2
## 2017	NA	82.0	1961	5.5
## 2018	NA	86.8	2991	6.1
## 2019	21	80.0	1641	6.1
## 2020	NA	82.8	2423	5.8
## 2021	NA	79.3	3022	6.4
## 2022	47	79.5	2338	6.2
## 2023	NA	91.5	2112	6.8
## 2024	-1	85.9	2560	5.9
## 2025	8	86.4	2684	6.8
## 2026	NA	82.6	1336	5.8
## 2027	NA	96.6	2319	6.2
## 2028	NA	84.9	2619	5.9
## 2029	NA	94.5	2655	6.5
## 2030	NA	79.1	2189	6.3
## 2031	59	84.8	2570	6.4
## 2032	NA	94.4	2332	6.7
## 2033	NA	94.9	2137	6.7
## 2034	-41	93.9	2144	6.0
## 2035	NA	70.9	2867	5.7
## 2036	NA	96.2	2215	7.4
## 2037	-21	86.0	2547	6.0
## 2038	24	92.7	2501	6.1
## 2039	NA	94.3	2319	5.2
## 2040	NA	77.7	2006	6.4
## 2041	23	88.4	2472	6.2
## 2042	NA	92.3	2197	6.7

## 2043	NA	89.0	1906	6.7
## 2044	NA	90.2	2189	6.7
## 2045	NA	93.0	2375	6.5
## 2046	NA	80.6	1486	7.0
## 2047	NA	83.7	1486	6.0
## 2048	19	88.8	2118	7.0
## 2049	-46	89.5	1939	6.2
## 2050	39	103.1	2155	6.6
## 2051	25	93.2	2037	7.2
## 2052	37	84.3	2432	6.8
## 2053	51	97.0	1874	6.4
## 2054	NA	80.6	2254	6.6
## 2055	3	95.4	2395	6.8
## 2056	12	84.7	1617	6.2
## 2057	NA	80.7	2220	6.9
## 2058	NA	91.8	2298	6.5
## 2059	NA	81.8	2808	7.0
## 2060	64	87.8	2610	5.7
## 2061	-22	87.7	1985	6.1
## 2062	NA	78.7	1801	5.6
## 2063	14	96.1	1857	6.8
## 2064	NA	90.3	2571	6.4
## 2065	NA	91.3	2528	6.6
## 2066	NA	81.7	2375	5.8
## 2067	NA	84.3	2779	6.8
## 2068	30	94.8	2443	6.7
## 2069	NA	92.9	2563	6.4
## 2070	NA	95.7	1958	6.5
## 2071	NA	85.6	1708	6.4
## 2072	39	96.3	2560	5.9
## 2073	NA	79.7	1958	6.1
## 2074	63	94.3	2213	6.6
## 2075	NA	96.8	1932	6.3
## 2076	21	91.7	1997	6.0
## 2077	NA	84.8	1520	6.7
## 2078	NA	87.8	1838	6.2
## 2079	NA	80.0	3072	6.4
## 2080	NA	89.9	2456	5.8
## 2081	30	95.0	2088	6.1
## 2082	5	66.4	2407	6.0
## 2083	NA	95.5	2287	6.6
## 2084	NA	81.1	2001	6.2
## 2085	NA	95.2	2277	6.8
## 2086	NA	84.9	2465	7.0
## 2087	80	85.6	1992	5.3
## 2088	NA	98.4	1895	6.4
## 2089	NA	95.0	2204	6.5
## 2090	16	87.6	2454	6.5
## 2091	NA	93.7	2654	6.6
## 2092	14	94.1	2668	6.2
## 2093	NA	95.2	2182	6.4
## 2094	NA	96.1	2271	6.4
## 2095	NA	96.1	1914	6.6
## 2096	59	93.0	2388	7.3

## 2097	64	95.3	2193	6.4
## 2098	-79	88.3	2526	6.6
## 2099	NA	83.0	1376	5.7
## 2100	NA	94.3	2028	6.8
## 2101	NA	85.4	2103	7.2
## 2102	NA	88.9	2290	5.7
## 2103	-22	86.0	1709	6.0
## 2104	NA	87.9	2923	6.2
## 2105	NA	97.7	2269	6.8
## 2106	37	83.4	2492	6.1
## 2107	NA	93.8	2366	6.1
## 2108	22	94.0	2538	6.5
## 2109	-1	102.2	1983	6.7
## 2110	81	94.9	2466	6.8
## 2111	NA	87.5	2403	6.7
## 2112	NA	97.3	2259	5.8
## 2113	5	92.3	2223	7.5
## 2114	NA	78.3	1616	6.6
## 2115	-52	101.9	2037	6.5
## 2116	3	80.5	2538	5.9
## 2117	NA	92.0	2078	6.0
## 2118	NA	94.5	2360	6.2
## 2119	NA	95.8	2433	6.8
## 2120	NA	84.9	2043	7.1
## 2121	0	84.9	2611	5.6
## 2122	NA	93.6	2725	6.1
## 2123	NA	87.4	2011	6.2
## 2124	NA	84.1	2309	6.5
## 2125	NA	87.5	2940	6.2
## 2126	28	88.3	2196	6.0
## 2127	NA	85.6	2408	5.8
## 2128	28	85.1	2201	6.5
## 2129	-23	95.8	2258	6.7
## 2130	NA	94.6	2397	6.8
## 2131	NA	85.0	2684	7.1
## 2132	22	92.7	2303	7.0
## 2133	NA	94.9	2104	6.5
## 2134	NA	93.4	2275	6.2
## 2135	NA	88.5	2114	6.5
## 2136	70	91.6	2630	6.7
## 2137	-41	87.4	2340	6.6
## 2138	NA	89.5	2529	6.4
## 2139	70	96.7	2419	7.2
## 2140	NA	81.5	2764	6.7
## 2141	24	94.7	2451	6.0
## 2142	NA	81.4	3110	6.4
## 2143	NA	93.0	2139	6.6
## 2144	-1	81.6	2151	6.3
## 2145	NA	80.8	2495	6.8
## 2146	NA	79.3	2499	5.7
## 2147	NA	95.4	2227	7.2
## 2148	NA	96.5	2179	6.5
## 2149	-33	96.4	2159	6.6
## 2150	NA	88.0	1726	6.5



## 2151	-29	86.3	1766	6.0
## 2152	-5	90.1	1947	6.9
## 2153	NA	90.3	1928	6.0
## 2154	NA	92.3	2581	6.4
## 2155	NA	90.8	2489	7.5
## 2156	NA	76.6	2223	6.2
## 2157	NA	89.3	1969	6.2
## 2158	NA	80.8	1942	6.1
## 2159	-22	84.7	2438	6.5
## 2160	NA	75.3	1781	5.5
## 2161	66	94.3	2162	6.3
## 2162	NA	78.7	2939	6.5
## 2163	NA	81.4	2492	6.3
## 2164	61	94.1	2530	5.9
## 2165	NA	77.9	2025	6.5
## 2166	42	92.8	2510	6.1
## 2167	NA	94.1	2659	6.6
## 2168	NA	94.6	2147	7.3
## 2169	NA	79.7	2661	6.5
## 2170	NA	96.3	2223	7.0
## 2171	NA	75.9	2814	6.3
## 2172	NA	91.1	2382	5.8
## 2173	NA	86.5	1737	6.3
## 2174	NA	96.0	2094	6.0
## 2175	-11	84.7	2012	5.4
## 2176	2	90.2	2291	6.8
## 2177	NA	81.8	2436	5.9
## 2178	-41	77.6	1833	5.6
## 2179	NA	101.0	2069	6.6
## 2180	NA	89.8	2308	7.2
## 2181	NA	95.9	2053	6.6
## 2182	34	87.3	2623	5.9
## 2183	NA	87.4	2411	6.8
## 2184	NA	88.3	2358	6.7
## 2185	NA	84.3	1762	6.0
## 2186	NA	84.8	2602	5.6
## 2187	NA	93.4	2022	6.3
## 2188	NA	95.0	2196	6.6
## 2189	NA	76.8	2069	6.4
## 2190	NA	89.6	1953	6.2
## 2191	NA	95.4	2345	6.7
## 2192	34	92.7	2710	6.6
## 2193	39	89.4	1738	6.6
## 2194	NA	88.1	1550	7.1
## 2195	49	94.7	2256	6.8
## 2196	23	79.0	2323	5.7
## 2197	NA	88.0	2124	6.3
## 2198	NA	79.1	1976	6.0
## 2199	NA	83.1	2400	7.0
## 2200	-11	80.4	2017	6.4
## 2201	NA	92.9	2518	7.3
## 2202	40	87.8	2459	6.4
## 2203	6	96.5	1905	6.6
## 2204	NA	92.4	2152	7.2

## 2205	NA	88.7	1974	6.6
## 2206	NA	86.8	2056	6.8
## 2207	NA	84.1	1771	6.5
## 2208	10	78.2	3007	6.3
## 2209	49	90.1	2448	5.5
## 2210	15	93.2	2097	6.1
## 2211	41	94.3	1956	5.9
## 2212	NA	84.4	1974	5.4
## 2213	NA	81.5	1822	6.1
## 2214	NA	93.4	2277	6.3
## 2215	NA	89.6	2553	6.3
## 2216	32	84.3	2069	6.3
## 2217	NA	0.0	NA	NA
## 2218	-59	93.1	2318	6.2
## 2219	63	96.2	2222	6.8
## 2220	NA	85.7	2587	6.3
## 2221	NA	84.9	1345	6.9
## 2222	NA	93.9	2160	6.3
## 2223	NA	90.7	2516	6.6
## 2224	37	84.3	2657	6.5
## 2225	NA	89.2	2499	6.6
## 2226	NA	91.0	2323	6.2
## 2227	NA	87.9	3080	6.4
## 2228	NA	83.6	2859	6.4
## 2229	NA	95.9	2291	7.2
## 2230	NA	89.9	1909	6.3
## 2231	NA	89.4	1891	6.3
## 2232	NA	80.7	2761	6.6
## 2233	NA	79.0	1769	6.1
## 2234	-29	89.0	2149	5.6
## 2235	NA	91.8	2455	6.1
## 2236	NA	83.8	2350	6.2
## 2237	21	93.3	2599	5.5
## 2238	-5	90.7	2299	5.9
## 2239	NA	94.9	2496	5.9
## 2240	NA	95.5	2398	6.4
## 2241	18	98.9	2043	6.6
## 2242	11	87.3	2367	6.5
## 2243	NA	94.1	2388	6.3
## 2244	NA	79.2	2401	6.3
## 2245	44	92.0	2506	6.0
## 2246	NA	77.2	2326	5.3
## 2247	-25	87.3	1988	6.6
## 2248	NA	81.5	2539	6.9
## 2249	NA	85.2	1919	5.8
## 2250	NA	78.0	1681	6.2
## 2251	NA	90.0	1698	6.9
## 2252	49	96.5	2002	6.5
## 2253	NA	87.7	2119	7.0
## 2254	NA	86.9	2847	6.4
## 2255	NA	84.4	2486	5.6
## 2256	NA	94.7	2364	6.4
## 2257	NA	83.7	2370	6.9
## 2258	NA	83.0	2520	5.8

## 2259	NA	88.4	2948	6.1
## 2260	NA	93.7	2044	6.3
## 2261	NA	78.2	3055	6.4
## 2262	63	97.8	2410	6.9
## 2263	NA	76.7	3138	6.5
## 2264	NA	93.6	2384	5.9
## 2265	-46	89.6	1973	6.2
## 2266	NA	89.9	2272	6.4
## 2267	65	96.3	2133	6.4
## 2268	NA	85.3	2303	6.2
## 2269	NA	95.2	2415	5.5
## 2270	NA	94.9	1939	6.8
## 2271	NA	95.1	2586	6.5
## 2272	NA	88.6	2026	5.8
## 2273	NA	81.9	2260	5.4
## 2274	NA	91.4	2268	6.7
## 2275	10	83.0	1836	6.2
## 2276	NA	82.5	2479	6.4
## 2277	NA	95.5	2439	7.1
## 2278	NA	92.6	2551	5.9
## 2279	NA	89.6	2249	6.0
## 2280	-21	87.8	2519	6.4
## 2281	-20	91.9	2517	6.8
## 2282	NA	96.4	2464	7.1
## 2283	-6	93.0	2652	6.6
## 2284	NA	91.5	2476	6.0
## 2285	-40	83.0	2006	5.6
## 2286	-2	91.6	2216	5.9
## 2287	NA	94.3	2216	5.8
## 2288	NA	85.2	3068	6.3
## 2289	NA	80.4	2527	6.6
## 2290	NA	96.3	2116	6.8
## 2291	NA	79.6	2713	6.6
## 2292	NA	97.1	2267	6.6
## 2293	-22	97.4	2410	6.8
## 2294	NA	83.4	1781	6.5
## 2295	NA	92.2	2271	6.3
## 2296	NA	92.4	1956	6.0
## 2297	NA	101.1	2061	6.4
## 2298	NA	89.5	1782	6.3
## 2299	24	95.6	2408	6.6
## 2300	-17	91.0	2383	6.1
## 2301	NA	92.8	2496	6.4
## 2302	NA	79.3	2123	6.9
## 2303	NA	92.6	2495	7.4
## 2304	NA	89.3	2589	6.3
## 2305	NA	96.8	2402	5.9
## 2306	NA	95.6	2397	6.5
## 2307	21	94.1	2250	6.5
## 2308	NA	72.2	2863	6.0
## 2309	NA	80.7	2730	6.8
## 2310	NA	76.3	1934	6.2
## 2311	NA	88.6	2674	6.6
## 2312	NA	88.9	1492	6.6

## 2313	NA	84.2	2043	6.4
## 2314	NA	85.2	2206	6.1
## 2315	58	91.6	2539	6.6
## 2316	-50	93.7	2243	6.7
## 2317	37	85.5	2241	6.3
## 2318	NA	88.9	1961	5.9
## 2319	42	94.1	2256	6.3
## 2320	NA	85.6	1535	6.7
## 2321	52	84.1	2422	6.3
## 2322	NA	85.6	2229	6.0
## 2323	NA	91.8	2371	6.0
## 2324	NA	86.4	2602	5.8
## 2325	NA	81.7	2199	7.0
## 2326	28	86.3	1810	6.0
## 2327	NA	80.0	2968	6.6
## 2328	NA	85.6	2916	6.6
## 2329	10	96.3	2392	7.2
## 2330	NA	76.0	2688	5.4
## 2331	4	79.6	2519	6.3
## 2332	NA	95.3	1835	6.7
## 2333	NA	84.4	2548	6.5
## 2334	NA	88.8	1941	6.5
## 2335	NA	90.4	2260	6.7
## 2336	40	84.7	2614	5.7
## 2337	NA	82.9	1776	6.5
## 2338	63	94.2	2487	6.2
## 2339	NA	87.7	2721	6.9
## 2340	NA	85.7	2603	5.9
## 2341	NA	94.6	2125	6.3
## 2342	NA	101.8	2155	6.7
## 2343	NA	83.2	1957	6.8
## 2344	10	93.9	2510	6.0
## 2345	NA	92.5	2101	7.0
## 2346	NA	80.8	2432	6.8
## 2347	NA	94.8	2154	6.3
## 2348	27	96.7	2597	7.0
## 2349	NA	85.5	2454	6.3
## 2350	NA	87.1	2349	6.5
## 2351	NA	95.0	2344	6.2
## 2352	NA	94.5	2312	6.1
## 2353	16	95.5	2354	6.8
## 2354	NA	77.5	3061	6.2
## 2355	NA	88.3	1774	6.5
## 2356	NA	75.4	2466	6.0
## 2357	NA	96.5	2454	6.4
## 2358	NA	93.6	2643	7.3
## 2359	NA	93.6	2448	6.7
## 2360	12	95.2	2191	6.1
## 2361	NA	86.3	2455	7.2
## 2362	NA	93.7	2072	6.6
## 2363	NA	85.8	2662	6.6
## 2364	NA	91.3	2326	5.9
## 2365	NA	78.4	2573	6.0
## 2366	NA	81.6	2730	6.9

## 2367	NA	96.7	2448	7.1
## 2368	-55	87.8	2160	6.4
## 2369	NA	84.3	2003	5.6
## 2370	-7	93.7	2341	6.8
## 2371	44	93.3	2633	5.5
## 2372	NA	79.1	2112	6.2
## 2373	NA	92.5	2299	6.6
## 2374	-25	88.1	2611	6.6
## 2375	NA	93.9	2827	5.9
## 2376	NA	74.8	2613	6.3
## 2377	39	95.6	2396	6.5
## 2378	NA	95.1	2411	6.7
## 2379	34	84.4	2037	5.4
## 2380	-45	93.2	2253	6.5
## 2381	NA	84.3	2340	7.0
## 2382	NA	89.8	2330	6.5
## 2383	46	84.2	2174	6.0
## 2384	NA	94.1	2028	6.1
## 2385	NA	85.2	3047	6.0
## 2386	NA	92.5	1964	6.0
## 2387	NA	72.1	2463	6.4
## 2388	NA	91.7	2407	5.7
## 2389	NA	97.2	2031	6.6
## 2390	46	90.1	2364	6.5
## 2391	NA	92.4	2189	7.0
## 2392	29	89.0	2049	6.5
## 2393	NA	88.5	2115	6.2
## 2394	43	90.7	2416	6.5
## 2395	NA	92.6	1727	6.7
## 2396	NA	97.1	2030	6.5
## 2397	-7	75.7	1977	6.3
## 2398	NA	95.5	2410	6.5
## 2399	NA	83.6	2267	7.3
## 2400	NA	98.8	2461	6.7
## 2401	-3	81.2	2336	5.8
## 2402	45	95.9	2058	6.1
## 2403	NA	82.7	2333	5.8
## 2404	NA	87.9	2523	6.6
## 2405	NA	84.9	2508	5.9
## 2406	37	95.2	2177	7.1
## 2407	NA	95.0	2077	6.7
## 2408	NA	79.5	2761	6.4
## 2409	NA	96.4	2258	6.6
## 2410	NA	93.2	2259	6.4
## 2411	64	79.8	2468	6.0
## 2412	NA	87.8	1550	6.2
## 2413	NA	83.0	1806	6.6
## 2414	NA	85.7	1804	6.0
## 2415	31	94.6	2392	6.5
## 2416	51	92.2	2969	6.4
## 2417	NA	97.9	2263	7.4
## 2418	NA	92.9	1931	6.2
## 2419	NA	92.8	2509	6.4
## 2420	NA	92.3	2076	7.2

## 2421	-39	83.0	2338	5.4
## 2422	NA	94.6	2456	5.5
## 2423	25	85.2	2818	6.3
## 2424	35	87.4	2547	6.6
## 2425	42	79.8	2434	6.2
## 2426	NA	75.9	1697	5.6
## 2427	NA	86.8	2591	5.8
## 2428	NA	94.7	2456	6.5
## 2429	NA	92.8	2334	6.7
## 2430	NA	98.1	2045	6.9
## 2431	NA	87.5	2217	6.7
## 2432	12	93.9	2230	6.9
## 2433	NA	71.8	2701	6.1
## 2434	25	86.5	2531	5.7
## 2435	NA	95.5	1793	6.6
## 2436	14	78.1	2349	6.2
## 2437	NA	83.0	2609	6.5
## 2438	NA	101.8	2272	6.6
## 2439	1	93.4	2369	6.1
## 2440	10	96.6	2427	7.0
## 2441	-12	92.6	2323	6.3
## 2442	NA	81.3	2718	7.0
## 2443	NA	92.7	2795	6.1
## 2444	81	84.6	2487	5.7
## 2445	NA	80.1	2381	6.4
## 2446	NA	85.0	2560	6.5
## 2447	-32	79.9	2929	6.4
## 2448	NA	93.7	2383	6.5
## 2449	NA	94.9	2112	6.8
## 2450	NA	87.2	2494	6.0
## 2451	40	90.8	2310	6.0
## 2452	24	94.3	2395	6.8
## 2453	NA	87.4	2363	6.1
## 2454	16	83.9	2928	6.2
## 2455	-7	93.0	2687	6.5
## 2456	NA	95.2	2481	6.2
## 2457	NA	93.9	2526	6.1
## 2458	NA	92.4	2107	7.4
## 2459	NA	92.6	2586	7.0
## 2460	NA	86.9	2354	6.7
## 2461	14	85.9	2709	6.3
## 2462	NA	91.8	2558	7.0
## 2463	-5	81.1	2369	6.1
## 2464	-6	79.4	2623	6.6
## 2465	NA	87.2	1975	5.8
## 2466	67	79.6	2128	6.0
## 2467	8	99.3	2372	6.8
## 2468	1	86.8	2711	6.7
## 2469	NA	79.7	2374	6.2
## 2470	NA	99.0	2387	6.7
## 2471	-23	94.8	2287	7.2
## 2472	NA	83.3	2961	6.8
## 2473	NA	95.3	2626	7.0
## 2474	NA	80.9	2920	6.6

## 2475	NA	93.8	2587	5.6
## 2476	NA	94.2	2068	6.1
## 2477	NA	95.4	2198	5.9
## 2478	NA	94.8	1787	6.7
## 2479	NA	88.7	1803	6.3
## 2480	31	87.3	2527	6.3
## 2481	NA	94.0	2195	7.0
## 2482	-26	84.4	1886	5.5
## 2483	NA	87.0	2900	6.4
## 2484	-4	80.4	2600	7.3
## 2485	41	91.2	2379	5.8
## 2486	-11	94.6	2315	6.4
## 2487	NA	83.6	1725	6.7
## 2488	NA	89.8	2498	6.2
## 2489	NA	94.5	2076	7.0
## 2490	NA	85.9	2784	6.1
## 2491	NA	85.0	2154	6.0
## 2492	NA	93.9	2131	6.5
## 2493	NA	88.9	2164	6.9
## 2494	NA	81.7	1882	6.1
## 2495	NA	88.0	2285	6.6
## 2496	NA	70.7	2109	6.0
## 2497	NA	94.2	2420	6.1
## 2498	NA	88.9	1940	6.6
## 2499	22	92.7	2211	6.4
## 2500	-21	83.5	3169	6.5
## 2501	NA	82.4	1563	6.1
## 2502	NA	84.5	2469	6.0
## 2503	50	79.6	2891	6.4
## 2504	NA	82.7	2533	6.3
## 2505	NA	85.0	2044	7.0
## 2506	NA	96.2	1945	6.7
## 2507	NA	95.9	2272	6.0
## 2508	56	95.9	2262	5.8
## 2509	NA	87.5	2543	6.6
## 2510	-43	78.2	2293	6.3
## 2511	NA	85.9	2254	6.5
## 2512	18	93.6	2152	7.3
## 2513	NA	82.6	2894	6.1
## 2514	-20	90.5	2149	6.4
## 2515	NA	81.7	2386	6.2
## 2516	-17	92.9	2450	6.6
## 2517	NA	90.3	2253	5.9
## 2518	-18	95.1	2407	6.9
## 2519	NA	82.1	2605	6.6
## 2520	NA	85.8	2513	6.8
## 2521	NA	84.6	3065	6.1
## 2522	42	96.8	2131	6.6
## 2523	20	98.7	1815	7.0
## 2524	NA	83.3	1883	5.8
## 2525	NA	85.8	2277	6.1
## 2526	NA	82.3	2770	7.0
## 2527	NA	84.7	1613	6.3
## 2528	NA	96.2	2034	6.7

## 2529	NA	80.1	2095	6.2
## 2530	NA	83.2	2504	6.2
## 2531	-4	76.7	1925	5.3
## 2532	27	84.8	2522	5.7
## 2533	NA	93.4	2584	7.3
## 2534	28	89.2	1694	6.1
## 2535	26	84.7	2512	6.0
## 2536	26	87.3	2491	6.9
## 2537	NA	87.8	1617	6.0
## 2538	NA	92.3	2316	5.9
## 2539	-22	93.5	2532	6.4
## 2540	9	90.9	2357	6.3
## 2541	NA	87.0	2578	6.6
## 2542	NA	86.8	1905	6.2
## 2543	NA	100.6	2015	6.4
## 2544	NA	102.5	2463	7.2
## 2545	38	89.3	1854	6.5
## 2546	NA	80.5	1912	6.2
## 2547	NA	81.2	2002	6.3
## 2548	NA	95.8	2292	5.8
## 2549	NA	78.4	2710	6.5
## 2550	NA	88.8	2178	6.2
## 2551	NA	93.0	2184	6.5
## 2552	NA	94.4	2605	6.2
## 2553	NA	95.9	2476	6.7
## 2554	NA	95.0	2254	5.9
## 2555	18	88.0	2856	6.5
## 2556	NA	95.1	2163	5.3
## 2557	51	90.7	2306	6.6
## 2558	NA	79.9	3021	6.4
## 2559	NA	70.9	2364	5.9
## 2560	-72	79.8	2638	6.4
## 2561	NA	84.6	2312	7.3
## 2562	NA	85.4	2686	5.7
## 2563	15	85.3	2531	6.1
## 2564	NA	77.8	1919	5.5
## 2565	NA	94.0	2174	6.9
## 2566	NA	87.3	2060	6.0
## 2567	24	101.5	2115	6.5
## 2568	NA	91.4	2275	6.4
## 2569	32	88.8	2139	5.7
## 2570	NA	87.3	1923	6.9
## 2571	-44	96.5	2069	6.8
## 2572	29	96.5	2311	6.4
## 2573	NA	91.0	2547	6.2
## 2574	NA	93.6	1940	6.3
## 2575	NA	83.0	2441	5.5
## 2576	NA	81.3	2453	5.6
## 2577	55	94.3	2371	6.7
## 2578	NA	87.2	2721	6.1
## 2579	NA	82.0	2265	6.7
## 2580	10	95.0	2566	5.7
## 2581	NA	97.1	2491	6.7
## 2582	NA	84.9	2210	5.6



## 2583	14	93.7	2272	6.7
## 2584	NA	94.6	2234	6.6
## 2585	NA	94.3	2318	6.1
## 2586	-30	95.7	1268	6.5
## 2587	NA	93.1	2582	7.3
## 2588	NA	96.3	2371	6.4
## 2589	37	94.7	2456	6.1
## 2590	NA	97.4	2464	6.1
## 2591	NA	90.2	1940	6.2
## 2592	NA	87.7	2293	6.1
## 2593	NA	95.9	2691	7.0
## 2594	NA	90.9	2037	7.0
## 2595	NA	81.9	1685	6.6
## 2596	NA	94.0	2102	6.8
## 2597	59	80.7	2501	6.3
## 2598	NA	82.5	2857	6.6
## 2599	-22	77.6	3208	6.6
## 2600	NA	82.9	2646	5.7
## 2601	NA	94.3	2205	6.4
## 2602	NA	95.4	2414	6.9
## 2603	NA	94.1	1878	6.2
## 2604	NA	83.3	2526	6.4
## 2605	NA	97.2	2177	6.6
## 2606	NA	85.7	2795	6.2
## 2607	-36	77.7	2452	6.6
## 2608	31	93.9	2218	7.1
## 2609	NA	89.8	2644	6.4
## 2610	79	80.3	2058	6.2
## 2611	NA	83.5	2904	6.1
## 2612	NA	77.1	2477	6.2
## 2613	NA	80.3	2989	6.5
## 2614	NA	82.4	1460	6.1
## 2615	NA	97.5	2324	6.9
## 2616	NA	88.4	1938	6.2
## 2617	42	95.2	2409	5.8
## 2618	-8	94.3	2057	5.9
## 2619	NA	87.3	2102	6.4
## 2620	NA	93.5	2595	6.5
## 2621	NA	87.6	2402	6.7
## 2622	52	93.5	2205	6.3
## 2623	NA	74.5	2661	6.6
## 2624	NA	96.3	2287	7.1
## 2625	NA	91.1	2233	6.0
## 2626	NA	93.8	2207	7.6
## 2627	NA	88.6	1743	6.5
## 2628	80	85.0	2515	6.7
## 2629	-26	81.8	3164	6.4
## 2630	15	83.1	2775	6.8
## 2631	NA	81.1	2767	6.7
## 2632	NA	85.5	1921	6.0
## 2633	NA	84.7	2677	6.5
## 2634	14	92.7	2495	6.4
## 2635	NA	86.4	1722	6.0
## 2636	NA	92.9	1843	6.1

## 2637	NA	94.1	2107	6.6
## 2638	NA	81.7	2241	6.8
## 2639	NA	101.4	2604	6.3
## 2640	20	87.0	2072	6.2
## 2641	NA	86.4	2957	5.5
## 2642	NA	86.5	1660	6.2
## 2643	-38	89.4	2040	6.7
## 2644	31	80.1	2268	6.4
## 2645	-39	94.1	1797	6.1
## 2646	NA	80.6	2430	5.7
## 2647	NA	95.2	2060	6.2
## 2648	NA	94.3	2459	7.0
## 2649	NA	97.0	2532	6.5
## 2650	NA	93.1	2325	6.5
## 2651	NA	96.4	2396	6.3
## 2652	NA	75.1	2556	5.3
## 2653	NA	81.0	2568	6.3
## 2654	NA	83.0	2720	6.8
## 2655	-11	98.3	2184	6.0
## 2656	31	85.2	2274	5.7
## 2657	NA	82.6	2695	5.7
## 2658	NA	93.8	2570	5.7
## 2659	NA	94.4	2630	6.6
## 2660	NA	84.3	2969	6.4
## 2661	NA	93.1	2129	7.3
## 2662	NA	86.3	2798	6.0
## 2663	NA	93.5	2702	6.4
## 2664	NA	93.9	2223	6.9
## 2665	NA	84.3	2399	5.6
## 2666	NA	88.8	1533	7.1
## 2667	NA	84.6	2944	5.4
## 2668	39	95.5	2360	6.4
## 2669	2	89.9	2120	6.6
## 2670	NA	92.7	1857	6.8
## 2671	-3	86.2	2337	6.6
## 2672	-36	89.6	2203	6.0
## 2673	NA	95.0	2384	6.5
## 2674	NA	88.5	2321	7.3
## 2675	NA	84.8	1773	6.4
## 2676	NA	81.4	2234	6.2
## 2677	NA	80.0	2889	6.3
## 2678	NA	84.2	2532	5.7
## 2679	NA	95.3	2574	7.0
## 2680	NA	87.9	2073	6.2
## 2681	NA	87.2	2484	6.6
## 2682	NA	93.3	2079	6.1
## 2683	NA	91.3	1617	6.4
## 2684	NA	94.0	2091	5.4
## 2685	NA	96.7	2322	5.7
## 2686	NA	88.8	1899	6.3
## 2687	NA	88.1	2845	6.4
## 2688	NA	95.0	2508	6.9
## 2689	NA	87.5	2430	6.5
## 2690	NA	78.5	2636	6.5

## 2691	61	88.8	2058	6.3
## 2692	NA	91.5	2484	6.2
## 2693	NA	94.3	2235	5.8
## 2694	NA	101.6	2055	6.6
## 2695	NA	100.0	2297	7.1
## 2696	68	96.3	2032	6.6
## 2697	NA	87.5	1863	6.8
## 2698	NA	92.5	2336	6.1
## 2699	NA	94.8	2367	6.1
## 2700	71	97.4	1894	6.9
## 2701	NA	92.1	1912	6.6
## 2702	NA	84.1	2535	6.4
## 2703	NA	85.6	2860	6.4
## 2704	NA	84.6	2468	7.0
## 2705	NA	95.5	2416	6.5
## 2706	49	96.7	2223	7.0
## 2707	19	92.6	2604	7.3
## 2708	NA	97.1	2389	6.6
## 2709	NA	96.3	2377	7.0
## 2710	NA	95.4	2158	7.0
## 2711	NA	76.2	2908	5.7
## 2712	NA	91.3	2461	6.4
## 2713	9	94.4	2077	6.6
## 2714	-25	87.4	2708	6.6
## 2715	-34	86.5	1924	6.0
## 2716	NA	78.0	2119	6.4
## 2717	39	94.4	2184	6.5
## 2718	NA	79.3	1402	7.2
## 2719	NA	95.1	2805	6.0
## 2720	NA	82.1	1857	5.7
## 2721	NA	92.6	2391	5.7
## 2722	NA	88.2	2600	5.9
## 2723	-3	95.9	2577	6.5
## 2724	NA	89.8	2510	6.5
## 2725	NA	98.4	1944	7.1
## 2726	NA	88.8	1873	6.5
## 2727	NA	84.1	2880	6.4
## 2728	NA	83.4	2340	7.2
## 2729	NA	95.1	2837	6.6
## 2730	NA	77.1	2383	6.0
## 2731	NA	92.8	2376	6.6
## 2732	-28	101.8	2614	6.7
## 2733	NA	90.2	2142	6.0
## 2734	NA	92.5	2349	5.9
## 2735	-24	81.4	3081	6.4
## 2736	NA	72.6	2559	6.0
## 2737	NA	97.3	2146	6.3
## 2738	NA	97.9	2533	6.8
## 2739	NA	81.0	2508	6.3
## 2740	NA	81.6	2627	7.2
## 2741	-46	79.2	1949	6.0
## 2742	-26	92.4	2129	6.8
## 2743	NA	84.5	2762	6.8
## 2744	0	82.6	2297	5.6

## 2745	NA	95.3	1991	6.4
## 2746	NA	96.0	2263	7.1
## 2747	NA	79.6	2706	6.4
## 2748	NA	89.4	1950	6.3
## 2749	NA	90.6	2177	6.3
## 2750	-64	77.1	2007	6.2
## 2751	NA	90.4	2457	6.4
## 2752	27	95.7	2220	6.1
## 2753	NA	82.7	2526	6.2
## 2754	NA	84.1	2428	5.7
## 2755	28	93.6	2437	6.0
## 2756	NA	77.0	2559	6.6
## 2757	NA	93.1	2194	6.3
## 2758	NA	80.0	1424	6.7
## 2759	-41	87.0	1502	6.1
## 2760	NA	87.1	2050	6.3
## 2761	5	86.8	1871	6.9
## 2762	NA	84.2	1394	5.7
## 2763	52	88.2	2444	6.5
## 2764	NA	87.8	2363	6.8
## 2765	NA	85.2	2099	6.0
## 2766	43	92.0	1949	6.1
## 2767	NA	94.9	2669	6.4
## 2768	NA	80.2	2905	6.4
## 2769	NA	94.9	1686	6.9
## 2770	NA	89.7	2215	6.0
## 2771	0	86.8	2242	5.7
## 2772	NA	92.6	2423	6.2
## 2773	NA	92.8	1983	6.3
## 2774	NA	82.2	2704	7.0
## 2775	NA	85.3	2292	6.7
## 2776	NA	93.2	2495	6.2
## 2777	NA	94.9	2373	6.3
## 2778	NA	80.7	1898	5.7
## 2779	NA	89.8	2460	6.7
## 2780	NA	87.4	2996	6.1
## 2781	8	95.3	2252	7.0
## 2782	NA	84.2	2831	5.6
## 2783	NA	93.0	2627	7.4
## 2784	NA	96.3	2302	6.4
## 2785	64	80.8	2843	6.5
## 2786	41	78.8	1886	5.4
## 2787	24	93.5	2609	5.7
## 2788	NA	89.5	2440	6.6
## 2789	NA	94.7	2067	6.6
## 2790	23	93.5	2633	6.4
## 2791	NA	89.6	2324	5.8
## 2792	NA	85.1	2451	6.7
## 2793	NA	85.1	2694	6.2
## 2794	33	85.8	2122	6.4
## 2795	9	87.4	2732	6.8
## 2796	NA	93.0	2176	5.8
## 2797	-5	86.0	1997	5.3
## 2798	NA	93.6	1809	6.7

## 2799	NA	97.5	2351	5.7
## 2800	NA	90.5	2577	6.2
## 2801	NA	85.8	2667	6.3
## 2802	NA	87.8	2780	6.6
## 2803	NA	98.1	2382	6.8
## 2804	NA	95.2	2094	6.2
## 2805	NA	94.7	2443	6.9
## 2806	-2	83.4	1740	6.7
## 2807	10	90.6	2362	6.5
## 2808	NA	75.6	2587	5.9
## 2809	-29	96.4	2621	7.0
## 2810	NA	94.0	2231	6.1
## 2811	NA	89.6	1983	6.7
## 2812	NA	80.3	2588	7.0
## 2813	NA	95.5	2309	6.4
## 2814	NA	84.4	1203	5.4
## 2815	NA	95.1	2321	6.5
## 2816	NA	77.1	2675	5.7
## 2817	NA	94.6	2349	6.5
## 2818	NA	84.9	2619	6.3
## 2819	NA	87.3	1979	6.2
## 2820	NA	96.1	2272	6.8
## 2821	NA	92.0	2279	6.2
## 2822	21	80.1	2475	5.7
## 2823	68	89.0	2424	6.7
## 2824	30	87.5	2624	6.8
## 2825	NA	97.3	2357	5.9
## 2826	NA	89.8	1756	6.5
## 2827	NA	94.0	2258	7.2
## 2828	NA	95.2	2797	6.2
## 2829	NA	90.3	2251	6.5
## 2830	NA	88.1	2593	6.4
## 2831	NA	93.4	2513	6.1
## 2832	NA	82.7	3014	5.6
## 2833	NA	84.6	2148	6.5
## 2834	NA	83.2	2299	6.9
## 2835	NA	80.9	2872	6.7
## 2836	NA	85.2	2138	6.9
## 2837	NA	94.3	2054	6.3
## 2838	NA	95.5	1929	6.7
## 2839	NA	90.5	2415	6.4
## 2840	-12	89.7	1405	7.0
## 2841	NA	88.7	1514	6.0
## 2842	-18	97.6	2493	6.7
## 2843	NA	84.5	1795	6.1
## 2844	24	90.8	2243	5.7
## 2845	NA	87.4	2303	7.3
## 2846	49	91.4	2429	6.5
## 2847	NA	93.7	2143	5.8
## 2848	NA	77.1	2515	6.4
## 2849	NA	90.6	2410	5.6
## 2850	55	84.9	2512	6.2
## 2851	NA	86.2	2522	6.6
## 2852	NA	72.6	2425	5.8

## 2853	NA	88.3	2778	6.7
## 2854	NA	92.5	2610	7.4
## 2855	58	81.7	2523	6.3
## 2856	7	81.4	1842	6.2
## 2857	-1	81.1	1973	6.5
## 2858	12	93.6	2156	7.0
## 2859	37	96.3	2370	5.4
## 2860	NA	85.6	1686	6.8
## 2861	66	86.6	2274	6.1
## 2862	NA	88.4	2517	6.2
## 2863	NA	85.3	1737	6.5
## 2864	36	93.3	1987	6.3
## 2865	NA	93.7	2273	6.5
## 2866	NA	86.4	2903	6.5
## 2867	-20	86.4	1799	6.9
## 2868	NA	96.8	2227	7.1
## 2869	NA	97.9	2431	6.2
## 2870	60	83.7	2919	5.5
## 2871	42	97.9	2187	6.0
## 2872	NA	97.5	1794	7.0
## 2873	NA	95.6	2095	6.6
## 2874	NA	90.1	2111	6.4
## 2875	NA	82.2	2489	5.6
## 2876	NA	84.3	2826	6.5
## 2877	16	0.0	NA	NA
## 2878	NA	95.4	2370	6.0
## 2879	NA	89.7	2613	6.2
## 2880	NA	83.3	2676	6.6
## 2881	NA	91.8	2580	6.9
## 2882	-6	80.3	2179	6.3
## 2883	NA	93.6	2341	6.5
## 2884	NA	92.0	1638	6.1
## 2885	NA	86.9	1902	6.0
## 2886	-10	87.7	2350	5.8
## 2887	NA	94.6	2526	6.4
## 2888	-20	85.5	2011	5.9
## 2889	37	86.3	2997	6.3
## 2890	7	95.5	2349	5.9
## 2891	-20	78.1	2348	6.6
## 2892	10	74.6	2874	6.5
## 2893	83	91.1	2363	6.4
## 2894	37	69.3	2219	5.9
## 2895	NA	85.1	2198	5.8
## 2896	NA	84.2	2262	7.1
## 2897	75	84.6	2425	6.0
## 2898	66	92.7	2530	6.4
## 2899	26	95.3	2242	6.8
## 2900	NA	95.9	2455	5.8
## 2901	NA	94.9	2249	7.7
## 2902	NA	77.6	2506	6.5
## 2903	NA	86.2	2525	6.7
## 2904	NA	94.5	2447	6.0
## 2905	17	81.4	2348	6.2
## 2906	NA	99.1	2277	6.7

## 2907	NA	92.7	2665	6.5
## 2908	70	92.7	2576	5.6
## 2909	NA	95.7	2223	6.1
## 2910	-9	88.3	2441	5.9
## 2911	NA	90.5	2081	7.1
## 2912	8	86.7	2449	6.6
## 2913	NA	86.4	1834	6.1
## 2914	NA	95.1	2324	7.0
## 2915	NA	81.6	1695	6.5
## 2916	-23	94.7	2015	5.9
## 2917	NA	76.4	1830	5.4
## 2918	NA	80.3	2802	6.1
## 2919	53	97.9	2395	6.6
## 2920	NA	95.8	2316	6.8
## 2921	-17	80.7	2434	6.2
## 2922	18	95.9	1858	6.8
## 2923	NA	94.3	1935	6.4
## 2924	NA	80.5	3035	5.7
## 2925	58	94.9	2477	6.7
## 2926	-20	86.3	2060	6.1
## 2927	NA	82.0	2547	6.3
## 2928	21	84.8	2986	6.3
## 2929	22	94.9	2815	6.6
## 2930	-28	100.6	1753	6.5
## 2931	NA	83.5	2582	5.9
## 2932	NA	81.2	2516	5.9
## 2933	NA	82.5	2423	6.2
## 2934	NA	93.8	2579	5.7
## 2935	NA	99.1	2125	6.6
## 2936	NA	92.1	2455	5.6
## 2937	24	95.0	2757	6.5
## 2938	NA	83.3	2378	6.2
## 2939	NA	85.1	2423	6.3
## 2940	NA	95.7	1887	6.8
## 2941	NA	90.7	1856	5.8
## 2942	NA	95.4	2448	6.5
## 2943	9	84.4	2699	6.2
## 2944	36	95.8	2441	5.9
## 2945	NA	78.9	2286	6.6
## 2946	NA	90.6	2153	5.9
## 2947	68	96.6	2089	6.8
## 2948	10	89.8	2010	6.3
## 2949	61	92.8	2558	5.5
## 2950	NA	91.7	2590	7.6
## 2951	NA	90.2	2412	5.6
## 2952	NA	85.2	2581	6.2
## 2953	NA	97.8	2423	6.4
## 2954	NA	87.8	2726	6.6
## 2955	44	96.1	2404	5.9
## 2956	NA	83.7	2622	6.5
## 2957	NA	91.6	2578	6.3
## 2958	NA	95.8	2132	6.8
## 2959	42	96.8	2482	5.9
## 2960	2	69.6	2192	6.2

## 2961	NA	80.9	2491	7.0
## 2962	64	97.5	2465	6.6
## 2963	NA	91.1	2334	6.2
## 2964	NA	96.2	2385	6.3
## 2965	10	87.1	1991	6.0
## 2966	13	93.8	2469	6.0
## 2967	-3	85.6	1878	7.0
## 2968	NA	89.6	2400	6.9
## 2969	NA	86.9	2019	6.2
## 2970	NA	95.4	2193	6.0
## 2971	-15	99.0	2299	7.0
## 2972	NA	85.7	2235	6.2
## 2973	13	79.2	2410	7.0
## 2974	NA	95.8	2077	6.6
## 2975	NA	77.3	1780	5.6
## 2976	NA	82.8	1729	6.5
## 2977	NA	94.8	2685	6.5
## 2978	NA	98.0	2476	6.9
## 2979	-8	94.4	2082	6.4
## 2980	-30	88.9	2172	5.7
## 2981	NA	84.6	2860	6.8
## 2982	NA	86.4	1758	6.1
## 2983	NA	85.2	1401	6.6
## 2984	NA	89.0	2532	6.2
## 2985	NA	81.1	1794	6.0
## 2986	NA	94.4	2231	7.0
## 2987	4	81.0	2697	6.5
## 2988	-17	90.8	2994	6.7
## 2989	NA	93.9	2535	6.6
## 2990	-24	80.8	2932	6.2
## 2991	3	86.5	1888	5.2
## 2992	62	90.4	2581	6.0
## 2993	38	79.6	2591	6.8
## 2994	NA	97.2	2542	7.0
## 2995	42	98.0	2347	6.7
## 2996	NA	84.3	1589	5.9
## 2997	NA	94.2	2383	6.3
## 2998	NA	98.6	2317	6.8
## 2999	NA	87.3	2579	6.7
## 3000	28	93.1	2018	6.9
## 3001	NA	94.7	2293	6.5
## 3002	NA	85.2	1828	6.5
## 3003	NA	84.1	2502	5.9
## 3004	10	87.9	2094	6.4
## 3005	NA	91.3	2057	6.7
## 3006	NA	96.2	2368	6.4
## 3007	NA	89.9	2315	6.8
## 3008	NA	87.4	2811	6.4
## 3009	69	80.5	2429	5.8
## 3010	NA	87.5	2867	6.4
## 3011	60	75.0	2752	6.7
## 3012	11	86.8	2689	6.4
## 3013	NA	99.2	2058	6.9
## 3014	NA	94.2	2398	6.1



## 3015	NA	80.5	1902	5.9
## 3016	NA	79.1	2414	6.0
## 3017	NA	92.1	1804	5.9
## 3018	NA	94.7	2818	6.7
## 3019	-10	94.4	1856	5.9
## 3020	NA	83.0	2693	6.4
## 3021	NA	94.1	2461	5.9
## 3022	NA	94.2	2013	6.2
## 3023	NA	90.7	739	7.5
## 3024	-12	95.3	2166	5.9
## 3025	NA	93.4	2021	7.0
## 3026	NA	81.2	2665	7.2
## 3027	NA	91.2	2069	5.9
## 3028	NA	92.9	2211	5.8
## 3029	NA	85.4	2834	5.6
## 3030	NA	88.5	1877	6.1
## 3031	NA	83.5	2962	6.1
## 3032	-19	80.1	2839	6.1
## 3033	NA	94.0	2316	7.0
## 3034	NA	94.7	2294	6.5
## 3035	NA	95.4	2369	6.8
## 3036	24	96.3	2456	6.9
## 3037	31	94.0	2109	6.3
## 3038	NA	76.7	2313	6.2
## 3039	NA	68.7	2169	5.9
## 3040	NA	91.9	2465	5.5
## 3041	39	96.3	2402	6.3
## 3042	25	94.7	2142	6.7
## 3043	60	93.8	2568	6.6
## 3044	NA	92.0	1734	6.8
## 3045	NA	88.5	2281	5.7
## 3046	NA	97.0	2421	6.8
## 3047	NA	77.3	2280	5.8
## 3048	65	99.1	2380	7.0
## 3049	NA	84.7	2854	7.1
## 3050	NA	90.4	2237	6.0
## 3051	-24	86.3	2599	6.4
## 3052	NA	92.4	1898	5.9
## 3053	NA	84.0	2991	6.1
## 3054	NA	97.2	2054	6.8
## 3055	NA	88.9	2392	7.3
## 3056	NA	95.5	2411	5.9
## 3057	4	94.7	1889	6.8
## 3058	NA	89.1	2097	6.3
## 3059	NA	86.3	1796	6.2
## 3060	22	77.9	2558	6.4
## 3061	NA	75.1	2756	6.6
## 3062	-23	89.3	2885	6.5
## 3063	NA	85.8	2384	6.8
## 3064	30	98.1	2119	6.5
## 3065	NA	84.0	1916	5.4
## 3066	NA	84.2	2631	5.8
## 3067	NA	89.0	2024	6.5
## 3068	NA	93.8	2257	6.0

## 3069	41	95.8	2374	5.8
## 3070	NA	84.8	3195	6.4
## 3071	18	93.5	2617	6.4
## 3072	36	96.1	2352	6.0
## 3073	NA	94.1	1979	6.4
## 3074	49	98.4	2203	6.7
## 3075	NA	94.9	2208	6.5
## 3076	31	98.1	2426	6.7
## 3077	23	92.4	2497	6.1
## 3078	NA	88.5	1520	6.7
## 3079	NA	86.8	2443	6.6
## 3080	21	89.2	2658	6.5
## 3081	NA	91.5	2357	6.4
## 3082	NA	83.9	2170	6.5
## 3083	NA	91.3	2186	6.7
## 3084	NA	93.1	2333	6.2
## 3085	NA	87.5	1907	6.0
## 3086	NA	81.0	2366	6.8
## 3087	NA	90.3	2440	6.6
## 3088	3	87.8	2280	6.6
## 3089	NA	80.2	2946	5.9
## 3090	NA	95.2	2230	7.1
## 3091	41	92.5	2127	6.9
## 3092	NA	95.9	2045	6.2
## 3093	-35	97.0	2363	6.9
## 3094	NA	94.9	2544	6.5
## 3095	NA	85.2	2211	5.8
## 3096	NA	84.5	2908	5.6
## 3097	8	84.3	1506	6.6
## 3098	NA	78.7	1733	6.1
## 3099	NA	93.3	2347	6.8
## 3100	NA	90.1	1665	6.8
## 3101	NA	79.2	2070	6.2
## 3102	NA	88.7	2061	6.3
## 3103	NA	96.5	2350	6.3
## 3104	NA	86.1	2150	6.4
## 3105	NA	91.0	2411	7.1
## 3106	NA	87.5	2270	6.2
## 3107	NA	83.6	905	6.4
## 3108	19	86.5	1684	6.0
## 3109	NA	88.9	2395	6.0
## 3110	NA	87.2	1646	5.6
## 3111	NA	79.5	1986	6.5
## 3112	NA	74.3	1900	7.0
## 3113	-6	79.2	2570	5.7
## 3114	-32	86.8	2455	6.7
## 3115	NA	86.1	2591	6.9
## 3116	NA	78.8	2361	6.7
## 3117	30	82.5	2572	5.7
## 3118	66	91.5	2465	5.7
## 3119	NA	92.0	1737	5.9
## 3120	NA	86.7	2059	5.4
## 3121	NA	93.9	1962	6.2
## 3122	63	90.9	2628	5.8

## 3123	NA	83.3	2368	5.8
## 3124	1	88.8	2546	7.3
## 3125	13	91.7	2525	7.0
## 3126	NA	83.7	2566	5.8
## 3127	21	101.0	2585	6.5
## 3128	19	97.4	2355	6.0
## 3129	NA	82.1	2783	6.1
## 3130	-3	85.9	2648	6.3
## 3131	NA	87.7	2496	6.6
## 3132	NA	77.1	2624	6.2
## 3133	NA	93.5	2326	6.3
## 3134	NA	95.6	2330	6.2
## 3135	-18	84.4	2399	6.9
## 3136	NA	87.9	2573	5.8
## 3137	NA	99.9	1828	6.6
## 3138	NA	95.7	2348	6.9
## 3139	NA	83.4	2427	6.2
## 3140	NA	85.2	1844	6.4
## 3141	NA	94.8	2287	6.3
## 3142	NA	95.6	1981	6.6
## 3143	NA	94.9	2572	6.6
## 3144	NA	81.3	2825	6.6
## 3145	NA	85.6	2136	7.1
## 3146	NA	89.0	2086	7.2
## 3147	20	95.5	1906	6.0
## 3148	19	95.5	2152	6.8
## 3149	-19	98.4	2133	6.1
## 3150	NA	86.4	2556	5.7
## 3151	NA	91.6	2646	6.5
## 3152	25	94.2	2325	6.1
## 3153	NA	83.0	2311	6.9
## 3154	NA	93.7	2324	6.7
## 3155	NA	78.6	2231	6.4
## 3156	NA	87.1	2627	6.8
## 3157	19	94.7	1696	6.1
## 3158	NA	93.7	2923	6.6
## 3159	NA	82.6	3136	6.5
## 3160	NA	87.4	2747	6.7
## 3161	-6	75.5	1809	5.4
## 3162	NA	83.8	2932	6.1
## 3163	NA	95.9	2170	6.6
## 3164	NA	93.2	2163	6.8
## 3165	NA	73.0	2560	5.4
## 3166	NA	101.7	2626	6.6
## 3167	NA	85.7	2345	6.6
## 3168	-17	81.3	1860	6.1
## 3169	NA	77.2	2323	6.3
## 3170	40	84.7	2504	6.0
## 3171	56	92.1	2538	6.3
## 3172	NA	93.5	2020	6.3
## 3173	-53	90.2	2009	6.7
## 3174	NA	96.9	2279	6.9
## 3175	24	95.2	2747	6.1
## 3176	NA	95.2	1909	5.7

## 3177	NA	82.8	2605	5.8
## 3178	-15	83.3	1479	6.5
## 3179	NA	92.8	2208	6.8
## 3180	NA	96.0	2455	5.9
## 3181	9	88.4	1666	5.9
## 3182	NA	84.0	1707	6.6
## 3183	NA	87.9	2003	6.3
## 3184	NA	83.7	2486	6.4
## 3185	NA	96.7	2534	6.9
## 3186	NA	86.6	2556	6.7
## 3187	NA	96.7	2221	6.9
## 3188	NA	92.1	1746	6.6
## 3189	NA	80.3	2996	6.2
## 3190	39	85.3	2592	6.3
## 3191	37	75.5	2795	6.7
## 3192	-49	79.7	1971	6.0
## 3193	21	79.7	1950	6.1
## 3194	NA	85.4	2511	6.8
## 3195	-40	93.0	2637	5.6
## 3196	NA	83.4	2485	7.2
## 3197	NA	75.9	2499	5.4
## 3198	NA	79.7	2717	6.4
## 3199	29	91.8	2090	6.7
## 3200	NA	88.6	2381	5.8
## 3201	NA	94.1	2490	6.1
## 3202	32	97.4	1942	6.5
## 3203	NA	88.6	2220	7.0
## 3204	NA	90.2	2840	6.7
## 3205	NA	90.7	2534	7.0
## 3206	16	96.7	2383	5.9
## 3207	NA	95.1	2117	6.9
## 3208	NA	77.8	2448	6.5
## 3209	63	86.7	1910	5.3
## 3210	NA	95.9	2387	6.9
## 3211	25	89.4	1788	6.4
## 3212	-1	94.5	2112	6.1
## 3213	NA	80.9	2918	6.4
## 3214	41	86.3	1854	6.3
## 3215	NA	90.5	2350	6.7
## 3216	-13	92.4	2206	6.3
## 3217	NA	98.0	2036	6.6
## 3218	NA	93.4	2499	6.1
## 3219	6	81.2	2682	6.1
## 3220	NA	82.5	2442	5.7
## 3221	NA	98.1	1192	6.7
## 3222	NA	94.3	2464	5.7
## 3223	NA	88.3	2098	6.0
## 3224	NA	83.8	2873	7.1
## 3225	7	98.7	2078	6.1
## 3226	NA	85.7	2688	5.8
## 3227	-35	98.3	2097	6.2
## 3228	NA	80.8	3075	5.9
## 3229	NA	89.9	2570	6.3
## 3230	NA	98.4	2417	6.8

## 3231	NA	94.8	2261	7.4
## 3232	NA	95.0	2147	6.1
## 3233	-3	80.4	1834	6.1
## 3234	57	93.8	2368	6.3
## 3235	-52	97.1	2340	6.4
## 3236	NA	85.4	2579	6.3
## 3237	24	95.8	2262	6.1
## 3238	NA	92.4	2084	7.0
## 3239	-19	95.5	2619	6.7
## 3240	26	73.9	2868	6.6
## 3241	30	94.4	2606	5.7
## 3242	NA	94.2	2330	6.2
## 3243	NA	94.3	2098	6.2
## 3244	NA	90.5	2078	6.5
## 3245	NA	88.6	2543	7.3
## 3246	NA	90.9	2464	5.7
## 3247	23	83.0	1318	6.0
## 3248	NA	87.3	1889	6.1
## 3249	NA	89.5	2605	5.9
## 3250	-2	90.3	2222	6.4
## 3251	NA	96.6	2182	6.5
## 3252	NA	98.6	2181	7.1
## 3253	36	95.9	2159	6.4
## 3254	NA	95.8	2160	6.8
## 3255	NA	101.3	2749	6.5
## 3256	NA	97.0	2064	5.9
## 3257	NA	83.7	2667	5.8
## 3258	39	92.3	2462	6.5
## 3259	NA	93.3	2613	6.1
## 3260	NA	85.1	2567	6.6
## 3261	41	84.0	2370	6.8
## 3262	NA	93.3	2135	7.1
## 3263	NA	93.3	2410	5.9
## 3264	NA	85.0	2990	6.1
## 3265	NA	83.1	2683	6.6
## 3266	51	95.1	2434	6.4
## 3267	NA	89.8	2518	6.6
## 3268	NA	98.8	2310	6.6
## 3269	NA	88.7	2313	6.7
## 3270	NA	90.5	455	7.1
## 3271	NA	89.3	1804	6.6
## 3272	-8	81.9	1810	6.1
## 3273	NA	91.7	2157	6.5
## 3274	NA	73.3	2922	6.8
## 3275	-18	89.8	2859	6.3
## 3276	42	82.2	2580	5.4
## 3277	NA	94.2	2204	6.3
## 3278	34	85.9	1929	5.3
## 3279	70	78.9	2956	6.0
## 3280	NA	95.6	2275	6.8
## 3281	NA	95.5	2378	7.2
## 3282	NA	94.2	2346	6.1
## 3283	NA	90.3	2709	7.4
## 3284	NA	88.8	2336	5.8

##	3285	36	94.3	2172	6.9
##	3286	NA	94.9	2044	6.2
##	3287	NA	94.4	2117	6.2
##	3288	70	87.7	2535	7.0
##	3289	-35	83.4	2792	6.3
##	3290	36	85.8	2441	6.8
##	3291	NA	97.5	2411	6.8
##	3292	NA	81.2	2811	6.1
##	3293	NA	94.5	2727	5.9
##	3294	NA	93.5	2280	6.2
##	3295	NA	80.6	2327	6.2
##	3296	-57	93.5	2118	6.7
##	3297	NA	91.0	2196	6.8
##	3298	NA	94.6	2186	6.3
##	3299	NA	72.1	2432	5.5
##	3300	NA	80.8	2636	6.8
##	3301	NA	85.3	2088	5.9
##	3302	NA	94.2	1987	6.0
##	3303	NA	97.2	2383	6.8
##	3304	NA	86.1	2230	6.5
##	3305	64	92.8	2814	6.5
##	3306	NA	93.3	2538	5.8
##	3307	49	95.6	2273	6.2
##	3308	NA	90.9	2473	6.8
##	3309	16	96.9	2377	6.9
##	3310	-47	89.2	2033	6.8
##	3311	NA	87.3	2009	6.5
##	3312	NA	83.0	2452	5.8
##	3313	NA	98.0	2291	6.2
##	3314	NA	96.2	1926	6.6
##	3315	54	83.5	2337	5.8
##	3316	NA	77.5	2755	5.7
##	3317	NA	87.9	2257	6.5
##	3318	NA	93.2	2362	6.7
##	3319	37	93.4	2338	5.8
##	3320	13	95.5	2215	6.5
##	3321	NA	98.4	2438	6.3
##	3322	NA	93.3	2236	6.4
##	3323	17	93.5	2735	5.8
##	3324	NA	89.9	2624	5.9
##	3325	66	86.1	1396	6.7
##	3326	NA	71.7	2508	6.2
##	3327	NA	90.7	2436	5.7
##	3328	6	92.3	2273	6.3
##	3329	53	85.5	2783	6.0
##	3330	NA	87.5	2629	5.8
##	3331	-84	93.5	2209	6.3
##	3332	57	86.1	2050	7.1
##	3333	NA	92.8	2400	6.1
##	estimated_ba_using_speedangle estimated_woba_using_speedangle woba_value				
##	1		NA	NA	0.00
##	2		NA	NA	NA
##	3		NA	NA	NA
##	4		NA	NA	NA

## 5	0.906	0.870	0.90
## 6	NA	NA	NA
## 7	0.943	0.889	0.90
## 8	NA	NA	NA
## 9	0.726	0.676	0.90
## 10	NA	NA	NA
## 11	NA	NA	0.70
## 12	NA	NA	NA
## 13	NA	NA	NA
## 14	NA	NA	NA
## 15	NA	NA	NA
## 16	NA	NA	0.00
## 17	NA	NA	NA
## 18	0.546	0.709	0.00
## 19	NA	NA	NA
## 20	NA	NA	NA
## 21	NA	NA	NA
## 22	NA	NA	NA
## 23	0.000	0.000	0.00
## 24	0.120	0.111	0.00
## 25	NA	NA	NA
## 26	NA	NA	NA
## 27	NA	NA	NA
## 28	0.614	1.202	2.00
## 29	NA	NA	0.00
## 30	NA	NA	NA
## 31	NA	NA	0.70
## 32	NA	NA	NA
## 33	NA	NA	NA
## 34	NA	NA	NA
## 35	NA	NA	0.70
## 36	0.189	0.170	0.00
## 37	NA	NA	NA
## 38	NA	NA	NA
## 39	NA	NA	NA
## 40	NA	NA	NA
## 41	NA	NA	0.00
## 42	NA	NA	0.00
## 43	NA	NA	NA
## 44	NA	NA	0.00
## 45	NA	NA	0.00
## 46	NA	NA	NA
## 47	0.989	1.995	2.00
## 48	NA	NA	NA
## 49	NA	NA	NA
## 50	NA	NA	NA
## 51	0.377	0.357	0.00
## 52	NA	NA	NA
## 53	NA	NA	NA
## 54	NA	NA	NA
## 55	NA	NA	NA
## 56	NA	NA	NA
## 57	NA	NA	NA
## 58	NA	NA	NA

## 59	NA	NA	NA
## 60	NA	NA	NA
## 61	NA	NA	NA
## 62	0.091	0.082	0.00
## 63	NA	NA	NA
## 64	NA	NA	NA
## 65	NA	NA	NA
## 66	NA	NA	NA
## 67	NA	NA	NA
## 68	NA	NA	0.70
## 69	NA	NA	NA
## 70	NA	NA	NA
## 71	NA	NA	NA
## 72	NA	NA	0.70
## 73	0.394	0.360	0.00
## 74	NA	NA	NA
## 75	0.460	0.468	0.90
## 76	NA	NA	NA
## 77	NA	NA	NA
## 78	0.623	0.573	0.90
## 79	NA	NA	NA
## 80	NA	NA	NA
## 81	NA	NA	NA
## 82	0.777	0.707	0.00
## 83	NA	NA	NA
## 84	NA	NA	NA
## 85	NA	NA	NA
## 86	NA	NA	NA
## 87	NA	NA	NA
## 88	NA	NA	0.00
## 89	0.183	0.243	0.00
## 90	NA	NA	NA
## 91	NA	NA	NA
## 92	NA	NA	0.70
## 93	NA	NA	NA
## 94	NA	NA	NA
## 95	0.240	0.402	0.00
## 96	NA	NA	NA
## 97	NA	NA	NA
## 98	0.046	0.059	0.00
## 99	NA	NA	NA
## 100	0.009	0.008	0.00
## 101	NA	NA	NA
## 102	0.671	0.682	0.90
## 103	NA	NA	NA
## 104	NA	NA	NA
## 105	0.126	0.113	0.00
## 106	NA	NA	0.00
## 107	NA	NA	NA
## 108	NA	NA	NA
## 109	0.206	0.191	0.00
## 110	0.106	0.095	0.00
## 111	0.000	0.000	0.00
## 112	NA	NA	0.00



## 113	NA	NA	NA
## 114	NA	NA	NA
## 115	NA	NA	NA
## 116	NA	NA	NA
## 117	NA	NA	NA
## 118	NA	NA	NA
## 119	NA	NA	NA
## 120	NA	NA	NA
## 121	NA	NA	NA
## 122	NA	NA	NA
## 123	NA	NA	NA
## 124	NA	NA	0.70
## 125	NA	NA	NA
## 126	0.060	0.054	0.00
## 127	0.014	0.013	0.00
## 128	NA	NA	NA
## 129	NA	NA	NA
## 130	NA	NA	NA
## 131	NA	NA	NA
## 132	NA	NA	NA
## 133	NA	NA	NA
## 134	NA	NA	NA
## 135	NA	NA	NA
## 136	NA	NA	NA
## 137	NA	NA	NA
## 138	NA	NA	NA
## 139	NA	NA	NA
## 140	0.254	0.229	0.00
## 141	NA	NA	NA
## 142	NA	NA	NA
## 143	NA	NA	NA
## 144	0.349	0.316	0.00
## 145	NA	NA	NA
## 146	NA	NA	NA
## 147	0.097	0.158	0.00
## 148	NA	NA	0.00
## 149	NA	NA	NA
## 150	NA	NA	NA
## 151	NA	NA	NA
## 152	NA	NA	NA
## 153	NA	NA	NA
## 154	NA	NA	NA
## 155	NA	NA	NA
## 156	NA	NA	NA
## 157	NA	NA	NA
## 158	NA	NA	NA
## 159	NA	NA	NA
## 160	NA	NA	NA
## 161	NA	NA	NA
## 162	NA	NA	NA
## 163	NA	NA	NA
## 164	NA	NA	NA
## 165	NA	NA	NA
## 166	NA	NA	NA

## 167	NA	NA	NA
## 168	NA	NA	NA
## 169	0.071	0.066	0.00
## 170	NA	NA	NA
## 171	NA	NA	NA
## 172	NA	NA	0.00
## 173	NA	NA	NA
## 174	NA	NA	NA
## 175	NA	NA	NA
## 176	NA	NA	NA
## 177	0.314	0.283	1.25
## 178	NA	NA	0.00
## 179	NA	NA	0.70
## 180	NA	NA	NA
## 181	0.209	0.188	1.25
## 182	0.086	0.077	0.00
## 183	NA	NA	NA
## 184	0.003	0.003	0.00
## 185	NA	NA	NA
## 186	NA	NA	NA
## 187	0.011	0.012	0.00
## 188	NA	NA	NA
## 189	NA	NA	NA
## 190	NA	NA	NA
## 191	NA	NA	NA
## 192	NA	NA	0.70
## 193	0.083	0.077	0.00
## 194	NA	NA	0.70
## 195	NA	NA	NA
## 196	NA	NA	0.00
## 197	NA	NA	NA
## 198	NA	NA	NA
## 199	NA	NA	NA
## 200	NA	NA	NA
## 201	NA	NA	NA
## 202	NA	NA	0.00
## 203	NA	NA	NA
## 204	NA	NA	0.00
## 205	NA	NA	0.00
## 206	NA	NA	NA
## 207	NA	NA	NA
## 208	NA	NA	NA
## 209	NA	NA	NA
## 210	NA	NA	NA
## 211	NA	NA	NA
## 212	NA	NA	NA
## 213	NA	NA	NA
## 214	NA	NA	NA
## 215	NA	NA	NA
## 216	NA	NA	NA
## 217	NA	NA	0.00
## 218	NA	NA	NA
## 219	NA	NA	NA
## 220	NA	NA	NA

## 221	NA	NA	NA
## 222	NA	NA	NA
## 223	0.000	0.000	0.00
## 224	NA	NA	NA
## 225	0.217	0.218	0.90
## 226	NA	NA	NA
## 227	NA	NA	NA
## 228	NA	NA	0.00
## 229	NA	NA	NA
## 230	NA	NA	NA
## 231	NA	NA	NA
## 232	NA	NA	NA
## 233	NA	NA	NA
## 234	0.103	0.099	0.00
## 235	NA	NA	NA
## 236	NA	NA	NA
## 237	NA	NA	NA
## 238	NA	NA	NA
## 239	0.960	0.883	0.90
## 240	NA	NA	NA
## 241	NA	NA	NA
## 242	NA	NA	NA
## 243	NA	NA	NA
## 244	NA	NA	NA
## 245	NA	NA	NA
## 246	NA	NA	NA
## 247	NA	NA	NA
## 248	0.966	0.913	0.90
## 249	0.243	0.233	0.90
## 250	NA	NA	NA
## 251	NA	NA	NA
## 252	0.297	0.341	0.00
## 253	NA	NA	NA
## 254	NA	NA	NA
## 255	NA	NA	NA
## 256	NA	NA	0.70
## 257	NA	NA	NA
## 258	NA	NA	NA
## 259	NA	NA	NA
## 260	NA	NA	NA
## 261	NA	NA	NA
## 262	NA	NA	0.00
## 263	NA	NA	NA
## 264	NA	NA	NA
## 265	0.206	0.190	0.90
## 266	NA	NA	0.00
## 267	NA	NA	0.00
## 268	NA	NA	0.70
## 269	0.614	0.556	0.90
## 270	NA	NA	NA
## 271	NA	NA	NA
## 272	NA	NA	NA
## 273	NA	NA	NA
## 274	NA	NA	NA

## 275	NA	NA	NA
## 276	NA	NA	0.70
## 277	NA	NA	NA
## 278	NA	NA	NA
## 279	NA	NA	NA
## 280	NA	NA	0.00
## 281	NA	NA	NA
## 282	NA	NA	NA
## 283	0.014	0.013	0.00
## 284	NA	NA	NA
## 285	NA	NA	NA
## 286	NA	NA	NA
## 287	NA	NA	NA
## 288	0.066	0.059	0.00
## 289	NA	NA	0.70
## 290	NA	NA	NA
## 291	NA	NA	NA
## 292	NA	NA	NA
## 293	NA	NA	NA
## 294	NA	NA	NA
## 295	NA	NA	NA
## 296	NA	NA	NA
## 297	NA	NA	NA
## 298	0.354	0.574	0.00
## 299	NA	NA	NA
## 300	NA	NA	0.00
## 301	NA	NA	NA
## 302	NA	NA	NA
## 303	NA	NA	NA
## 304	NA	NA	0.70
## 305	NA	NA	NA
## 306	NA	NA	NA
## 307	NA	NA	NA
## 308	NA	NA	NA
## 309	NA	NA	NA
## 310	NA	NA	NA
## 311	NA	NA	NA
## 312	NA	NA	NA
## 313	0.583	0.718	1.25
## 314	NA	NA	NA
## 315	NA	NA	NA
## 316	0.206	0.185	0.00
## 317	NA	NA	NA
## 318	NA	NA	NA
## 319	0.320	0.308	0.00
## 320	NA	NA	NA
## 321	0.583	0.718	1.25
## 322	NA	NA	NA
## 323	NA	NA	NA
## 324	NA	NA	NA
## 325	0.051	0.046	0.00
## 326	NA	NA	NA
## 327	NA	NA	NA
## 328	NA	NA	NA

## 329	NA	NA	NA
## 330	NA	NA	NA
## 331	0.057	0.066	0.00
## 332	0.257	0.246	0.90
## 333	NA	NA	NA
## 334	0.614	0.553	0.90
## 335	NA	NA	NA
## 336	NA	NA	NA
## 337	NA	NA	NA
## 338	0.391	0.358	0.00
## 339	NA	NA	NA
## 340	NA	NA	NA
## 341	NA	NA	NA
## 342	0.554	0.511	0.90
## 343	NA	NA	NA
## 344	NA	NA	NA
## 345	NA	NA	NA
## 346	NA	NA	NA
## 347	NA	NA	NA
## 348	0.186	0.173	0.00
## 349	NA	NA	NA
## 350	NA	NA	NA
## 351	NA	NA	NA
## 352	NA	NA	NA
## 353	0.506	0.459	0.90
## 354	0.409	0.389	0.90
## 355	NA	NA	NA
## 356	NA	NA	NA
## 357	NA	NA	NA
## 358	NA	NA	NA
## 359	NA	NA	0.00
## 360	0.534	0.764	0.00
## 361	NA	NA	NA
## 362	NA	NA	0.00
## 363	NA	NA	NA
## 364	NA	NA	NA
## 365	NA	NA	NA
## 366	NA	NA	NA
## 367	NA	NA	NA
## 368	NA	NA	NA
## 369	NA	NA	NA
## 370	NA	NA	NA
## 371	0.003	0.003	0.00
## 372	NA	NA	NA
## 373	NA	NA	0.00
## 374	NA	NA	NA
## 375	NA	NA	NA
## 376	0.597	0.561	1.25
## 377	NA	NA	NA
## 378	NA	NA	NA
## 379	0.094	0.085	0.00
## 380	NA	NA	NA
## 381	NA	NA	NA
## 382	NA	NA	NA

## 383	0.163	0.148	0.00
## 384	NA	NA	NA
## 385	0.089	0.085	0.00
## 386	NA	NA	NA
## 387	NA	NA	NA
## 388	NA	NA	NA
## 389	NA	NA	NA
## 390	NA	NA	NA
## 391	NA	NA	NA
## 392	0.040	0.066	1.25
## 393	NA	NA	NA
## 394	NA	NA	NA
## 395	NA	NA	NA
## 396	NA	NA	NA
## 397	0.000	0.000	0.00
## 398	NA	NA	NA
## 399	NA	NA	NA
## 400	NA	NA	NA
## 401	NA	NA	0.00
## 402	NA	NA	NA
## 403	0.791	1.146	0.90
## 404	0.060	0.054	0.00
## 405	0.000	0.000	0.00
## 406	0.354	0.319	0.00
## 407	NA	NA	NA
## 408	NA	NA	NA
## 409	0.063	0.057	0.00
## 410	NA	NA	0.00
## 411	NA	NA	NA
## 412	NA	NA	NA
## 413	NA	NA	NA
## 414	NA	NA	NA
## 415	0.954	0.912	0.90
## 416	NA	NA	NA
## 417	0.383	0.345	0.00
## 418	NA	NA	NA
## 419	NA	NA	NA
## 420	NA	NA	0.70
## 421	NA	NA	NA
## 422	NA	NA	NA
## 423	NA	NA	NA
## 424	NA	NA	NA
## 425	NA	NA	NA
## 426	NA	NA	NA
## 427	NA	NA	0.70
## 428	NA	NA	NA
## 429	NA	NA	NA
## 430	NA	NA	NA
## 431	NA	NA	NA
## 432	0.034	0.054	0.00
## 433	NA	NA	0.00
## 434	0.383	0.345	0.90
## 435	0.343	0.310	0.00
## 436	NA	NA	NA

## 437	0.091	0.103	0.00
## 438	NA	NA	NA
## 439	NA	NA	NA
## 440	NA	NA	NA
## 441	NA	NA	NA
## 442	NA	NA	NA
## 443	0.066	0.063	0.00
## 444	NA	NA	NA
## 445	NA	NA	NA
## 446	0.363	0.655	0.00
## 447	0.014	0.018	0.00
## 448	NA	NA	NA
## 449	NA	NA	NA
## 450	0.289	0.532	1.25
## 451	NA	NA	NA
## 452	NA	NA	NA
## 453	NA	NA	NA
## 454	NA	NA	NA
## 455	NA	NA	NA
## 456	0.169	0.152	0.00
## 457	NA	NA	NA
## 458	NA	NA	NA
## 459	NA	NA	NA
## 460	NA	NA	NA
## 461	NA	NA	NA
## 462	0.449	0.410	0.00
## 463	0.120	0.108	0.00
## 464	NA	NA	NA
## 465	NA	NA	0.70
## 466	NA	NA	NA
## 467	NA	NA	NA
## 468	NA	NA	NA
## 469	NA	NA	NA
## 470	NA	NA	NA
## 471	0.526	0.478	0.00
## 472	NA	NA	NA
## 473	NA	NA	NA
## 474	NA	NA	NA
## 475	NA	NA	NA
## 476	0.826	0.810	0.00
## 477	NA	NA	NA
## 478	NA	NA	0.00
## 479	NA	NA	0.70
## 480	NA	NA	NA
## 481	NA	NA	NA
## 482	NA	NA	NA
## 483	NA	NA	NA
## 484	NA	NA	NA
## 485	0.637	0.579	0.90
## 486	NA	NA	NA
## 487	NA	NA	NA
## 488	NA	NA	NA
## 489	NA	NA	NA
## 490	NA	NA	NA

## 491	NA	NA	NA
## 492	NA	NA	NA
## 493	0.100	0.090	0.00
## 494	NA	NA	NA
## 495	0.200	0.180	0.00
## 496	NA	NA	NA
## 497	NA	NA	NA
## 498	NA	NA	NA
## 499	0.966	0.913	0.90
## 500	NA	NA	NA
## 501	0.471	0.450	0.90
## 502	NA	NA	0.00
## 503	0.786	0.729	0.90
## 504	NA	NA	NA
## 505	NA	NA	NA
## 506	0.866	0.821	0.90
## 507	NA	NA	NA
## 508	NA	NA	NA
## 509	0.074	0.135	0.00
## 510	NA	NA	NA
## 511	0.171	0.165	0.00
## 512	0.494	0.563	0.90
## 513	NA	NA	NA
## 514	NA	NA	NA
## 515	NA	NA	NA
## 516	NA	NA	NA
## 517	0.223	0.259	0.00
## 518	NA	NA	0.70
## 519	NA	NA	NA
## 520	NA	NA	NA
## 521	NA	NA	NA
## 522	NA	NA	NA
## 523	NA	NA	NA
## 524	NA	NA	NA
## 525	NA	NA	0.70
## 526	0.177	0.159	0.00
## 527	NA	NA	NA
## 528	NA	NA	NA
## 529	NA	NA	NA
## 530	NA	NA	NA
## 531	NA	NA	NA
## 532	NA	NA	NA
## 533	NA	NA	NA
## 534	NA	NA	NA
## 535	0.246	0.221	0.00
## 536	NA	NA	NA
## 537	NA	NA	NA
## 538	NA	NA	NA
## 539	NA	NA	NA
## 540	NA	NA	NA
## 541	0.174	0.157	0.00
## 542	0.057	0.051	0.00
## 543	0.046	0.041	0.00
## 544	NA	NA	0.00



## 545	NA	NA	NA
## 546	0.003	0.003	0.00
## 547	NA	NA	NA
## 548	NA	NA	NA
## 549	NA	NA	NA
## 550	NA	NA	NA
## 551	NA	NA	NA
## 552	NA	NA	NA
## 553	NA	NA	0.70
## 554	NA	NA	NA
## 555	NA	NA	NA
## 556	NA	NA	NA
## 557	NA	NA	NA
## 558	NA	NA	NA
## 559	NA	NA	NA
## 560	NA	NA	NA
## 561	NA	NA	NA
## 562	NA	NA	NA
## 563	NA	NA	NA
## 564	NA	NA	NA
## 565	0.603	1.139	0.00
## 566	NA	NA	NA
## 567	NA	NA	NA
## 568	0.094	0.166	0.00
## 569	NA	NA	NA
## 570	NA	NA	NA
## 571	NA	NA	NA
## 572	0.286	0.259	0.00
## 573	NA	NA	NA
## 574	NA	NA	NA
## 575	NA	NA	NA
## 576	NA	NA	NA
## 577	NA	NA	NA
## 578	0.169	0.158	0.90
## 579	0.289	0.283	0.00
## 580	NA	NA	NA
## 581	NA	NA	NA
## 582	NA	NA	NA
## 583	NA	NA	NA
## 584	NA	NA	NA
## 585	NA	NA	NA
## 586	NA	NA	NA
## 587	0.011	0.010	0.00
## 588	NA	NA	NA
## 589	NA	NA	0.00
## 590	NA	NA	NA
## 591	NA	NA	0.70
## 592	NA	NA	NA
## 593	NA	NA	0.70
## 594	NA	NA	NA
## 595	NA	NA	0.00
## 596	NA	NA	NA
## 597	NA	NA	NA
## 598	NA	NA	0.00

## 599	NA	NA	NA
## 600	NA	NA	NA
## 601	NA	NA	NA
## 602	NA	NA	NA
## 603	0.589	0.553	0.90
## 604	NA	NA	NA
## 605	NA	NA	0.00
## 606	NA	NA	NA
## 607	NA	NA	NA
## 608	NA	NA	NA
## 609	0.503	0.486	0.00
## 610	NA	NA	NA
## 611	NA	NA	NA
## 612	NA	NA	0.70
## 613	NA	NA	0.00
## 614	NA	NA	NA
## 615	NA	NA	NA
## 616	0.111	0.100	0.00
## 617	0.206	0.191	1.25
## 618	NA	NA	NA
## 619	0.469	0.463	0.90
## 620	NA	NA	NA
## 621	NA	NA	0.00
## 622	NA	NA	NA
## 623	NA	NA	NA
## 624	0.057	0.051	0.00
## 625	NA	NA	0.70
## 626	NA	NA	0.00
## 627	NA	NA	NA
## 628	NA	NA	NA
## 629	NA	NA	NA
## 630	NA	NA	NA
## 631	NA	NA	0.00
## 632	NA	NA	NA
## 633	NA	NA	NA
## 634	NA	NA	NA
## 635	NA	NA	NA
## 636	NA	NA	NA
## 637	NA	NA	NA
## 638	NA	NA	NA
## 639	NA	NA	NA
## 640	NA	NA	NA
## 641	NA	NA	NA
## 642	NA	NA	NA
## 643	NA	NA	NA
## 644	NA	NA	NA
## 645	NA	NA	NA
## 646	NA	NA	NA
## 647	NA	NA	NA
## 648	NA	NA	NA
## 649	NA	NA	NA
## 650	NA	NA	NA
## 651	NA	NA	NA
## 652	NA	NA	NA

## 653	NA	NA	NA
## 654	NA	NA	NA
## 655	NA	NA	NA
## 656	0.083	0.075	0.00
## 657	NA	NA	NA
## 658	NA	NA	NA
## 659	NA	NA	NA
## 660	NA	NA	NA
## 661	NA	NA	NA
## 662	NA	NA	NA
## 663	NA	NA	NA
## 664	NA	NA	NA
## 665	NA	NA	NA
## 666	0.069	0.062	0.00
## 667	NA	NA	NA
## 668	NA	NA	NA
## 669	NA	NA	NA
## 670	NA	NA	NA
## 671	NA	NA	NA
## 672	0.091	0.085	0.00
## 673	NA	NA	NA
## 674	0.109	0.098	0.00
## 675	0.169	0.159	0.00
## 676	NA	NA	NA
## 677	NA	NA	NA
## 678	NA	NA	NA
## 679	0.180	0.162	0.00
## 680	0.026	0.045	0.00
## 681	NA	NA	NA
## 682	0.806	1.176	0.00
## 683	NA	NA	NA
## 684	NA	NA	NA
## 685	NA	NA	NA
## 686	NA	NA	0.00
## 687	NA	NA	NA
## 688	NA	NA	0.00
## 689	NA	NA	NA
## 690	0.797	0.752	0.00
## 691	NA	NA	NA
## 692	0.320	0.306	0.00
## 693	NA	NA	NA
## 694	NA	NA	NA
## 695	NA	NA	NA
## 696	NA	NA	NA
## 697	NA	NA	NA
## 698	NA	NA	NA
## 699	NA	NA	NA
## 700	NA	NA	NA
## 701	NA	NA	NA
## 702	NA	NA	NA
## 703	NA	NA	0.00
## 704	NA	NA	NA
## 705	NA	NA	NA
## 706	0.000	0.000	0.00

## 707	NA	NA	NA
## 708	0.574	0.689	1.25
## 709	NA	NA	NA
## 710	0.763	0.706	0.90
## 711	NA	NA	NA
## 712	NA	NA	NA
## 713	NA	NA	NA
## 714	NA	NA	NA
## 715	0.020	0.030	0.00
## 716	NA	NA	0.00
## 717	0.157	0.153	0.00
## 718	NA	NA	NA
## 719	0.111	0.100	0.00
## 720	0.711	0.680	0.90
## 721	NA	NA	NA
## 722	NA	NA	NA
## 723	NA	NA	NA
## 724	NA	NA	NA
## 725	NA	NA	NA
## 726	NA	NA	NA
## 727	NA	NA	0.00
## 728	NA	NA	NA
## 729	NA	NA	NA
## 730	0.506	0.455	0.00
## 731	0.520	0.470	0.90
## 732	NA	NA	NA
## 733	0.189	0.329	0.00
## 734	NA	NA	NA
## 735	0.711	0.663	0.00
## 736	NA	NA	NA
## 737	NA	NA	NA
## 738	NA	NA	NA
## 739	0.174	0.158	0.00
## 740	NA	NA	NA
## 741	NA	NA	NA
## 742	NA	NA	NA
## 743	NA	NA	NA
## 744	NA	NA	NA
## 745	NA	NA	NA
## 746	0.017	0.021	0.00
## 747	NA	NA	0.00
## 748	NA	NA	NA
## 749	0.260	0.259	0.00
## 750	0.234	0.211	0.00
## 751	NA	NA	NA
## 752	0.006	0.005	0.00
## 753	NA	NA	NA
## 754	NA	NA	NA
## 755	NA	NA	NA
## 756	NA	NA	NA
## 757	NA	NA	NA
## 758	NA	NA	NA
## 759	NA	NA	NA
## 760	NA	NA	NA

## 761	NA	NA	NA
## 762	NA	NA	NA
## 763	0.080	0.074	0.00
## 764	0.749	0.704	0.90
## 765	NA	NA	0.70
## 766	0.520	0.469	0.90
## 767	NA	NA	NA
## 768	NA	NA	NA
## 769	NA	NA	NA
## 770	NA	NA	NA
## 771	NA	NA	NA
## 772	0.474	0.515	0.00
## 773	NA	NA	NA
## 774	0.037	0.033	0.00
## 775	NA	NA	NA
## 776	NA	NA	NA
## 777	NA	NA	NA
## 778	0.783	0.815	0.90
## 779	NA	NA	NA
## 780	NA	NA	NA
## 781	NA	NA	NA
## 782	0.006	0.009	0.00
## 783	NA	NA	NA
## 784	NA	NA	NA
## 785	NA	NA	NA
## 786	0.000	0.000	0.00
## 787	NA	NA	0.00
## 788	0.049	0.044	0.00
## 789	0.183	0.165	0.00
## 790	NA	NA	NA
## 791	NA	NA	NA
## 792	NA	NA	NA
## 793	NA	NA	0.00
## 794	NA	NA	NA
## 795	NA	NA	0.00
## 796	NA	NA	NA
## 797	NA	NA	NA
## 798	NA	NA	NA
## 799	NA	NA	NA
## 800	NA	NA	NA
## 801	NA	NA	NA
## 802	NA	NA	NA
## 803	NA	NA	NA
## 804	NA	NA	NA
## 805	NA	NA	NA
## 806	NA	NA	NA
## 807	0.060	0.054	0.00
## 808	NA	NA	NA
## 809	NA	NA	NA
## 810	NA	NA	NA
## 811	NA	NA	NA
## 812	NA	NA	NA
## 813	NA	NA	0.00
## 814	NA	NA	NA

## 815	NA	NA	NA
## 816	NA	NA	NA
## 817	NA	NA	NA
## 818	NA	NA	NA
## 819	NA	NA	NA
## 820	NA	NA	0.70
## 821	0.249	0.224	0.90
## 822	NA	NA	NA
## 823	NA	NA	NA
## 824	NA	NA	NA
## 825	NA	NA	NA
## 826	NA	NA	NA
## 827	NA	NA	0.00
## 828	0.234	0.211	0.00
## 829	NA	NA	NA
## 830	NA	NA	NA
## 831	NA	NA	NA
## 832	NA	NA	NA
## 833	NA	NA	0.00
## 834	NA	NA	NA
## 835	0.574	0.689	1.25
## 836	0.060	0.054	0.00
## 837	NA	NA	NA
## 838	0.609	0.574	0.00
## 839	NA	NA	NA
## 840	NA	NA	NA
## 841	0.094	0.094	0.00
## 842	NA	NA	NA
## 843	0.337	0.327	0.00
## 844	NA	NA	NA
## 845	NA	NA	NA
## 846	NA	NA	0.00
## 847	NA	NA	NA
## 848	NA	NA	NA
## 849	NA	NA	0.00
## 850	NA	NA	NA
## 851	NA	NA	NA
## 852	NA	NA	0.00
## 853	NA	NA	NA
## 854	NA	NA	NA
## 855	NA	NA	NA
## 856	NA	NA	NA
## 857	NA	NA	NA
## 858	NA	NA	0.00
## 859	0.051	0.077	0.00
## 860	0.054	0.070	0.00
## 861	NA	NA	NA
## 862	NA	NA	NA
## 863	NA	NA	0.00
## 864	NA	NA	NA
## 865	0.971	0.903	0.90
## 866	NA	NA	NA
## 867	NA	NA	NA
## 868	0.906	0.887	1.25

## 869	NA	NA	NA
## 870	NA	NA	NA
## 871	0.743	0.744	0.00
## 872	NA	NA	NA
## 873	NA	NA	NA
## 874	NA	NA	NA
## 875	NA	NA	NA
## 876	NA	NA	NA
## 877	NA	NA	NA
## 878	NA	NA	NA
## 879	NA	NA	NA
## 880	NA	NA	NA
## 881	NA	NA	NA
## 882	NA	NA	0.00
## 883	NA	NA	NA
## 884	NA	NA	NA
## 885	0.120	0.108	0.00
## 886	NA	NA	NA
## 887	NA	NA	NA
## 888	NA	NA	NA
## 889	NA	NA	NA
## 890	NA	NA	NA
## 891	NA	NA	NA
## 892	0.217	0.214	0.00
## 893	NA	NA	NA
## 894	NA	NA	NA
## 895	NA	NA	NA
## 896	NA	NA	0.00
## 897	NA	NA	NA
## 898	NA	NA	NA
## 899	NA	NA	NA
## 900	NA	NA	NA
## 901	NA	NA	NA
## 902	NA	NA	NA
## 903	NA	NA	NA
## 904	NA	NA	NA
## 905	NA	NA	NA
## 906	NA	NA	NA
## 907	NA	NA	NA
## 908	NA	NA	NA
## 909	NA	NA	NA
## 910	NA	NA	NA
## 911	NA	NA	NA
## 912	NA	NA	0.00
## 913	NA	NA	0.70
## 914	NA	NA	NA
## 915	NA	NA	NA
## 916	NA	NA	NA
## 917	NA	NA	0.00
## 918	NA	NA	NA
## 919	0.060	0.061	0.00
## 920	NA	NA	NA
## 921	NA	NA	NA
## 922	NA	NA	NA

## 923	NA	NA	NA
## 924	NA	NA	NA
## 925	NA	NA	NA
## 926	NA	NA	NA
## 927	NA	NA	NA
## 928	NA	NA	NA
## 929	NA	NA	NA
## 930	NA	NA	NA
## 931	0.000	0.000	0.00
## 932	0.911	1.784	2.00
## 933	0.097	0.095	0.00
## 934	NA	NA	0.70
## 935	NA	NA	NA
## 936	0.220	0.204	0.00
## 937	NA	NA	NA
## 938	NA	NA	0.00
## 939	NA	NA	NA
## 940	0.074	0.075	0.00
## 941	NA	NA	NA
## 942	NA	NA	NA
## 943	NA	NA	NA
## 944	0.669	0.627	0.00
## 945	NA	NA	NA
## 946	NA	NA	NA
## 947	NA	NA	NA
## 948	NA	NA	NA
## 949	NA	NA	NA
## 950	NA	NA	0.00
## 951	NA	NA	NA
## 952	NA	NA	0.00
## 953	NA	NA	NA
## 954	NA	NA	NA
## 955	NA	NA	NA
## 956	0.129	0.121	0.00
## 957	0.369	0.363	0.00
## 958	NA	NA	NA
## 959	NA	NA	NA
## 960	NA	NA	NA
## 961	NA	NA	0.00
## 962	NA	NA	NA
## 963	NA	NA	NA
## 964	0.143	0.250	0.00
## 965	0.474	0.468	0.00
## 966	NA	NA	NA
## 967	NA	NA	NA
## 968	NA	NA	NA
## 969	NA	NA	NA
## 970	0.889	0.822	0.90
## 971	NA	NA	0.00
## 972	NA	NA	NA
## 973	0.197	0.243	0.00
## 974	0.429	0.395	0.90
## 975	NA	NA	NA
## 976	NA	NA	NA



## 977	NA	NA	NA
## 978	NA	NA	NA
## 979	NA	NA	NA
## 980	NA	NA	NA
## 981	NA	NA	0.70
## 982	NA	NA	NA
## 983	NA	NA	NA
## 984	NA	NA	NA
## 985	0.617	0.571	0.90
## 986	NA	NA	NA
## 987	NA	NA	0.70
## 988	NA	NA	NA
## 989	NA	NA	NA
## 990	NA	NA	NA
## 991	NA	NA	0.00
## 992	NA	NA	NA
## 993	NA	NA	NA
## 994	NA	NA	NA
## 995	NA	NA	NA
## 996	NA	NA	NA
## 997	NA	NA	NA
## 998	NA	NA	0.00
## 999	NA	NA	NA
## 1000	NA	NA	NA
## 1001	NA	NA	NA
## 1002	NA	NA	NA
## 1003	0.377	0.341	0.00
## 1004	0.549	0.495	0.90
## 1005	NA	NA	NA
## 1006	NA	NA	NA
## 1007	NA	NA	NA
## 1008	NA	NA	NA
## 1009	NA	NA	NA
## 1010	NA	NA	NA
## 1011	NA	NA	0.70
## 1012	NA	NA	NA
## 1013	NA	NA	NA
## 1014	0.771	1.106	2.00
## 1015	0.206	0.194	0.00
## 1016	NA	NA	NA
## 1017	NA	NA	NA
## 1018	NA	NA	NA
## 1019	NA	NA	NA
## 1020	0.009	0.011	0.00
## 1021	NA	NA	NA
## 1022	NA	NA	NA
## 1023	NA	NA	0.00
## 1024	NA	NA	NA
## 1025	NA	NA	NA
## 1026	NA	NA	NA
## 1027	NA	NA	NA
## 1028	NA	NA	NA
## 1029	NA	NA	NA
## 1030	NA	NA	NA

## 1031	NA	NA	NA
## 1032	NA	NA	NA
## 1033	NA	NA	NA
## 1034	NA	NA	NA
## 1035	0.423	0.397	0.00
## 1036	NA	NA	NA
## 1037	NA	NA	NA
## 1038	NA	NA	NA
## 1039	NA	NA	NA
## 1040	NA	NA	NA
## 1041	NA	NA	NA
## 1042	0.480	0.617	1.25
## 1043	NA	NA	0.00
## 1044	NA	NA	NA
## 1045	NA	NA	NA
## 1046	0.771	0.729	0.90
## 1047	NA	NA	NA
## 1048	NA	NA	NA
## 1049	0.900	1.503	2.00
## 1050	NA	NA	NA
## 1051	NA	NA	NA
## 1052	NA	NA	NA
## 1053	0.160	0.144	0.00
## 1054	NA	NA	NA
## 1055	NA	NA	NA
## 1056	NA	NA	0.70
## 1057	NA	NA	NA
## 1058	NA	NA	NA
## 1059	0.706	0.664	0.90
## 1060	NA	NA	0.00
## 1061	NA	NA	NA
## 1062	NA	NA	NA
## 1063	NA	NA	NA
## 1064	0.054	0.071	0.00
## 1065	NA	NA	NA
## 1066	NA	NA	NA
## 1067	NA	NA	NA
## 1068	NA	NA	0.70
## 1069	0.651	0.684	0.00
## 1070	NA	NA	NA
## 1071	NA	NA	NA
## 1072	NA	NA	NA
## 1073	NA	NA	NA
## 1074	NA	NA	NA
## 1075	NA	NA	NA
## 1076	NA	NA	0.00
## 1077	0.006	0.007	0.00
## 1078	NA	NA	NA
## 1079	NA	NA	NA
## 1080	NA	NA	NA
## 1081	0.406	0.365	0.00
## 1082	NA	NA	NA
## 1083	NA	NA	NA
## 1084	NA	NA	NA

## 1085	NA	NA	NA
## 1086	NA	NA	NA
## 1087	NA	NA	NA
## 1088	NA	NA	0.00
## 1089	NA	NA	NA
## 1090	NA	NA	NA
## 1091	NA	NA	NA
## 1092	NA	NA	0.00
## 1093	NA	NA	0.00
## 1094	NA	NA	NA
## 1095	NA	NA	NA
## 1096	NA	NA	NA
## 1097	NA	NA	NA
## 1098	NA	NA	NA
## 1099	NA	NA	NA
## 1100	NA	NA	0.00
## 1101	NA	NA	NA
## 1102	NA	NA	NA
## 1103	NA	NA	NA
## 1104	NA	NA	NA
## 1105	0.303	0.273	0.00
## 1106	NA	NA	NA
## 1107	NA	NA	NA
## 1108	NA	NA	NA
## 1109	NA	NA	NA
## 1110	0.137	0.140	0.00
## 1111	NA	NA	0.00
## 1112	NA	NA	NA
## 1113	0.900	1.681	2.00
## 1114	NA	NA	NA
## 1115	NA	NA	NA
## 1116	NA	NA	NA
## 1117	NA	NA	NA
## 1118	0.091	0.083	0.00
## 1119	0.051	0.083	0.00
## 1120	NA	NA	NA
## 1121	NA	NA	NA
## 1122	NA	NA	NA
## 1123	NA	NA	NA
## 1124	NA	NA	NA
## 1125	NA	NA	NA
## 1126	NA	NA	NA
## 1127	NA	NA	NA
## 1128	0.646	0.690	1.25
## 1129	NA	NA	NA
## 1130	NA	NA	NA
## 1131	NA	NA	NA
## 1132	NA	NA	NA
## 1133	NA	NA	NA
## 1134	NA	NA	NA
## 1135	NA	NA	NA
## 1136	NA	NA	NA
## 1137	NA	NA	NA
## 1138	NA	NA	NA

## 1139	0.083	0.077	0.00
## 1140	NA	NA	NA
## 1141	NA	NA	NA
## 1142	NA	NA	NA
## 1143	NA	NA	NA
## 1144	NA	NA	0.70
## 1145	NA	NA	0.00
## 1146	NA	NA	NA
## 1147	NA	NA	NA
## 1148	NA	NA	NA
## 1149	NA	NA	NA
## 1150	0.040	0.036	0.00
## 1151	0.946	0.891	0.90
## 1152	NA	NA	NA
## 1153	NA	NA	NA
## 1154	NA	NA	NA
## 1155	NA	NA	NA
## 1156	0.631	0.582	0.00
## 1157	NA	NA	NA
## 1158	NA	NA	NA
## 1159	NA	NA	NA
## 1160	0.071	0.064	0.00
## 1161	NA	NA	NA
## 1162	NA	NA	NA
## 1163	NA	NA	NA
## 1164	NA	NA	NA
## 1165	0.200	0.186	0.00
## 1166	NA	NA	NA
## 1167	NA	NA	NA
## 1168	0.423	0.397	0.00
## 1169	NA	NA	NA
## 1170	NA	NA	NA
## 1171	NA	NA	0.00
## 1172	NA	NA	NA
## 1173	NA	NA	NA
## 1174	0.954	0.903	0.90
## 1175	NA	NA	NA
## 1176	NA	NA	NA
## 1177	NA	NA	NA
## 1178	NA	NA	NA
## 1179	NA	NA	NA
## 1180	NA	NA	NA
## 1181	NA	NA	NA
## 1182	NA	NA	0.00
## 1183	NA	NA	0.00
## 1184	NA	NA	NA
## 1185	NA	NA	NA
## 1186	NA	NA	NA
## 1187	NA	NA	NA
## 1188	NA	NA	NA
## 1189	NA	NA	NA
## 1190	0.037	0.040	0.00
## 1191	NA	NA	NA
## 1192	NA	NA	NA

## 1193	NA	NA	NA
## 1194	NA	NA	NA
## 1195	NA	NA	NA
## 1196	NA	NA	NA
## 1197	NA	NA	NA
## 1198	NA	NA	NA
## 1199	NA	NA	NA
## 1200	NA	NA	0.00
## 1201	NA	NA	NA
## 1202	NA	NA	NA
## 1203	NA	NA	NA
## 1204	0.411	0.465	0.90
## 1205	NA	NA	NA
## 1206	NA	NA	NA
## 1207	0.069	0.072	0.00
## 1208	0.117	0.105	0.90
## 1209	0.014	0.029	0.00
## 1210	NA	NA	NA
## 1211	NA	NA	0.00
## 1212	NA	NA	NA
## 1213	NA	NA	NA
## 1214	NA	NA	NA
## 1215	NA	NA	NA
## 1216	NA	NA	NA
## 1217	0.637	0.985	1.25
## 1218	NA	NA	NA
## 1219	NA	NA	NA
## 1220	NA	NA	0.70
## 1221	NA	NA	0.70
## 1222	NA	NA	NA
## 1223	NA	NA	NA
## 1224	NA	NA	NA
## 1225	NA	NA	NA
## 1226	NA	NA	NA
## 1227	NA	NA	NA
## 1228	0.123	0.139	1.25
## 1229	NA	NA	0.70
## 1230	NA	NA	0.00
## 1231	0.046	0.041	0.00
## 1232	NA	NA	NA
## 1233	0.209	0.188	0.00
## 1234	NA	NA	NA
## 1235	NA	NA	NA
## 1236	NA	NA	0.00
## 1237	0.429	0.413	0.00
## 1238	0.154	0.213	0.00
## 1239	NA	NA	NA
## 1240	NA	NA	NA
## 1241	0.251	0.260	0.00
## 1242	NA	NA	NA
## 1243	0.871	0.842	0.90
## 1244	NA	NA	NA
## 1245	NA	NA	NA
## 1246	NA	NA	NA

## 1247	NA	NA	NA
## 1248	NA	NA	0.70
## 1249	NA	NA	NA
## 1250	NA	NA	0.00
## 1251	NA	NA	NA
## 1252	NA	NA	NA
## 1253	NA	NA	NA
## 1254	0.920	1.720	2.00
## 1255	NA	NA	NA
## 1256	0.323	0.292	1.25
## 1257	NA	NA	NA
## 1258	0.426	0.387	0.00
## 1259	0.111	0.102	0.00
## 1260	NA	NA	NA
## 1261	NA	NA	NA
## 1262	NA	NA	NA
## 1263	NA	NA	NA
## 1264	NA	NA	NA
## 1265	NA	NA	NA
## 1266	NA	NA	NA
## 1267	NA	NA	NA
## 1268	NA	NA	NA
## 1269	NA	NA	NA
## 1270	NA	NA	NA
## 1271	NA	NA	NA
## 1272	NA	NA	NA
## 1273	NA	NA	NA
## 1274	0.306	0.292	0.00
## 1275	NA	NA	NA
## 1276	NA	NA	NA
## 1277	0.231	0.448	0.00
## 1278	0.871	0.818	0.90
## 1279	NA	NA	NA
## 1280	NA	NA	NA
## 1281	NA	NA	NA
## 1282	NA	NA	NA
## 1283	NA	NA	NA
## 1284	NA	NA	NA
## 1285	NA	NA	NA
## 1286	NA	NA	NA
## 1287	0.609	0.559	0.90
## 1288	0.146	0.131	0.00
## 1289	0.071	0.070	0.00
## 1290	NA	NA	NA
## 1291	NA	NA	NA
## 1292	NA	NA	NA
## 1293	NA	NA	NA
## 1294	NA	NA	NA
## 1295	NA	NA	NA
## 1296	NA	NA	NA
## 1297	NA	NA	0.00
## 1298	NA	NA	NA
## 1299	NA	NA	NA
## 1300	NA	NA	NA

## 1301	NA	NA	NA
## 1302	0.189	0.184	0.00
## 1303	NA	NA	NA
## 1304	NA	NA	NA
## 1305	0.266	0.239	0.90
## 1306	NA	NA	NA
## 1307	NA	NA	NA
## 1308	NA	NA	NA
## 1309	NA	NA	NA
## 1310	NA	NA	NA
## 1311	NA	NA	NA
## 1312	0.894	0.886	1.25
## 1313	NA	NA	NA
## 1314	0.226	0.375	0.00
## 1315	NA	NA	NA
## 1316	NA	NA	NA
## 1317	NA	NA	NA
## 1318	0.009	0.009	0.00
## 1319	NA	NA	NA
## 1320	NA	NA	NA
## 1321	NA	NA	0.00
## 1322	NA	NA	NA
## 1323	NA	NA	NA
## 1324	NA	NA	NA
## 1325	NA	NA	NA
## 1326	NA	NA	0.00
## 1327	NA	NA	NA
## 1328	NA	NA	NA
## 1329	NA	NA	NA
## 1330	NA	NA	0.00
## 1331	0.006	0.005	0.00
## 1332	0.094	0.166	0.00
## 1333	NA	NA	NA
## 1334	NA	NA	NA
## 1335	NA	NA	NA
## 1336	NA	NA	NA
## 1337	0.080	0.075	0.00
## 1338	NA	NA	0.00
## 1339	NA	NA	NA
## 1340	NA	NA	NA
## 1341	NA	NA	0.70
## 1342	NA	NA	0.70
## 1343	NA	NA	NA
## 1344	NA	NA	NA
## 1345	NA	NA	0.70
## 1346	NA	NA	NA
## 1347	0.257	0.237	0.00
## 1348	NA	NA	NA
## 1349	NA	NA	NA
## 1350	0.063	0.065	0.00
## 1351	0.071	0.083	0.00
## 1352	0.374	0.499	0.00
## 1353	NA	NA	NA
## 1354	0.129	0.147	1.25

## 1355	NA	NA	NA
## 1356	NA	NA	NA
## 1357	NA	NA	NA
## 1358	NA	NA	NA
## 1359	NA	NA	NA
## 1360	NA	NA	NA
## 1361	0.546	0.496	0.90
## 1362	NA	NA	NA
## 1363	NA	NA	NA
## 1364	NA	NA	NA
## 1365	0.906	0.887	1.25
## 1366	NA	NA	NA
## 1367	NA	NA	NA
## 1368	NA	NA	NA
## 1369	NA	NA	NA
## 1370	NA	NA	NA
## 1371	NA	NA	NA
## 1372	NA	NA	NA
## 1373	NA	NA	NA
## 1374	NA	NA	NA
## 1375	NA	NA	0.00
## 1376	NA	NA	NA
## 1377	NA	NA	NA
## 1378	NA	NA	NA
## 1379	NA	NA	NA
## 1380	NA	NA	NA
## 1381	NA	NA	NA
## 1382	NA	NA	NA
## 1383	NA	NA	0.00
## 1384	NA	NA	NA
## 1385	0.126	0.125	0.00
## 1386	NA	NA	NA
## 1387	NA	NA	0.00
## 1388	NA	NA	NA
## 1389	NA	NA	0.00
## 1390	NA	NA	0.00
## 1391	NA	NA	NA
## 1392	NA	NA	NA
## 1393	NA	NA	NA
## 1394	NA	NA	NA
## 1395	NA	NA	NA
## 1396	0.057	0.051	0.00
## 1397	NA	NA	0.00
## 1398	0.020	0.018	0.00
## 1399	NA	NA	NA
## 1400	0.537	0.483	0.90
## 1401	NA	NA	NA
## 1402	NA	NA	NA
## 1403	NA	NA	NA
## 1404	NA	NA	NA
## 1405	NA	NA	NA
## 1406	NA	NA	NA
## 1407	NA	NA	NA
## 1408	0.343	0.597	0.00



## 1409	NA	NA	NA
## 1410	NA	NA	NA
## 1411	NA	NA	NA
## 1412	NA	NA	NA
## 1413	NA	NA	NA
## 1414	NA	NA	NA
## 1415	0.400	0.383	0.00
## 1416	NA	NA	NA
## 1417	NA	NA	NA
## 1418	NA	NA	NA
## 1419	NA	NA	NA
## 1420	NA	NA	NA
## 1421	NA	NA	NA
## 1422	NA	NA	0.00
## 1423	NA	NA	NA
## 1424	NA	NA	NA
## 1425	NA	NA	NA
## 1426	NA	NA	NA
## 1427	NA	NA	NA
## 1428	NA	NA	NA
## 1429	NA	NA	0.00
## 1430	NA	NA	NA
## 1431	NA	NA	NA
## 1432	NA	NA	NA
## 1433	NA	NA	NA
## 1434	NA	NA	NA
## 1435	0.349	0.314	0.00
## 1436	NA	NA	NA
## 1437	0.314	0.283	0.90
## 1438	NA	NA	NA
## 1439	NA	NA	NA
## 1440	0.137	0.123	0.00
## 1441	NA	NA	NA
## 1442	0.703	0.652	0.00
## 1443	NA	NA	NA
## 1444	NA	NA	NA
## 1445	NA	NA	NA
## 1446	NA	NA	NA
## 1447	NA	NA	NA
## 1448	0.106	0.097	0.00
## 1449	NA	NA	NA
## 1450	NA	NA	NA
## 1451	NA	NA	NA
## 1452	NA	NA	NA
## 1453	0.183	0.165	0.00
## 1454	NA	NA	NA
## 1455	NA	NA	NA
## 1456	NA	NA	NA
## 1457	NA	NA	NA
## 1458	NA	NA	NA
## 1459	NA	NA	NA
## 1460	NA	NA	NA
## 1461	NA	NA	NA
## 1462	NA	NA	NA

## 1463	NA	NA	NA
## 1464	NA	NA	NA
## 1465	NA	NA	NA
## 1466	NA	NA	NA
## 1467	NA	NA	NA
## 1468	0.846	0.806	0.90
## 1469	NA	NA	NA
## 1470	NA	NA	0.00
## 1471	NA	NA	0.70
## 1472	NA	NA	NA
## 1473	NA	NA	NA
## 1474	NA	NA	NA
## 1475	NA	NA	NA
## 1476	NA	NA	NA
## 1477	NA	NA	NA
## 1478	NA	NA	NA
## 1479	NA	NA	0.00
## 1480	NA	NA	NA
## 1481	NA	NA	NA
## 1482	NA	NA	NA
## 1483	NA	NA	NA
## 1484	NA	NA	0.00
## 1485	NA	NA	NA
## 1486	0.120	0.115	0.00
## 1487	0.086	0.077	0.00
## 1488	NA	NA	NA
## 1489	NA	NA	0.00
## 1490	NA	NA	NA
## 1491	NA	NA	NA
## 1492	NA	NA	0.00
## 1493	NA	NA	NA
## 1494	NA	NA	NA
## 1495	NA	NA	NA
## 1496	NA	NA	NA
## 1497	NA	NA	NA
## 1498	NA	NA	NA
## 1499	NA	NA	NA
## 1500	NA	NA	NA
## 1501	0.894	0.886	1.25
## 1502	0.100	0.101	0.00
## 1503	NA	NA	NA
## 1504	NA	NA	NA
## 1505	0.057	0.100	0.00
## 1506	NA	NA	NA
## 1507	0.260	0.422	0.00
## 1508	NA	NA	NA
## 1509	NA	NA	NA
## 1510	NA	NA	0.00
## 1511	NA	NA	NA
## 1512	NA	NA	NA
## 1513	NA	NA	NA
## 1514	NA	NA	NA
## 1515	NA	NA	NA
## 1516	NA	NA	0.70

## 1517	NA	NA	NA
## 1518	NA	NA	0.00
## 1519	NA	NA	NA
## 1520	NA	NA	NA
## 1521	NA	NA	NA
## 1522	NA	NA	NA
## 1523	NA	NA	0.00
## 1524	NA	NA	NA
## 1525	NA	NA	NA
## 1526	NA	NA	NA
## 1527	0.331	0.319	0.90
## 1528	0.026	0.025	0.00
## 1529	NA	NA	NA
## 1530	NA	NA	NA
## 1531	NA	NA	NA
## 1532	NA	NA	NA
## 1533	0.960	0.883	0.90
## 1534	NA	NA	0.00
## 1535	NA	NA	NA
## 1536	NA	NA	NA
## 1537	NA	NA	0.00
## 1538	0.191	0.194	0.00
## 1539	NA	NA	NA
## 1540	NA	NA	NA
## 1541	NA	NA	NA
## 1542	0.646	0.597	0.00
## 1543	NA	NA	NA
## 1544	NA	NA	NA
## 1545	NA	NA	NA
## 1546	NA	NA	NA
## 1547	NA	NA	0.00
## 1548	NA	NA	NA
## 1549	NA	NA	NA
## 1550	NA	NA	NA
## 1551	NA	NA	NA
## 1552	NA	NA	NA
## 1553	NA	NA	NA
## 1554	NA	NA	0.00
## 1555	NA	NA	NA
## 1556	NA	NA	NA
## 1557	NA	NA	NA
## 1558	NA	NA	NA
## 1559	NA	NA	NA
## 1560	NA	NA	NA
## 1561	NA	NA	NA
## 1562	NA	NA	0.70
## 1563	NA	NA	NA
## 1564	NA	NA	NA
## 1565	NA	NA	NA
## 1566	NA	NA	NA
## 1567	NA	NA	NA
## 1568	NA	NA	NA
## 1569	NA	NA	NA
## 1570	0.897	0.865	0.90

## 1571	NA	NA	0.00
## 1572	NA	NA	NA
## 1573	NA	NA	NA
## 1574	NA	NA	NA
## 1575	NA	NA	NA
## 1576	NA	NA	NA
## 1577	NA	NA	NA
## 1578	NA	NA	NA
## 1579	NA	NA	NA
## 1580	NA	NA	NA
## 1581	0.666	0.641	1.25
## 1582	NA	NA	NA
## 1583	NA	NA	NA
## 1584	NA	NA	NA
## 1585	NA	NA	NA
## 1586	NA	NA	NA
## 1587	NA	NA	NA
## 1588	NA	NA	NA
## 1589	NA	NA	0.00
## 1590	NA	NA	NA
## 1591	NA	NA	NA
## 1592	NA	NA	NA
## 1593	NA	NA	NA
## 1594	NA	NA	NA
## 1595	NA	NA	NA
## 1596	NA	NA	NA
## 1597	NA	NA	0.70
## 1598	NA	NA	0.70
## 1599	0.303	0.597	0.00
## 1600	NA	NA	NA
## 1601	0.080	0.072	0.00
## 1602	NA	NA	NA
## 1603	NA	NA	0.00
## 1604	0.457	0.418	0.90
## 1605	NA	NA	NA
## 1606	NA	NA	NA
## 1607	NA	NA	NA
## 1608	NA	NA	0.00
## 1609	0.097	0.092	0.00
## 1610	NA	NA	NA
## 1611	NA	NA	NA
## 1612	NA	NA	NA
## 1613	NA	NA	NA
## 1614	NA	NA	NA
## 1615	0.077	0.125	0.00
## 1616	0.949	0.900	0.90
## 1617	0.409	0.397	1.60
## 1618	NA	NA	NA
## 1619	NA	NA	NA
## 1620	NA	NA	NA
## 1621	NA	NA	NA
## 1622	NA	NA	0.70
## 1623	NA	NA	NA
## 1624	0.006	0.007	0.00

## 1625	NA	NA	NA
## 1626	NA	NA	0.00
## 1627	NA	NA	NA
## 1628	NA	NA	NA
## 1629	NA	NA	NA
## 1630	NA	NA	NA
## 1631	NA	NA	NA
## 1632	0.126	0.113	0.90
## 1633	NA	NA	0.70
## 1634	NA	NA	NA
## 1635	NA	NA	NA
## 1636	NA	NA	NA
## 1637	NA	NA	0.00
## 1638	NA	NA	NA
## 1639	NA	NA	NA
## 1640	NA	NA	NA
## 1641	0.343	0.323	0.00
## 1642	NA	NA	NA
## 1643	NA	NA	NA
## 1644	NA	NA	0.00
## 1645	NA	NA	NA
## 1646	NA	NA	NA
## 1647	NA	NA	0.00
## 1648	NA	NA	NA
## 1649	NA	NA	NA
## 1650	NA	NA	0.00
## 1651	NA	NA	NA
## 1652	NA	NA	NA
## 1653	NA	NA	NA
## 1654	NA	NA	0.00
## 1655	NA	NA	NA
## 1656	NA	NA	NA
## 1657	0.086	0.078	0.00
## 1658	NA	NA	NA
## 1659	NA	NA	NA
## 1660	NA	NA	NA
## 1661	NA	NA	NA
## 1662	NA	NA	NA
## 1663	NA	NA	NA
## 1664	NA	NA	NA
## 1665	NA	NA	0.00
## 1666	NA	NA	NA
## 1667	NA	NA	NA
## 1668	NA	NA	NA
## 1669	NA	NA	NA
## 1670	NA	NA	NA
## 1671	NA	NA	NA
## 1672	NA	NA	NA
## 1673	NA	NA	NA
## 1674	NA	NA	NA
## 1675	NA	NA	NA
## 1676	NA	NA	NA
## 1677	NA	NA	NA
## 1678	NA	NA	NA

## 1679	NA	NA	NA
## 1680	NA	NA	NA
## 1681	NA	NA	0.00
## 1682	NA	NA	NA
## 1683	NA	NA	NA
## 1684	0.283	0.269	0.00
## 1685	NA	NA	NA
## 1686	NA	NA	NA
## 1687	NA	NA	NA
## 1688	NA	NA	NA
## 1689	NA	NA	NA
## 1690	NA	NA	NA
## 1691	NA	NA	NA
## 1692	NA	NA	NA
## 1693	NA	NA	NA
## 1694	NA	NA	NA
## 1695	NA	NA	NA
## 1696	NA	NA	0.00
## 1697	NA	NA	NA
## 1698	NA	NA	NA
## 1699	NA	NA	NA
## 1700	NA	NA	NA
## 1701	0.026	0.023	0.00
## 1702	NA	NA	NA
## 1703	0.486	0.449	0.00
## 1704	NA	NA	NA
## 1705	NA	NA	NA
## 1706	NA	NA	NA
## 1707	NA	NA	NA
## 1708	NA	NA	NA
## 1709	NA	NA	NA
## 1710	NA	NA	NA
## 1711	NA	NA	NA
## 1712	0.617	0.555	0.00
## 1713	0.254	0.242	0.00
## 1714	0.449	0.404	0.00
## 1715	NA	NA	0.00
## 1716	NA	NA	NA
## 1717	NA	NA	NA
## 1718	NA	NA	NA
## 1719	NA	NA	NA
## 1720	NA	NA	NA
## 1721	NA	NA	NA
## 1722	NA	NA	NA
## 1723	NA	NA	NA
## 1724	NA	NA	0.00
## 1725	NA	NA	0.00
## 1726	NA	NA	NA
## 1727	0.497	0.941	0.00
## 1728	NA	NA	NA
## 1729	NA	NA	NA
## 1730	NA	NA	NA
## 1731	NA	NA	NA
## 1732	NA	NA	NA

## 1733	NA	NA	NA
## 1734	NA	NA	NA
## 1735	NA	NA	NA
## 1736	0.857	0.825	0.90
## 1737	NA	NA	NA
## 1738	NA	NA	NA
## 1739	NA	NA	NA
## 1740	NA	NA	NA
## 1741	NA	NA	NA
## 1742	NA	NA	NA
## 1743	0.426	0.383	0.00
## 1744	NA	NA	NA
## 1745	NA	NA	NA
## 1746	NA	NA	0.00
## 1747	NA	NA	NA
## 1748	NA	NA	NA
## 1749	NA	NA	NA
## 1750	NA	NA	NA
## 1751	NA	NA	NA
## 1752	NA	NA	NA
## 1753	0.194	0.181	1.25
## 1754	NA	NA	NA
## 1755	NA	NA	NA
## 1756	NA	NA	NA
## 1757	NA	NA	NA
## 1758	NA	NA	NA
## 1759	NA	NA	NA
## 1760	NA	NA	NA
## 1761	NA	NA	NA
## 1762	0.597	0.796	0.00
## 1763	NA	NA	NA
## 1764	NA	NA	NA
## 1765	NA	NA	NA
## 1766	NA	NA	NA
## 1767	NA	NA	NA
## 1768	NA	NA	NA
## 1769	0.303	0.273	0.00
## 1770	0.003	0.004	0.00
## 1771	NA	NA	NA
## 1772	NA	NA	NA
## 1773	NA	NA	NA
## 1774	NA	NA	0.00
## 1775	NA	NA	NA
## 1776	0.260	0.422	1.25
## 1777	NA	NA	NA
## 1778	NA	NA	NA
## 1779	0.966	0.913	0.90
## 1780	NA	NA	NA
## 1781	NA	NA	0.00
## 1782	NA	NA	0.00
## 1783	NA	NA	NA
## 1784	0.871	0.904	0.90
## 1785	NA	NA	NA
## 1786	NA	NA	NA

## 1787	NA	NA	NA
## 1788	NA	NA	0.00
## 1789	NA	NA	NA
## 1790	NA	NA	NA
## 1791	NA	NA	0.00
## 1792	0.077	0.069	0.00
## 1793	NA	NA	NA
## 1794	NA	NA	NA
## 1795	NA	NA	NA
## 1796	0.534	0.481	1.25
## 1797	NA	NA	NA
## 1798	NA	NA	0.70
## 1799	0.880	0.837	0.90
## 1800	NA	NA	NA
## 1801	0.491	0.442	0.00
## 1802	NA	NA	NA
## 1803	NA	NA	NA
## 1804	NA	NA	0.70
## 1805	NA	NA	NA
## 1806	0.857	0.804	0.90
## 1807	NA	NA	NA
## 1808	0.831	0.835	1.25
## 1809	NA	NA	0.00
## 1810	0.320	0.629	0.00
## 1811	NA	NA	NA
## 1812	0.191	0.188	0.00
## 1813	0.211	0.196	0.90
## 1814	NA	NA	NA
## 1815	0.006	0.005	0.00
## 1816	NA	NA	0.00
## 1817	NA	NA	NA
## 1818	NA	NA	NA
## 1819	NA	NA	NA
## 1820	0.231	0.215	0.00
## 1821	0.003	0.003	0.00
## 1822	NA	NA	NA
## 1823	NA	NA	NA
## 1824	NA	NA	NA
## 1825	NA	NA	NA
## 1826	0.606	0.732	0.00
## 1827	NA	NA	NA
## 1828	NA	NA	NA
## 1829	NA	NA	NA
## 1830	NA	NA	0.70
## 1831	NA	NA	NA
## 1832	0.283	0.286	0.00
## 1833	NA	NA	NA
## 1834	NA	NA	NA
## 1835	NA	NA	NA
## 1836	NA	NA	NA
## 1837	NA	NA	0.00
## 1838	NA	NA	NA
## 1839	NA	NA	NA
## 1840	NA	NA	NA



## 1841	NA	NA	NA
## 1842	0.114	0.106	0.00
## 1843	NA	NA	NA
## 1844	NA	NA	0.70
## 1845	0.380	0.410	0.00
## 1846	NA	NA	NA
## 1847	NA	NA	NA
## 1848	NA	NA	NA
## 1849	NA	NA	NA
## 1850	0.540	0.979	1.25
## 1851	0.631	0.582	0.90
## 1852	NA	NA	NA
## 1853	NA	NA	NA
## 1854	NA	NA	NA
## 1855	0.794	1.421	2.00
## 1856	NA	NA	NA
## 1857	NA	NA	NA
## 1858	NA	NA	NA
## 1859	NA	NA	0.70
## 1860	NA	NA	NA
## 1861	NA	NA	NA
## 1862	NA	NA	NA
## 1863	NA	NA	NA
## 1864	NA	NA	0.70
## 1865	NA	NA	NA
## 1866	0.114	0.103	0.00
## 1867	NA	NA	NA
## 1868	NA	NA	NA
## 1869	NA	NA	NA
## 1870	NA	NA	NA
## 1871	NA	NA	NA
## 1872	NA	NA	NA
## 1873	NA	NA	NA
## 1874	NA	NA	NA
## 1875	NA	NA	0.00
## 1876	NA	NA	NA
## 1877	0.411	0.465	1.60
## 1878	NA	NA	NA
## 1879	NA	NA	NA
## 1880	NA	NA	NA
## 1881	NA	NA	NA
## 1882	NA	NA	NA
## 1883	0.114	0.103	0.00
## 1884	NA	NA	0.70
## 1885	NA	NA	NA
## 1886	NA	NA	NA
## 1887	NA	NA	NA
## 1888	NA	NA	NA
## 1889	0.777	0.707	0.90
## 1890	NA	NA	NA
## 1891	NA	NA	NA
## 1892	NA	NA	NA
## 1893	NA	NA	NA
## 1894	NA	NA	NA

## 1895	NA	NA	NA
## 1896	NA	NA	NA
## 1897	NA	NA	NA
## 1898	NA	NA	NA
## 1899	NA	NA	NA
## 1900	NA	NA	NA
## 1901	NA	NA	0.00
## 1902	0.211	0.205	0.90
## 1903	NA	NA	NA
## 1904	NA	NA	NA
## 1905	NA	NA	NA
## 1906	NA	NA	NA
## 1907	NA	NA	0.70
## 1908	NA	NA	NA
## 1909	NA	NA	NA
## 1910	NA	NA	0.00
## 1911	NA	NA	NA
## 1912	NA	NA	NA
## 1913	NA	NA	NA
## 1914	NA	NA	NA
## 1915	NA	NA	NA
## 1916	NA	NA	NA
## 1917	NA	NA	NA
## 1918	0.077	0.076	0.00
## 1919	0.851	0.787	0.90
## 1920	0.789	0.739	0.00
## 1921	NA	NA	0.00
## 1922	NA	NA	NA
## 1923	NA	NA	0.70
## 1924	NA	NA	0.00
## 1925	NA	NA	0.00
## 1926	NA	NA	NA
## 1927	NA	NA	NA
## 1928	NA	NA	NA
## 1929	NA	NA	NA
## 1930	NA	NA	NA
## 1931	0.726	0.669	0.00
## 1932	NA	NA	NA
## 1933	NA	NA	NA
## 1934	NA	NA	NA
## 1935	0.534	0.764	0.00
## 1936	0.349	0.318	0.00
## 1937	NA	NA	NA
## 1938	NA	NA	NA
## 1939	NA	NA	NA
## 1940	0.209	0.233	0.00
## 1941	NA	NA	NA
## 1942	NA	NA	NA
## 1943	NA	NA	NA
## 1944	NA	NA	0.00
## 1945	NA	NA	NA
## 1946	0.157	0.141	0.00
## 1947	NA	NA	NA
## 1948	NA	NA	0.70

## 1949	NA	NA	NA
## 1950	NA	NA	NA
## 1951	NA	NA	NA
## 1952	NA	NA	0.00
## 1953	NA	NA	NA
## 1954	NA	NA	NA
## 1955	NA	NA	NA
## 1956	NA	NA	NA
## 1957	NA	NA	NA
## 1958	0.063	0.057	0.00
## 1959	NA	NA	0.00
## 1960	NA	NA	0.00
## 1961	0.266	0.360	0.00
## 1962	NA	NA	NA
## 1963	NA	NA	NA
## 1964	NA	NA	NA
## 1965	0.131	0.118	0.00
## 1966	NA	NA	NA
## 1967	0.349	0.314	0.00
## 1968	NA	NA	NA
## 1969	NA	NA	NA
## 1970	NA	NA	NA
## 1971	NA	NA	NA
## 1972	NA	NA	NA
## 1973	NA	NA	NA
## 1974	NA	NA	NA
## 1975	NA	NA	NA
## 1976	NA	NA	NA
## 1977	NA	NA	NA
## 1978	NA	NA	NA
## 1979	NA	NA	NA
## 1980	NA	NA	NA
## 1981	NA	NA	NA
## 1982	NA	NA	NA
## 1983	0.014	0.015	0.00
## 1984	NA	NA	NA
## 1985	NA	NA	NA
## 1986	NA	NA	NA
## 1987	NA	NA	0.00
## 1988	NA	NA	0.70
## 1989	NA	NA	NA
## 1990	NA	NA	NA
## 1991	NA	NA	NA
## 1992	NA	NA	NA
## 1993	NA	NA	0.00
## 1994	NA	NA	NA
## 1995	NA	NA	NA
## 1996	NA	NA	NA
## 1997	NA	NA	NA
## 1998	NA	NA	NA
## 1999	0.874	0.814	1.25
## 2000	NA	NA	NA
## 2001	NA	NA	NA
## 2002	NA	NA	NA

## 2003	NA	NA	NA
## 2004	NA	NA	NA
## 2005	NA	NA	NA
## 2006	NA	NA	NA
## 2007	NA	NA	NA
## 2008	NA	NA	NA
## 2009	0.129	0.147	0.00
## 2010	NA	NA	NA
## 2011	NA	NA	NA
## 2012	NA	NA	NA
## 2013	NA	NA	NA
## 2014	NA	NA	NA
## 2015	NA	NA	0.00
## 2016	NA	NA	NA
## 2017	NA	NA	NA
## 2018	NA	NA	NA
## 2019	0.703	0.721	0.00
## 2020	NA	NA	NA
## 2021	NA	NA	NA
## 2022	0.274	0.275	0.00
## 2023	NA	NA	NA
## 2024	0.146	0.145	0.00
## 2025	0.617	0.555	0.00
## 2026	NA	NA	NA
## 2027	NA	NA	NA
## 2028	NA	NA	NA
## 2029	NA	NA	NA
## 2030	NA	NA	NA
## 2031	NA	NA	NA
## 2032	NA	NA	NA
## 2033	NA	NA	NA
## 2034	NA	NA	NA
## 2035	NA	NA	NA
## 2036	NA	NA	NA
## 2037	NA	NA	NA
## 2038	0.674	1.079	0.00
## 2039	NA	NA	NA
## 2040	NA	NA	NA
## 2041	0.511	0.494	0.00
## 2042	NA	NA	NA
## 2043	NA	NA	NA
## 2044	NA	NA	NA
## 2045	NA	NA	NA
## 2046	NA	NA	NA
## 2047	NA	NA	NA
## 2048	0.234	0.211	0.00
## 2049	NA	NA	NA
## 2050	NA	NA	NA
## 2051	0.991	1.970	2.00
## 2052	0.169	0.320	0.00
## 2053	0.069	0.082	0.00
## 2054	NA	NA	NA
## 2055	NA	NA	NA
## 2056	NA	NA	NA

## 2057	NA	NA	NA
## 2058	NA	NA	NA
## 2059	NA	NA	NA
## 2060	0.000	0.000	0.00
## 2061	0.057	0.053	0.00
## 2062	NA	NA	0.00
## 2063	0.949	0.900	0.90
## 2064	NA	NA	NA
## 2065	NA	NA	0.00
## 2066	NA	NA	NA
## 2067	NA	NA	0.70
## 2068	0.603	1.139	2.00
## 2069	NA	NA	NA
## 2070	NA	NA	NA
## 2071	NA	NA	NA
## 2072	NA	NA	NA
## 2073	NA	NA	0.00
## 2074	0.003	0.003	0.00
## 2075	NA	NA	NA
## 2076	NA	NA	NA
## 2077	NA	NA	NA
## 2078	NA	NA	0.00
## 2079	NA	NA	NA
## 2080	NA	NA	NA
## 2081	NA	NA	NA
## 2082	0.511	0.474	0.00
## 2083	NA	NA	NA
## 2084	NA	NA	NA
## 2085	NA	NA	NA
## 2086	NA	NA	NA
## 2087	NA	NA	NA
## 2088	NA	NA	NA
## 2089	NA	NA	NA
## 2090	0.620	0.734	0.90
## 2091	NA	NA	NA
## 2092	NA	NA	NA
## 2093	NA	NA	NA
## 2094	NA	NA	NA
## 2095	NA	NA	NA
## 2096	NA	NA	NA
## 2097	NA	NA	NA
## 2098	0.120	0.108	0.00
## 2099	NA	NA	NA
## 2100	NA	NA	NA
## 2101	NA	NA	NA
## 2102	NA	NA	NA
## 2103	0.057	0.056	0.00
## 2104	NA	NA	NA
## 2105	NA	NA	NA
## 2106	0.046	0.074	0.00
## 2107	NA	NA	NA
## 2108	NA	NA	NA
## 2109	NA	NA	NA
## 2110	0.000	0.000	0.00

## 2111	NA	NA	NA
## 2112	NA	NA	NA
## 2113	0.123	0.111	0.00
## 2114	NA	NA	NA
## 2115	NA	NA	NA
## 2116	0.426	0.383	0.90
## 2117	NA	NA	NA
## 2118	NA	NA	NA
## 2119	NA	NA	NA
## 2120	NA	NA	0.70
## 2121	0.283	0.255	0.00
## 2122	NA	NA	NA
## 2123	NA	NA	NA
## 2124	NA	NA	NA
## 2125	NA	NA	NA
## 2126	NA	NA	NA
## 2127	NA	NA	NA
## 2128	0.237	0.214	0.00
## 2129	0.114	0.110	0.00
## 2130	NA	NA	NA
## 2131	NA	NA	NA
## 2132	0.963	1.742	1.25
## 2133	NA	NA	NA
## 2134	NA	NA	NA
## 2135	NA	NA	0.70
## 2136	NA	NA	NA
## 2137	NA	NA	NA
## 2138	NA	NA	0.00
## 2139	NA	NA	NA
## 2140	NA	NA	NA
## 2141	NA	NA	NA
## 2142	NA	NA	NA
## 2143	NA	NA	NA
## 2144	0.217	0.213	0.00
## 2145	NA	NA	NA
## 2146	NA	NA	NA
## 2147	NA	NA	NA
## 2148	NA	NA	NA
## 2149	NA	NA	NA
## 2150	NA	NA	NA
## 2151	NA	NA	NA
## 2152	0.286	0.257	0.90
## 2153	NA	NA	NA
## 2154	NA	NA	0.00
## 2155	NA	NA	NA
## 2156	NA	NA	NA
## 2157	NA	NA	NA
## 2158	NA	NA	NA
## 2159	0.046	0.041	0.00
## 2160	NA	NA	NA
## 2161	NA	NA	NA
## 2162	NA	NA	NA
## 2163	NA	NA	NA
## 2164	NA	NA	NA

## 2165	NA	NA	NA
## 2166	NA	NA	NA
## 2167	NA	NA	NA
## 2168	NA	NA	NA
## 2169	NA	NA	NA
## 2170	NA	NA	NA
## 2171	NA	NA	0.00
## 2172	NA	NA	0.00
## 2173	NA	NA	NA
## 2174	NA	NA	NA
## 2175	NA	NA	NA
## 2176	0.314	0.304	0.00
## 2177	NA	NA	NA
## 2178	NA	NA	NA
## 2179	NA	NA	NA
## 2180	NA	NA	NA
## 2181	NA	NA	NA
## 2182	0.023	0.029	0.00
## 2183	NA	NA	0.00
## 2184	NA	NA	NA
## 2185	NA	NA	NA
## 2186	NA	NA	NA
## 2187	NA	NA	NA
## 2188	NA	NA	0.00
## 2189	NA	NA	NA
## 2190	NA	NA	NA
## 2191	NA	NA	0.00
## 2192	0.086	0.077	0.00
## 2193	0.366	0.364	0.00
## 2194	NA	NA	0.00
## 2195	NA	NA	NA
## 2196	0.571	0.820	1.25
## 2197	NA	NA	NA
## 2198	NA	NA	NA
## 2199	NA	NA	0.00
## 2200	0.274	0.254	0.90
## 2201	NA	NA	0.70
## 2202	0.011	0.021	0.00
## 2203	NA	NA	NA
## 2204	NA	NA	NA
## 2205	NA	NA	NA
## 2206	NA	NA	NA
## 2207	NA	NA	0.00
## 2208	0.800	0.754	0.00
## 2209	NA	NA	NA
## 2210	0.743	0.744	0.90
## 2211	NA	NA	NA
## 2212	NA	NA	NA
## 2213	NA	NA	NA
## 2214	NA	NA	NA
## 2215	NA	NA	NA
## 2216	0.034	0.043	0.00
## 2217	NA	NA	0.00
## 2218	0.243	0.219	0.90

## 2219	0.009	0.008	0.00
## 2220	NA	NA	NA
## 2221	NA	NA	NA
## 2222	NA	NA	0.00
## 2223	NA	NA	NA
## 2224	0.689	0.673	0.90
## 2225	NA	NA	NA
## 2226	NA	NA	NA
## 2227	NA	NA	0.00
## 2228	NA	NA	NA
## 2229	NA	NA	NA
## 2230	NA	NA	NA
## 2231	NA	NA	0.00
## 2232	NA	NA	NA
## 2233	NA	NA	NA
## 2234	NA	NA	NA
## 2235	NA	NA	NA
## 2236	NA	NA	0.70
## 2237	0.509	0.637	0.00
## 2238	0.400	0.365	0.00
## 2239	NA	NA	NA
## 2240	NA	NA	NA
## 2241	NA	NA	NA
## 2242	NA	NA	NA
## 2243	NA	NA	0.70
## 2244	NA	NA	NA
## 2245	NA	NA	NA
## 2246	NA	NA	NA
## 2247	NA	NA	NA
## 2248	NA	NA	NA
## 2249	NA	NA	NA
## 2250	NA	NA	NA
## 2251	NA	NA	NA
## 2252	0.006	0.005	0.00
## 2253	NA	NA	NA
## 2254	NA	NA	NA
## 2255	NA	NA	NA
## 2256	NA	NA	NA
## 2257	NA	NA	NA
## 2258	NA	NA	NA
## 2259	NA	NA	NA
## 2260	NA	NA	NA
## 2261	NA	NA	NA
## 2262	NA	NA	NA
## 2263	NA	NA	NA
## 2264	NA	NA	NA
## 2265	NA	NA	NA
## 2266	NA	NA	NA
## 2267	NA	NA	NA
## 2268	NA	NA	NA
## 2269	NA	NA	NA
## 2270	NA	NA	NA
## 2271	NA	NA	NA
## 2272	NA	NA	NA



## 2273	NA	NA	NA
## 2274	NA	NA	NA
## 2275	0.891	0.903	1.25
## 2276	NA	NA	NA
## 2277	NA	NA	NA
## 2278	NA	NA	NA
## 2279	NA	NA	NA
## 2280	0.129	0.116	0.00
## 2281	0.066	0.059	0.00
## 2282	NA	NA	NA
## 2283	0.249	0.224	0.00
## 2284	NA	NA	NA
## 2285	NA	NA	NA
## 2286	0.520	0.471	0.90
## 2287	NA	NA	NA
## 2288	NA	NA	NA
## 2289	NA	NA	NA
## 2290	NA	NA	NA
## 2291	NA	NA	0.00
## 2292	NA	NA	NA
## 2293	0.137	0.126	0.90
## 2294	NA	NA	NA
## 2295	NA	NA	NA
## 2296	NA	NA	NA
## 2297	NA	NA	NA
## 2298	NA	NA	NA
## 2299	0.160	0.193	0.00
## 2300	0.154	0.140	0.00
## 2301	NA	NA	NA
## 2302	NA	NA	NA
## 2303	NA	NA	NA
## 2304	NA	NA	NA
## 2305	NA	NA	NA
## 2306	NA	NA	0.00
## 2307	NA	NA	NA
## 2308	NA	NA	NA
## 2309	NA	NA	NA
## 2310	NA	NA	NA
## 2311	NA	NA	NA
## 2312	NA	NA	0.00
## 2313	NA	NA	NA
## 2314	NA	NA	NA
## 2315	0.034	0.032	0.00
## 2316	NA	NA	NA
## 2317	0.237	0.213	0.00
## 2318	NA	NA	0.00
## 2319	0.006	0.006	0.00
## 2320	NA	NA	NA
## 2321	NA	NA	NA
## 2322	NA	NA	NA
## 2323	NA	NA	NA
## 2324	NA	NA	NA
## 2325	NA	NA	NA
## 2326	NA	NA	NA

## 2327	NA	NA	NA
## 2328	NA	NA	NA
## 2329	0.726	0.669	0.90
## 2330	NA	NA	NA
## 2331	0.460	0.418	0.00
## 2332	NA	NA	NA
## 2333	NA	NA	NA
## 2334	NA	NA	NA
## 2335	NA	NA	NA
## 2336	0.009	0.011	0.00
## 2337	NA	NA	NA
## 2338	NA	NA	NA
## 2339	NA	NA	0.00
## 2340	NA	NA	0.00
## 2341	NA	NA	NA
## 2342	NA	NA	NA
## 2343	NA	NA	NA
## 2344	NA	NA	NA
## 2345	NA	NA	NA
## 2346	NA	NA	NA
## 2347	NA	NA	NA
## 2348	NA	NA	NA
## 2349	NA	NA	NA
## 2350	NA	NA	NA
## 2351	NA	NA	NA
## 2352	NA	NA	0.00
## 2353	NA	NA	NA
## 2354	NA	NA	NA
## 2355	NA	NA	0.70
## 2356	NA	NA	NA
## 2357	NA	NA	NA
## 2358	NA	NA	NA
## 2359	NA	NA	NA
## 2360	NA	NA	NA
## 2361	NA	NA	0.70
## 2362	NA	NA	NA
## 2363	NA	NA	NA
## 2364	NA	NA	NA
## 2365	NA	NA	NA
## 2366	NA	NA	NA
## 2367	NA	NA	NA
## 2368	NA	NA	NA
## 2369	NA	NA	NA
## 2370	0.209	0.194	0.00
## 2371	NA	NA	NA
## 2372	NA	NA	NA
## 2373	NA	NA	NA
## 2374	0.046	0.041	0.00
## 2375	NA	NA	NA
## 2376	NA	NA	NA
## 2377	0.620	1.257	2.00
## 2378	NA	NA	NA
## 2379	0.011	0.010	0.00
## 2380	NA	NA	NA

## 2381	NA	NA	0.00
## 2382	NA	NA	0.70
## 2383	NA	NA	NA
## 2384	NA	NA	NA
## 2385	NA	NA	NA
## 2386	NA	NA	NA
## 2387	NA	NA	NA
## 2388	NA	NA	NA
## 2389	NA	NA	NA
## 2390	NA	NA	NA
## 2391	NA	NA	NA
## 2392	0.989	1.990	2.00
## 2393	NA	NA	NA
## 2394	NA	NA	NA
## 2395	NA	NA	0.00
## 2396	NA	NA	NA
## 2397	0.091	0.082	0.00
## 2398	NA	NA	0.70
## 2399	NA	NA	NA
## 2400	NA	NA	0.00
## 2401	NA	NA	NA
## 2402	NA	NA	NA
## 2403	NA	NA	0.00
## 2404	NA	NA	NA
## 2405	NA	NA	0.00
## 2406	NA	NA	NA
## 2407	NA	NA	NA
## 2408	NA	NA	NA
## 2409	NA	NA	NA
## 2410	NA	NA	NA
## 2411	NA	NA	NA
## 2412	NA	NA	0.70
## 2413	NA	NA	0.00
## 2414	NA	NA	NA
## 2415	NA	NA	NA
## 2416	NA	NA	NA
## 2417	NA	NA	NA
## 2418	NA	NA	NA
## 2419	NA	NA	NA
## 2420	NA	NA	NA
## 2421	NA	NA	NA
## 2422	NA	NA	NA
## 2423	NA	NA	NA
## 2424	0.340	0.654	0.00
## 2425	NA	NA	NA
## 2426	NA	NA	NA
## 2427	NA	NA	NA
## 2428	NA	NA	NA
## 2429	NA	NA	NA
## 2430	NA	NA	NA
## 2431	NA	NA	NA
## 2432	0.914	0.904	1.25
## 2433	NA	NA	NA
## 2434	0.937	1.791	0.00

## 2435	NA	NA	NA
## 2436	0.923	0.874	0.90
## 2437	NA	NA	NA
## 2438	NA	NA	NA
## 2439	0.357	0.344	0.90
## 2440	NA	NA	NA
## 2441	0.314	0.295	0.00
## 2442	NA	NA	0.00
## 2443	NA	NA	NA
## 2444	NA	NA	NA
## 2445	NA	NA	NA
## 2446	NA	NA	NA
## 2447	0.054	0.049	0.00
## 2448	NA	NA	NA
## 2449	NA	NA	NA
## 2450	NA	NA	NA
## 2451	0.311	0.626	2.00
## 2452	0.863	1.528	1.25
## 2453	NA	NA	NA
## 2454	0.611	0.696	0.90
## 2455	0.206	0.185	0.00
## 2456	NA	NA	NA
## 2457	NA	NA	NA
## 2458	NA	NA	NA
## 2459	NA	NA	NA
## 2460	NA	NA	NA
## 2461	NA	NA	NA
## 2462	NA	NA	NA
## 2463	0.386	0.367	0.90
## 2464	NA	NA	NA
## 2465	NA	NA	0.00
## 2466	0.003	0.003	0.00
## 2467	NA	NA	NA
## 2468	NA	NA	NA
## 2469	NA	NA	NA
## 2470	NA	NA	NA
## 2471	0.071	0.071	0.00
## 2472	NA	NA	0.00
## 2473	NA	NA	NA
## 2474	NA	NA	NA
## 2475	NA	NA	NA
## 2476	NA	NA	NA
## 2477	NA	NA	0.00
## 2478	NA	NA	0.00
## 2479	NA	NA	0.00
## 2480	0.634	0.603	0.90
## 2481	NA	NA	NA
## 2482	0.086	0.078	0.00
## 2483	NA	NA	NA
## 2484	0.346	0.321	0.90
## 2485	NA	NA	NA
## 2486	0.186	0.186	0.00
## 2487	NA	NA	NA
## 2488	NA	NA	0.00

## 2489	NA	NA	NA
## 2490	NA	NA	NA
## 2491	NA	NA	NA
## 2492	NA	NA	NA
## 2493	NA	NA	NA
## 2494	NA	NA	NA
## 2495	NA	NA	NA
## 2496	NA	NA	0.00
## 2497	NA	NA	NA
## 2498	NA	NA	NA
## 2499	0.929	1.607	1.60
## 2500	NA	NA	NA
## 2501	NA	NA	NA
## 2502	NA	NA	NA
## 2503	0.014	0.025	0.00
## 2504	NA	NA	NA
## 2505	NA	NA	NA
## 2506	NA	NA	NA
## 2507	NA	NA	NA
## 2508	NA	NA	NA
## 2509	NA	NA	NA
## 2510	NA	NA	NA
## 2511	NA	NA	NA
## 2512	0.860	1.325	1.25
## 2513	NA	NA	NA
## 2514	0.146	0.131	0.00
## 2515	NA	NA	NA
## 2516	0.246	0.221	0.00
## 2517	NA	NA	NA
## 2518	NA	NA	NA
## 2519	NA	NA	0.00
## 2520	NA	NA	NA
## 2521	NA	NA	NA
## 2522	0.014	0.024	0.00
## 2523	NA	NA	NA
## 2524	NA	NA	NA
## 2525	NA	NA	NA
## 2526	NA	NA	NA
## 2527	NA	NA	0.00
## 2528	NA	NA	NA
## 2529	NA	NA	NA
## 2530	NA	NA	NA
## 2531	0.494	0.452	0.00
## 2532	NA	NA	NA
## 2533	NA	NA	NA
## 2534	0.480	0.432	0.00
## 2535	0.129	0.167	0.00
## 2536	0.920	0.865	0.90
## 2537	NA	NA	NA
## 2538	NA	NA	NA
## 2539	0.077	0.069	0.00
## 2540	NA	NA	NA
## 2541	NA	NA	NA
## 2542	NA	NA	NA

## 2543	NA	NA	NA
## 2544	NA	NA	0.00
## 2545	NA	NA	NA
## 2546	NA	NA	NA
## 2547	NA	NA	NA
## 2548	NA	NA	0.00
## 2549	NA	NA	NA
## 2550	NA	NA	NA
## 2551	NA	NA	NA
## 2552	NA	NA	NA
## 2553	NA	NA	0.70
## 2554	NA	NA	NA
## 2555	0.469	0.548	1.25
## 2556	NA	NA	NA
## 2557	NA	NA	NA
## 2558	NA	NA	NA
## 2559	NA	NA	NA
## 2560	0.206	0.185	0.90
## 2561	NA	NA	NA
## 2562	NA	NA	NA
## 2563	0.960	0.922	1.60
## 2564	NA	NA	NA
## 2565	NA	NA	NA
## 2566	NA	NA	NA
## 2567	0.149	0.182	0.00
## 2568	NA	NA	NA
## 2569	0.089	0.081	0.00
## 2570	NA	NA	NA
## 2571	0.123	0.114	0.00
## 2572	NA	NA	NA
## 2573	NA	NA	NA
## 2574	NA	NA	0.70
## 2575	NA	NA	NA
## 2576	NA	NA	NA
## 2577	NA	NA	NA
## 2578	NA	NA	NA
## 2579	NA	NA	NA
## 2580	0.323	0.291	0.00
## 2581	NA	NA	NA
## 2582	NA	NA	NA
## 2583	0.780	0.880	1.25
## 2584	NA	NA	NA
## 2585	NA	NA	NA
## 2586	0.077	0.077	0.00
## 2587	NA	NA	NA
## 2588	NA	NA	NA
## 2589	0.266	0.525	0.00
## 2590	NA	NA	NA
## 2591	NA	NA	NA
## 2592	NA	NA	NA
## 2593	NA	NA	NA
## 2594	NA	NA	NA
## 2595	NA	NA	NA
## 2596	NA	NA	NA

## 2597	NA	NA	NA
## 2598	NA	NA	NA
## 2599	NA	NA	NA
## 2600	NA	NA	0.00
## 2601	NA	NA	NA
## 2602	NA	NA	NA
## 2603	NA	NA	NA
## 2604	NA	NA	NA
## 2605	NA	NA	NA
## 2606	NA	NA	NA
## 2607	NA	NA	NA
## 2608	0.523	0.958	2.00
## 2609	NA	NA	0.00
## 2610	0.000	0.000	0.00
## 2611	NA	NA	NA
## 2612	NA	NA	NA
## 2613	NA	NA	0.00
## 2614	NA	NA	NA
## 2615	NA	NA	NA
## 2616	NA	NA	NA
## 2617	NA	NA	NA
## 2618	NA	NA	NA
## 2619	NA	NA	NA
## 2620	NA	NA	NA
## 2621	NA	NA	NA
## 2622	NA	NA	NA
## 2623	NA	NA	0.00
## 2624	NA	NA	NA
## 2625	NA	NA	NA
## 2626	NA	NA	NA
## 2627	NA	NA	NA
## 2628	NA	NA	NA
## 2629	NA	NA	NA
## 2630	NA	NA	NA
## 2631	NA	NA	NA
## 2632	NA	NA	NA
## 2633	NA	NA	NA
## 2634	NA	NA	NA
## 2635	NA	NA	NA
## 2636	NA	NA	0.00
## 2637	NA	NA	NA
## 2638	NA	NA	NA
## 2639	NA	NA	NA
## 2640	0.849	1.294	2.00
## 2641	NA	NA	NA
## 2642	NA	NA	NA
## 2643	NA	NA	NA
## 2644	0.040	0.048	0.00
## 2645	0.114	0.107	0.00
## 2646	NA	NA	0.00
## 2647	NA	NA	NA
## 2648	NA	NA	NA
## 2649	NA	NA	NA
## 2650	NA	NA	0.00

## 2651	NA	NA	NA
## 2652	NA	NA	NA
## 2653	NA	NA	NA
## 2654	NA	NA	NA
## 2655	0.157	0.153	0.00
## 2656	0.054	0.068	0.00
## 2657	NA	NA	NA
## 2658	NA	NA	NA
## 2659	NA	NA	0.00
## 2660	NA	NA	NA
## 2661	NA	NA	NA
## 2662	NA	NA	NA
## 2663	NA	NA	NA
## 2664	NA	NA	NA
## 2665	NA	NA	NA
## 2666	NA	NA	0.00
## 2667	NA	NA	NA
## 2668	NA	NA	NA
## 2669	0.480	0.452	0.00
## 2670	NA	NA	NA
## 2671	0.349	0.314	0.00
## 2672	NA	NA	NA
## 2673	NA	NA	NA
## 2674	NA	NA	NA
## 2675	NA	NA	NA
## 2676	NA	NA	NA
## 2677	NA	NA	NA
## 2678	NA	NA	NA
## 2679	NA	NA	NA
## 2680	NA	NA	NA
## 2681	NA	NA	NA
## 2682	NA	NA	NA
## 2683	NA	NA	NA
## 2684	NA	NA	NA
## 2685	NA	NA	NA
## 2686	NA	NA	NA
## 2687	NA	NA	NA
## 2688	NA	NA	NA
## 2689	NA	NA	NA
## 2690	NA	NA	0.00
## 2691	NA	NA	NA
## 2692	NA	NA	NA
## 2693	NA	NA	NA
## 2694	NA	NA	0.70
## 2695	NA	NA	NA
## 2696	NA	NA	NA
## 2697	NA	NA	NA
## 2698	NA	NA	0.70
## 2699	NA	NA	NA
## 2700	NA	NA	NA
## 2701	NA	NA	0.00
## 2702	NA	NA	NA
## 2703	NA	NA	NA
## 2704	NA	NA	NA



## 2705	NA	NA	NA
## 2706	NA	NA	NA
## 2707	0.497	0.467	0.00
## 2708	NA	NA	NA
## 2709	NA	NA	NA
## 2710	NA	NA	NA
## 2711	NA	NA	NA
## 2712	NA	NA	NA
## 2713	0.806	0.805	1.25
## 2714	NA	NA	NA
## 2715	0.060	0.054	0.90
## 2716	NA	NA	NA
## 2717	0.440	0.396	1.25
## 2718	NA	NA	NA
## 2719	NA	NA	NA
## 2720	NA	NA	NA
## 2721	NA	NA	NA
## 2722	NA	NA	0.00
## 2723	0.349	0.318	0.90
## 2724	NA	NA	0.70
## 2725	NA	NA	NA
## 2726	NA	NA	NA
## 2727	NA	NA	NA
## 2728	NA	NA	NA
## 2729	NA	NA	NA
## 2730	NA	NA	NA
## 2731	NA	NA	NA
## 2732	NA	NA	NA
## 2733	NA	NA	NA
## 2734	NA	NA	NA
## 2735	NA	NA	NA
## 2736	NA	NA	NA
## 2737	NA	NA	NA
## 2738	NA	NA	NA
## 2739	NA	NA	NA
## 2740	NA	NA	0.00
## 2741	NA	NA	NA
## 2742	NA	NA	NA
## 2743	NA	NA	NA
## 2744	0.383	0.354	0.00
## 2745	NA	NA	NA
## 2746	NA	NA	NA
## 2747	NA	NA	0.00
## 2748	NA	NA	NA
## 2749	NA	NA	NA
## 2750	0.260	0.242	0.90
## 2751	NA	NA	NA
## 2752	0.911	1.784	2.00
## 2753	NA	NA	NA
## 2754	NA	NA	NA
## 2755	NA	NA	NA
## 2756	NA	NA	NA
## 2757	NA	NA	NA
## 2758	NA	NA	NA

## 2759	0.137	0.129	0.00
## 2760	NA	NA	NA
## 2761	0.337	0.310	0.90
## 2762	NA	NA	NA
## 2763	NA	NA	NA
## 2764	NA	NA	NA
## 2765	NA	NA	NA
## 2766	NA	NA	NA
## 2767	NA	NA	NA
## 2768	NA	NA	NA
## 2769	NA	NA	NA
## 2770	NA	NA	NA
## 2771	0.454	0.409	0.00
## 2772	NA	NA	NA
## 2773	NA	NA	NA
## 2774	NA	NA	NA
## 2775	NA	NA	NA
## 2776	NA	NA	NA
## 2777	NA	NA	NA
## 2778	NA	NA	NA
## 2779	NA	NA	NA
## 2780	NA	NA	NA
## 2781	NA	NA	NA
## 2782	NA	NA	NA
## 2783	NA	NA	NA
## 2784	NA	NA	0.00
## 2785	0.003	0.003	0.00
## 2786	0.014	0.023	0.00
## 2787	0.154	0.178	0.00
## 2788	NA	NA	NA
## 2789	NA	NA	NA
## 2790	0.571	0.820	0.00
## 2791	NA	NA	NA
## 2792	NA	NA	0.00
## 2793	NA	NA	0.00
## 2794	0.051	0.077	0.00
## 2795	NA	NA	NA
## 2796	NA	NA	NA
## 2797	0.274	0.250	0.00
## 2798	NA	NA	NA
## 2799	NA	NA	NA
## 2800	NA	NA	NA
## 2801	NA	NA	NA
## 2802	NA	NA	NA
## 2803	NA	NA	NA
## 2804	NA	NA	NA
## 2805	NA	NA	NA
## 2806	0.277	0.249	0.00
## 2807	NA	NA	NA
## 2808	NA	NA	NA
## 2809	0.054	0.049	0.00
## 2810	NA	NA	NA
## 2811	NA	NA	NA
## 2812	NA	NA	NA

## 2813	NA	NA	NA
## 2814	NA	NA	NA
## 2815	NA	NA	0.00
## 2816	NA	NA	NA
## 2817	NA	NA	0.70
## 2818	NA	NA	NA
## 2819	NA	NA	0.00
## 2820	NA	NA	NA
## 2821	NA	NA	NA
## 2822	NA	NA	NA
## 2823	NA	NA	NA
## 2824	NA	NA	NA
## 2825	NA	NA	0.00
## 2826	NA	NA	NA
## 2827	NA	NA	NA
## 2828	NA	NA	NA
## 2829	NA	NA	NA
## 2830	NA	NA	NA
## 2831	NA	NA	NA
## 2832	NA	NA	NA
## 2833	NA	NA	NA
## 2834	NA	NA	NA
## 2835	NA	NA	NA
## 2836	NA	NA	NA
## 2837	NA	NA	NA
## 2838	NA	NA	NA
## 2839	NA	NA	NA
## 2840	0.223	0.201	0.00
## 2841	NA	NA	NA
## 2842	0.051	0.046	0.00
## 2843	NA	NA	NA
## 2844	0.160	0.193	0.00
## 2845	NA	NA	NA
## 2846	NA	NA	NA
## 2847	NA	NA	0.00
## 2848	NA	NA	NA
## 2849	NA	NA	NA
## 2850	NA	NA	NA
## 2851	NA	NA	NA
## 2852	NA	NA	NA
## 2853	NA	NA	NA
## 2854	NA	NA	NA
## 2855	NA	NA	NA
## 2856	0.406	0.386	0.00
## 2857	0.411	0.385	0.00
## 2858	0.931	0.891	0.00
## 2859	NA	NA	NA
## 2860	NA	NA	NA
## 2861	NA	NA	NA
## 2862	NA	NA	NA
## 2863	NA	NA	0.00
## 2864	NA	NA	NA
## 2865	NA	NA	NA
## 2866	NA	NA	NA

## 2867	0.083	0.083	0.00
## 2868	NA	NA	NA
## 2869	NA	NA	NA
## 2870	0.020	0.027	0.00
## 2871	0.023	0.034	0.00
## 2872	NA	NA	NA
## 2873	NA	NA	NA
## 2874	NA	NA	NA
## 2875	NA	NA	0.00
## 2876	NA	NA	NA
## 2877	0.766	0.949	0.90
## 2878	NA	NA	0.70
## 2879	NA	NA	NA
## 2880	NA	NA	NA
## 2881	NA	NA	NA
## 2882	0.266	0.251	1.25
## 2883	NA	NA	NA
## 2884	NA	NA	NA
## 2885	NA	NA	NA
## 2886	0.194	0.190	0.00
## 2887	NA	NA	NA
## 2888	0.146	0.131	0.00
## 2889	NA	NA	NA
## 2890	0.583	0.553	0.00
## 2891	0.057	0.056	0.00
## 2892	0.491	0.442	0.00
## 2893	0.003	0.003	0.00
## 2894	0.109	0.196	2.00
## 2895	NA	NA	NA
## 2896	NA	NA	NA
## 2897	NA	NA	NA
## 2898	NA	NA	NA
## 2899	NA	NA	NA
## 2900	NA	NA	NA
## 2901	NA	NA	NA
## 2902	NA	NA	NA
## 2903	NA	NA	0.00
## 2904	NA	NA	NA
## 2905	0.680	0.864	0.00
## 2906	NA	NA	0.00
## 2907	NA	NA	NA
## 2908	NA	NA	NA
## 2909	NA	NA	NA
## 2910	0.120	0.108	0.00
## 2911	NA	NA	NA
## 2912	0.260	0.234	0.00
## 2913	NA	NA	NA
## 2914	NA	NA	NA
## 2915	NA	NA	NA
## 2916	0.126	0.113	0.00
## 2917	NA	NA	NA
## 2918	NA	NA	NA
## 2919	NA	NA	NA
## 2920	NA	NA	NA

## 2921	NA	NA	NA
## 2922	0.717	0.687	0.00
## 2923	NA	NA	NA
## 2924	NA	NA	NA
## 2925	NA	NA	NA
## 2926	NA	NA	NA
## 2927	NA	NA	NA
## 2928	NA	NA	NA
## 2929	0.660	0.988	0.00
## 2930	NA	NA	NA
## 2931	NA	NA	NA
## 2932	NA	NA	0.00
## 2933	NA	NA	NA
## 2934	NA	NA	0.00
## 2935	NA	NA	NA
## 2936	NA	NA	NA
## 2937	0.154	0.178	0.00
## 2938	NA	NA	0.70
## 2939	NA	NA	0.00
## 2940	NA	NA	NA
## 2941	NA	NA	NA
## 2942	NA	NA	NA
## 2943	NA	NA	NA
## 2944	NA	NA	NA
## 2945	NA	NA	NA
## 2946	NA	NA	NA
## 2947	NA	NA	NA
## 2948	NA	NA	NA
## 2949	NA	NA	NA
## 2950	NA	NA	NA
## 2951	NA	NA	0.70
## 2952	NA	NA	NA
## 2953	NA	NA	0.00
## 2954	NA	NA	NA
## 2955	NA	NA	NA
## 2956	NA	NA	NA
## 2957	NA	NA	NA
## 2958	NA	NA	NA
## 2959	NA	NA	NA
## 2960	0.380	0.364	0.00
## 2961	NA	NA	NA
## 2962	NA	NA	NA
## 2963	NA	NA	NA
## 2964	NA	NA	NA
## 2965	0.491	0.442	0.90
## 2966	0.817	0.820	0.90
## 2967	NA	NA	NA
## 2968	NA	NA	0.70
## 2969	NA	NA	NA
## 2970	NA	NA	NA
## 2971	0.191	0.172	0.00
## 2972	NA	NA	NA
## 2973	0.929	0.907	0.90
## 2974	NA	NA	NA

## 2975	NA	NA	NA
## 2976	NA	NA	NA
## 2977	NA	NA	NA
## 2978	NA	NA	0.00
## 2979	0.200	0.180	0.00
## 2980	NA	NA	NA
## 2981	NA	NA	0.00
## 2982	NA	NA	NA
## 2983	NA	NA	NA
## 2984	NA	NA	0.70
## 2985	NA	NA	NA
## 2986	NA	NA	0.70
## 2987	0.609	0.559	0.90
## 2988	0.089	0.085	0.00
## 2989	NA	NA	NA
## 2990	0.057	0.061	0.00
## 2991	NA	NA	NA
## 2992	NA	NA	NA
## 2993	NA	NA	NA
## 2994	NA	NA	NA
## 2995	NA	NA	NA
## 2996	NA	NA	NA
## 2997	NA	NA	NA
## 2998	NA	NA	NA
## 2999	NA	NA	NA
## 3000	0.071	0.087	0.00
## 3001	NA	NA	NA
## 3002	NA	NA	NA
## 3003	NA	NA	NA
## 3004	0.820	0.778	0.90
## 3005	NA	NA	NA
## 3006	NA	NA	NA
## 3007	NA	NA	NA
## 3008	NA	NA	NA
## 3009	NA	NA	NA
## 3010	NA	NA	NA
## 3011	0.020	0.021	0.00
## 3012	0.537	0.483	0.90
## 3013	NA	NA	NA
## 3014	NA	NA	NA
## 3015	NA	NA	NA
## 3016	NA	NA	NA
## 3017	NA	NA	NA
## 3018	NA	NA	NA
## 3019	0.057	0.051	0.00
## 3020	NA	NA	NA
## 3021	NA	NA	NA
## 3022	NA	NA	0.00
## 3023	NA	NA	0.00
## 3024	0.163	0.147	0.00
## 3025	NA	NA	NA
## 3026	NA	NA	NA
## 3027	NA	NA	NA
## 3028	NA	NA	0.00

## 3029	NA	NA	0.70
## 3030	NA	NA	NA
## 3031	NA	NA	NA
## 3032	NA	NA	NA
## 3033	NA	NA	NA
## 3034	NA	NA	NA
## 3035	NA	NA	NA
## 3036	NA	NA	NA
## 3037	NA	NA	NA
## 3038	NA	NA	NA
## 3039	NA	NA	NA
## 3040	NA	NA	NA
## 3041	NA	NA	NA
## 3042	0.743	1.286	2.00
## 3043	NA	NA	NA
## 3044	NA	NA	0.00
## 3045	NA	NA	NA
## 3046	NA	NA	NA
## 3047	NA	NA	NA
## 3048	NA	NA	NA
## 3049	NA	NA	NA
## 3050	NA	NA	NA
## 3051	NA	NA	NA
## 3052	NA	NA	NA
## 3053	NA	NA	NA
## 3054	NA	NA	0.70
## 3055	NA	NA	NA
## 3056	NA	NA	NA
## 3057	0.166	0.149	0.00
## 3058	NA	NA	NA
## 3059	NA	NA	NA
## 3060	0.374	0.499	0.00
## 3061	NA	NA	0.00
## 3062	NA	NA	NA
## 3063	NA	NA	NA
## 3064	NA	NA	NA
## 3065	NA	NA	NA
## 3066	NA	NA	NA
## 3067	NA	NA	NA
## 3068	NA	NA	NA
## 3069	NA	NA	NA
## 3070	NA	NA	NA
## 3071	0.774	1.077	0.90
## 3072	NA	NA	NA
## 3073	NA	NA	NA
## 3074	NA	NA	NA
## 3075	NA	NA	0.70
## 3076	NA	NA	NA
## 3077	NA	NA	NA
## 3078	NA	NA	NA
## 3079	NA	NA	NA
## 3080	NA	NA	NA
## 3081	NA	NA	NA
## 3082	NA	NA	0.00

## 3083	NA	NA	0.70
## 3084	NA	NA	NA
## 3085	NA	NA	0.00
## 3086	NA	NA	NA
## 3087	NA	NA	NA
## 3088	0.334	0.325	0.00
## 3089	NA	NA	0.00
## 3090	NA	NA	NA
## 3091	NA	NA	NA
## 3092	NA	NA	NA
## 3093	NA	NA	NA
## 3094	NA	NA	NA
## 3095	NA	NA	NA
## 3096	NA	NA	NA
## 3097	0.600	0.552	0.00
## 3098	NA	NA	NA
## 3099	NA	NA	NA
## 3100	NA	NA	NA
## 3101	NA	NA	NA
## 3102	NA	NA	NA
## 3103	NA	NA	NA
## 3104	NA	NA	NA
## 3105	NA	NA	NA
## 3106	NA	NA	NA
## 3107	NA	NA	0.00
## 3108	0.786	0.729	0.90
## 3109	NA	NA	NA
## 3110	NA	NA	0.70
## 3111	NA	NA	NA
## 3112	NA	NA	0.00
## 3113	NA	NA	NA
## 3114	NA	NA	NA
## 3115	NA	NA	0.70
## 3116	NA	NA	NA
## 3117	NA	NA	NA
## 3118	NA	NA	NA
## 3119	NA	NA	NA
## 3120	NA	NA	NA
## 3121	NA	NA	NA
## 3122	NA	NA	NA
## 3123	NA	NA	NA
## 3124	0.280	0.270	0.00
## 3125	0.871	0.855	1.60
## 3126	NA	NA	NA
## 3127	NA	NA	NA
## 3128	0.371	0.423	0.00
## 3129	NA	NA	0.00
## 3130	0.397	0.361	0.00
## 3131	NA	NA	NA
## 3132	NA	NA	0.00
## 3133	NA	NA	NA
## 3134	NA	NA	NA
## 3135	NA	NA	NA
## 3136	NA	NA	NA



## 3137	NA	NA	NA
## 3138	NA	NA	NA
## 3139	NA	NA	NA
## 3140	NA	NA	NA
## 3141	NA	NA	NA
## 3142	NA	NA	NA
## 3143	NA	NA	NA
## 3144	NA	NA	NA
## 3145	NA	NA	NA
## 3146	NA	NA	NA
## 3147	NA	NA	NA
## 3148	NA	NA	NA
## 3149	0.143	0.129	0.00
## 3150	NA	NA	NA
## 3151	NA	NA	NA
## 3152	NA	NA	NA
## 3153	NA	NA	NA
## 3154	NA	NA	NA
## 3155	NA	NA	NA
## 3156	NA	NA	NA
## 3157	NA	NA	NA
## 3158	NA	NA	NA
## 3159	NA	NA	NA
## 3160	NA	NA	NA
## 3161	0.180	0.162	0.00
## 3162	NA	NA	0.70
## 3163	NA	NA	NA
## 3164	NA	NA	NA
## 3165	NA	NA	NA
## 3166	NA	NA	NA
## 3167	NA	NA	0.00
## 3168	0.040	0.036	0.00
## 3169	NA	NA	NA
## 3170	0.031	0.028	0.00
## 3171	NA	NA	NA
## 3172	NA	NA	NA
## 3173	0.180	0.162	0.90
## 3174	NA	NA	NA
## 3175	NA	NA	NA
## 3176	NA	NA	NA
## 3177	NA	NA	0.00
## 3178	NA	NA	NA
## 3179	NA	NA	NA
## 3180	NA	NA	NA
## 3181	NA	NA	NA
## 3182	NA	NA	NA
## 3183	NA	NA	NA
## 3184	NA	NA	NA
## 3185	NA	NA	NA
## 3186	NA	NA	NA
## 3187	NA	NA	NA
## 3188	NA	NA	NA
## 3189	NA	NA	NA
## 3190	0.103	0.193	0.00

## 3191	0.009	0.008	0.00
## 3192	NA	NA	NA
## 3193	0.509	0.637	0.90
## 3194	NA	NA	0.00
## 3195	0.111	0.100	0.90
## 3196	NA	NA	NA
## 3197	NA	NA	NA
## 3198	NA	NA	NA
## 3199	NA	NA	NA
## 3200	NA	NA	NA
## 3201	NA	NA	NA
## 3202	NA	NA	NA
## 3203	NA	NA	NA
## 3204	NA	NA	NA
## 3205	NA	NA	NA
## 3206	NA	NA	NA
## 3207	NA	NA	NA
## 3208	NA	NA	NA
## 3209	NA	NA	NA
## 3210	NA	NA	NA
## 3211	0.154	0.201	0.00
## 3212	0.411	0.385	0.00
## 3213	NA	NA	NA
## 3214	NA	NA	NA
## 3215	NA	NA	NA
## 3216	0.209	0.189	0.00
## 3217	NA	NA	0.00
## 3218	NA	NA	NA
## 3219	0.326	0.300	0.90
## 3220	NA	NA	NA
## 3221	NA	NA	NA
## 3222	NA	NA	NA
## 3223	NA	NA	NA
## 3224	NA	NA	NA
## 3225	0.683	0.638	0.90
## 3226	NA	NA	0.00
## 3227	0.054	0.049	0.00
## 3228	NA	NA	NA
## 3229	NA	NA	NA
## 3230	NA	NA	NA
## 3231	NA	NA	NA
## 3232	NA	NA	NA
## 3233	0.120	0.108	0.00
## 3234	0.011	0.015	0.00
## 3235	NA	NA	NA
## 3236	NA	NA	NA
## 3237	0.960	0.883	0.90
## 3238	NA	NA	NA
## 3239	0.177	0.167	0.90
## 3240	NA	NA	NA
## 3241	NA	NA	NA
## 3242	NA	NA	NA
## 3243	NA	NA	NA
## 3244	NA	NA	NA

## 3245	NA	NA	NA
## 3246	NA	NA	NA
## 3247	NA	NA	NA
## 3248	NA	NA	NA
## 3249	NA	NA	NA
## 3250	NA	NA	NA
## 3251	NA	NA	NA
## 3252	NA	NA	NA
## 3253	NA	NA	NA
## 3254	NA	NA	0.70
## 3255	NA	NA	NA
## 3256	NA	NA	NA
## 3257	NA	NA	NA
## 3258	NA	NA	NA
## 3259	NA	NA	NA
## 3260	NA	NA	NA
## 3261	NA	NA	NA
## 3262	NA	NA	NA
## 3263	NA	NA	NA
## 3264	NA	NA	NA
## 3265	NA	NA	NA
## 3266	NA	NA	NA
## 3267	NA	NA	NA
## 3268	NA	NA	NA
## 3269	NA	NA	NA
## 3270	NA	NA	NA
## 3271	NA	NA	NA
## 3272	NA	NA	NA
## 3273	NA	NA	NA
## 3274	NA	NA	NA
## 3275	0.106	0.095	0.00
## 3276	NA	NA	NA
## 3277	NA	NA	NA
## 3278	NA	NA	NA
## 3279	NA	NA	NA
## 3280	NA	NA	NA
## 3281	NA	NA	NA
## 3282	NA	NA	NA
## 3283	NA	NA	NA
## 3284	NA	NA	NA
## 3285	NA	NA	NA
## 3286	NA	NA	NA
## 3287	NA	NA	0.70
## 3288	NA	NA	NA
## 3289	0.051	0.046	0.00
## 3290	0.774	1.556	0.00
## 3291	NA	NA	NA
## 3292	NA	NA	NA
## 3293	NA	NA	NA
## 3294	NA	NA	NA
## 3295	NA	NA	NA
## 3296	NA	NA	NA
## 3297	NA	NA	NA
## 3298	NA	NA	NA

## 3299		NA		NA	NA
## 3300		NA		NA	NA
## 3301		NA		NA	0.00
## 3302		NA		NA	NA
## 3303		NA		NA	NA
## 3304		NA		NA	NA
## 3305		NA		NA	NA
## 3306		NA		NA	NA
## 3307		NA		NA	NA
## 3308		NA		NA	0.00
## 3309		0.943		0.897	0.90
## 3310		NA		NA	NA
## 3311		NA		NA	NA
## 3312		NA		NA	NA
## 3313		NA		NA	NA
## 3314		NA		NA	NA
## 3315		0.006		0.005	0.00
## 3316		NA		NA	NA
## 3317		NA		NA	0.00
## 3318		NA		NA	NA
## 3319		0.020		0.027	0.00
## 3320		0.820		0.842	0.90
## 3321		NA		NA	NA
## 3322		NA		NA	NA
## 3323		NA		NA	NA
## 3324		NA		NA	NA
## 3325		NA		NA	NA
## 3326		NA		NA	NA
## 3327		NA		NA	NA
## 3328		0.531		0.508	1.25
## 3329		NA		NA	NA
## 3330		NA		NA	0.00
## 3331		0.120		0.108	0.00
## 3332		NA		NA	NA
## 3333		NA		NA	NA
##	woba_denom	babip_value	iso_value	launch_speed_angle	at_bat_number
## 1	1	0	0	NA	60
## 2	NA	NA	NA	NA	60
## 3	NA	NA	NA	NA	60
## 4	NA	NA	NA	NA	60
## 5	1	1	0	4	59
## 6	NA	NA	NA	NA	59
## 7	1	1	0	4	43
## 8	NA	NA	NA	NA	59
## 9	1	1	0	4	48
## 10	NA	NA	NA	NA	59
## 11	1	0	0	NA	42
## 12	NA	NA	NA	NA	59
## 13	NA	NA	NA	NA	42
## 14	NA	NA	NA	NA	48
## 15	NA	NA	NA	NA	42
## 16	1	0	0	NA	58
## 17	NA	NA	NA	NA	48
## 18	1	0	0	5	42

## 19	NA	NA	NA	NA	48
## 20	NA	NA	NA	NA	42
## 21	NA	NA	NA	NA	58
## 22	NA	NA	NA	NA	42
## 23	1	0	0	3	44
## 24	1	0	0	2	41
## 25	NA	NA	NA	NA	42
## 26	NA	NA	NA	NA	58
## 27	NA	NA	NA	NA	48
## 28	1	0	3	6	46
## 29	1	0	0	NA	37
## 30	NA	NA	NA	NA	58
## 31	1	0	0	NA	47
## 32	NA	NA	NA	NA	46
## 33	NA	NA	NA	NA	42
## 34	NA	NA	NA	NA	44
## 35	1	0	0	NA	45
## 36	1	0	0	2	41
## 37	NA	NA	NA	NA	58
## 38	NA	NA	NA	NA	37
## 39	NA	NA	NA	NA	44
## 40	NA	NA	NA	NA	47
## 41	1	0	0	NA	55
## 42	1	0	0	NA	51
## 43	NA	NA	NA	NA	45
## 44	0	0	0	NA	62
## 45	1	0	0	NA	43
## 46	NA	NA	NA	NA	37
## 47	1	0	3	6	57
## 48	NA	NA	NA	NA	41
## 49	NA	NA	NA	NA	47
## 50	NA	NA	NA	NA	55
## 51	1	0	0	2	61
## 52	NA	NA	NA	NA	47
## 53	NA	NA	NA	NA	57
## 54	NA	NA	NA	NA	41
## 55	NA	NA	NA	NA	45
## 56	NA	NA	NA	NA	37
## 57	NA	NA	NA	NA	43
## 58	NA	NA	NA	NA	51
## 59	NA	NA	NA	NA	41
## 60	NA	NA	NA	NA	61
## 61	NA	NA	NA	NA	47
## 62	1	0	0	2	36
## 63	NA	NA	NA	NA	43
## 64	NA	NA	NA	NA	51
## 65	NA	NA	NA	NA	57
## 66	NA	NA	NA	NA	45
## 67	NA	NA	NA	NA	55
## 68	1	0	0	NA	40
## 69	NA	NA	NA	NA	36
## 70	NA	NA	NA	NA	43
## 71	NA	NA	NA	NA	55
## 72	1	0	0	NA	50

## 73	1	0	0	2	40
## 74	NA	NA	NA	NA	61
## 75	1	1	0	3	51
## 76	NA	NA	NA	NA	47
## 77	NA	NA	NA	NA	45
## 78	1	1	0	4	40
## 79	NA	NA	NA	NA	57
## 80	NA	NA	NA	NA	55
## 81	NA	NA	NA	NA	36
## 82	1	0	0	4	49
## 83	NA	NA	NA	NA	40
## 84	NA	NA	NA	NA	40
## 85	NA	NA	NA	NA	43
## 86	NA	NA	NA	NA	61
## 87	NA	NA	NA	NA	57
## 88	1	0	0	NA	37
## 89	1	0	0	3	44
## 90	NA	NA	NA	NA	40
## 91	NA	NA	NA	NA	47
## 92	1	0	0	NA	50
## 93	NA	NA	NA	NA	37
## 94	NA	NA	NA	NA	49
## 95	1	0	0	5	54
## 96	NA	NA	NA	NA	50
## 97	NA	NA	NA	NA	43
## 98	1	0	0	3	36
## 99	NA	NA	NA	NA	40
## 100	1	0	0	3	49
## 101	NA	NA	NA	NA	36
## 102	1	1	0	4	60
## 103	NA	NA	NA	NA	40
## 104	NA	NA	NA	NA	44
## 105	1	0	0	1	55
## 106	1	0	0	NA	46
## 107	NA	NA	NA	NA	60
## 108	NA	NA	NA	NA	50
## 109	1	0	0	2	54
## 110	1	0	0	2	55
## 111	1	0	0	3	42
## 112	1	0	0	NA	48
## 113	NA	NA	NA	NA	44
## 114	NA	NA	NA	NA	46
## 115	NA	NA	NA	NA	36
## 116	NA	NA	NA	NA	49
## 117	NA	NA	NA	NA	36
## 118	NA	NA	NA	NA	54
## 119	NA	NA	NA	NA	37
## 120	NA	NA	NA	NA	40
## 121	NA	NA	NA	NA	40
## 122	NA	NA	NA	NA	55
## 123	NA	NA	NA	NA	48
## 124	1	0	0	NA	53
## 125	NA	NA	NA	NA	40
## 126	1	0	0	2	44

## 127	1	0	0	3	39
## 128	NA	NA	NA	NA	60
## 129	NA	NA	NA	NA	50
## 130	NA	NA	NA	NA	36
## 131	NA	NA	NA	NA	49
## 132	NA	NA	NA	NA	42
## 133	NA	NA	NA	NA	44
## 134	NA	NA	NA	NA	54
## 135	NA	NA	NA	NA	37
## 136	NA	NA	NA	NA	36
## 137	NA	NA	NA	NA	46
## 138	NA	NA	NA	NA	49
## 139	NA	NA	NA	NA	50
## 140	1	0	0	2	59
## 141	NA	NA	NA	NA	48
## 142	NA	NA	NA	NA	53
## 143	NA	NA	NA	NA	46
## 144	1	0	0	3	53
## 145	NA	NA	NA	NA	39
## 146	NA	NA	NA	NA	44
## 147	1	0	0	3	35
## 148	1	0	0	NA	39
## 149	NA	NA	NA	NA	55
## 150	NA	NA	NA	NA	36
## 151	NA	NA	NA	NA	42
## 152	NA	NA	NA	NA	44
## 153	NA	NA	NA	NA	37
## 154	NA	NA	NA	NA	50
## 155	NA	NA	NA	NA	48
## 156	NA	NA	NA	NA	42
## 157	NA	NA	NA	NA	39
## 158	NA	NA	NA	NA	55
## 159	NA	NA	NA	NA	37
## 160	NA	NA	NA	NA	35
## 161	NA	NA	NA	NA	59
## 162	NA	NA	NA	NA	44
## 163	NA	NA	NA	NA	53
## 164	NA	NA	NA	NA	49
## 165	NA	NA	NA	NA	46
## 166	NA	NA	NA	NA	39
## 167	NA	NA	NA	NA	44
## 168	NA	NA	NA	NA	53
## 169	1	0	0	2	35
## 170	NA	NA	NA	NA	36
## 171	NA	NA	NA	NA	53
## 172	1	0	0	NA	40
## 173	NA	NA	NA	NA	35
## 174	NA	NA	NA	NA	39
## 175	NA	NA	NA	NA	59
## 176	NA	NA	NA	NA	44
## 177	1	1	1	3	43
## 178	1	0	0	NA	35
## 179	1	0	0	NA	36
## 180	NA	NA	NA	NA	48

## 181	1	1	1	2	34
## 182	1	0	0	3	48
## 183	NA	NA	NA	NA	39
## 184	1	0	0	3	45
## 185	NA	NA	NA	NA	55
## 186	NA	NA	NA	NA	53
## 187	1	0	0	3	38
## 188	NA	NA	NA	NA	43
## 189	NA	NA	NA	NA	53
## 190	NA	NA	NA	NA	38
## 191	NA	NA	NA	NA	48
## 192	1	0	0	NA	38
## 193	1	0	0	2	38
## 194	1	0	0	NA	58
## 195	NA	NA	NA	NA	34
## 196	1	0	0	NA	54
## 197	NA	NA	NA	NA	48
## 198	NA	NA	NA	NA	35
## 199	NA	NA	NA	NA	35
## 200	NA	NA	NA	NA	40
## 201	NA	NA	NA	NA	45
## 202	1	0	0	NA	39
## 203	NA	NA	NA	NA	39
## 204	1	0	0	NA	49
## 205	1	0	0	NA	43
## 206	NA	NA	NA	NA	36
## 207	NA	NA	NA	NA	49
## 208	NA	NA	NA	NA	48
## 209	NA	NA	NA	NA	43
## 210	NA	NA	NA	NA	35
## 211	NA	NA	NA	NA	45
## 212	NA	NA	NA	NA	54
## 213	NA	NA	NA	NA	40
## 214	NA	NA	NA	NA	35
## 215	NA	NA	NA	NA	38
## 216	NA	NA	NA	NA	34
## 217	1	0	0	NA	49
## 218	NA	NA	NA	NA	38
## 219	NA	NA	NA	NA	58
## 220	NA	NA	NA	NA	36
## 221	NA	NA	NA	NA	39
## 222	NA	NA	NA	NA	38
## 223	1	0	0	3	47
## 224	NA	NA	NA	NA	39
## 225	1	0	0	2	42
## 226	NA	NA	NA	NA	40
## 227	NA	NA	NA	NA	38
## 228	1	0	0	NA	42
## 229	NA	NA	NA	NA	49
## 230	NA	NA	NA	NA	39
## 231	NA	NA	NA	NA	58
## 232	NA	NA	NA	NA	35
## 233	NA	NA	NA	NA	36
## 234	1	0	0	2	29



## 235	NA	NA	NA	NA	49
## 236	NA	NA	NA	NA	45
## 237	NA	NA	NA	NA	38
## 238	NA	NA	NA	NA	35
## 239	1	1	0	4	38
## 240	NA	NA	NA	NA	42
## 241	NA	NA	NA	NA	47
## 242	NA	NA	NA	NA	54
## 243	NA	NA	NA	NA	38
## 244	NA	NA	NA	NA	43
## 245	NA	NA	NA	NA	38
## 246	NA	NA	NA	NA	43
## 247	NA	NA	NA	NA	39
## 248	1	1	0	4	41
## 249	1	0	0	2	34
## 250	NA	NA	NA	NA	38
## 251	NA	NA	NA	NA	40
## 252	1	0	0	4	44
## 253	NA	NA	NA	NA	38
## 254	NA	NA	NA	NA	54
## 255	NA	NA	NA	NA	29
## 256	1	0	0	NA	37
## 257	NA	NA	NA	NA	49
## 258	NA	NA	NA	NA	42
## 259	NA	NA	NA	NA	49
## 260	NA	NA	NA	NA	58
## 261	NA	NA	NA	NA	47
## 262	1	0	0	NA	34
## 263	NA	NA	NA	NA	36
## 264	NA	NA	NA	NA	45
## 265	1	1	0	3	43
## 266	1	0	0	NA	39
## 267	1	0	0	NA	37
## 268	1	0	0	NA	35
## 269	1	1	0	4	40
## 270	NA	NA	NA	NA	43
## 271	NA	NA	NA	NA	29
## 272	NA	NA	NA	NA	47
## 273	NA	NA	NA	NA	58
## 274	NA	NA	NA	NA	34
## 275	NA	NA	NA	NA	38
## 276	1	0	0	NA	37
## 277	NA	NA	NA	NA	34
## 278	NA	NA	NA	NA	54
## 279	NA	NA	NA	NA	45
## 280	1	0	0	NA	53
## 281	NA	NA	NA	NA	37
## 282	NA	NA	NA	NA	42
## 283	1	0	0	3	38
## 284	NA	NA	NA	NA	49
## 285	NA	NA	NA	NA	49
## 286	NA	NA	NA	NA	40
## 287	NA	NA	NA	NA	38
## 288	1	0	0	2	33

## 289	1	0	0	NA	48
## 290	NA	NA	NA	NA	29
## 291	NA	NA	NA	NA	34
## 292	NA	NA	NA	NA	58
## 293	NA	NA	NA	NA	53
## 294	NA	NA	NA	NA	49
## 295	NA	NA	NA	NA	38
## 296	NA	NA	NA	NA	35
## 297	NA	NA	NA	NA	54
## 298	1	0	0	5	36
## 299	NA	NA	NA	NA	37
## 300	1	0	0	NA	42
## 301	NA	NA	NA	NA	37
## 302	NA	NA	NA	NA	42
## 303	NA	NA	NA	NA	39
## 304	1	0	0	NA	46
## 305	NA	NA	NA	NA	45
## 306	NA	NA	NA	NA	43
## 307	NA	NA	NA	NA	40
## 308	NA	NA	NA	NA	42
## 309	NA	NA	NA	NA	38
## 310	NA	NA	NA	NA	35
## 311	NA	NA	NA	NA	39
## 312	NA	NA	NA	NA	34
## 313	1	1	1	5	35
## 314	NA	NA	NA	NA	37
## 315	NA	NA	NA	NA	29
## 316	1	0	0	1	53
## 317	NA	NA	NA	NA	46
## 318	NA	NA	NA	NA	53
## 319	1	0	0	3	44
## 320	NA	NA	NA	NA	38
## 321	1	1	1	5	41
## 322	NA	NA	NA	NA	49
## 323	NA	NA	NA	NA	43
## 324	NA	NA	NA	NA	48
## 325	1	0	0	2	54
## 326	NA	NA	NA	NA	33
## 327	NA	NA	NA	NA	37
## 328	NA	NA	NA	NA	38
## 329	NA	NA	NA	NA	48
## 330	NA	NA	NA	NA	41
## 331	1	0	0	3	32
## 332	1	1	0	1	46
## 333	NA	NA	NA	NA	54
## 334	1	1	0	4	48
## 335	NA	NA	NA	NA	46
## 336	NA	NA	NA	NA	34
## 337	NA	NA	NA	NA	53
## 338	1	0	0	2	39
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## 341	NA	NA	NA	NA	39
## 342	1	1	0	4	52

## 343	NA	NA	NA	NA	40
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## 345	NA	NA	NA	NA	37
## 346	NA	NA	NA	NA	44
## 347	NA	NA	NA	NA	42
## 348	1	0	0	2	37
## 349	NA	NA	NA	NA	35
## 350	NA	NA	NA	NA	52
## 351	NA	NA	NA	NA	46
## 352	NA	NA	NA	NA	44
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## 354	1	1	0	4	47
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## 357	NA	NA	NA	NA	35
## 358	NA	NA	NA	NA	35
## 359	1	0	0	NA	36
## 360	1	0	0	5	38
## 361	NA	NA	NA	NA	53
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## 363	NA	NA	NA	NA	37
## 364	NA	NA	NA	NA	38
## 365	NA	NA	NA	NA	46
## 366	NA	NA	NA	NA	34
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## 368	NA	NA	NA	NA	42
## 369	NA	NA	NA	NA	48
## 370	NA	NA	NA	NA	39
## 371	1	0	0	1	36
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## 375	NA	NA	NA	NA	35
## 376	1	1	1	4	45
## 377	NA	NA	NA	NA	28
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## 379	1	0	0	2	40
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## 382	NA	NA	NA	NA	52
## 383	1	0	0	2	30
## 384	NA	NA	NA	NA	40
## 385	1	0	0	2	53
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## 387	NA	NA	NA	NA	36
## 388	NA	NA	NA	NA	53
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## 390	NA	NA	NA	NA	29
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## 396	NA	NA	NA	NA	35

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## 399	NA	NA	NA	NA	35
## 400	NA	NA	NA	NA	29
## 401	1	0	0	NA	38
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## 405	1	0	0	3	47
## 406	1	0	0	4	52
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## 667	NA	NA	NA	NA	45
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## 710	1	1	0	4	33
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## 712	NA	NA	NA	NA	41
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## 716	1	0	0	NA	27
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## 719	1	0	0	2	28
## 720	1	1	0	4	39

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## 728	NA	NA	NA	NA	33
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## 731	1	1	0	4	32
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## 811	NA	NA	NA	NA	46
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## 828	0	0	0	1	30

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## 831	NA	NA	NA	NA	46
## 832	NA	NA	NA	NA	36
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## 853	NA	NA	NA	NA	27
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## 857	NA	NA	NA	NA	27
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## 880	NA	NA	NA	NA	26
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## 882	1	0	0	NA	31

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## 903	NA	NA	NA	NA	26
## 904	NA	NA	NA	NA	28
## 905	NA	NA	NA	NA	36
## 906	NA	NA	NA	NA	22
## 907	NA	NA	NA	NA	37
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## 914	NA	NA	NA	NA	22
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## 917	1	0	0	NA	26
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## 919	1	0	0	2	42
## 920	NA	NA	NA	NA	27
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## 922	NA	NA	NA	NA	32
## 923	NA	NA	NA	NA	35
## 924	NA	NA	NA	NA	25
## 925	NA	NA	NA	NA	23
## 926	NA	NA	NA	NA	29
## 927	NA	NA	NA	NA	37
## 928	NA	NA	NA	NA	38
## 929	NA	NA	NA	NA	36
## 930	NA	NA	NA	NA	42
## 931	1	0	0	3	21
## 932	1	0	3	6	29
## 933	1	0	0	2	26
## 934	1	0	0	NA	24
## 935	NA	NA	NA	NA	35
## 936	1	0	0	2	22

## 937	NA	NA	NA	NA	29
## 938	1	0	0	NA	25
## 939	NA	NA	NA	NA	22
## 940	1	0	0	2	25
## 941	NA	NA	NA	NA	40
## 942	NA	NA	NA	NA	26
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## 948	NA	NA	NA	NA	21
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## 1087	NA	NA	NA	NA	24
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## 1091	NA	NA	NA	NA	36
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## 1093	1	0	0	NA	24
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## 1095	NA	NA	NA	NA	25
## 1096	NA	NA	NA	NA	25
## 1097	NA	NA	NA	NA	40
## 1098	NA	NA	NA	NA	24



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## 1101	NA	NA	NA	NA	33
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## 1103	NA	NA	NA	NA	21
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## 1106	NA	NA	NA	NA	18
## 1107	NA	NA	NA	NA	28
## 1108	NA	NA	NA	NA	23
## 1109	NA	NA	NA	NA	28
## 1110	1	0	0	3	24
## 1111	1	0	0	NA	14
## 1112	NA	NA	NA	NA	31
## 1113	1	0	3	6	23
## 1114	NA	NA	NA	NA	34
## 1115	NA	NA	NA	NA	36
## 1116	NA	NA	NA	NA	23
## 1117	NA	NA	NA	NA	22
## 1118	1	0	0	2	30
## 1119	1	0	0	3	24
## 1120	NA	NA	NA	NA	20
## 1121	NA	NA	NA	NA	30
## 1122	NA	NA	NA	NA	36
## 1123	NA	NA	NA	NA	34
## 1124	NA	NA	NA	NA	33
## 1125	NA	NA	NA	NA	20
## 1126	NA	NA	NA	NA	24
## 1127	NA	NA	NA	NA	26
## 1128	1	1	1	5	20
## 1129	NA	NA	NA	NA	24
## 1130	NA	NA	NA	NA	24
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## 1132	NA	NA	NA	NA	21
## 1133	NA	NA	NA	NA	31
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## 1135	NA	NA	NA	NA	24
## 1136	NA	NA	NA	NA	40
## 1137	NA	NA	NA	NA	26
## 1138	NA	NA	NA	NA	22
## 1139	1	0	0	2	18
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## 1141	NA	NA	NA	NA	23
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## 1145	1	0	0	NA	19
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## 1155	NA	NA	NA	NA	21
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## 1158	NA	NA	NA	NA	24
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## 1163	NA	NA	NA	NA	14
## 1164	NA	NA	NA	NA	28
## 1165	1	0	0	2	15
## 1166	NA	NA	NA	NA	26
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## 1168	1	0	0	4	22
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## 1170	NA	NA	NA	NA	18
## 1171	1	0	0	NA	31
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## 1174	1	1	0	4	29
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## 1185	NA	NA	NA	NA	26
## 1186	NA	NA	NA	NA	22
## 1187	NA	NA	NA	NA	22
## 1188	NA	NA	NA	NA	20
## 1189	NA	NA	NA	NA	18
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## 1191	NA	NA	NA	NA	20
## 1192	NA	NA	NA	NA	35
## 1193	NA	NA	NA	NA	14
## 1194	NA	NA	NA	NA	23
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## 1196	NA	NA	NA	NA	24
## 1197	NA	NA	NA	NA	26
## 1198	NA	NA	NA	NA	31
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## 1215	NA	NA	NA	NA	18
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## 1233	1	0	0	2	19
## 1234	NA	NA	NA	NA	26
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## 1237	1	0	0	4	66
## 1238	1	0	0	3	30
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## 1240	NA	NA	NA	NA	21
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## 1245	NA	NA	NA	NA	27
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## 1249	NA	NA	NA	NA	18
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## 1258	1	0	0	4	27
## 1259	1	0	0	2	19
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## 1263	NA	NA	NA	NA	19
## 1264	NA	NA	NA	NA	28
## 1265	NA	NA	NA	NA	31
## 1266	NA	NA	NA	NA	14
## 1267	NA	NA	NA	NA	18
## 1268	NA	NA	NA	NA	23
## 1269	NA	NA	NA	NA	30
## 1270	NA	NA	NA	NA	22
## 1271	NA	NA	NA	NA	26
## 1272	NA	NA	NA	NA	22
## 1273	NA	NA	NA	NA	18
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## 1275	NA	NA	NA	NA	34
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## 1277	1	0	0	5	19
## 1278	1	1	0	4	64
## 1279	NA	NA	NA	NA	18
## 1280	NA	NA	NA	NA	31
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## 1282	NA	NA	NA	NA	23
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## 1310	NA	NA	NA	NA	64
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## 1317	NA	NA	NA	NA	19
## 1318	1	0	0	3	29
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## 1332	1	0	0	3	33
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## 1335	NA	NA	NA	NA	29
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## 1338	1	0	0	NA	24
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## 1357	NA	NA	NA	NA	17
## 1358	NA	NA	NA	NA	22
## 1359	NA	NA	NA	NA	18
## 1360	NA	NA	NA	NA	18
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## 1368	NA	NA	NA	NA	18

## 1369	NA	NA	NA	NA	22
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## 1371	NA	NA	NA	NA	19
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## 1378	NA	NA	NA	NA	22
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## 1390	1	0	0	NA	17
## 1391	NA	NA	NA	NA	17
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## 1393	NA	NA	NA	NA	29
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## 1395	NA	NA	NA	NA	17
## 1396	1	0	0	1	16
## 1397	1	0	0	NA	17
## 1398	1	0	0	3	63
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## 1410	NA	NA	NA	NA	14
## 1411	NA	NA	NA	NA	19
## 1412	NA	NA	NA	NA	20
## 1413	NA	NA	NA	NA	18
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## 1415	1	0	0	3	19
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## 1417	NA	NA	NA	NA	21
## 1418	NA	NA	NA	NA	17
## 1419	NA	NA	NA	NA	26
## 1420	NA	NA	NA	NA	18
## 1421	NA	NA	NA	NA	17
## 1422	1	0	0	NA	26

## 1423	NA	NA	NA	NA	27
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## 1425	NA	NA	NA	NA	29
## 1426	NA	NA	NA	NA	11
## 1427	NA	NA	NA	NA	18
## 1428	NA	NA	NA	NA	19
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## 1431	NA	NA	NA	NA	17
## 1432	NA	NA	NA	NA	17
## 1433	NA	NA	NA	NA	21
## 1434	NA	NA	NA	NA	22
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## 1436	NA	NA	NA	NA	14
## 1437	1	1	0	2	18
## 1438	NA	NA	NA	NA	17
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## 1442	1	0	0	4	17
## 1443	NA	NA	NA	NA	27
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## 1445	NA	NA	NA	NA	17
## 1446	NA	NA	NA	NA	22
## 1447	NA	NA	NA	NA	19
## 1448	1	0	0	2	25
## 1449	NA	NA	NA	NA	63
## 1450	NA	NA	NA	NA	16
## 1451	NA	NA	NA	NA	20
## 1452	NA	NA	NA	NA	29
## 1453	1	0	0	2	16
## 1454	NA	NA	NA	NA	20
## 1455	NA	NA	NA	NA	26
## 1456	NA	NA	NA	NA	19
## 1457	NA	NA	NA	NA	29
## 1458	NA	NA	NA	NA	32
## 1459	NA	NA	NA	NA	12
## 1460	NA	NA	NA	NA	25
## 1461	NA	NA	NA	NA	26
## 1462	NA	NA	NA	NA	27
## 1463	NA	NA	NA	NA	63
## 1464	NA	NA	NA	NA	17
## 1465	NA	NA	NA	NA	19
## 1466	NA	NA	NA	NA	22
## 1467	NA	NA	NA	NA	20
## 1468	1	1	0	4	21
## 1469	NA	NA	NA	NA	17
## 1470	1	0	0	NA	28
## 1471	1	0	0	NA	17
## 1472	NA	NA	NA	NA	18
## 1473	NA	NA	NA	NA	17
## 1474	NA	NA	NA	NA	21
## 1475	NA	NA	NA	NA	16
## 1476	NA	NA	NA	NA	16

## 1477	NA	NA	NA	NA	20
## 1478	NA	NA	NA	NA	26
## 1479	1	0	0	NA	17
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## 1485	NA	NA	NA	NA	17
## 1486	1	0	0	2	18
## 1487	1	0	0	3	13
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## 1489	1	0	0	NA	16
## 1490	NA	NA	NA	NA	17
## 1491	NA	NA	NA	NA	17
## 1492	1	0	0	NA	25
## 1493	NA	NA	NA	NA	19
## 1494	NA	NA	NA	NA	13
## 1495	NA	NA	NA	NA	17
## 1496	NA	NA	NA	NA	11
## 1497	NA	NA	NA	NA	18
## 1498	NA	NA	NA	NA	28
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## 1502	1	0	0	2	22
## 1503	NA	NA	NA	NA	21
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## 1505	1	0	0	3	77
## 1506	NA	NA	NA	NA	18
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## 1508	NA	NA	NA	NA	16
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## 1511	NA	NA	NA	NA	17
## 1512	NA	NA	NA	NA	17
## 1513	NA	NA	NA	NA	19
## 1514	NA	NA	NA	NA	20
## 1515	NA	NA	NA	NA	14
## 1516	1	0	0	NA	11
## 1517	NA	NA	NA	NA	20
## 1518	1	0	0	NA	16
## 1519	NA	NA	NA	NA	32
## 1520	NA	NA	NA	NA	22
## 1521	NA	NA	NA	NA	13
## 1522	NA	NA	NA	NA	25
## 1523	1	0	0	NA	16
## 1524	NA	NA	NA	NA	14
## 1525	NA	NA	NA	NA	28
## 1526	NA	NA	NA	NA	63
## 1527	1	1	0	3	20
## 1528	1	0	0	3	7
## 1529	NA	NA	NA	NA	11
## 1530	NA	NA	NA	NA	16



## 1531	NA	NA	NA	NA	21
## 1532	NA	NA	NA	NA	77
## 1533	1	1	0	4	16
## 1534	1	0	0	NA	27
## 1535	NA	NA	NA	NA	22
## 1536	NA	NA	NA	NA	24
## 1537	1	0	0	NA	22
## 1538	1	0	0	3	20
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## 1540	NA	NA	NA	NA	17
## 1541	NA	NA	NA	NA	18
## 1542	1	0	0	4	14
## 1543	NA	NA	NA	NA	19
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## 1551	NA	NA	NA	NA	16
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## 1556	NA	NA	NA	NA	20
## 1557	NA	NA	NA	NA	63
## 1558	NA	NA	NA	NA	16
## 1559	NA	NA	NA	NA	14
## 1560	NA	NA	NA	NA	27
## 1561	NA	NA	NA	NA	16
## 1562	1	0	0	NA	55
## 1563	NA	NA	NA	NA	11
## 1564	NA	NA	NA	NA	16
## 1565	NA	NA	NA	NA	20
## 1566	NA	NA	NA	NA	19
## 1567	NA	NA	NA	NA	18
## 1568	NA	NA	NA	NA	16
## 1569	NA	NA	NA	NA	77
## 1570	1	1	0	4	59
## 1571	1	0	0	NA	16
## 1572	NA	NA	NA	NA	20
## 1573	NA	NA	NA	NA	13
## 1574	NA	NA	NA	NA	21
## 1575	NA	NA	NA	NA	20
## 1576	NA	NA	NA	NA	22
## 1577	NA	NA	NA	NA	7
## 1578	NA	NA	NA	NA	14
## 1579	NA	NA	NA	NA	17
## 1580	NA	NA	NA	NA	16
## 1581	1	1	1	4	27
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## 1583	NA	NA	NA	NA	22
## 1584	NA	NA	NA	NA	20

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## 1587	NA	NA	NA	NA	14
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## 1593	NA	NA	NA	NA	7
## 1594	NA	NA	NA	NA	21
## 1595	NA	NA	NA	NA	63
## 1596	NA	NA	NA	NA	14
## 1597	1	0	0	NA	12
## 1598	1	0	0	NA	19
## 1599	1	0	0	5	21
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## 1602	NA	NA	NA	NA	11
## 1603	1	0	0	NA	44
## 1604	1	1	0	4	19
## 1605	NA	NA	NA	NA	16
## 1606	NA	NA	NA	NA	59
## 1607	NA	NA	NA	NA	25
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## 1609	1	0	0	2	17
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## 1611	NA	NA	NA	NA	18
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## 1613	NA	NA	NA	NA	16
## 1614	NA	NA	NA	NA	16
## 1615	1	0	0	3	15
## 1616	1	1	0	4	21
## 1617	1	1	2	3	76
## 1618	NA	NA	NA	NA	20
## 1619	NA	NA	NA	NA	16
## 1620	NA	NA	NA	NA	19
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## 1623	NA	NA	NA	NA	21
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## 1630	NA	NA	NA	NA	19
## 1631	NA	NA	NA	NA	22
## 1632	1	1	0	2	18
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## 1634	NA	NA	NA	NA	23
## 1635	NA	NA	NA	NA	57
## 1636	NA	NA	NA	NA	59
## 1637	1	0	0	NA	16
## 1638	NA	NA	NA	NA	14

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## 1643	NA	NA	NA	NA	27
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## 1669	NA	NA	NA	NA	15
## 1670	NA	NA	NA	NA	14
## 1671	NA	NA	NA	NA	15
## 1672	NA	NA	NA	NA	21
## 1673	NA	NA	NA	NA	6
## 1674	NA	NA	NA	NA	59
## 1675	NA	NA	NA	NA	44
## 1676	NA	NA	NA	NA	18
## 1677	NA	NA	NA	NA	16
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## 1679	NA	NA	NA	NA	15
## 1680	NA	NA	NA	NA	22
## 1681	1	0	0	NA	26
## 1682	NA	NA	NA	NA	19
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## 1684	1	0	0	2	11
## 1685	NA	NA	NA	NA	18
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## 1687	NA	NA	NA	NA	21
## 1688	NA	NA	NA	NA	21
## 1689	NA	NA	NA	NA	16
## 1690	NA	NA	NA	NA	20
## 1691	NA	NA	NA	NA	55
## 1692	NA	NA	NA	NA	15

## 1693	NA	NA	NA	NA	12
## 1694	NA	NA	NA	NA	66
## 1695	NA	NA	NA	NA	76
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## 1698	NA	NA	NA	NA	16
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## 1703	1	0	0	4	17
## 1704	NA	NA	NA	NA	44
## 1705	NA	NA	NA	NA	21
## 1706	NA	NA	NA	NA	11
## 1707	NA	NA	NA	NA	26
## 1708	NA	NA	NA	NA	12
## 1709	NA	NA	NA	NA	57
## 1710	NA	NA	NA	NA	59
## 1711	NA	NA	NA	NA	15
## 1712	1	0	0	4	17
## 1713	1	0	0	2	15
## 1714	1	0	0	1	20
## 1715	1	0	0	NA	72
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## 1717	NA	NA	NA	NA	18
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## 1719	NA	NA	NA	NA	17
## 1720	NA	NA	NA	NA	16
## 1721	NA	NA	NA	NA	22
## 1722	NA	NA	NA	NA	11
## 1723	NA	NA	NA	NA	78
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## 1725	1	0	0	NA	13
## 1726	NA	NA	NA	NA	66
## 1727	1	0	0	6	20
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## 1729	NA	NA	NA	NA	12
## 1730	NA	NA	NA	NA	15
## 1731	NA	NA	NA	NA	6
## 1732	NA	NA	NA	NA	18
## 1733	NA	NA	NA	NA	55
## 1734	NA	NA	NA	NA	76
## 1735	NA	NA	NA	NA	15
## 1736	1	1	0	4	19
## 1737	NA	NA	NA	NA	11
## 1738	NA	NA	NA	NA	59
## 1739	NA	NA	NA	NA	11
## 1740	NA	NA	NA	NA	16
## 1741	NA	NA	NA	NA	18
## 1742	NA	NA	NA	NA	59
## 1743	1	0	0	2	18
## 1744	NA	NA	NA	NA	76
## 1745	NA	NA	NA	NA	12
## 1746	1	0	0	NA	14

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## 1748	NA	NA	NA	NA	18
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## 1750	NA	NA	NA	NA	17
## 1751	NA	NA	NA	NA	22
## 1752	NA	NA	NA	NA	78
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## 1756	NA	NA	NA	NA	19
## 1757	NA	NA	NA	NA	11
## 1758	NA	NA	NA	NA	66
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## 1760	NA	NA	NA	NA	12
## 1761	NA	NA	NA	NA	44
## 1762	1	0	0	6	15
## 1763	NA	NA	NA	NA	72
## 1764	NA	NA	NA	NA	55
## 1765	NA	NA	NA	NA	17
## 1766	NA	NA	NA	NA	16
## 1767	NA	NA	NA	NA	6
## 1768	NA	NA	NA	NA	15
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## 1773	NA	NA	NA	NA	26
## 1774	1	0	0	NA	20
## 1775	NA	NA	NA	NA	13
## 1776	1	1	1	5	16
## 1777	NA	NA	NA	NA	72
## 1778	NA	NA	NA	NA	18
## 1779	1	1	0	4	16
## 1780	NA	NA	NA	NA	15
## 1781	1	0	0	NA	12
## 1782	1	0	0	NA	74
## 1783	NA	NA	NA	NA	18
## 1784	1	1	0	5	18
## 1785	NA	NA	NA	NA	11
## 1786	NA	NA	NA	NA	11
## 1787	NA	NA	NA	NA	6
## 1788	1	0	0	NA	75
## 1789	NA	NA	NA	NA	20
## 1790	NA	NA	NA	NA	66
## 1791	1	0	0	NA	15
## 1792	1	0	0	2	11
## 1793	NA	NA	NA	NA	55
## 1794	NA	NA	NA	NA	14
## 1795	NA	NA	NA	NA	57
## 1796	1	1	1	4	58
## 1797	NA	NA	NA	NA	15
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## 1799	1	1	0	4	17
## 1800	NA	NA	NA	NA	11

## 1801	1	0	0	4	16
## 1802	NA	NA	NA	NA	13
## 1803	NA	NA	NA	NA	22
## 1804	1	0	0	NA	16
## 1805	NA	NA	NA	NA	11
## 1806	1	1	0	4	77
## 1807	NA	NA	NA	NA	15
## 1808	1	1	1	5	11
## 1809	1	0	0	NA	58
## 1810	1	0	0	5	49
## 1811	NA	NA	NA	NA	26
## 1812	1	0	0	2	18
## 1813	1	1	0	2	18
## 1814	NA	NA	NA	NA	14
## 1815	1	0	0	3	11
## 1816	1	0	0	NA	15
## 1817	NA	NA	NA	NA	16
## 1818	NA	NA	NA	NA	15
## 1819	NA	NA	NA	NA	18
## 1820	1	0	0	1	13
## 1821	1	0	0	3	56
## 1822	NA	NA	NA	NA	11
## 1823	NA	NA	NA	NA	49
## 1824	NA	NA	NA	NA	17
## 1825	NA	NA	NA	NA	11
## 1826	1	0	0	6	65
## 1827	NA	NA	NA	NA	20
## 1828	NA	NA	NA	NA	16
## 1829	NA	NA	NA	NA	16
## 1830	1	0	0	NA	13
## 1831	NA	NA	NA	NA	74
## 1832	1	0	0	2	21
## 1833	NA	NA	NA	NA	77
## 1834	NA	NA	NA	NA	18
## 1835	NA	NA	NA	NA	75
## 1836	NA	NA	NA	NA	15
## 1837	1	0	0	NA	10
## 1838	NA	NA	NA	NA	11
## 1839	NA	NA	NA	NA	43
## 1840	NA	NA	NA	NA	15
## 1841	NA	NA	NA	NA	58
## 1842	1	0	0	2	54
## 1843	NA	NA	NA	NA	15
## 1844	1	0	0	NA	15
## 1845	1	0	0	4	25
## 1846	NA	NA	NA	NA	72
## 1847	NA	NA	NA	NA	58
## 1848	NA	NA	NA	NA	18
## 1849	NA	NA	NA	NA	13
## 1850	1	1	1	6	17
## 1851	1	1	0	4	5
## 1852	NA	NA	NA	NA	12
## 1853	NA	NA	NA	NA	11
## 1854	NA	NA	NA	NA	11

## 1855	1	0	3	6	64
## 1856	NA	NA	NA	NA	18
## 1857	NA	NA	NA	NA	11
## 1858	NA	NA	NA	NA	15
## 1859	1	0	0	NA	81
## 1860	NA	NA	NA	NA	49
## 1861	NA	NA	NA	NA	72
## 1862	NA	NA	NA	NA	13
## 1863	NA	NA	NA	NA	15
## 1864	1	0	0	NA	57
## 1865	NA	NA	NA	NA	77
## 1866	1	0	0	2	10
## 1867	NA	NA	NA	NA	13
## 1868	NA	NA	NA	NA	11
## 1869	NA	NA	NA	NA	17
## 1870	NA	NA	NA	NA	13
## 1871	NA	NA	NA	NA	15
## 1872	NA	NA	NA	NA	18
## 1873	NA	NA	NA	NA	18
## 1874	NA	NA	NA	NA	54
## 1875	1	0	0	NA	10
## 1876	NA	NA	NA	NA	20
## 1877	1	1	2	4	14
## 1878	NA	NA	NA	NA	5
## 1879	NA	NA	NA	NA	43
## 1880	NA	NA	NA	NA	11
## 1881	NA	NA	NA	NA	65
## 1882	NA	NA	NA	NA	75
## 1883	1	0	0	2	11
## 1884	1	0	0	NA	20
## 1885	NA	NA	NA	NA	16
## 1886	NA	NA	NA	NA	11
## 1887	NA	NA	NA	NA	17
## 1888	NA	NA	NA	NA	56
## 1889	1	1	0	4	15
## 1890	NA	NA	NA	NA	58
## 1891	NA	NA	NA	NA	10
## 1892	NA	NA	NA	NA	18
## 1893	NA	NA	NA	NA	15
## 1894	NA	NA	NA	NA	81
## 1895	NA	NA	NA	NA	18
## 1896	NA	NA	NA	NA	74
## 1897	NA	NA	NA	NA	25
## 1898	NA	NA	NA	NA	64
## 1899	NA	NA	NA	NA	11
## 1900	NA	NA	NA	NA	12
## 1901	1	0	0	NA	56
## 1902	1	1	0	2	14
## 1903	NA	NA	NA	NA	16
## 1904	NA	NA	NA	NA	16
## 1905	NA	NA	NA	NA	49
## 1906	NA	NA	NA	NA	18
## 1907	1	0	0	NA	14
## 1908	NA	NA	NA	NA	18

## 1909	NA	NA	NA	NA	10
## 1910	1	0	0	NA	53
## 1911	NA	NA	NA	NA	16
## 1912	NA	NA	NA	NA	11
## 1913	NA	NA	NA	NA	15
## 1914	NA	NA	NA	NA	75
## 1915	NA	NA	NA	NA	81
## 1916	NA	NA	NA	NA	64
## 1917	NA	NA	NA	NA	58
## 1918	1	0	0	2	14
## 1919	1	1	0	4	71
## 1920	1	0	0	4	73
## 1921	1	0	0	NA	20
## 1922	NA	NA	NA	NA	15
## 1923	1	0	0	NA	77
## 1924	1	0	0	NA	76
## 1925	1	0	0	NA	17
## 1926	NA	NA	NA	NA	13
## 1927	NA	NA	NA	NA	17
## 1928	NA	NA	NA	NA	14
## 1929	NA	NA	NA	NA	20
## 1930	NA	NA	NA	NA	11
## 1931	1	0	0	4	10
## 1932	NA	NA	NA	NA	56
## 1933	NA	NA	NA	NA	10
## 1934	NA	NA	NA	NA	18
## 1935	1	0	0	5	10
## 1936	1	0	0	2	8
## 1937	NA	NA	NA	NA	20
## 1938	NA	NA	NA	NA	57
## 1939	NA	NA	NA	NA	56
## 1940	1	0	0	3	9
## 1941	NA	NA	NA	NA	43
## 1942	NA	NA	NA	NA	11
## 1943	NA	NA	NA	NA	17
## 1944	1	0	0	NA	4
## 1945	NA	NA	NA	NA	12
## 1946	1	0	0	2	49
## 1947	NA	NA	NA	NA	14
## 1948	1	0	0	NA	73
## 1949	NA	NA	NA	NA	65
## 1950	NA	NA	NA	NA	10
## 1951	NA	NA	NA	NA	9
## 1952	1	0	0	NA	64
## 1953	NA	NA	NA	NA	20
## 1954	NA	NA	NA	NA	11
## 1955	NA	NA	NA	NA	15
## 1956	NA	NA	NA	NA	18
## 1957	NA	NA	NA	NA	16
## 1958	1	0	0	2	59
## 1959	1	0	0	NA	55
## 1960	1	0	0	NA	10
## 1961	1	0	0	5	45
## 1962	NA	NA	NA	NA	49



## 1963	NA	NA	NA	NA	10
## 1964	NA	NA	NA	NA	14
## 1965	1	0	0	1	14
## 1966	NA	NA	NA	NA	75
## 1967	1	0	0	4	66
## 1968	NA	NA	NA	NA	12
## 1969	NA	NA	NA	NA	10
## 1970	NA	NA	NA	NA	43
## 1971	NA	NA	NA	NA	17
## 1972	NA	NA	NA	NA	10
## 1973	NA	NA	NA	NA	14
## 1974	NA	NA	NA	NA	11
## 1975	NA	NA	NA	NA	20
## 1976	NA	NA	NA	NA	14
## 1977	NA	NA	NA	NA	4
## 1978	NA	NA	NA	NA	73
## 1979	NA	NA	NA	NA	14
## 1980	NA	NA	NA	NA	81
## 1981	NA	NA	NA	NA	16
## 1982	NA	NA	NA	NA	10
## 1983	1	0	0	3	60
## 1984	NA	NA	NA	NA	73
## 1985	NA	NA	NA	NA	64
## 1986	NA	NA	NA	NA	53
## 1987	1	0	0	NA	50
## 1988	1	0	0	NA	70
## 1989	NA	NA	NA	NA	10
## 1990	NA	NA	NA	NA	8
## 1991	NA	NA	NA	NA	13
## 1992	NA	NA	NA	NA	76
## 1993	1	0	0	NA	14
## 1994	NA	NA	NA	NA	58
## 1995	NA	NA	NA	NA	56
## 1996	NA	NA	NA	NA	77
## 1997	NA	NA	NA	NA	17
## 1998	NA	NA	NA	NA	17
## 1999	1	1	1	4	10
## 2000	NA	NA	NA	NA	57
## 2001	NA	NA	NA	NA	15
## 2002	NA	NA	NA	NA	49
## 2003	NA	NA	NA	NA	11
## 2004	NA	NA	NA	NA	77
## 2005	NA	NA	NA	NA	10
## 2006	NA	NA	NA	NA	20
## 2007	NA	NA	NA	NA	45
## 2008	NA	NA	NA	NA	14
## 2009	1	0	0	3	11
## 2010	NA	NA	NA	NA	57
## 2011	NA	NA	NA	NA	53
## 2012	NA	NA	NA	NA	13
## 2013	NA	NA	NA	NA	76
## 2014	NA	NA	NA	NA	50
## 2015	1	0	0	NA	5
## 2016	NA	NA	NA	NA	18

## 2017	NA	NA	NA	NA	55
## 2018	NA	NA	NA	NA	60
## 2019	1	0	0	4	10
## 2020	NA	NA	NA	NA	20
## 2021	NA	NA	NA	NA	17
## 2022	1	0	0	3	11
## 2023	NA	NA	NA	NA	17
## 2024	1	0	0	2	42
## 2025	1	0	0	4	65
## 2026	NA	NA	NA	NA	14
## 2027	NA	NA	NA	NA	49
## 2028	NA	NA	NA	NA	4
## 2029	NA	NA	NA	NA	81
## 2030	NA	NA	NA	NA	75
## 2031	NA	NA	NA	NA	10
## 2032	NA	NA	NA	NA	70
## 2033	NA	NA	NA	NA	10
## 2034	NA	NA	NA	NA	64
## 2035	NA	NA	NA	NA	10
## 2036	NA	NA	NA	NA	59
## 2037	NA	NA	NA	NA	14
## 2038	1	0	0	6	8
## 2039	NA	NA	NA	NA	14
## 2040	NA	NA	NA	NA	9
## 2041	1	0	0	4	13
## 2042	NA	NA	NA	NA	10
## 2043	NA	NA	NA	NA	73
## 2044	NA	NA	NA	NA	58
## 2045	NA	NA	NA	NA	66
## 2046	NA	NA	NA	NA	14
## 2047	NA	NA	NA	NA	49
## 2048	1	0	0	1	14
## 2049	NA	NA	NA	NA	64
## 2050	NA	NA	NA	NA	73
## 2051	1	0	3	6	9
## 2052	1	0	0	3	7
## 2053	1	0	0	3	11
## 2054	NA	NA	NA	NA	56
## 2055	NA	NA	NA	NA	10
## 2056	NA	NA	NA	NA	57
## 2057	NA	NA	NA	NA	9
## 2058	NA	NA	NA	NA	75
## 2059	NA	NA	NA	NA	11
## 2060	1	0	0	3	63
## 2061	1	0	0	2	9
## 2062	1	0	0	NA	75
## 2063	1	1	0	4	16
## 2064	NA	NA	NA	NA	10
## 2065	1	0	0	NA	12
## 2066	NA	NA	NA	NA	20
## 2067	1	0	0	NA	58
## 2068	1	0	3	6	9
## 2069	NA	NA	NA	NA	8
## 2070	NA	NA	NA	NA	64

## 2071	NA	NA	NA	NA	14
## 2072	NA	NA	NA	NA	4
## 2073	1	0	0	NA	10
## 2074	1	0	0	3	9
## 2075	NA	NA	NA	NA	11
## 2076	NA	NA	NA	NA	49
## 2077	NA	NA	NA	NA	66
## 2078	1	0	0	NA	9
## 2079	NA	NA	NA	NA	17
## 2080	NA	NA	NA	NA	55
## 2081	NA	NA	NA	NA	64
## 2082	1	0	0	4	51
## 2083	NA	NA	NA	NA	5
## 2084	NA	NA	NA	NA	18
## 2085	NA	NA	NA	NA	20
## 2086	NA	NA	NA	NA	7
## 2087	NA	NA	NA	NA	14
## 2088	NA	NA	NA	NA	9
## 2089	NA	NA	NA	NA	10
## 2090	1	1	0	5	57
## 2091	NA	NA	NA	NA	81
## 2092	NA	NA	NA	NA	77
## 2093	NA	NA	NA	NA	13
## 2094	NA	NA	NA	NA	65
## 2095	NA	NA	NA	NA	73
## 2096	NA	NA	NA	NA	14
## 2097	NA	NA	NA	NA	45
## 2098	1	0	0	1	43
## 2099	NA	NA	NA	NA	14
## 2100	NA	NA	NA	NA	10
## 2101	NA	NA	NA	NA	53
## 2102	NA	NA	NA	NA	42
## 2103	1	0	0	2	59
## 2104	NA	NA	NA	NA	60
## 2105	NA	NA	NA	NA	56
## 2106	1	0	0	3	47
## 2107	NA	NA	NA	NA	49
## 2108	NA	NA	NA	NA	50
## 2109	NA	NA	NA	NA	73
## 2110	1	0	0	3	10
## 2111	NA	NA	NA	NA	70
## 2112	NA	NA	NA	NA	14
## 2113	1	0	0	1	80
## 2114	NA	NA	NA	NA	14
## 2115	NA	NA	NA	NA	73
## 2116	1	1	0	4	13
## 2117	NA	NA	NA	NA	49
## 2118	NA	NA	NA	NA	49
## 2119	NA	NA	NA	NA	9
## 2120	1	0	0	NA	8
## 2121	1	0	0	2	41
## 2122	NA	NA	NA	NA	77
## 2123	NA	NA	NA	NA	9
## 2124	NA	NA	NA	NA	16

## 2125	NA	NA	NA	NA	60
## 2126	NA	NA	NA	NA	51
## 2127	NA	NA	NA	NA	63
## 2128	1	0	0	3	8
## 2129	1	0	0	2	19
## 2130	NA	NA	NA	NA	70
## 2131	NA	NA	NA	NA	58
## 2132	1	1	1	6	13
## 2133	NA	NA	NA	NA	45
## 2134	NA	NA	NA	NA	14
## 2135	1	0	0	NA	9
## 2136	NA	NA	NA	NA	12
## 2137	NA	NA	NA	NA	56
## 2138	1	0	0	NA	55
## 2139	NA	NA	NA	NA	53
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## 2141	NA	NA	NA	NA	57
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## 2143	NA	NA	NA	NA	9
## 2144	1	0	0	2	12
## 2145	NA	NA	NA	NA	10
## 2146	NA	NA	NA	NA	20
## 2147	NA	NA	NA	NA	7
## 2148	NA	NA	NA	NA	10
## 2149	NA	NA	NA	NA	65
## 2150	NA	NA	NA	NA	73
## 2151	NA	NA	NA	NA	9
## 2152	1	1	0	2	13
## 2153	NA	NA	NA	NA	11
## 2154	1	0	0	NA	62
## 2155	NA	NA	NA	NA	80
## 2156	NA	NA	NA	NA	75
## 2157	NA	NA	NA	NA	64
## 2158	NA	NA	NA	NA	10
## 2159	1	0	0	2	67
## 2160	NA	NA	NA	NA	75
## 2161	NA	NA	NA	NA	64
## 2162	NA	NA	NA	NA	17
## 2163	NA	NA	NA	NA	5
## 2164	NA	NA	NA	NA	4
## 2165	NA	NA	NA	NA	66
## 2166	NA	NA	NA	NA	8
## 2167	NA	NA	NA	NA	81
## 2168	NA	NA	NA	NA	11
## 2169	NA	NA	NA	NA	57
## 2170	NA	NA	NA	NA	43
## 2171	1	0	0	NA	12
## 2172	1	0	0	NA	51
## 2173	NA	NA	NA	NA	59
## 2174	NA	NA	NA	NA	14
## 2175	NA	NA	NA	NA	14
## 2176	1	0	0	2	61
## 2177	NA	NA	NA	NA	47
## 2178	NA	NA	NA	NA	75

## 2179	NA	NA	NA	NA	73
## 2180	NA	NA	NA	NA	53
## 2181	NA	NA	NA	NA	73
## 2182	1	0	0	3	62
## 2183	1	0	0	NA	55
## 2184	NA	NA	NA	NA	70
## 2185	NA	NA	NA	NA	57
## 2186	NA	NA	NA	NA	41
## 2187	NA	NA	NA	NA	47
## 2188	1	0	0	NA	9
## 2189	NA	NA	NA	NA	12
## 2190	NA	NA	NA	NA	11
## 2191	1	0	0	NA	5
## 2192	1	0	0	3	49
## 2193	1	0	0	3	8
## 2194	1	0	0	NA	10
## 2195	NA	NA	NA	NA	7
## 2196	1	1	1	6	58
## 2197	NA	NA	NA	NA	62
## 2198	NA	NA	NA	NA	9
## 2199	1	0	0	NA	58
## 2200	1	1	0	2	65
## 2201	1	0	0	NA	79
## 2202	1	0	0	3	9
## 2203	NA	NA	NA	NA	16
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## 2205	NA	NA	NA	NA	9
## 2206	NA	NA	NA	NA	19
## 2207	1	0	0	NA	73
## 2208	1	0	0	4	16
## 2209	NA	NA	NA	NA	51
## 2210	1	1	0	4	48
## 2211	NA	NA	NA	NA	14
## 2212	NA	NA	NA	NA	14
## 2213	NA	NA	NA	NA	51
## 2214	NA	NA	NA	NA	14
## 2215	NA	NA	NA	NA	55
## 2216	1	0	0	3	12
## 2217	1	0	0	NA	74
## 2218	1	1	0	2	64
## 2219	1	0	0	3	64
## 2220	NA	NA	NA	NA	12
## 2221	NA	NA	NA	NA	13
## 2222	1	0	0	NA	63
## 2223	NA	NA	NA	NA	12
## 2224	1	1	0	4	80
## 2225	NA	NA	NA	NA	57
## 2226	NA	NA	NA	NA	10
## 2227	1	0	0	NA	59
## 2228	NA	NA	NA	NA	45
## 2229	NA	NA	NA	NA	58
## 2230	NA	NA	NA	NA	64
## 2231	1	0	0	NA	44
## 2232	NA	NA	NA	NA	10

## 2233	NA	NA	NA	NA	9
## 2234	NA	NA	NA	NA	13
## 2235	NA	NA	NA	NA	8
## 2236	1	0	0	NA	4
## 2237	1	0	0	5	59
## 2238	1	0	0	2	15
## 2239	NA	NA	NA	NA	4
## 2240	NA	NA	NA	NA	67
## 2241	NA	NA	NA	NA	8
## 2242	NA	NA	NA	NA	43
## 2243	1	0	0	NA	48
## 2244	NA	NA	NA	NA	61
## 2245	NA	NA	NA	NA	77
## 2246	NA	NA	NA	NA	58
## 2247	NA	NA	NA	NA	9
## 2248	NA	NA	NA	NA	58
## 2249	NA	NA	NA	NA	4
## 2250	NA	NA	NA	NA	9
## 2251	NA	NA	NA	NA	8
## 2252	1	0	0	3	72
## 2253	NA	NA	NA	NA	13
## 2254	NA	NA	NA	NA	5
## 2255	NA	NA	NA	NA	41
## 2256	NA	NA	NA	NA	4
## 2257	NA	NA	NA	NA	7
## 2258	NA	NA	NA	NA	13
## 2259	NA	NA	NA	NA	59
## 2260	NA	NA	NA	NA	63
## 2261	NA	NA	NA	NA	16
## 2262	NA	NA	NA	NA	55
## 2263	NA	NA	NA	NA	45
## 2264	NA	NA	NA	NA	57
## 2265	NA	NA	NA	NA	64
## 2266	NA	NA	NA	NA	9
## 2267	NA	NA	NA	NA	12
## 2268	NA	NA	NA	NA	48
## 2269	NA	NA	NA	NA	14
## 2270	NA	NA	NA	NA	16
## 2271	NA	NA	NA	NA	80
## 2272	NA	NA	NA	NA	11
## 2273	NA	NA	NA	NA	59
## 2274	NA	NA	NA	NA	74
## 2275	1	1	1	5	46
## 2276	NA	NA	NA	NA	67
## 2277	NA	NA	NA	NA	58
## 2278	NA	NA	NA	NA	8
## 2279	NA	NA	NA	NA	51
## 2280	1	0	0	2	69
## 2281	1	0	0	2	51
## 2282	NA	NA	NA	NA	53
## 2283	1	0	0	2	48
## 2284	NA	NA	NA	NA	51
## 2285	NA	NA	NA	NA	75
## 2286	1	1	0	4	14

## 2287	NA	NA	NA	NA	14
## 2288	NA	NA	NA	NA	77
## 2289	NA	NA	NA	NA	61
## 2290	NA	NA	NA	NA	43
## 2291	1	0	0	NA	56
## 2292	NA	NA	NA	NA	64
## 2293	1	0	0	2	18
## 2294	NA	NA	NA	NA	73
## 2295	NA	NA	NA	NA	14
## 2296	NA	NA	NA	NA	48
## 2297	NA	NA	NA	NA	73
## 2298	NA	NA	NA	NA	44
## 2299	1	0	0	3	67
## 2300	1	0	0	2	9
## 2301	NA	NA	NA	NA	62
## 2302	NA	NA	NA	NA	8
## 2303	NA	NA	NA	NA	79
## 2304	NA	NA	NA	NA	55
## 2305	NA	NA	NA	NA	62
## 2306	1	0	0	NA	69
## 2307	NA	NA	NA	NA	9
## 2308	NA	NA	NA	NA	9
## 2309	NA	NA	NA	NA	10
## 2310	NA	NA	NA	NA	12
## 2311	NA	NA	NA	NA	10
## 2312	1	0	0	NA	7
## 2313	NA	NA	NA	NA	12
## 2314	NA	NA	NA	NA	64
## 2315	1	0	0	3	8
## 2316	NA	NA	NA	NA	65
## 2317	1	0	0	1	68
## 2318	1	0	0	NA	10
## 2319	1	0	0	3	13
## 2320	NA	NA	NA	NA	65
## 2321	NA	NA	NA	NA	67
## 2322	NA	NA	NA	NA	64
## 2323	NA	NA	NA	NA	13
## 2324	NA	NA	NA	NA	62
## 2325	NA	NA	NA	NA	58
## 2326	NA	NA	NA	NA	9
## 2327	NA	NA	NA	NA	67
## 2328	NA	NA	NA	NA	48
## 2329	1	1	0	4	52
## 2330	NA	NA	NA	NA	51
## 2331	1	0	0	4	4
## 2332	NA	NA	NA	NA	16
## 2333	NA	NA	NA	NA	9
## 2334	NA	NA	NA	NA	44
## 2335	NA	NA	NA	NA	56
## 2336	1	0	0	3	36
## 2337	NA	NA	NA	NA	73
## 2338	NA	NA	NA	NA	48
## 2339	1	0	0	NA	7
## 2340	1	0	0	NA	13

## 2341	NA	NA	NA	NA	63
## 2342	NA	NA	NA	NA	73
## 2343	NA	NA	NA	NA	8
## 2344	NA	NA	NA	NA	57
## 2345	NA	NA	NA	NA	13
## 2346	NA	NA	NA	NA	55
## 2347	NA	NA	NA	NA	64
## 2348	NA	NA	NA	NA	51
## 2349	NA	NA	NA	NA	4
## 2350	NA	NA	NA	NA	43
## 2351	NA	NA	NA	NA	69
## 2352	1	0	0	NA	44
## 2353	NA	NA	NA	NA	8
## 2354	NA	NA	NA	NA	16
## 2355	1	0	0	NA	63
## 2356	NA	NA	NA	NA	8
## 2357	NA	NA	NA	NA	55
## 2358	NA	NA	NA	NA	79
## 2359	NA	NA	NA	NA	10
## 2360	NA	NA	NA	NA	58
## 2361	1	0	0	NA	6
## 2362	NA	NA	NA	NA	9
## 2363	NA	NA	NA	NA	80
## 2364	NA	NA	NA	NA	14
## 2365	NA	NA	NA	NA	51
## 2366	NA	NA	NA	NA	10
## 2367	NA	NA	NA	NA	58
## 2368	NA	NA	NA	NA	62
## 2369	NA	NA	NA	NA	75
## 2370	1	0	0	2	60
## 2371	NA	NA	NA	NA	59
## 2372	NA	NA	NA	NA	12
## 2373	NA	NA	NA	NA	74
## 2374	1	0	0	2	14
## 2375	NA	NA	NA	NA	59
## 2376	NA	NA	NA	NA	12
## 2377	1	0	3	6	44
## 2378	NA	NA	NA	NA	5
## 2379	1	0	0	3	13
## 2380	NA	NA	NA	NA	7
## 2381	1	0	0	NA	66
## 2382	1	0	0	NA	8
## 2383	NA	NA	NA	NA	9
## 2384	NA	NA	NA	NA	46
## 2385	NA	NA	NA	NA	77
## 2386	NA	NA	NA	NA	48
## 2387	NA	NA	NA	NA	12
## 2388	NA	NA	NA	NA	4
## 2389	NA	NA	NA	NA	72
## 2390	NA	NA	NA	NA	72
## 2391	NA	NA	NA	NA	13
## 2392	1	0	3	6	11
## 2393	NA	NA	NA	NA	64
## 2394	NA	NA	NA	NA	9



## 2395	1	0	0	NA	66
## 2396	NA	NA	NA	NA	7
## 2397	1	0	0	2	11
## 2398	1	0	0	NA	66
## 2399	NA	NA	NA	NA	79
## 2400	1	0	0	NA	13
## 2401	NA	NA	NA	NA	13
## 2402	NA	NA	NA	NA	10
## 2403	1	0	0	NA	50
## 2404	NA	NA	NA	NA	43
## 2405	1	0	0	NA	13
## 2406	NA	NA	NA	NA	6
## 2407	NA	NA	NA	NA	8
## 2408	NA	NA	NA	NA	44
## 2409	NA	NA	NA	NA	63
## 2410	NA	NA	NA	NA	65
## 2411	NA	NA	NA	NA	58
## 2412	1	0	0	NA	76
## 2413	1	0	0	NA	72
## 2414	NA	NA	NA	NA	9
## 2415	NA	NA	NA	NA	5
## 2416	NA	NA	NA	NA	16
## 2417	NA	NA	NA	NA	58
## 2418	NA	NA	NA	NA	48
## 2419	NA	NA	NA	NA	62
## 2420	NA	NA	NA	NA	8
## 2421	NA	NA	NA	NA	59
## 2422	NA	NA	NA	NA	13
## 2423	NA	NA	NA	NA	44
## 2424	1	0	0	5	9
## 2425	NA	NA	NA	NA	4
## 2426	NA	NA	NA	NA	75
## 2427	NA	NA	NA	NA	36
## 2428	NA	NA	NA	NA	69
## 2429	NA	NA	NA	NA	60
## 2430	NA	NA	NA	NA	66
## 2431	NA	NA	NA	NA	68
## 2432	1	1	1	4	57
## 2433	NA	NA	NA	NA	12
## 2434	1	0	0	6	61
## 2435	NA	NA	NA	NA	16
## 2436	1	1	0	4	8
## 2437	NA	NA	NA	NA	80
## 2438	NA	NA	NA	NA	73
## 2439	1	1	0	2	63
## 2440	NA	NA	NA	NA	52
## 2441	1	0	0	2	12
## 2442	1	0	0	NA	9
## 2443	NA	NA	NA	NA	59
## 2444	NA	NA	NA	NA	46
## 2445	NA	NA	NA	NA	74
## 2446	NA	NA	NA	NA	63
## 2447	1	0	0	2	66
## 2448	NA	NA	NA	NA	4

## 2449	NA	NA	NA	NA	9
## 2450	NA	NA	NA	NA	13
## 2451	1	0	3	5	50
## 2452	1	1	1	6	7
## 2453	NA	NA	NA	NA	48
## 2454	1	1	0	5	86
## 2455	1	0	0	2	43
## 2456	NA	NA	NA	NA	55
## 2457	NA	NA	NA	NA	57
## 2458	NA	NA	NA	NA	72
## 2459	NA	NA	NA	NA	7
## 2460	NA	NA	NA	NA	55
## 2461	NA	NA	NA	NA	44
## 2462	NA	NA	NA	NA	51
## 2463	1	1	0	2	7
## 2464	NA	NA	NA	NA	56
## 2465	1	0	0	NA	3
## 2466	1	0	0	3	5
## 2467	NA	NA	NA	NA	66
## 2468	NA	NA	NA	NA	7
## 2469	NA	NA	NA	NA	63
## 2470	NA	NA	NA	NA	13
## 2471	1	0	0	2	4
## 2472	1	0	0	NA	57
## 2473	NA	NA	NA	NA	51
## 2474	NA	NA	NA	NA	66
## 2475	NA	NA	NA	NA	59
## 2476	NA	NA	NA	NA	63
## 2477	1	0	0	NA	57
## 2478	1	0	0	NA	6
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## 2480	1	1	0	4	11
## 2481	NA	NA	NA	NA	6
## 2482	1	0	0	2	12
## 2483	NA	NA	NA	NA	5
## 2484	1	0	0	2	71
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## 2486	1	0	0	2	43
## 2487	NA	NA	NA	NA	72
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## 2490	NA	NA	NA	NA	44
## 2491	NA	NA	NA	NA	8
## 2492	NA	NA	NA	NA	9
## 2493	NA	NA	NA	NA	69
## 2494	NA	NA	NA	NA	50
## 2495	NA	NA	NA	NA	68
## 2496	1	0	0	NA	63
## 2497	NA	NA	NA	NA	57
## 2498	NA	NA	NA	NA	11
## 2499	1	1	2	6	64
## 2500	NA	NA	NA	NA	43
## 2501	NA	NA	NA	NA	48
## 2502	NA	NA	NA	NA	46

## 2503	1	0	0	3	10
## 2504	NA	NA	NA	NA	4
## 2505	NA	NA	NA	NA	52
## 2506	NA	NA	NA	NA	72
## 2507	NA	NA	NA	NA	61
## 2508	NA	NA	NA	NA	13
## 2509	NA	NA	NA	NA	56
## 2510	NA	NA	NA	NA	74
## 2511	NA	NA	NA	NA	7
## 2512	1	1	1	6	7
## 2513	NA	NA	NA	NA	86
## 2514	1	0	0	2	60
## 2515	NA	NA	NA	NA	7
## 2516	0	0	0	1	79
## 2517	NA	NA	NA	NA	13
## 2518	NA	NA	NA	NA	7
## 2519	1	0	0	NA	59
## 2520	NA	NA	NA	NA	9
## 2521	NA	NA	NA	NA	59
## 2522	1	0	0	3	41
## 2523	NA	NA	NA	NA	66
## 2524	NA	NA	NA	NA	3
## 2525	NA	NA	NA	NA	48
## 2526	NA	NA	NA	NA	9
## 2527	1	0	0	NA	6
## 2528	NA	NA	NA	NA	8
## 2529	NA	NA	NA	NA	11
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## 2531	1	0	0	4	70
## 2532	NA	NA	NA	NA	36
## 2533	NA	NA	NA	NA	79
## 2534	1	0	0	1	43
## 2535	1	0	0	3	68
## 2536	1	1	0	4	54
## 2537	NA	NA	NA	NA	76
## 2538	NA	NA	NA	NA	50
## 2539	1	0	0	2	61
## 2540	NA	NA	NA	NA	4
## 2541	NA	NA	NA	NA	9
## 2542	NA	NA	NA	NA	10
## 2543	NA	NA	NA	NA	73
## 2544	1	0	0	NA	67
## 2545	NA	NA	NA	NA	63
## 2546	NA	NA	NA	NA	50
## 2547	NA	NA	NA	NA	11
## 2548	1	0	0	NA	52
## 2549	NA	NA	NA	NA	7
## 2550	NA	NA	NA	NA	61
## 2551	NA	NA	NA	NA	64
## 2552	NA	NA	NA	NA	69
## 2553	1	0	0	NA	4
## 2554	NA	NA	NA	NA	13
## 2555	1	1	1	5	62
## 2556	NA	NA	NA	NA	12

## 2557	NA	NA	NA	NA	74
## 2558	NA	NA	NA	NA	10
## 2559	NA	NA	NA	NA	63
## 2560	1	1	0	2	58
## 2561	NA	NA	NA	NA	67
## 2562	NA	NA	NA	NA	36
## 2563	1	1	2	4	67
## 2564	NA	NA	NA	NA	70
## 2565	NA	NA	NA	NA	9
## 2566	NA	NA	NA	NA	8
## 2567	1	0	0	3	72
## 2568	NA	NA	NA	NA	56
## 2569	1	0	0	3	73
## 2570	NA	NA	NA	NA	13
## 2571	1	0	0	2	3
## 2572	NA	NA	NA	NA	43
## 2573	NA	NA	NA	NA	7
## 2574	1	0	0	NA	62
## 2575	NA	NA	NA	NA	50
## 2576	NA	NA	NA	NA	13
## 2577	NA	NA	NA	NA	4
## 2578	NA	NA	NA	NA	44
## 2579	NA	NA	NA	NA	6
## 2580	1	0	0	4	61
## 2581	NA	NA	NA	NA	66
## 2582	NA	NA	NA	NA	59
## 2583	1	1	1	6	67
## 2584	NA	NA	NA	NA	9
## 2585	NA	NA	NA	NA	63
## 2586	1	0	0	2	3
## 2587	NA	NA	NA	NA	79
## 2588	NA	NA	NA	NA	6
## 2589	1	0	0	5	56
## 2590	NA	NA	NA	NA	54
## 2591	NA	NA	NA	NA	61
## 2592	NA	NA	NA	NA	48
## 2593	NA	NA	NA	NA	51
## 2594	NA	NA	NA	NA	6
## 2595	NA	NA	NA	NA	72
## 2596	NA	NA	NA	NA	57
## 2597	NA	NA	NA	NA	59
## 2598	NA	NA	NA	NA	8
## 2599	NA	NA	NA	NA	43
## 2600	1	0	0	NA	40
## 2601	NA	NA	NA	NA	11
## 2602	NA	NA	NA	NA	7
## 2603	NA	NA	NA	NA	46
## 2604	NA	NA	NA	NA	66
## 2605	NA	NA	NA	NA	7
## 2606	NA	NA	NA	NA	76
## 2607	NA	NA	NA	NA	72
## 2608	1	0	3	6	6
## 2609	1	0	0	NA	59
## 2610	1	0	0	3	3

## 2611	NA	NA	NA	NA	86
## 2612	NA	NA	NA	NA	66
## 2613	1	0	0	NA	33
## 2614	NA	NA	NA	NA	48
## 2615	NA	NA	NA	NA	54
## 2616	NA	NA	NA	NA	78
## 2617	NA	NA	NA	NA	3
## 2618	NA	NA	NA	NA	57
## 2619	NA	NA	NA	NA	10
## 2620	NA	NA	NA	NA	79
## 2621	NA	NA	NA	NA	41
## 2622	NA	NA	NA	NA	60
## 2623	1	0	0	NA	6
## 2624	NA	NA	NA	NA	52
## 2625	NA	NA	NA	NA	13
## 2626	NA	NA	NA	NA	71
## 2627	NA	NA	NA	NA	63
## 2628	NA	NA	NA	NA	66
## 2629	NA	NA	NA	NA	43
## 2630	NA	NA	NA	NA	57
## 2631	NA	NA	NA	NA	9
## 2632	NA	NA	NA	NA	5
## 2633	NA	NA	NA	NA	4
## 2634	NA	NA	NA	NA	61
## 2635	NA	NA	NA	NA	57
## 2636	1	0	0	NA	47
## 2637	NA	NA	NA	NA	72
## 2638	NA	NA	NA	NA	6
## 2639	NA	NA	NA	NA	59
## 2640	1	0	3	6	62
## 2641	NA	NA	NA	NA	61
## 2642	NA	NA	NA	NA	56
## 2643	NA	NA	NA	NA	3
## 2644	1	0	0	3	69
## 2645	1	0	0	2	45
## 2646	1	0	0	NA	12
## 2647	NA	NA	NA	NA	10
## 2648	NA	NA	NA	NA	7
## 2649	NA	NA	NA	NA	66
## 2650	1	0	0	NA	63
## 2651	NA	NA	NA	NA	48
## 2652	NA	NA	NA	NA	70
## 2653	NA	NA	NA	NA	59
## 2654	NA	NA	NA	NA	57
## 2655	1	0	0	2	12
## 2656	1	0	0	3	53
## 2657	NA	NA	NA	NA	40
## 2658	NA	NA	NA	NA	59
## 2659	1	0	0	NA	74
## 2660	NA	NA	NA	NA	86
## 2661	NA	NA	NA	NA	4
## 2662	NA	NA	NA	NA	76
## 2663	NA	NA	NA	NA	43
## 2664	NA	NA	NA	NA	6

## 2665	NA	NA	NA	NA	13
## 2666	1	0	0	NA	4
## 2667	NA	NA	NA	NA	73
## 2668	NA	NA	NA	NA	6
## 2669	1	0	0	4	52
## 2670	NA	NA	NA	NA	66
## 2671	1	0	0	2	62
## 2672	NA	NA	NA	NA	50
## 2673	NA	NA	NA	NA	3
## 2674	NA	NA	NA	NA	71
## 2675	NA	NA	NA	NA	11
## 2676	NA	NA	NA	NA	7
## 2677	NA	NA	NA	NA	33
## 2678	NA	NA	NA	NA	50
## 2679	NA	NA	NA	NA	51
## 2680	NA	NA	NA	NA	8
## 2681	NA	NA	NA	NA	9
## 2682	NA	NA	NA	NA	62
## 2683	NA	NA	NA	NA	43
## 2684	NA	NA	NA	NA	12
## 2685	NA	NA	NA	NA	52
## 2686	NA	NA	NA	NA	78
## 2687	NA	NA	NA	NA	62
## 2688	NA	NA	NA	NA	69
## 2689	NA	NA	NA	NA	41
## 2690	1	0	0	NA	6
## 2691	NA	NA	NA	NA	60
## 2692	NA	NA	NA	NA	3
## 2693	NA	NA	NA	NA	61
## 2694	1	0	0	NA	71
## 2695	NA	NA	NA	NA	67
## 2696	NA	NA	NA	NA	72
## 2697	NA	NA	NA	NA	13
## 2698	1	0	0	NA	66
## 2699	NA	NA	NA	NA	44
## 2700	NA	NA	NA	NA	66
## 2701	1	0	0	NA	73
## 2702	NA	NA	NA	NA	66
## 2703	NA	NA	NA	NA	10
## 2704	NA	NA	NA	NA	6
## 2705	NA	NA	NA	NA	54
## 2706	NA	NA	NA	NA	54
## 2707	1	0	0	4	78
## 2708	NA	NA	NA	NA	63
## 2709	NA	NA	NA	NA	52
## 2710	NA	NA	NA	NA	57
## 2711	NA	NA	NA	NA	36
## 2712	NA	NA	NA	NA	8
## 2713	1	1	1	5	8
## 2714	NA	NA	NA	NA	43
## 2715	1	0	0	2	4
## 2716	NA	NA	NA	NA	7
## 2717	1	1	1	3	10
## 2718	NA	NA	NA	NA	6

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## 2721	NA	NA	NA	NA	3
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## 2723	1	1	0	2	68
## 2724	1	0	0	NA	7
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## 2726	NA	NA	NA	NA	63
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## 2728	NA	NA	NA	NA	6
## 2729	NA	NA	NA	NA	62
## 2730	NA	NA	NA	NA	8
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## 2732	NA	NA	NA	NA	59
## 2733	NA	NA	NA	NA	13
## 2734	NA	NA	NA	NA	3
## 2735	NA	NA	NA	NA	43
## 2736	NA	NA	NA	NA	10
## 2737	NA	NA	NA	NA	7
## 2738	NA	NA	NA	NA	13
## 2739	NA	NA	NA	NA	3
## 2740	1	0	0	NA	70
## 2741	NA	NA	NA	NA	4
## 2742	NA	NA	NA	NA	73
## 2743	NA	NA	NA	NA	57
## 2744	1	0	0	2	51
## 2745	NA	NA	NA	NA	10
## 2746	NA	NA	NA	NA	52
## 2747	1	0	0	NA	62
## 2748	NA	NA	NA	NA	78
## 2749	NA	NA	NA	NA	60
## 2750	1	1	0	1	10
## 2751	NA	NA	NA	NA	71
## 2752	1	0	3	6	47
## 2753	NA	NA	NA	NA	66
## 2754	NA	NA	NA	NA	12
## 2755	NA	NA	NA	NA	56
## 2756	NA	NA	NA	NA	72
## 2757	NA	NA	NA	NA	63
## 2758	NA	NA	NA	NA	6
## 2759	1	0	0	2	54
## 2760	NA	NA	NA	NA	61
## 2761	1	1	0	2	56
## 2762	NA	NA	NA	NA	12
## 2763	NA	NA	NA	NA	41
## 2764	NA	NA	NA	NA	62
## 2765	NA	NA	NA	NA	53
## 2766	NA	NA	NA	NA	47
## 2767	NA	NA	NA	NA	74
## 2768	NA	NA	NA	NA	33
## 2769	NA	NA	NA	NA	6
## 2770	NA	NA	NA	NA	50
## 2771	1	0	0	4	50
## 2772	NA	NA	NA	NA	66

## 2773	NA	NA	NA	NA	62
## 2774	NA	NA	NA	NA	4
## 2775	NA	NA	NA	NA	54
## 2776	NA	NA	NA	NA	76
## 2777	NA	NA	NA	NA	62
## 2778	NA	NA	NA	NA	63
## 2779	NA	NA	NA	NA	8
## 2780	NA	NA	NA	NA	58
## 2781	NA	NA	NA	NA	6
## 2782	NA	NA	NA	NA	61
## 2783	NA	NA	NA	NA	78
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## 2785	1	0	0	3	3
## 2786	1	0	0	3	69
## 2787	1	0	0	3	58
## 2788	NA	NA	NA	NA	52
## 2789	NA	NA	NA	NA	43
## 2790	1	0	0	6	85
## 2791	NA	NA	NA	NA	50
## 2792	1	0	0	NA	54
## 2793	1	0	0	NA	43
## 2794	1	0	0	3	55
## 2795	NA	NA	NA	NA	6
## 2796	NA	NA	NA	NA	40
## 2797	1	0	0	2	3
## 2798	NA	NA	NA	NA	66
## 2799	NA	NA	NA	NA	52
## 2800	NA	NA	NA	NA	54
## 2801	NA	NA	NA	NA	43
## 2802	NA	NA	NA	NA	4
## 2803	NA	NA	NA	NA	67
## 2804	NA	NA	NA	NA	45
## 2805	NA	NA	NA	NA	7
## 2806	1	0	0	2	71
## 2807	NA	NA	NA	NA	69
## 2808	NA	NA	NA	NA	7
## 2809	1	0	0	2	50
## 2810	NA	NA	NA	NA	57
## 2811	NA	NA	NA	NA	3
## 2812	NA	NA	NA	NA	4
## 2813	NA	NA	NA	NA	6
## 2814	NA	NA	NA	NA	73
## 2815	1	0	0	NA	68
## 2816	NA	NA	NA	NA	36
## 2817	1	0	0	NA	2
## 2818	NA	NA	NA	NA	43
## 2819	1	0	0	NA	7
## 2820	NA	NA	NA	NA	54
## 2821	NA	NA	NA	NA	66
## 2822	NA	NA	NA	NA	12
## 2823	NA	NA	NA	NA	62
## 2824	NA	NA	NA	NA	52
## 2825	1	0	0	NA	51
## 2826	NA	NA	NA	NA	63



## 2827	NA	NA	NA	NA	6
## 2828	NA	NA	NA	NA	58
## 2829	NA	NA	NA	NA	69
## 2830	NA	NA	NA	NA	43
## 2831	NA	NA	NA	NA	76
## 2832	NA	NA	NA	NA	61
## 2833	NA	NA	NA	NA	6
## 2834	NA	NA	NA	NA	3
## 2835	NA	NA	NA	NA	3
## 2836	NA	NA	NA	NA	73
## 2837	NA	NA	NA	NA	78
## 2838	NA	NA	NA	NA	6
## 2839	NA	NA	NA	NA	71
## 2840	1	0	0	2	3
## 2841	NA	NA	NA	NA	54
## 2842	1	0	0	2	12
## 2843	NA	NA	NA	NA	10
## 2844	1	0	0	3	12
## 2845	NA	NA	NA	NA	70
## 2846	NA	NA	NA	NA	72
## 2847	1	0	0	NA	56
## 2848	NA	NA	NA	NA	55
## 2849	NA	NA	NA	NA	50
## 2850	NA	NA	NA	NA	2
## 2851	NA	NA	NA	NA	41
## 2852	NA	NA	NA	NA	10
## 2853	NA	NA	NA	NA	4
## 2854	NA	NA	NA	NA	6
## 2855	NA	NA	NA	NA	59
## 2856	1	0	0	4	45
## 2857	1	0	0	4	3
## 2858	1	0	0	4	55
## 2859	NA	NA	NA	NA	3
## 2860	NA	NA	NA	NA	63
## 2861	NA	NA	NA	NA	62
## 2862	NA	NA	NA	NA	57
## 2863	1	0	0	NA	5
## 2864	NA	NA	NA	NA	62
## 2865	NA	NA	NA	NA	8
## 2866	NA	NA	NA	NA	43
## 2867	1	0	0	2	3
## 2868	NA	NA	NA	NA	57
## 2869	NA	NA	NA	NA	57
## 2870	1	0	0	3	72
## 2871	1	0	0	3	8
## 2872	NA	NA	NA	NA	66
## 2873	NA	NA	NA	NA	7
## 2874	NA	NA	NA	NA	60
## 2875	1	0	0	NA	84
## 2876	NA	NA	NA	NA	10
## 2877	1	1	0	6	61
## 2878	1	0	0	NA	2
## 2879	NA	NA	NA	NA	54
## 2880	NA	NA	NA	NA	74

## 2881	NA	NA	NA	NA	50
## 2882	1	1	1	2	65
## 2883	NA	NA	NA	NA	43
## 2884	NA	NA	NA	NA	47
## 2885	NA	NA	NA	NA	4
## 2886	1	0	0	2	35
## 2887	NA	NA	NA	NA	68
## 2888	1	0	0	2	9
## 2889	NA	NA	NA	NA	85
## 2890	1	0	0	4	49
## 2891	1	0	0	2	51
## 2892	1	0	0	4	56
## 2893	1	0	0	3	66
## 2894	1	0	3	3	62
## 2895	NA	NA	NA	NA	53
## 2896	NA	NA	NA	NA	67
## 2897	NA	NA	NA	NA	45
## 2898	NA	NA	NA	NA	61
## 2899	NA	NA	NA	NA	54
## 2900	NA	NA	NA	NA	51
## 2901	NA	NA	NA	NA	78
## 2902	NA	NA	NA	NA	66
## 2903	1	0	0	NA	3
## 2904	NA	NA	NA	NA	56
## 2905	1	0	0	6	6
## 2906	1	0	0	NA	47
## 2907	NA	NA	NA	NA	59
## 2908	NA	NA	NA	NA	58
## 2909	NA	NA	NA	NA	47
## 2910	1	0	0	2	72
## 2911	NA	NA	NA	NA	6
## 2912	1	0	0	2	62
## 2913	NA	NA	NA	NA	40
## 2914	NA	NA	NA	NA	52
## 2915	NA	NA	NA	NA	71
## 2916	1	0	0	2	68
## 2917	NA	NA	NA	NA	69
## 2918	NA	NA	NA	NA	33
## 2919	NA	NA	NA	NA	62
## 2920	NA	NA	NA	NA	68
## 2921	NA	NA	NA	NA	3
## 2922	1	0	0	4	5
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## 2924	NA	NA	NA	NA	72
## 2925	NA	NA	NA	NA	3
## 2926	NA	NA	NA	NA	62
## 2927	NA	NA	NA	NA	59
## 2928	NA	NA	NA	NA	85
## 2929	1	0	0	6	9
## 2930	NA	NA	NA	NA	71
## 2931	NA	NA	NA	NA	84
## 2932	1	0	0	NA	67
## 2933	NA	NA	NA	NA	62
## 2934	1	0	0	NA	60

## 2935	NA	NA	NA	NA	3
## 2936	NA	NA	NA	NA	58
## 2937	1	0	0	3	57
## 2938	1	0	0	NA	5
## 2939	1	0	0	NA	64
## 2940	NA	NA	NA	NA	7
## 2941	NA	NA	NA	NA	40
## 2942	NA	NA	NA	NA	68
## 2943	NA	NA	NA	NA	43
## 2944	NA	NA	NA	NA	51
## 2945	NA	NA	NA	NA	51
## 2946	NA	NA	NA	NA	12
## 2947	NA	NA	NA	NA	3
## 2948	NA	NA	NA	NA	60
## 2949	NA	NA	NA	NA	72
## 2950	NA	NA	NA	NA	78
## 2951	1	0	0	NA	49
## 2952	NA	NA	NA	NA	43
## 2953	1	0	0	NA	58
## 2954	NA	NA	NA	NA	6
## 2955	NA	NA	NA	NA	49
## 2956	NA	NA	NA	NA	74
## 2957	NA	NA	NA	NA	61
## 2958	NA	NA	NA	NA	54
## 2959	NA	NA	NA	NA	51
## 2960	1	0	0	2	6
## 2961	NA	NA	NA	NA	55
## 2962	NA	NA	NA	NA	62
## 2963	NA	NA	NA	NA	66
## 2964	NA	NA	NA	NA	54
## 2965	1	1	0	4	3
## 2966	1	1	0	5	75
## 2967	NA	NA	NA	NA	6
## 2968	1	0	0	NA	40
## 2969	NA	NA	NA	NA	9
## 2970	NA	NA	NA	NA	47
## 2971	1	0	0	2	8
## 2972	NA	NA	NA	NA	7
## 2973	1	1	0	4	53
## 2974	NA	NA	NA	NA	72
## 2975	NA	NA	NA	NA	69
## 2976	NA	NA	NA	NA	71
## 2977	NA	NA	NA	NA	59
## 2978	1	0	0	NA	44
## 2979	1	0	0	2	7
## 2980	NA	NA	NA	NA	35
## 2981	1	0	0	NA	56
## 2982	NA	NA	NA	NA	57
## 2983	NA	NA	NA	NA	63
## 2984	1	0	0	NA	9
## 2985	NA	NA	NA	NA	45
## 2986	1	0	0	NA	5
## 2987	1	1	0	4	51
## 2988	1	0	0	2	68

## 2989	NA	NA	NA	NA	3
## 2990	1	0	0	2	32
## 2991	NA	NA	NA	NA	3
## 2992	NA	NA	NA	NA	57
## 2993	NA	NA	NA	NA	3
## 2994	NA	NA	NA	NA	50
## 2995	NA	NA	NA	NA	66
## 2996	NA	NA	NA	NA	56
## 2997	NA	NA	NA	NA	66
## 2998	NA	NA	NA	NA	47
## 2999	NA	NA	NA	NA	62
## 3000	1	0	0	3	72
## 3001	NA	NA	NA	NA	68
## 3002	NA	NA	NA	NA	5
## 3003	NA	NA	NA	NA	8
## 3004	1	1	0	4	54
## 3005	NA	NA	NA	NA	6
## 3006	NA	NA	NA	NA	54
## 3007	NA	NA	NA	NA	62
## 3008	NA	NA	NA	NA	4
## 3009	NA	NA	NA	NA	12
## 3010	NA	NA	NA	NA	43
## 3011	1	0	0	3	54
## 3012	1	1	0	4	62
## 3013	NA	NA	NA	NA	66
## 3014	NA	NA	NA	NA	56
## 3015	NA	NA	NA	NA	62
## 3016	NA	NA	NA	NA	3
## 3017	NA	NA	NA	NA	47
## 3018	NA	NA	NA	NA	61
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## 3020	NA	NA	NA	NA	2
## 3021	NA	NA	NA	NA	2
## 3022	1	0	0	NA	77
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## 3024	1	0	0	2	42
## 3025	NA	NA	NA	NA	3
## 3026	NA	NA	NA	NA	70
## 3027	NA	NA	NA	NA	53
## 3028	1	0	0	NA	8
## 3029	1	0	0	NA	71
## 3030	NA	NA	NA	NA	42
## 3031	NA	NA	NA	NA	85
## 3032	NA	NA	NA	NA	32
## 3033	NA	NA	NA	NA	3
## 3034	NA	NA	NA	NA	62
## 3035	NA	NA	NA	NA	4
## 3036	NA	NA	NA	NA	44
## 3037	NA	NA	NA	NA	54
## 3038	NA	NA	NA	NA	62
## 3039	NA	NA	NA	NA	62
## 3040	NA	NA	NA	NA	58
## 3041	NA	NA	NA	NA	64
## 3042	1	0	3	6	70

## 3043	NA	NA	NA	NA	74
## 3044	1	0	0	NA	65
## 3045	NA	NA	NA	NA	35
## 3046	NA	NA	NA	NA	62
## 3047	NA	NA	NA	NA	56
## 3048	NA	NA	NA	NA	66
## 3049	NA	NA	NA	NA	56
## 3050	NA	NA	NA	NA	45
## 3051	NA	NA	NA	NA	2
## 3052	NA	NA	NA	NA	40
## 3053	NA	NA	NA	NA	57
## 3054	1	0	0	NA	4
## 3055	NA	NA	NA	NA	70
## 3056	NA	NA	NA	NA	51
## 3057	1	0	0	2	2
## 3058	NA	NA	NA	NA	60
## 3059	NA	NA	NA	NA	57
## 3060	1	0	0	5	71
## 3061	1	0	0	NA	53
## 3062	NA	NA	NA	NA	61
## 3063	NA	NA	NA	NA	54
## 3064	NA	NA	NA	NA	3
## 3065	NA	NA	NA	NA	69
## 3066	NA	NA	NA	NA	68
## 3067	NA	NA	NA	NA	77
## 3068	NA	NA	NA	NA	47
## 3069	NA	NA	NA	NA	51
## 3070	NA	NA	NA	NA	9
## 3071	1	1	0	6	42
## 3072	NA	NA	NA	NA	49
## 3073	NA	NA	NA	NA	45
## 3074	NA	NA	NA	NA	47
## 3075	1	0	0	NA	61
## 3076	NA	NA	NA	NA	62
## 3077	NA	NA	NA	NA	5
## 3078	NA	NA	NA	NA	3
## 3079	NA	NA	NA	NA	51
## 3080	NA	NA	NA	NA	3
## 3081	NA	NA	NA	NA	3
## 3082	1	0	0	NA	5
## 3083	1	0	0	NA	58
## 3084	NA	NA	NA	NA	66
## 3085	1	0	0	NA	2
## 3086	NA	NA	NA	NA	55
## 3087	NA	NA	NA	NA	7
## 3088	1	0	0	2	61
## 3089	1	0	0	NA	71
## 3090	NA	NA	NA	NA	5
## 3091	NA	NA	NA	NA	72
## 3092	NA	NA	NA	NA	67
## 3093	NA	NA	NA	NA	8
## 3094	NA	NA	NA	NA	68
## 3095	NA	NA	NA	NA	53
## 3096	NA	NA	NA	NA	60

## 3097	1	0	0	4	81
## 3098	NA	NA	NA	NA	7
## 3099	NA	NA	NA	NA	68
## 3100	NA	NA	NA	NA	3
## 3101	NA	NA	NA	NA	6
## 3102	NA	NA	NA	NA	58
## 3103	NA	NA	NA	NA	5
## 3104	NA	NA	NA	NA	54
## 3105	NA	NA	NA	NA	50
## 3106	NA	NA	NA	NA	71
## 3107	1	0	0	NA	3
## 3108	1	1	0	4	55
## 3109	NA	NA	NA	NA	9
## 3110	1	0	0	NA	51
## 3111	NA	NA	NA	NA	63
## 3112	1	0	0	NA	83
## 3113	NA	NA	NA	NA	12
## 3114	NA	NA	NA	NA	53
## 3115	1	0	0	NA	65
## 3116	NA	NA	NA	NA	51
## 3117	NA	NA	NA	NA	84
## 3118	NA	NA	NA	NA	49
## 3119	NA	NA	NA	NA	47
## 3120	NA	NA	NA	NA	3
## 3121	NA	NA	NA	NA	9
## 3122	NA	NA	NA	NA	57
## 3123	NA	NA	NA	NA	2
## 3124	0	0	0	1	77
## 3125	1	1	2	4	5
## 3126	NA	NA	NA	NA	8
## 3127	NA	NA	NA	NA	59
## 3128	1	0	0	4	53
## 3129	1	0	0	NA	65
## 3130	1	0	0	2	42
## 3131	NA	NA	NA	NA	40
## 3132	1	0	0	NA	60
## 3133	NA	NA	NA	NA	75
## 3134	NA	NA	NA	NA	43
## 3135	NA	NA	NA	NA	6
## 3136	NA	NA	NA	NA	57
## 3137	NA	NA	NA	NA	71
## 3138	NA	NA	NA	NA	3
## 3139	NA	NA	NA	NA	5
## 3140	NA	NA	NA	NA	5
## 3141	NA	NA	NA	NA	77
## 3142	NA	NA	NA	NA	71
## 3143	NA	NA	NA	NA	68
## 3144	NA	NA	NA	NA	62
## 3145	NA	NA	NA	NA	66
## 3146	NA	NA	NA	NA	83
## 3147	NA	NA	NA	NA	45
## 3148	NA	NA	NA	NA	2
## 3149	1	0	0	2	3
## 3150	NA	NA	NA	NA	35

## 3151	NA	NA	NA	NA	53
## 3152	NA	NA	NA	NA	47
## 3153	NA	NA	NA	NA	6
## 3154	NA	NA	NA	NA	55
## 3155	NA	NA	NA	NA	68
## 3156	NA	NA	NA	NA	62
## 3157	NA	NA	NA	NA	67
## 3158	NA	NA	NA	NA	9
## 3159	NA	NA	NA	NA	42
## 3160	NA	NA	NA	NA	5
## 3161	1	0	0	2	68
## 3162	1	0	0	NA	84
## 3163	NA	NA	NA	NA	9
## 3164	NA	NA	NA	NA	54
## 3165	NA	NA	NA	NA	12
## 3166	NA	NA	NA	NA	59
## 3167	1	0	0	NA	75
## 3168	1	0	0	2	61
## 3169	NA	NA	NA	NA	62
## 3170	1	0	0	3	65
## 3171	NA	NA	NA	NA	65
## 3172	NA	NA	NA	NA	42
## 3173	1	1	0	1	71
## 3174	NA	NA	NA	NA	40
## 3175	NA	NA	NA	NA	57
## 3176	NA	NA	NA	NA	51
## 3177	1	0	0	NA	83
## 3178	NA	NA	NA	NA	81
## 3179	NA	NA	NA	NA	58
## 3180	NA	NA	NA	NA	51
## 3181	NA	NA	NA	NA	42
## 3182	NA	NA	NA	NA	70
## 3183	NA	NA	NA	NA	7
## 3184	NA	NA	NA	NA	64
## 3185	NA	NA	NA	NA	44
## 3186	NA	NA	NA	NA	65
## 3187	NA	NA	NA	NA	53
## 3188	NA	NA	NA	NA	65
## 3189	NA	NA	NA	NA	32
## 3190	1	0	0	3	67
## 3191	1	0	0	3	50
## 3192	NA	NA	NA	NA	2
## 3193	1	1	0	5	2
## 3194	1	0	0	NA	50
## 3195	1	1	0	2	57
## 3196	NA	NA	NA	NA	5
## 3197	NA	NA	NA	NA	53
## 3198	NA	NA	NA	NA	60
## 3199	NA	NA	NA	NA	4
## 3200	NA	NA	NA	NA	71
## 3201	NA	NA	NA	NA	55
## 3202	NA	NA	NA	NA	3
## 3203	NA	NA	NA	NA	3
## 3204	NA	NA	NA	NA	61

## 3205	NA	NA	NA	NA	50
## 3206	NA	NA	NA	NA	51
## 3207	NA	NA	NA	NA	3
## 3208	NA	NA	NA	NA	54
## 3209	NA	NA	NA	NA	3
## 3210	NA	NA	NA	NA	61
## 3211	1	0	0	3	3
## 3212	1	0	0	4	50
## 3213	NA	NA	NA	NA	3
## 3214	NA	NA	NA	NA	6
## 3215	NA	NA	NA	NA	7
## 3216	1	0	0	2	62
## 3217	1	0	0	NA	46
## 3218	NA	NA	NA	NA	75
## 3219	1	1	0	2	69
## 3220	NA	NA	NA	NA	8
## 3221	NA	NA	NA	NA	62
## 3222	NA	NA	NA	NA	2
## 3223	NA	NA	NA	NA	49
## 3224	NA	NA	NA	NA	56
## 3225	1	1	0	4	7
## 3226	1	0	0	NA	39
## 3227	1	0	0	2	66
## 3228	NA	NA	NA	NA	71
## 3229	NA	NA	NA	NA	3
## 3230	NA	NA	NA	NA	8
## 3231	NA	NA	NA	NA	70
## 3232	NA	NA	NA	NA	54
## 3233	1	0	0	2	44
## 3234	1	0	0	3	69
## 3235	NA	NA	NA	NA	58
## 3236	NA	NA	NA	NA	2
## 3237	1	1	0	4	42
## 3238	NA	NA	NA	NA	5
## 3239	1	0	0	2	73
## 3240	NA	NA	NA	NA	53
## 3241	NA	NA	NA	NA	60
## 3242	NA	NA	NA	NA	57
## 3243	NA	NA	NA	NA	61
## 3244	NA	NA	NA	NA	60
## 3245	NA	NA	NA	NA	77
## 3246	NA	NA	NA	NA	49
## 3247	NA	NA	NA	NA	47
## 3248	NA	NA	NA	NA	2
## 3249	NA	NA	NA	NA	71
## 3250	NA	NA	NA	NA	46
## 3251	NA	NA	NA	NA	9
## 3252	NA	NA	NA	NA	65
## 3253	NA	NA	NA	NA	3
## 3254	1	0	0	NA	6
## 3255	NA	NA	NA	NA	59
## 3256	NA	NA	NA	NA	7
## 3257	NA	NA	NA	NA	39
## 3258	NA	NA	NA	NA	60



## 3259	NA	NA	NA	NA	75
## 3260	NA	NA	NA	NA	8
## 3261	NA	NA	NA	NA	50
## 3262	NA	NA	NA	NA	6
## 3263	NA	NA	NA	NA	47
## 3264	NA	NA	NA	NA	84
## 3265	NA	NA	NA	NA	73
## 3266	NA	NA	NA	NA	2
## 3267	NA	NA	NA	NA	50
## 3268	NA	NA	NA	NA	65
## 3269	NA	NA	NA	NA	40
## 3270	NA	NA	NA	NA	66
## 3271	NA	NA	NA	NA	3
## 3272	NA	NA	NA	NA	61
## 3273	NA	NA	NA	NA	58
## 3274	NA	NA	NA	NA	53
## 3275	1	0	0	2	60
## 3276	NA	NA	NA	NA	83
## 3277	NA	NA	NA	NA	42
## 3278	NA	NA	NA	NA	3
## 3279	NA	NA	NA	NA	32
## 3280	NA	NA	NA	NA	61
## 3281	NA	NA	NA	NA	56
## 3282	NA	NA	NA	NA	69
## 3283	NA	NA	NA	NA	77
## 3284	NA	NA	NA	NA	71
## 3285	NA	NA	NA	NA	3
## 3286	NA	NA	NA	NA	50
## 3287	1	0	0	NA	60
## 3288	NA	NA	NA	NA	5
## 3289	1	0	0	2	65
## 3290	1	0	0	6	69
## 3291	NA	NA	NA	NA	62
## 3292	NA	NA	NA	NA	65
## 3293	NA	NA	NA	NA	60
## 3294	NA	NA	NA	NA	65
## 3295	NA	NA	NA	NA	64
## 3296	NA	NA	NA	NA	54
## 3297	NA	NA	NA	NA	71
## 3298	NA	NA	NA	NA	77
## 3299	NA	NA	NA	NA	12
## 3300	NA	NA	NA	NA	53
## 3301	1	0	0	NA	52
## 3302	NA	NA	NA	NA	67
## 3303	NA	NA	NA	NA	75
## 3304	NA	NA	NA	NA	54
## 3305	NA	NA	NA	NA	9
## 3306	NA	NA	NA	NA	57
## 3307	NA	NA	NA	NA	42
## 3308	1	0	0	NA	49
## 3309	1	1	0	4	43
## 3310	NA	NA	NA	NA	2
## 3311	NA	NA	NA	NA	62
## 3312	NA	NA	NA	NA	2

## 3313	NA	NA	NA	NA	66
## 3314	NA	NA	NA	NA	71
## 3315	1	0	0	3	50
## 3316	NA	NA	NA	NA	35
## 3317	1	0	0	NA	67
## 3318	NA	NA	NA	NA	68
## 3319	1	0	0	3	76
## 3320	1	1	0	5	69
## 3321	NA	NA	NA	NA	53
## 3322	NA	NA	NA	NA	67
## 3323	NA	NA	NA	NA	57
## 3324	NA	NA	NA	NA	51
## 3325	NA	NA	NA	NA	3
## 3326	NA	NA	NA	NA	5
## 3327	NA	NA	NA	NA	49
## 3328	1	1	1	4	80
## 3329	NA	NA	NA	NA	42
## 3330	1	0	0	NA	56
## 3331	1	0	0	1	64
## 3332	NA	NA	NA	NA	83
## 3333	NA	NA	NA	NA	2

##	pitch_number	pitch_name	spin_axis
## 1	4	4-Seam Fastball	208
## 2	3	Cutter	157
## 3	2	Cutter	22
## 4	1	4-Seam Fastball	208
## 5	5	Slider	53
## 6	4	Slider	45
## 7	1	4-Seam Fastball	134
## 8	3	Cutter	343
## 9	5	Slider	89
## 10	2	4-Seam Fastball	208
## 11	4	4-Seam Fastball	133
## 12	1	4-Seam Fastball	209
## 13	3	Changeup	123
## 14	4	Slider	178
## 15	2	Sinker	127
## 16	5	4-Seam Fastball	200
## 17	3	Slider	109
## 18	4	4-Seam Fastball	210
## 19	2	Slider	84
## 20	3	4-Seam Fastball	206
## 21	4	4-Seam Fastball	203
## 22	1	Sinker	138
## 23	3	4-Seam Fastball	178
## 24	1	Sinker	137
## 25	2	4-Seam Fastball	200
## 26	3	Knuckle Curve	20
## 27	1	4-Seam Fastball	207
## 28	2	Cutter	214
## 29	4	4-Seam Fastball	137
## 30	2	Knuckle Curve	21
## 31	7	Slider	82
## 32	1	Sinker	220

## 33	1 4-Seam Fastball	206
## 34	2 Cutter	222
## 35	5 Cutter	223
## 36	4 Slider	96
## 37	1 Knuckle Curve	25
## 38	3 4-Seam Fastball	134
## 39	1 Curveball	286
## 40	6 4-Seam Fastball	213
## 41	5 Split-Finger	231
## 42	3 Slider	294
## 43	4 Changeup	242
## 44	1 Slider	143
## 45	6 Curveball	289
## 46	2 Changeup	120
## 47	5 4-Seam Fastball	208
## 48	3 Knuckle Curve	41
## 49	5 Knuckle Curve	32
## 50	4 4-Seam Fastball	220
## 51	4 Slider	144
## 52	4 Knuckle Curve	30
## 53	4 4-Seam Fastball	212
## 54	2 Slider	81
## 55	3 Changeup	245
## 56	1 Sinker	136
## 57	5 4-Seam Fastball	215
## 58	2 Slider	299
## 59	1 Slider	93
## 60	3 4-Seam Fastball	221
## 61	3 Knuckle Curve	33
## 62	6 Changeup	113
## 63	4 Cutter	225
## 64	1 4-Seam Fastball	134
## 65	3 4-Seam Fastball	211
## 66	2 4-Seam Fastball	220
## 67	3 Split-Finger	231
## 68	4 4-Seam Fastball	216
## 69	5 Sinker	137
## 70	3 4-Seam Fastball	88
## 71	2 4-Seam Fastball	215
## 72	1 Curveball	320
## 73	2 4-Seam Fastball	202
## 74	2 Slider	136
## 75	1 Changeup	130
## 76	2 4-Seam Fastball	214
## 77	1 4-Seam Fastball	227
## 78	5 Changeup	140
## 79	2 4-Seam Fastball	207
## 80	1 4-Seam Fastball	214
## 81	4 Sinker	139
## 82	2 Changeup	124
## 83	3 Slider	119
## 84	1 4-Seam Fastball	202
## 85	2 4-Seam Fastball	157
## 86	1 Slider	143

## 87	1 4-Seam Fastball	211
## 88	6 Knuckle Curve	49
## 89	7 Sinker	223
## 90	4 4-Seam Fastball	158
## 91	1 Knuckle Curve	25
## 92	6 Sinker	144
## 93	5 Changeup	253
## 94	1 Curveball	320
## 95	3 4-Seam Fastball	215
## 96	5 Sinker	143
## 97	1 Changeup	65
## 98	5 Slider	97
## 99	3 4-Seam Fastball	159
## 100	5 4-Seam Fastball	211
## 101	3 Sinker	138
## 102	3 4-Seam Fastball	207
## 103	2 Slider	117
## 104	6 Changeup	247
## 105	1 Cutter	203
## 106	5 Slider	107
## 107	2 Changeup	201
## 108	4 Sinker	142
## 109	1 Slider	113
## 110	5 Curveball	315
## 111	4 Cutter	206
## 112	7 Slider	276
## 113	5 Changeup	251
## 114	4 4-Seam Fastball	213
## 115	2 4-Seam Fastball	137
## 116	4 4-Seam Fastball	211
## 117	4 4-Seam Fastball	205
## 118	2 4-Seam Fastball	217
## 119	4 4-Seam Fastball	228
## 120	1 Curveball	63
## 121	2 Curveball	326
## 122	4 Changeup	112
## 123	6 4-Seam Fastball	134
## 124	5 4-Seam Fastball	223
## 125	1 4-Seam Fastball	159
## 126	3 Cutter	147
## 127	4 Curveball	51
## 128	1 Slider	148
## 129	3 Sinker	136
## 130	1 4-Seam Fastball	140
## 131	3 4-Seam Fastball	209
## 132	3 4-Seam Fastball	169
## 133	4 4-Seam Fastball	222
## 134	1 Slider	100
## 135	3 4-Seam Fastball	230
## 136	3 4-Seam Fastball	212
## 137	3 4-Seam Fastball	209
## 138	2 4-Seam Fastball	209
## 139	2 Cutter	146
## 140	3 Slider	133

## 141	5 4-Seam Fastball	134
## 142	4 4-Seam Fastball	229
## 143	2 Slider	104
## 144	3 4-Seam Fastball	216
## 145	3 4-Seam Fastball	221
## 146	2 Cutter	212
## 147	2 Curveball	1
## 148	5 Changeup	136
## 149	3 Changeup	112
## 150	2 4-Seam Fastball	206
## 151	2 4-Seam Fastball	148
## 152	3 4-Seam Fastball	229
## 153	2 Changeup	248
## 154	1 Slider	337
## 155	4 Changeup	124
## 156	1 4-Seam Fastball	220
## 157	4 Curveball	319
## 158	2 Changeup	126
## 159	1 4-Seam Fastball	226
## 160	1 Curveball	332
## 161	2 Slider	152
## 162	1 Cutter	149
## 163	2 Changeup	232
## 164	1 4-Seam Fastball	214
## 165	1 4-Seam Fastball	211
## 166	2 Curveball	58
## 167	2 Sinker	222
## 168	3 Slider	94
## 169	5 4-Seam Fastball	159
## 170	1 4-Seam Fastball	206
## 171	2 4-Seam Fastball	221
## 172	5 4-Seam Fastball	207
## 173	4 4-Seam Fastball	156
## 174	1 4-Seam Fastball	215
## 175	1 4-Seam Fastball	216
## 176	1 4-Seam Fastball	229
## 177	2 Cutter	163
## 178	4 Slider	90
## 179	5 Knuckle Curve	59
## 180	3 4-Seam Fastball	141
## 181	3 Curveball	42
## 182	2 4-Seam Fastball	209
## 183	3 Curveball	313
## 184	7 Cutter	168
## 185	1 Curveball	324
## 186	1 4-Seam Fastball	212
## 187	4 Cutter	218
## 188	1 Cutter	220
## 189	1 Curveball	44
## 190	3 Curveball	296
## 191	1 Cutter	74
## 192	4 4-Seam Fastball	258
## 193	4 4-Seam Fastball	222
## 194	6 4-Seam Fastball	217

## 195	2	Curveball	150
## 196	6	Cutter	175
## 197	2	Changeup	125
## 198	3	4-Seam Fastball	209
## 199	3	Slider	185
## 200	4	4-Seam Fastball	208
## 201	6	Changeup	130
## 202	4	Changeup	227
## 203	2	4-Seam Fastball	155
## 204	7	4-Seam Fastball	217
## 205	7	Sinker	222
## 206	4	Knuckle Curve	53
## 207	6	Split-Finger	225
## 208	1	Changeup	124
## 209	6	Changeup	244
## 210	2	4-Seam Fastball	149
## 211	5	Sinker	145
## 212	5	4-Seam Fastball	136
## 213	3	Slider	63
## 214	2	4-Seam Fastball	199
## 215	3	Slider	101
## 216	1	Changeup	122
## 217	4	4-Seam Fastball	228
## 218	3	Sinker	220
## 219	5	4-Seam Fastball	215
## 220	3	Changeup	258
## 221	3	Changeup	223
## 222	2	Cutter	234
## 223	4	4-Seam Fastball	210
## 224	1	Curveball	315
## 225	2	Cutter	161
## 226	2	Slider	78
## 227	1	Cutter	196
## 228	4	Changeup	121
## 229	5	4-Seam Fastball	215
## 230	2	Curveball	39
## 231	4	4-Seam Fastball	219
## 232	1	Curveball	332
## 233	2	Cutter	214
## 234	9	Sinker	135
## 235	3	4-Seam Fastball	230
## 236	4	Changeup	126
## 237	2	Curveball	71
## 238	1	Knuckle Curve	43
## 239	5	Changeup	135
## 240	1	Changeup	93
## 241	3	4-Seam Fastball	207
## 242	4	Changeup	118
## 243	2	4-Seam Fastball	217
## 244	5	Changeup	246
## 245	1	Changeup	234
## 246	4	4-Seam Fastball	226
## 247	1	Changeup	228
## 248	1	Cutter	138

## 249	2	Changeup	139
## 250	4	Changeup	141
## 251	1	Slider	121
## 252	1	Cutter	186
## 253	1	Curveball	43
## 254	3	Changeup	117
## 255	8	4-Seam Fastball	137
## 256	2	Curveball	300
## 257	4	Split-Finger	233
## 258	3	Curveball	323
## 259	2	4-Seam Fastball	227
## 260	3	4-Seam Fastball	220
## 261	2	4-Seam Fastball	205
## 262	6	4-Seam Fastball	204
## 263	1	Knuckle Curve	54
## 264	3	Cutter	175
## 265	1	Curveball	56
## 266	4	4-Seam Fastball	205
## 267	4	4-Seam Fastball	215
## 268	8	4-Seam Fastball	225
## 269	5	Cutter	171
## 270	3	4-Seam Fastball	227
## 271	7	4-Seam Fastball	133
## 272	1	4-Seam Fastball	207
## 273	2	4-Seam Fastball	218
## 274	5	4-Seam Fastball	210
## 275	3	4-Seam Fastball	156
## 276	4	4-Seam Fastball	156
## 277	1	Changeup	140
## 278	2	Cutter	165
## 279	2	Cutter	173
## 280	6	4-Seam Fastball	229
## 281	1	4-Seam Fastball	149
## 282	2	4-Seam Fastball	138
## 283	6	Sinker	212
## 284	1	Slider	107
## 285	3	Split-Finger	230
## 286	4	Changeup	101
## 287	2	Changeup	140
## 288	2	Slider	270
## 289	4	Cutter	199
## 290	6	Sinker	138
## 291	4	4-Seam Fastball	206
## 292	1	Slider	173
## 293	5	Changeup	280
## 294	2	4-Seam Fastball	211
## 295	5	Changeup	224
## 296	7	4-Seam Fastball	230
## 297	1	Curveball	309
## 298	1	4-Seam Fastball	150
## 299	3	Curveball	83
## 300	5	Slider	71
## 301	3	4-Seam Fastball	218
## 302	1	Changeup	122

## 303	3	Slider	91
## 304	4	Cutter	69
## 305	1	Slider	328
## 306	2	Sinker	231
## 307	3	Cutter	138
## 308	4	Curveball	47
## 309	4	4-Seam Fastball	211
## 310	6	Knuckle Curve	49
## 311	2	Slider	115
## 312	3	Slider	94
## 313	8	Curveball	291
## 314	2	Curveball	77
## 315	5	Sinker	143
## 316	1	Changeup	122
## 317	3	4-Seam Fastball	202
## 318	4	4-Seam Fastball	226
## 319	4	4-Seam Fastball	149
## 320	1	Curveball	327
## 321	2	Slider	289
## 322	1	Split-Finger	225
## 323	1	Changeup	239
## 324	3	Slider	106
## 325	3	4-Seam Fastball	217
## 326	1	4-Seam Fastball	159
## 327	2	Changeup	238
## 328	3	Curveball	38
## 329	2	Split-Finger	235
## 330	1	Slider	294
## 331	1	4-Seam Fastball	157
## 332	2	Slider	334
## 333	2	Slider	132
## 334	1	4-Seam Fastball	218
## 335	2	Cutter	133
## 336	2	4-Seam Fastball	210
## 337	3	Changeup	318
## 338	3	Changeup	250
## 339	5	Knuckle Curve	56
## 340	4	Curveball	101
## 341	1	Slider	163
## 342	4	Changeup	113
## 343	2	Cutter	159
## 344	1	4-Seam Fastball	221
## 345	1	Changeup	239
## 346	3	Sinker	140
## 347	3	Slider	66
## 348	3	Changeup	135
## 349	7	Cutter	140
## 350	3	Curveball	324
## 351	1	Cutter	237
## 352	2	Sinker	142
## 353	2	Changeup	128
## 354	4	4-Seam Fastball	216
## 355	1	4-Seam Fastball	208
## 356	1	Cutter	152



## 357	6 4-Seam Fastball	156
## 358	4 4-Seam Fastball	228
## 359	8 4-Seam Fastball	224
## 360	2 4-Seam Fastball	209
## 361	2 Changeup	248
## 362	3 Slider	287
## 363	2 Curveball	318
## 364	2 Changeup	223
## 365	1 Slider	335
## 366	1 4-Seam Fastball	205
## 367	3 4-Seam Fastball	140
## 368	2 Sinker	204
## 369	1 4-Seam Fastball	219
## 370	2 4-Seam Fastball	226
## 371	4 4-Seam Fastball	229
## 372	3 4-Seam Fastball	218
## 373	3 Slider	85
## 374	1 4-Seam Fastball	211
## 375	5 Cutter	172
## 376	3 Slider	329
## 377	2 4-Seam Fastball	154
## 378	1 Knuckle Curve	35
## 379	3 Knuckle Curve	16
## 380	1 Cutter	174
## 381	3 4-Seam Fastball	226
## 382	2 Cutter	162
## 383	2 Slider	106
## 384	1 Slider	285
## 385	2 4-Seam Fastball	218
## 386	7 4-Seam Fastball	224
## 387	3 Curveball	58
## 388	1 Changeup	260
## 389	1 Cutter	157
## 390	2 4-Seam Fastball	141
## 391	1 4-Seam Fastball	218
## 392	2 Curveball	278
## 393	1 Changeup	137
## 394	1 4-Seam Fastball	208
## 395	6 Curveball	58
## 396	2 Changeup	250
## 397	3 Curveball	321
## 398	1 Curveball	274
## 399	4 4-Seam Fastball	140
## 400	1 4-Seam Fastball	132
## 401	5 Changeup	244
## 402	1 4-Seam Fastball	215
## 403	5 4-Seam Fastball	138
## 404	4 Cutter	170
## 405	4 4-Seam Fastball	220
## 406	3 Changeup	241
## 407	2 4-Seam Fastball	216
## 408	2 Curveball	62
## 409	2 Cutter	185
## 410	4 4-Seam Fastball	204

## 411	1 4-Seam Fastball	152
## 412	2 4-Seam Fastball	135
## 413	2 4-Seam Fastball	223
## 414	2 Knuckle Curve	19
## 415	4 Changeup	227
## 416	1 Changeup	124
## 417	3 4-Seam Fastball	138
## 418	4 4-Seam Fastball	221
## 419	3 Curveball	296
## 420	5 Slider	91
## 421	4 Slider	298
## 422	1 Slider	358
## 423	1 Curveball	72
## 424	1 Curveball	37
## 425	1 4-Seam Fastball	220
## 426	3 Slider	54
## 427	6 Slider	337
## 428	3 Changeup	229
## 429	5 Changeup	239
## 430	2 Slider	182
## 431	3 Changeup	133
## 432	3 Curveball	279
## 433	3 4-Seam Fastball	203
## 434	2 Cutter	169
## 435	1 4-Seam Fastball	217
## 436	1 Changeup	251
## 437	7 4-Seam Fastball	201
## 438	1 Sinker	209
## 439	1 4-Seam Fastball	201
## 440	2 Changeup	254
## 441	3 Changeup	224
## 442	1 4-Seam Fastball	160
## 443	3 Sinker	134
## 444	3 Changeup	119
## 445	4 4-Seam Fastball	212
## 446	3 4-Seam Fastball	216
## 447	2 Slider	161
## 448	2 4-Seam Fastball	198
## 449	4 4-Seam Fastball	209
## 450	3 Split-Finger	229
## 451	2 4-Seam Fastball	211
## 452	6 Sinker	205
## 453	2 Sinker	118
## 454	1 Curveball	318
## 455	2 Cutter	188
## 456	2 4-Seam Fastball	222
## 457	2 Changeup	227
## 458	2 Sinker	225
## 459	2 4-Seam Fastball	133
## 460	3 4-Seam Fastball	223
## 461	1 Sinker	233
## 462	1 Slider	65
## 463	2 Cutter	359
## 464	5 Curveball	334

## 465	8 4-Seam Fastball	277
## 466	2 Changeup	130
## 467	1 4-Seam Fastball	222
## 468	1 Cutter	165
## 469	4 4-Seam Fastball	158
## 470	1 Changeup	222
## 471	1 4-Seam Fastball	234
## 472	3 Knuckle Curve	40
## 473	1 4-Seam Fastball	191
## 474	3 4-Seam Fastball	213
## 475	1 4-Seam Fastball	212
## 476	4 Slider	NA
## 477	1 4-Seam Fastball	138
## 478	4 4-Seam Fastball	NA
## 479	5 Slider	67
## 480	1 Cutter	220
## 481	2 Changeup	109
## 482	1 4-Seam Fastball	149
## 483	2 4-Seam Fastball	228
## 484	2 4-Seam Fastball	230
## 485	3 4-Seam Fastball	163
## 486	5 Curveball	22
## 487	1 4-Seam Fastball	222
## 488	1 Sinker	123
## 489	1 4-Seam Fastball	213
## 490	2 Changeup	128
## 491	7 Curveball	56
## 492	2 Split-Finger	226
## 493	1 4-Seam Fastball	233
## 494	4 4-Seam Fastball	211
## 495	1 Sinker	145
## 496	1 Slider	94
## 497	3 Slider	333
## 498	2 Changeup	211
## 499	5 Changeup	97
## 500	3 Cutter	158
## 501	6 Sinker	228
## 502	4 4-Seam Fastball	210
## 503	4 Cutter	188
## 504	2 Curveball	61
## 505	1 Changeup	125
## 506	3 Curveball	43
## 507	6 4-Seam Fastball	215
## 508	4 Curveball	32
## 509	4 4-Seam Fastball	135
## 510	1 4-Seam Fastball	220
## 511	6 4-Seam Fastball	212
## 512	3 Slider	65
## 513	1 Sinker	133
## 514	3 Slider	121
## 515	2 4-Seam Fastball	152
## 516	1 Curveball	36
## 517	4 4-Seam Fastball	209
## 518	5 4-Seam Fastball	207

## 519	5 4-Seam Fastball	210
## 520	4 Changeup	99
## 521	5 Slider	87
## 522	2 4-Seam Fastball	223
## 523	3 4-Seam Fastball	201
## 524	3 Knuckle Curve	19
## 525	1 Slider	308
## 526	3 Changeup	250
## 527	1 Changeup	136
## 528	4 Changeup	219
## 529	3 Slider	87
## 530	2 Slider	154
## 531	3 Sinker	203
## 532	1 Changeup	232
## 533	2 Split-Finger	247
## 534	2 Slider	273
## 535	3 Changeup	122
## 536	3 Cutter	192
## 537	5 Changeup	252
## 538	3 Sinker	136
## 539	2 Changeup	125
## 540	1 Knuckle Curve	39
## 541	3 Changeup	129
## 542	2 Split-Finger	231
## 543	3 Changeup	245
## 544	6 Cutter	198
## 545	4 4-Seam Fastball	214
## 546	5 Slider	327
## 547	1 Split-Finger	237
## 548	1 Changeup	139
## 549	2 4-Seam Fastball	208
## 550	1 4-Seam Fastball	NA
## 551	2 Slider	163
## 552	2 Sinker	133
## 553	5 Changeup	131
## 554	1 Changeup	229
## 555	1 4-Seam Fastball	197
## 556	2 Changeup	251
## 557	2 Knuckle Curve	24
## 558	4 Slider	104
## 559	2 Changeup	134
## 560	3 Curveball	278
## 561	1 4-Seam Fastball	226
## 562	4 Knuckle Curve	54
## 563	5 Slider	86
## 564	3 4-Seam Fastball	210
## 565	3 Slider	86
## 566	2 4-Seam Fastball	140
## 567	2 4-Seam Fastball	139
## 568	1 4-Seam Fastball	223
## 569	2 Sinker	219
## 570	2 Sinker	208
## 571	1 4-Seam Fastball	222
## 572	3 Cutter	182

## 573	2 4-Seam Fastball	208
## 574	1 Changeup	251
## 575	3 4-Seam Fastball	215
## 576	1 4-Seam Fastball	132
## 577	1 Slider	338
## 578	4 Slider	200
## 579	1 Slider	37
## 580	1 Slider	101
## 581	3 4-Seam Fastball	223
## 582	1 Sinker	205
## 583	2 Knuckle Curve	43
## 584	2 Changeup	100
## 585	4 Slider	326
## 586	3 4-Seam Fastball	212
## 587	5 Split-Finger	238
## 588	1 Curveball	290
## 589	6 Changeup	237
## 590	1 Cutter	82
## 591	6 Slider	126
## 592	4 4-Seam Fastball	152
## 593	5 Split-Finger	242
## 594	1 Sinker	134
## 595	5 Slider	150
## 596	1 Slider	59
## 597	4 Curveball	31
## 598	4 Changeup	128
## 599	3 4-Seam Fastball	140
## 600	5 Slider	119
## 601	3 Curveball	33
## 602	2 Curveball	58
## 603	4 4-Seam Fastball	132
## 604	4 Slider	148
## 605	5 Knuckle Curve	34
## 606	1 Slider	94
## 607	4 4-Seam Fastball	216
## 608	1 Cutter	139
## 609	3 4-Seam Fastball	203
## 610	4 Slider	153
## 611	3 4-Seam Fastball	157
## 612	4 4-Seam Fastball	213
## 613	7 Slider	41
## 614	2 Changeup	217
## 615	3 4-Seam Fastball	153
## 616	4 4-Seam Fastball	137
## 617	4 Slider	65
## 618	2 4-Seam Fastball	146
## 619	2 4-Seam Fastball	232
## 620	5 Curveball	65
## 621	9 Sinker	131
## 622	2 Cutter	214
## 623	1 Curveball	37
## 624	3 4-Seam Fastball	224
## 625	2 Cutter	154
## 626	5 Changeup	223

## 627	1	Changeup	123
## 628	3	4-Seam Fastball	152
## 629	4	Cutter	17
## 630	4	Slider	139
## 631	3	Slider	98
## 632	1	Curveball	63
## 633	1	4-Seam Fastball	231
## 634	2	Changeup	139
## 635	3	Slider	306
## 636	3	4-Seam Fastball	196
## 637	8	Changeup	123
## 638	2	Slider	320
## 639	2	4-Seam Fastball	222
## 640	1	Curveball	79
## 641	3	Split-Finger	239
## 642	3	Curveball	283
## 643	2	Changeup	225
## 644	4	Curveball	66
## 645	3	Split-Finger	228
## 646	2	Cutter	225
## 647	3	Cutter	203
## 648	3	4-Seam Fastball	214
## 649	6	Slider	38
## 650	1	Knuckle Curve	53
## 651	2	Changeup	133
## 652	2	Cutter	171
## 653	2	Changeup	225
## 654	1	Changeup	142
## 655	2	Slider	307
## 656	4	Curveball	59
## 657	2	4-Seam Fastball	203
## 658	2	Changeup	129
## 659	2	4-Seam Fastball	212
## 660	3	4-Seam Fastball	201
## 661	4	Sinker	214
## 662	1	4-Seam Fastball	231
## 663	1	4-Seam Fastball	136
## 664	7	4-Seam Fastball	138
## 665	3	Sinker	227
## 666	3	4-Seam Fastball	229
## 667	2	Split-Finger	239
## 668	1	Sinker	202
## 669	2	Slider	148
## 670	1	Cutter	141
## 671	1	Cutter	201
## 672	3	Cutter	169
## 673	1	Changeup	131
## 674	1	4-Seam Fastball	215
## 675	3	Sinker	243
## 676	5	4-Seam Fastball	215
## 677	3	4-Seam Fastball	219
## 678	2	Sinker	205
## 679	4	Changeup	138
## 680	3	4-Seam Fastball	214

## 681	6	Sinker	138
## 682	1	Curveball	64
## 683	2	Sinker	240
## 684	4	Slider	49
## 685	1	4-Seam Fastball	213
## 686	4	4-Seam Fastball	229
## 687	2	Knuckle Curve	50
## 688	6	Slider	139
## 689	3	Curveball	61
## 690	1	Curveball	280
## 691	1	Slider	321
## 692	5	Curveball	333
## 693	1	Curveball	38
## 694	1	Slider	294
## 695	2	4-Seam Fastball	220
## 696	2	Cutter	188
## 697	1	Sinker	204
## 698	1	4-Seam Fastball	216
## 699	1	Cutter	195
## 700	2	Changeup	247
## 701	2	Cutter	206
## 702	3	Sinker	207
## 703	5	Sinker	137
## 704	1	Slider	146
## 705	1	Slider	95
## 706	4	4-Seam Fastball	208
## 707	4	Slider	322
## 708	2	Sinker	220
## 709	4	4-Seam Fastball	151
## 710	1	Sinker	213
## 711	1	4-Seam Fastball	224
## 712	5	Slider	147
## 713	3	Slider	48
## 714	1	4-Seam Fastball	233
## 715	3	4-Seam Fastball	223
## 716	7	Curveball	36
## 717	2	4-Seam Fastball	135
## 718	1	4-Seam Fastball	223
## 719	2	Changeup	134
## 720	2	Slider	84
## 721	3	4-Seam Fastball	161
## 722	1	Curveball	326
## 723	5	4-Seam Fastball	138
## 724	2	Sinker	207
## 725	3	Curveball	38
## 726	1	4-Seam Fastball	225
## 727	4	Slider	55
## 728	1	Cutter	230
## 729	2	4-Seam Fastball	209
## 730	4	Changeup	91
## 731	1	Curveball	294
## 732	2	4-Seam Fastball	217
## 733	4	Curveball	57
## 734	2	Slider	71

## 735	1	Cutter	163
## 736	2	Slider	37
## 737	1	Changeup	126
## 738	4	Changeup	109
## 739	1	Curveball	303
## 740	3	Slider	65
## 741	2	4-Seam Fastball	224
## 742	3	Cutter	163
## 743	3	4-Seam Fastball	211
## 744	6	Slider	160
## 745	4	Curveball	50
## 746	5	Slider	144
## 747	4	4-Seam Fastball	224
## 748	3	4-Seam Fastball	139
## 749	2	4-Seam Fastball	234
## 750	4	Sinker	207
## 751	1	4-Seam Fastball	213
## 752	5	4-Seam Fastball	208
## 753	1	Sinker	206
## 754	2	Slider	177
## 755	1	Slider	119
## 756	1	4-Seam Fastball	135
## 757	1	Sinker	221
## 758	3	Slider	283
## 759	1	Changeup	226
## 760	4	Cutter	67
## 761	1	4-Seam Fastball	236
## 762	2	4-Seam Fastball	207
## 763	2	Changeup	229
## 764	2	4-Seam Fastball	220
## 765	6	Sinker	136
## 766	5	Sinker	204
## 767	3	Curveball	62
## 768	2	Changeup	94
## 769	3	Cutter	169
## 770	3	4-Seam Fastball	135
## 771	1	Slider	73
## 772	3	4-Seam Fastball	135
## 773	1	Changeup	241
## 774	7	4-Seam Fastball	211
## 775	2	Slider	92
## 776	1	4-Seam Fastball	215
## 777	2	4-Seam Fastball	157
## 778	6	Cutter	209
## 779	3	Cutter	211
## 780	5	Curveball	36
## 781	2	Sinker	139
## 782	1	4-Seam Fastball	134
## 783	1	4-Seam Fastball	158
## 784	4	Sinker	220
## 785	3	Curveball	57
## 786	1	Curveball	42
## 787	5	4-Seam Fastball	224
## 788	2	Curveball	37



## 789	1	Changeup	125
## 790	2	4-Seam Fastball	135
## 791	3	Changeup	232
## 792	2	Sinker	219
## 793	3	Slider	54
## 794	5	Cutter	174
## 795	5	Changeup	136
## 796	1	4-Seam Fastball	151
## 797	1	Sinker	203
## 798	5	Changeup	129
## 799	1	Sinker	136
## 800	2	Slider	153
## 801	1	Slider	80
## 802	2	Changeup	228
## 803	2	4-Seam Fastball	227
## 804	6	Split-Finger	240
## 805	1	Sinker	210
## 806	1	Curveball	39
## 807	2	4-Seam Fastball	234
## 808	1	Curveball	269
## 809	2	4-Seam Fastball	138
## 810	4	4-Seam Fastball	190
## 811	4	Sinker	210
## 812	3	Cutter	75
## 813	3	Slider	125
## 814	1	Changeup	115
## 815	1	Curveball	40
## 816	4	Sinker	150
## 817	4	Changeup	141
## 818	1	Curveball	65
## 819	3	Slider	133
## 820	5	Changeup	143
## 821	1	Slider	255
## 822	5	Slider	82
## 823	1	Sinker	214
## 824	1	Changeup	253
## 825	2	4-Seam Fastball	221
## 826	4	4-Seam Fastball	223
## 827	5	Knuckle Curve	24
## 828	1	Changeup	224
## 829	1	4-Seam Fastball	215
## 830	4	Curveball	287
## 831	3	Changeup	228
## 832	1	Changeup	254
## 833	5	Slider	90
## 834	2	Slider	46
## 835	9	4-Seam Fastball	137
## 836	6	Slider	92
## 837	2	Sinker	178
## 838	4	Changeup	97
## 839	2	Cutter	107
## 840	1	4-Seam Fastball	142
## 841	3	4-Seam Fastball	224
## 842	3	Changeup	105

## 843	2	Slider	74
## 844	3	4-Seam Fastball	225
## 845	2	Curveball	32
## 846	4	4-Seam Fastball	137
## 847	1	4-Seam Fastball	218
## 848	4	Slider	191
## 849	6	Changeup	320
## 850	4	4-Seam Fastball	223
## 851	3	4-Seam Fastball	157
## 852	5	Knuckle Curve	48
## 853	2	Curveball	32
## 854	4	4-Seam Fastball	208
## 855	1	4-Seam Fastball	219
## 856	8	4-Seam Fastball	136
## 857	3	Sinker	140
## 858	5	Slider	66
## 859	3	4-Seam Fastball	220
## 860	4	Slider	116
## 861	1	4-Seam Fastball	210
## 862	4	Knuckle Curve	25
## 863	3	Curveball	225
## 864	5	4-Seam Fastball	205
## 865	1	Sinker	206
## 866	3	Cutter	165
## 867	1	Slider	41
## 868	3	Cutter	175
## 869	2	Curveball	57
## 870	2	Cutter	166
## 871	1	Sinker	229
## 872	3	Slider	121
## 873	2	4-Seam Fastball	153
## 874	3	Knuckle Curve	25
## 875	4	Cutter	211
## 876	2	4-Seam Fastball	132
## 877	4	Changeup	252
## 878	1	Slider	73
## 879	2	Split-Finger	232
## 880	2	Changeup	242
## 881	2	Cutter	242
## 882	6	4-Seam Fastball	211
## 883	3	Changeup	104
## 884	1	Slider	145
## 885	4	Slider	101
## 886	2	Sinker	139
## 887	5	4-Seam Fastball	241
## 888	3	Slider	139
## 889	2	Changeup	96
## 890	7	Changeup	122
## 891	1	4-Seam Fastball	200
## 892	2	Curveball	42
## 893	3	4-Seam Fastball	212
## 894	4	4-Seam Fastball	197
## 895	3	Changeup	140
## 896	6	Slider	41

## 897	2	Split-Finger	233
## 898	6	Changeup	120
## 899	2	4-Seam Fastball	146
## 900	2	Changeup	117
## 901	1	Sinker	202
## 902	5	4-Seam Fastball	206
## 903	1	Sinker	219
## 904	1	Curveball	331
## 905	2	Split-Finger	235
## 906	3	4-Seam Fastball	246
## 907	3	4-Seam Fastball	221
## 908	3	4-Seam Fastball	225
## 909	1	4-Seam Fastball	222
## 910	5	Slider	45
## 911	2	Knuckle Curve	29
## 912	4	Slider	56
## 913	3	4-Seam Fastball	199
## 914	1	Sinker	131
## 915	3	Slider	86
## 916	2	Slider	149
## 917	5	Slider	142
## 918	1	Sinker	123
## 919	4	4-Seam Fastball	204
## 920	1	Cutter	155
## 921	1	Curveball	325
## 922	1	Curveball	37
## 923	4	Changeup	315
## 924	1	4-Seam Fastball	130
## 925	1	Changeup	147
## 926	4	Slider	47
## 927	2	Slider	72
## 928	1	4-Seam Fastball	220
## 929	1	Curveball	40
## 930	3	4-Seam Fastball	208
## 931	1	Sinker	135
## 932	4	Cutter	160
## 933	2	Cutter	136
## 934	4	4-Seam Fastball	152
## 935	3	Sinker	240
## 936	4	4-Seam Fastball	156
## 937	1	Changeup	112
## 938	6	4-Seam Fastball	212
## 939	2	Curveball	67
## 940	1	4-Seam Fastball	226
## 941	1	4-Seam Fastball	210
## 942	4	Curveball	30
## 943	3	Curveball	41
## 944	1	Sinker	212
## 945	4	4-Seam Fastball	208
## 946	2	Slider	123
## 947	1	Knuckle Curve	36
## 948	2	4-Seam Fastball	212
## 949	5	Slider	298
## 950	4	Cutter	168

## 951	2 4-Seam Fastball	223
## 952	4 Curveball	39
## 953	1 Cutter	211
## 954	1 Curveball	53
## 955	3 Changeup	117
## 956	3 Changeup	124
## 957	2 Slider	123
## 958	1 Changeup	123
## 959	3 4-Seam Fastball	158
## 960	2 Slider	73
## 961	4 Slider	243
## 962	2 Sinker	210
## 963	3 4-Seam Fastball	210
## 964	5 4-Seam Fastball	137
## 965	2 4-Seam Fastball	223
## 966	3 Slider	49
## 967	1 Slider	132
## 968	3 4-Seam Fastball	229
## 969	3 Cutter	163
## 970	1 Slider	103
## 971	4 4-Seam Fastball	215
## 972	5 4-Seam Fastball	210
## 973	2 Slider	97
## 974	4 Changeup	252
## 975	1 4-Seam Fastball	218
## 976	2 Changeup	250
## 977	3 4-Seam Fastball	198
## 978	4 Slider	304
## 979	3 Sinker	120
## 980	1 4-Seam Fastball	205
## 981	9 4-Seam Fastball	209
## 982	2 Changeup	216
## 983	1 Cutter	165
## 984	2 Cutter	94
## 985	4 Changeup	252
## 986	2 Cutter	194
## 987	6 Slider	67
## 988	1 4-Seam Fastball	219
## 989	3 Changeup	129
## 990	1 Slider	88
## 991	4 Curveball	58
## 992	1 4-Seam Fastball	237
## 993	3 Changeup	222
## 994	4 Changeup	234
## 995	4 Changeup	118
## 996	1 Curveball	42
## 997	2 Changeup	121
## 998	5 Slider	95
## 999	3 Changeup	251
## 1000	2 4-Seam Fastball	196
## 1001	2 Cutter	173
## 1002	2 4-Seam Fastball	163
## 1003	6 Split-Finger	230
## 1004	6 Sinker	137

## 1005	1	Slider	143
## 1006	3	Changeup	137
## 1007	2	4-Seam Fastball	221
## 1008	2	Slider	297
## 1009	2	Changeup	142
## 1010	5	Slider	76
## 1011	7	Changeup	293
## 1012	1	Cutter	140
## 1013	1	Cutter	95
## 1014	2	Slider	89
## 1015	2	Sinker	213
## 1016	1	Curveball	320
## 1017	2	Changeup	218
## 1018	1	Sinker	130
## 1019	4	Sinker	205
## 1020	3	4-Seam Fastball	204
## 1021	3	4-Seam Fastball	230
## 1022	1	Curveball	39
## 1023	9	Changeup	234
## 1024	2	4-Seam Fastball	137
## 1025	1	Cutter	154
## 1026	1	4-Seam Fastball	175
## 1027	2	4-Seam Fastball	228
## 1028	3	4-Seam Fastball	141
## 1029	3	4-Seam Fastball	213
## 1030	3	Curveball	65
## 1031	5	Split-Finger	234
## 1032	1	4-Seam Fastball	208
## 1033	5	Changeup	127
## 1034	8	4-Seam Fastball	199
## 1035	2	Slider	152
## 1036	1	Slider	159
## 1037	1	4-Seam Fastball	211
## 1038	1	Sinker	222
## 1039	1	Sinker	206
## 1040	1	4-Seam Fastball	152
## 1041	2	Curveball	60
## 1042	4	Cutter	191
## 1043	3	Slider	336
## 1044	6	4-Seam Fastball	240
## 1045	4	4-Seam Fastball	213
## 1046	3	Cutter	163
## 1047	7	4-Seam Fastball	206
## 1048	2	4-Seam Fastball	216
## 1049	2	4-Seam Fastball	195
## 1050	4	Split-Finger	332
## 1051	3	Sinker	225
## 1052	8	Slider	86
## 1053	6	4-Seam Fastball	204
## 1054	1	Changeup	121
## 1055	2	Sinker	135
## 1056	2	Slider	54
## 1057	2	4-Seam Fastball	213
## 1058	1	Slider	170

## 1059	6 4-Seam Fastball	158
## 1060	6 Slider	95
## 1061	2 Sinker	230
## 1062	4 Changeup	130
## 1063	1 4-Seam Fastball	220
## 1064	5 Cutter	162
## 1065	1 Slider	65
## 1066	3 Sinker	141
## 1067	5 Changeup	56
## 1068	5 Slider	145
## 1069	5 Sinker	207
## 1070	5 4-Seam Fastball	221
## 1071	1 Sinker	135
## 1072	1 Curveball	68
## 1073	1 Cutter	77
## 1074	7 Changeup	227
## 1075	3 4-Seam Fastball	155
## 1076	4 4-Seam Fastball	205
## 1077	4 Slider	156
## 1078	2 Slider	328
## 1079	3 4-Seam Fastball	210
## 1080	2 Curveball	274
## 1081	2 4-Seam Fastball	227
## 1082	6 Slider	80
## 1083	1 4-Seam Fastball	221
## 1084	1 Curveball	35
## 1085	5 4-Seam Fastball	157
## 1086	4 Changeup	114
## 1087	2 Sinker	221
## 1088	6 Slider	254
## 1089	1 Sinker	226
## 1090	5 Slider	54
## 1091	3 4-Seam Fastball	215
## 1092	3 Changeup	124
## 1093	5 4-Seam Fastball	199
## 1094	2 Slider	103
## 1095	2 Changeup	122
## 1096	2 Changeup	128
## 1097	3 4-Seam Fastball	208
## 1098	4 4-Seam Fastball	234
## 1099	6 Sinker	207
## 1100	4 Knuckle Curve	20
## 1101	3 Slider	184
## 1102	1 Sinker	219
## 1103	1 Slider	324
## 1104	4 4-Seam Fastball	157
## 1105	2 Curveball	98
## 1106	5 Curveball	328
## 1107	1 Changeup	94
## 1108	2 Cutter	192
## 1109	4 Slider	46
## 1110	3 Cutter	217
## 1111	6 Curveball	241
## 1112	3 Changeup	108

## 1113	1	Knuckle Curve	34
## 1114	4	Changeup	256
## 1115	2	Slider	68
## 1116	1	Curveball	59
## 1117	4	Changeup	224
## 1118	2	Slider	289
## 1119	6	Curveball	62
## 1120	5	Knuckle Curve	36
## 1121	4	Slider	132
## 1122	1	4-Seam Fastball	229
## 1123	3	4-Seam Fastball	235
## 1124	2	Slider	107
## 1125	4	Slider	83
## 1126	3	Slider	91
## 1127	3	Cutter	145
## 1128	3	Sinker	135
## 1129	5	Sinker	211
## 1130	2	Changeup	252
## 1131	3	Slider	154
## 1132	3	4-Seam Fastball	158
## 1133	2	Cutter	165
## 1134	1	4-Seam Fastball	194
## 1135	4	Slider	131
## 1136	2	Sinker	208
## 1137	5	4-Seam Fastball	204
## 1138	3	Sinker	209
## 1139	6	Changeup	249
## 1140	1	Curveball	325
## 1141	1	4-Seam Fastball	149
## 1142	5	Curveball	294
## 1143	3	4-Seam Fastball	205
## 1144	4	Sinker	225
## 1145	3	4-Seam Fastball	212
## 1146	1	Slider	271
## 1147	4	Slider	329
## 1148	1	4-Seam Fastball	219
## 1149	1	Sinker	147
## 1150	3	Cutter	127
## 1151	1	Changeup	126
## 1152	3	Knuckle Curve	40
## 1153	2	Slider	163
## 1154	2	Changeup	114
## 1155	2	4-Seam Fastball	161
## 1156	1	Changeup	122
## 1157	1	4-Seam Fastball	219
## 1158	4	4-Seam Fastball	211
## 1159	2	Changeup	227
## 1160	2	Cutter	211
## 1161	2	Knuckle Curve	31
## 1162	2	Slider	119
## 1163	4	Curveball	320
## 1164	2	Sinker	213
## 1165	6	4-Seam Fastball	216
## 1166	4	Slider	76

## 1167	2	Sinker	242
## 1168	7	4-Seam Fastball	148
## 1169	1	Changeup	228
## 1170	3	4-Seam Fastball	152
## 1171	5	Split-Finger	236
## 1172	1	Cutter	205
## 1173	2	4-Seam Fastball	262
## 1174	1	Sinker	165
## 1175	5	Sinker	219
## 1176	2	Changeup	100
## 1177	1	Changeup	116
## 1178	3	4-Seam Fastball	198
## 1179	3	Sinker	227
## 1180	1	4-Seam Fastball	213
## 1181	2	Slider	247
## 1182	4	4-Seam Fastball	215
## 1183	3	Slider	305
## 1184	3	Sinker	212
## 1185	1	4-Seam Fastball	207
## 1186	1	Sinker	209
## 1187	6	Curveball	291
## 1188	2	4-Seam Fastball	206
## 1189	4	4-Seam Fastball	228
## 1190	4	Slider	290
## 1191	1	Changeup	117
## 1192	1	4-Seam Fastball	214
## 1193	3	Curveball	249
## 1194	2	Changeup	235
## 1195	1	4-Seam Fastball	159
## 1196	1	4-Seam Fastball	227
## 1197	3	Slider	234
## 1198	4	Split-Finger	231
## 1199	1	Sinker	166
## 1200	4	4-Seam Fastball	204
## 1201	5	Slider	113
## 1202	2	4-Seam Fastball	202
## 1203	1	Slider	137
## 1204	2	Curveball	333
## 1205	1	Changeup	107
## 1206	1	4-Seam Fastball	205
## 1207	2	Changeup	112
## 1208	4	Changeup	255
## 1209	2	Slider	51
## 1210	3	4-Seam Fastball	140
## 1211	4	4-Seam Fastball	158
## 1212	2	4-Seam Fastball	128
## 1213	3	Slider	90
## 1214	1	Slider	150
## 1215	1	Slider	231
## 1216	1	4-Seam Fastball	137
## 1217	3	Sinker	198
## 1218	1	Curveball	332
## 1219	3	Slider	106
## 1220	4	4-Seam Fastball	221



## 1221	5	4-Seam Fastball	208
## 1222	3	Slider	247
## 1223	2	Curveball	61
## 1224	3	Cutter	196
## 1225	4	Slider	103
## 1226	3	Changeup	244
## 1227	1	Knuckle Curve	38
## 1228	4	Changeup	226
## 1229	5	Sinker	119
## 1230	4	Knuckle Curve	17
## 1231	1	4-Seam Fastball	209
## 1232	1	Slider	166
## 1233	2	Slider	324
## 1234	2	Slider	68
## 1235	2	Sinker	144
## 1236	3	Slider	138
## 1237	1	Slider	56
## 1238	4	Changeup	248
## 1239	5	Cutter	219
## 1240	3	Changeup	224
## 1241	6	Changeup	116
## 1242	3	Curveball	38
## 1243	1	Cutter	182
## 1244	1	Sinker	207
## 1245	1	4-Seam Fastball	203
## 1246	2	Sinker	198
## 1247	4	Curveball	277
## 1248	8	Changeup	139
## 1249	4	4-Seam Fastball	210
## 1250	5	Knuckle Curve	48
## 1251	3	4-Seam Fastball	211
## 1252	2	4-Seam Fastball	228
## 1253	2	4-Seam Fastball	137
## 1254	2	Changeup	219
## 1255	2	Slider	70
## 1256	3	4-Seam Fastball	222
## 1257	2	4-Seam Fastball	209
## 1258	2	4-Seam Fastball	158
## 1259	4	4-Seam Fastball	207
## 1260	3	4-Seam Fastball	215
## 1261	3	4-Seam Fastball	163
## 1262	1	Curveball	67
## 1263	1	Sinker	138
## 1264	2	4-Seam Fastball	218
## 1265	2	4-Seam Fastball	219
## 1266	1	Curveball	15
## 1267	2	Changeup	243
## 1268	1	Slider	328
## 1269	3	4-Seam Fastball	234
## 1270	4	Cutter	202
## 1271	3	Sinker	128
## 1272	4	Sinker	228
## 1273	3	4-Seam Fastball	209
## 1274	6	Sinker	208

## 1275	1 4-Seam Fastball	204
## 1276	2 Changeup	221
## 1277	2 4-Seam Fastball	217
## 1278	4 Slider	58
## 1279	1 Curveball	57
## 1280	1 Changeup	238
## 1281	1 4-Seam Fastball	135
## 1282	2 Split-Finger	230
## 1283	2 Curveball	63
## 1284	5 Cutter	155
## 1285	1 Knuckle Curve	52
## 1286	1 Slider	179
## 1287	3 4-Seam Fastball	135
## 1288	6 Sinker	142
## 1289	2 Sinker	213
## 1290	7 Changeup	142
## 1291	1 Slider	241
## 1292	1 Cutter	208
## 1293	3 Slider	87
## 1294	1 4-Seam Fastball	193
## 1295	3 Curveball	289
## 1296	2 Knuckle Curve	18
## 1297	5 Slider	348
## 1298	2 4-Seam Fastball	NA
## 1299	2 Changeup	198
## 1300	2 Changeup	138
## 1301	1 Sinker	197
## 1302	1 Cutter	166
## 1303	5 4-Seam Fastball	215
## 1304	6 4-Seam Fastball	156
## 1305	5 Changeup	252
## 1306	2 Sinker	120
## 1307	1 4-Seam Fastball	221
## 1308	5 Sinker	139
## 1309	1 4-Seam Fastball	220
## 1310	3 Slider	54
## 1311	1 Sinker	208
## 1312	6 Curveball	337
## 1313	1 Changeup	132
## 1314	3 4-Seam Fastball	213
## 1315	3 Slider	147
## 1316	2 4-Seam Fastball	200
## 1317	1 Changeup	231
## 1318	1 4-Seam Fastball	214
## 1319	1 4-Seam Fastball	227
## 1320	2 Sinker	138
## 1321	6 4-Seam Fastball	227
## 1322	4 Sinker	146
## 1323	1 Changeup	251
## 1324	2 Changeup	235
## 1325	1 4-Seam Fastball	215
## 1326	10 Slider	295
## 1327	1 Cutter	67
## 1328	4 Changeup	118

## 1329	2	Cutter	198
## 1330	3	4-Seam Fastball	199
## 1331	4	4-Seam Fastball	219
## 1332	2	Changeup	225
## 1333	1	Curveball	30
## 1334	9	4-Seam Fastball	132
## 1335	3	4-Seam Fastball	143
## 1336	5	4-Seam Fastball	227
## 1337	2	Slider	156
## 1338	3	Knuckle Curve	17
## 1339	2	Cutter	181
## 1340	5	Curveball	334
## 1341	5	Sinker	209
## 1342	4	4-Seam Fastball	218
## 1343	4	Changeup	252
## 1344	2	Slider	53
## 1345	4	4-Seam Fastball	220
## 1346	4	Sinker	212
## 1347	8	Changeup	243
## 1348	1	Sinker	120
## 1349	2	Changeup	231
## 1350	3	Split-Finger	229
## 1351	3	4-Seam Fastball	212
## 1352	1	4-Seam Fastball	220
## 1353	3	Split-Finger	235
## 1354	4	Changeup	252
## 1355	1	Sinker	135
## 1356	1	4-Seam Fastball	205
## 1357	2	Slider	160
## 1358	1	Curveball	294
## 1359	1	4-Seam Fastball	212
## 1360	3	4-Seam Fastball	139
## 1361	3	4-Seam Fastball	157
## 1362	5	Changeup	141
## 1363	4	Sinker	140
## 1364	2	Changeup	116
## 1365	1	4-Seam Fastball	155
## 1366	4	Curveball	341
## 1367	1	4-Seam Fastball	200
## 1368	3	Curveball	60
## 1369	3	Cutter	183
## 1370	2	Sinker	140
## 1371	2	4-Seam Fastball	157
## 1372	1	Split-Finger	236
## 1373	4	Sinker	228
## 1374	3	Cutter	164
## 1375	5	4-Seam Fastball	217
## 1376	7	Curveball	62
## 1377	4	Slider	282
## 1378	4	Sinker	208
## 1379	1	Slider	73
## 1380	1	4-Seam Fastball	220
## 1381	1	4-Seam Fastball	225
## 1382	2	Slider	74

## 1383	3	Slider	85
## 1384	2	Knuckle Curve	18
## 1385	1	4-Seam Fastball	144
## 1386	2	4-Seam Fastball	213
## 1387	5	4-Seam Fastball	208
## 1388	3	Curveball	63
## 1389	5	Cutter	142
## 1390	6	Slider	77
## 1391	2	Changeup	226
## 1392	3	Knuckle Curve	59
## 1393	3	4-Seam Fastball	236
## 1394	8	4-Seam Fastball	138
## 1395	1	Sinker	205
## 1396	6	4-Seam Fastball	202
## 1397	4	Knuckle Curve	38
## 1398	7	Curveball	43
## 1399	2	Cutter	205
## 1400	4	Sinker	137
## 1401	2	Sinker	212
## 1402	3	Sinker	229
## 1403	1	4-Seam Fastball	208
## 1404	2	Changeup	129
## 1405	1	Slider	95
## 1406	1	Cutter	161
## 1407	1	Slider	91
## 1408	7	Cutter	194
## 1409	4	Sinker	206
## 1410	2	Curveball	55
## 1411	1	Changeup	133
## 1412	6	Cutter	205
## 1413	1	Sinker	131
## 1414	3	Slider	43
## 1415	4	Slider	147
## 1416	7	Changeup	118
## 1417	4	Cutter	148
## 1418	5	Knuckle Curve	34
## 1419	3	Sinker	176
## 1420	2	Changeup	238
## 1421	3	Slider	305
## 1422	3	Slider	104
## 1423	4	4-Seam Fastball	220
## 1424	2	Knuckle Curve	45
## 1425	2	Sinker	236
## 1426	3	Sinker	136
## 1427	1	4-Seam Fastball	225
## 1428	1	Cutter	150
## 1429	5	4-Seam Fastball	211
## 1430	1	Slider	94
## 1431	2	Sinker	227
## 1432	4	Slider	259
## 1433	3	Changeup	99
## 1434	1	4-Seam Fastball	227
## 1435	2	Slider	335
## 1436	1	4-Seam Fastball	214

## 1437	3 4-Seam Fastball	159
## 1438	3 4-Seam Fastball	217
## 1439	3 Slider	100
## 1440	2 Slider	102
## 1441	2 Slider	53
## 1442	3 Curveball	35
## 1443	3 4-Seam Fastball	217
## 1444	2 Sinker	165
## 1445	2 Curveball	338
## 1446	1 Cutter	178
## 1447	6 Slider	292
## 1448	2 Changeup	114
## 1449	6 Slider	54
## 1450	5 4-Seam Fastball	207
## 1451	5 Changeup	244
## 1452	1 4-Seam Fastball	236
## 1453	6 Sinker	207
## 1454	6 4-Seam Fastball	152
## 1455	2 4-Seam Fastball	214
## 1456	3 Slider	135
## 1457	1 Slider	110
## 1458	2 Slider	86
## 1459	1 Slider	330
## 1460	1 Changeup	125
## 1461	1 Curveball	332
## 1462	2 Changeup	222
## 1463	5 4-Seam Fastball	215
## 1464	2 4-Seam Fastball	221
## 1465	5 4-Seam Fastball	137
## 1466	1 Slider	34
## 1467	5 Cutter	194
## 1468	2 4-Seam Fastball	209
## 1469	1 Changeup	147
## 1470	3 4-Seam Fastball	236
## 1471	5 Changeup	226
## 1472	2 4-Seam Fastball	160
## 1473	2 Slider	56
## 1474	2 Changeup	100
## 1475	5 Changeup	223
## 1476	4 4-Seam Fastball	201
## 1477	4 Slider	42
## 1478	1 Slider	NA
## 1479	4 Knuckle Curve	48
## 1480	2 Changeup	201
## 1481	4 Sinker	213
## 1482	1 4-Seam Fastball	225
## 1483	2 Sinker	136
## 1484	7 4-Seam Fastball	193
## 1485	3 Slider	70
## 1486	4 Cutter	159
## 1487	4 Slider	86
## 1488	3 Slider	49
## 1489	5 4-Seam Fastball	152
## 1490	1 Sinker	225

## 1491	1	Cutter	196
## 1492	4	Curveball	334
## 1493	4	Changeup	127
## 1494	3	4-Seam Fastball	216
## 1495	3	4-Seam Fastball	225
## 1496	1	Sinker	137
## 1497	3	Changeup	128
## 1498	2	4-Seam Fastball	232
## 1499	1	Slider	44
## 1500	4	Slider	61
## 1501	7	4-Seam Fastball	204
## 1502	3	Split-Finger	236
## 1503	1	Curveball	276
## 1504	1	Curveball	58
## 1505	3	Sinker	155
## 1506	1	4-Seam Fastball	155
## 1507	3	4-Seam Fastball	139
## 1508	3	Changeup	215
## 1509	4	Sinker	205
## 1510	3	4-Seam Fastball	216
## 1511	2	4-Seam Fastball	214
## 1512	4	Sinker	207
## 1513	1	Slider	156
## 1514	4	4-Seam Fastball	147
## 1515	6	Slider	84
## 1516	10	Slider	343
## 1517	3	Cutter	183
## 1518	4	4-Seam Fastball	227
## 1519	1	Slider	81
## 1520	2	4-Seam Fastball	218
## 1521	2	Curveball	38
## 1522	3	Curveball	335
## 1523	5	Knuckle Curve	49
## 1524	5	4-Seam Fastball	205
## 1525	1	4-Seam Fastball	242
## 1526	3	Curveball	35
## 1527	2	Cutter	202
## 1528	3	Sinker	147
## 1529	9	Sinker	137
## 1530	3	Sinker	206
## 1531	6	4-Seam Fastball	214
## 1532	2	Sinker	152
## 1533	5	Split-Finger	222
## 1534	4	Curveball	31
## 1535	2	Split-Finger	241
## 1536	2	Cutter	175
## 1537	8	Slider	56
## 1538	5	Changeup	90
## 1539	1	4-Seam Fastball	209
## 1540	2	4-Seam Fastball	226
## 1541	2	Sinker	138
## 1542	3	4-Seam Fastball	156
## 1543	3	Slider	224
## 1544	3	Curveball	70

## 1545	2	Slider	40
## 1546	2	Cutter	175
## 1547	5	Slider	150
## 1548	3	Cutter	173
## 1549	4	4-Seam Fastball	160
## 1550	2	Changeup	220
## 1551	3	4-Seam Fastball	228
## 1552	1	Knuckle Curve	56
## 1553	1	Curveball	319
## 1554	7	Slider	137
## 1555	1	4-Seam Fastball	185
## 1556	1	Cutter	165
## 1557	2	Slider	58
## 1558	3	4-Seam Fastball	158
## 1559	2	4-Seam Fastball	156
## 1560	3	Curveball	17
## 1561	2	Changeup	228
## 1562	7	4-Seam Fastball	215
## 1563	8	Slider	339
## 1564	2	Cutter	225
## 1565	2	Cutter	148
## 1566	2	Changeup	128
## 1567	1	Changeup	129
## 1568	4	Slider	172
## 1569	1	Sinker	157
## 1570	6	4-Seam Fastball	199
## 1571	3	Knuckle Curve	26
## 1572	1	Sinker	225
## 1573	1	Curveball	70
## 1574	5	4-Seam Fastball	209
## 1575	1	Cutter	350
## 1576	7	4-Seam Fastball	215
## 1577	2	4-Seam Fastball	139
## 1578	4	4-Seam Fastball	209
## 1579	2	Changeup	237
## 1580	4	Curveball	44
## 1581	1	Changeup	245
## 1582	4	4-Seam Fastball	207
## 1583	1	Changeup	228
## 1584	4	Cutter	147
## 1585	1	4-Seam Fastball	212
## 1586	2	Slider	290
## 1587	1	4-Seam Fastball	157
## 1588	1	Sinker	209
## 1589	3	Cutter	168
## 1590	6	4-Seam Fastball	216
## 1591	2	4-Seam Fastball	204
## 1592	2	Slider	73
## 1593	1	Sinker	145
## 1594	4	4-Seam Fastball	206
## 1595	1	Cutter	200
## 1596	3	4-Seam Fastball	207
## 1597	5	4-Seam Fastball	203
## 1598	5	4-Seam Fastball	201

## 1599	3	Slider	103
## 1600	3	Cutter	146
## 1601	3	Sinker	242
## 1602	7	4-Seam Fastball	142
## 1603	5	4-Seam Fastball	210
## 1604	1	Cutter	155
## 1605	3	Slider	133
## 1606	5	Changeup	220
## 1607	1	Curveball	331
## 1608	5	Sinker	213
## 1609	5	Sinker	142
## 1610	1	Sinker	213
## 1611	3	4-Seam Fastball	210
## 1612	6	Changeup	231
## 1613	1	4-Seam Fastball	225
## 1614	3	4-Seam Fastball	224
## 1615	4	Slider	174
## 1616	3	4-Seam Fastball	215
## 1617	5	Sinker	154
## 1618	1	4-Seam Fastball	143
## 1619	2	4-Seam Fastball	156
## 1620	1	Changeup	125
## 1621	6	4-Seam Fastball	142
## 1622	5	Cutter	197
## 1623	2	4-Seam Fastball	232
## 1624	4	4-Seam Fastball	154
## 1625	2	Slider	143
## 1626	4	Changeup	249
## 1627	3	4-Seam Fastball	211
## 1628	1	4-Seam Fastball	158
## 1629	2	Slider	107
## 1630	4	Slider	72
## 1631	5	Slider	56
## 1632	5	Curveball	61
## 1633	5	Sinker	138
## 1634	2	Cutter	179
## 1635	5	4-Seam Fastball	142
## 1636	4	4-Seam Fastball	201
## 1637	4	4-Seam Fastball	217
## 1638	2	4-Seam Fastball	206
## 1639	4	Curveball	49
## 1640	2	4-Seam Fastball	225
## 1641	3	Cutter	196
## 1642	1	4-Seam Fastball	210
## 1643	1	4-Seam Fastball	203
## 1644	4	4-Seam Fastball	133
## 1645	3	Slider	173
## 1646	2	Changeup	99
## 1647	4	Changeup	217
## 1648	6	4-Seam Fastball	136
## 1649	2	Slider	93
## 1650	6	4-Seam Fastball	156
## 1651	4	Curveball	351
## 1652	4	4-Seam Fastball	222



## 1653	5 4-Seam Fastball	216
## 1654	5 Cutter	197
## 1655	2 Slider	166
## 1656	4 Sinker	142
## 1657	4 Slider	60
## 1658	4 Curveball	76
## 1659	4 4-Seam Fastball	204
## 1660	3 Changeup	213
## 1661	1 Split-Finger	238
## 1662	1 4-Seam Fastball	134
## 1663	3 Sinker	136
## 1664	3 Cutter	150
## 1665	3 Changeup	271
## 1666	3 Slider	207
## 1667	4 4-Seam Fastball	140
## 1668	3 4-Seam Fastball	157
## 1669	3 Changeup	219
## 1670	1 Sinker	208
## 1671	2 Curveball	295
## 1672	1 4-Seam Fastball	212
## 1673	4 Sinker	139
## 1674	3 Cutter	181
## 1675	3 Curveball	40
## 1676	4 Sinker	195
## 1677	1 Curveball	39
## 1678	3 4-Seam Fastball	228
## 1679	5 4-Seam Fastball	152
## 1680	4 Cutter	204
## 1681	4 4-Seam Fastball	205
## 1682	3 Slider	53
## 1683	5 Slider	332
## 1684	4 4-Seam Fastball	203
## 1685	1 Slider	179
## 1686	3 Changeup	252
## 1687	1 Changeup	251
## 1688	2 Sinker	211
## 1689	3 4-Seam Fastball	212
## 1690	1 Sinker	120
## 1691	4 4-Seam Fastball	218
## 1692	2 Curveball	46
## 1693	3 Curveball	58
## 1694	4 4-Seam Fastball	187
## 1695	3 Curveball	348
## 1696	6 4-Seam Fastball	156
## 1697	1 Knuckle Curve	49
## 1698	2 4-Seam Fastball	223
## 1699	1 4-Seam Fastball	199
## 1700	2 4-Seam Fastball	151
## 1701	1 4-Seam Fastball	230
## 1702	2 Slider	63
## 1703	2 4-Seam Fastball	218
## 1704	2 Cutter	200
## 1705	1 4-Seam Fastball	211
## 1706	4 4-Seam Fastball	132

## 1707	3 4-Seam Fastball	205
## 1708	2 4-Seam Fastball	214
## 1709	3 4-Seam Fastball	143
## 1710	2 Changeup	215
## 1711	2 Changeup	218
## 1712	2 Cutter	167
## 1713	1 Slider	110
## 1714	2 4-Seam Fastball	212
## 1715	5 Slider	201
## 1716	5 Curveball	331
## 1717	2 4-Seam Fastball	135
## 1718	2 Sinker	215
## 1719	2 Cutter	146
## 1720	2 Changeup	256
## 1721	3 Cutter	199
## 1722	3 4-Seam Fastball	203
## 1723	2 Changeup	290
## 1724	4 Slider	178
## 1725	5 Sinker	205
## 1726	3 Cutter	198
## 1727	1 4-Seam Fastball	215
## 1728	2 Cutter	91
## 1729	2 Changeup	233
## 1730	4 4-Seam Fastball	152
## 1731	3 Curveball	283
## 1732	3 Cutter	187
## 1733	3 Cutter	196
## 1734	2 Sinker	155
## 1735	1 4-Seam Fastball	153
## 1736	1 Cutter	163
## 1737	4 Slider	249
## 1738	1 Slider	66
## 1739	3 4-Seam Fastball	135
## 1740	1 4-Seam Fastball	223
## 1741	1 4-Seam Fastball	138
## 1742	1 4-Seam Fastball	204
## 1743	8 Cutter	167
## 1744	1 Sinker	153
## 1745	1 4-Seam Fastball	181
## 1746	2 Cutter	192
## 1747	3 4-Seam Fastball	168
## 1748	2 Sinker	204
## 1749	1 Cutter	159
## 1750	1 Sinker	141
## 1751	2 Changeup	217
## 1752	1 Changeup	262
## 1753	2 Cutter	203
## 1754	1 Changeup	135
## 1755	2 4-Seam Fastball	140
## 1756	1 Cutter	188
## 1757	2 4-Seam Fastball	204
## 1758	2 Cutter	155
## 1759	1 Slider	60
## 1760	1 Changeup	237

## 1761	1 4-Seam Fastball	215
## 1762	4 4-Seam Fastball	213
## 1763	4 4-Seam Fastball	159
## 1764	2 Changeup	235
## 1765	1 4-Seam Fastball	221
## 1766	1 4-Seam Fastball	224
## 1767	2 Curveball	24
## 1768	3 Slider	179
## 1769	7 Slider	162
## 1770	1 4-Seam Fastball	232
## 1771	1 4-Seam Fastball	207
## 1772	1 Cutter	221
## 1773	2 4-Seam Fastball	210
## 1774	5 Slider	51
## 1775	4 4-Seam Fastball	197
## 1776	5 Slider	174
## 1777	3 Slider	231
## 1778	1 Cutter	184
## 1779	2 Changeup	119
## 1780	2 4-Seam Fastball	229
## 1781	5 4-Seam Fastball	157
## 1782	3 4-Seam Fastball	219
## 1783	7 Sinker	120
## 1784	3 4-Seam Fastball	206
## 1785	6 Curveball	29
## 1786	3 Slider	314
## 1787	1 Sinker	137
## 1788	8 Sinker	155
## 1789	4 Slider	49
## 1790	1 4-Seam Fastball	183
## 1791	5 Changeup	234
## 1792	3 Sinker	207
## 1793	1 4-Seam Fastball	219
## 1794	1 Curveball	292
## 1795	1 4-Seam Fastball	138
## 1796	2 4-Seam Fastball	205
## 1797	3 4-Seam Fastball	220
## 1798	5 Cutter	213
## 1799	5 Slider	262
## 1800	2 Changeup	114
## 1801	1 Sinker	219
## 1802	3 4-Seam Fastball	215
## 1803	1 Slider	53
## 1804	5 Sinker	143
## 1805	1 Knuckle Curve	22
## 1806	3 Sinker	249
## 1807	2 4-Seam Fastball	165
## 1808	5 4-Seam Fastball	205
## 1809	6 Slider	61
## 1810	8 4-Seam Fastball	217
## 1811	1 4-Seam Fastball	195
## 1812	4 Sinker	221
## 1813	4 Changeup	260
## 1814	1 4-Seam Fastball	224

## 1815	2	Sinker	225
## 1816	5	Knuckle Curve	54
## 1817	1	4-Seam Fastball	140
## 1818	4	Curveball	66
## 1819	6	Changeup	103
## 1820	2	4-Seam Fastball	226
## 1821	3	Curveball	323
## 1822	1	Sinker	218
## 1823	7	Slider	97
## 1824	4	Slider	307
## 1825	2	Slider	307
## 1826	3	4-Seam Fastball	182
## 1827	3	Slider	46
## 1828	4	Slider	146
## 1829	4	Changeup	128
## 1830	5	Cutter	184
## 1831	2	4-Seam Fastball	227
## 1832	1	4-Seam Fastball	215
## 1833	2	Changeup	299
## 1834	2	Cutter	77
## 1835	7	Sinker	154
## 1836	2	Slider	72
## 1837	5	4-Seam Fastball	206
## 1838	5	Slider	148
## 1839	4	Cutter	197
## 1840	1	4-Seam Fastball	173
## 1841	1	Changeup	214
## 1842	2	Changeup	236
## 1843	4	Sinker	215
## 1844	1	Slider	101
## 1845	2	Sinker	211
## 1846	2	4-Seam Fastball	149
## 1847	5	Slider	68
## 1848	3	Changeup	246
## 1849	2	4-Seam Fastball	207
## 1850	5	Sinker	212
## 1851	2	Sinker	138
## 1852	4	4-Seam Fastball	157
## 1853	2	Sinker	208
## 1854	1	Changeup	115
## 1855	7	Sinker	227
## 1856	3	Sinker	217
## 1857	4	Slider	75
## 1858	1	Sinker	294
## 1859	7	Curveball	43
## 1860	6	Slider	110
## 1861	1	4-Seam Fastball	153
## 1862	1	Slider	128
## 1863	1	4-Seam Fastball	202
## 1864	11	4-Seam Fastball	202
## 1865	1	Changeup	271
## 1866	5	Changeup	244
## 1867	1	Knuckle Curve	52
## 1868	4	Curveball	39

## 1869	4	Sinker	215
## 1870	4	4-Seam Fastball	137
## 1871	3	Curveball	61
## 1872	2	Changeup	249
## 1873	5	Curveball	267
## 1874	1	4-Seam Fastball	214
## 1875	3	Slider	321
## 1876	2	Sinker	210
## 1877	5	Split-Finger	238
## 1878	1	Changeup	125
## 1879	3	Cutter	194
## 1880	1	Sinker	201
## 1881	2	Cutter	184
## 1882	6	Sinker	160
## 1883	2	Slider	131
## 1884	6	Slider	80
## 1885	3	Cutter	155
## 1886	3	Curveball	53
## 1887	3	4-Seam Fastball	136
## 1888	2	4-Seam Fastball	136
## 1889	1	Curveball	320
## 1890	4	4-Seam Fastball	218
## 1891	4	4-Seam Fastball	209
## 1892	2	Changeup	232
## 1893	3	Knuckle Curve	52
## 1894	6	Curveball	45
## 1895	1	Cutter	283
## 1896	1	Sinker	210
## 1897	1	Changeup	224
## 1898	6	Sinker	232
## 1899	1	Curveball	332
## 1900	3	Curveball	325
## 1901	6	Slider	110
## 1902	3	4-Seam Fastball	173
## 1903	3	Changeup	205
## 1904	2	Sinker	141
## 1905	5	4-Seam Fastball	209
## 1906	1	4-Seam Fastball	239
## 1907	7	Changeup	236
## 1908	4	Cutter	173
## 1909	2	Slider	328
## 1910	7	4-Seam Fastball	216
## 1911	2	Slider	179
## 1912	1	Sinker	223
## 1913	2	Sinker	227
## 1914	5	Curveball	348
## 1915	5	4-Seam Fastball	203
## 1916	5	Sinker	225
## 1917	3	Cutter	200
## 1918	4	Changeup	117
## 1919	1	Slider	223
## 1920	10	Cutter	38
## 1921	4	4-Seam Fastball	201
## 1922	2	Curveball	61

## 1923	8 4-Seam Fastball	190
## 1924	3 Changeup	270
## 1925	5 4-Seam Fastball	202
## 1926	3 Cutter	188
## 1927	2 4-Seam Fastball	141
## 1928	2 Curveball	331
## 1929	1 Slider	47
## 1930	2 4-Seam Fastball	131
## 1931	3 Changeup	227
## 1932	1 4-Seam Fastball	136
## 1933	4 4-Seam Fastball	228
## 1934	1 Sinker	212
## 1935	3 Slider	264
## 1936	2 4-Seam Fastball	211
## 1937	5 4-Seam Fastball	209
## 1938	10 4-Seam Fastball	201
## 1939	5 Slider	142
## 1940	4 Slider	95
## 1941	2 Cutter	214
## 1942	3 4-Seam Fastball	194
## 1943	3 Cutter	174
## 1944	8 Sinker	142
## 1945	2 4-Seam Fastball	158
## 1946	5 Changeup	249
## 1947	4 Split-Finger	236
## 1948	6 Curveball	39
## 1949	1 Cutter	180
## 1950	3 4-Seam Fastball	205
## 1951	3 Cutter	192
## 1952	8 Cutter	187
## 1953	4 Slider	65
## 1954	1 Curveball	76
## 1955	1 4-Seam Fastball	220
## 1956	3 Changeup	103
## 1957	1 Slider	167
## 1958	2 4-Seam Fastball	227
## 1959	3 Slider	192
## 1960	4 Slider	67
## 1961	6 Sinker	235
## 1962	4 Slider	113
## 1963	3 Changeup	241
## 1964	3 Changeup	120
## 1965	6 Slider	62
## 1966	4 Sinker	161
## 1967	4 Changeup	232
## 1968	1 4-Seam Fastball	153
## 1969	2 Curveball	330
## 1970	1 Cutter	197
## 1971	4 Slider	52
## 1972	2 Sinker	210
## 1973	6 4-Seam Fastball	216
## 1974	2 4-Seam Fastball	196
## 1975	3 4-Seam Fastball	207
## 1976	1 Curveball	331

## 1977	7 4-Seam Fastball	133
## 1978	5 Changeup	256
## 1979	3 4-Seam Fastball	211
## 1980	4 4-Seam Fastball	200
## 1981	1 Cutter	162
## 1982	1 Slider	346
## 1983	4 4-Seam Fastball	206
## 1984	9 Sinker	216
## 1985	4 Sinker	219
## 1986	6 4-Seam Fastball	214
## 1987	4 Curveball	56
## 1988	5 Sinker	155
## 1989	2 Knuckle Curve	29
## 1990	1 4-Seam Fastball	206
## 1991	2 Cutter	215
## 1992	2 Changeup	290
## 1993	6 Changeup	249
## 1994	2 Cutter	186
## 1995	4 Slider	108
## 1996	7 4-Seam Fastball	200
## 1997	2 Cutter	187
## 1998	1 Changeup	126
## 1999	4 Slider	167
## 2000	9 Changeup	213
## 2001	1 4-Seam Fastball	228
## 2002	4 Changeup	250
## 2003	1 4-Seam Fastball	203
## 2004	6 Slider	74
## 2005	1 Knuckle Curve	37
## 2006	2 4-Seam Fastball	207
## 2007	5 Curveball	45
## 2008	5 Changeup	243
## 2009	3 Sinker	211
## 2010	8 4-Seam Fastball	198
## 2011	5 Changeup	236
## 2012	1 Curveball	302
## 2013	1 Changeup	266
## 2014	3 4-Seam Fastball	189
## 2015	3 Slider	90
## 2016	2 Cutter	185
## 2017	2 Changeup	128
## 2018	3 Slider	116
## 2019	1 Changeup	128
## 2020	3 Slider	62
## 2021	3 Slider	118
## 2022	1 Slider	305
## 2023	1 Cutter	184
## 2024	2 Cutter	193
## 2025	3 Slider	90
## 2026	2 Split-Finger	241
## 2027	3 4-Seam Fastball	206
## 2028	6 Curveball	274
## 2029	3 4-Seam Fastball	205
## 2030	3 Curveball	344

## 2031	3	Slider	84
## 2032	4	4-Seam Fastball	155
## 2033	3	Sinker	225
## 2034	3	Sinker	222
## 2035	1	Curveball	33
## 2036	1	4-Seam Fastball	226
## 2037	5	Slider	49
## 2038	6	4-Seam Fastball	158
## 2039	5	4-Seam Fastball	232
## 2040	2	Curveball	45
## 2041	2	Slider	304
## 2042	2	Cutter	216
## 2043	4	Changeup	256
## 2044	1	4-Seam Fastball	216
## 2045	3	4-Seam Fastball	213
## 2046	2	Changeup	113
## 2047	3	Changeup	260
## 2048	2	Cutter	203
## 2049	7	Cutter	183
## 2050	8	Sinker	214
## 2051	2	4-Seam Fastball	129
## 2052	5	Slider	99
## 2053	5	4-Seam Fastball	220
## 2054	3	Curveball	61
## 2055	1	4-Seam Fastball	157
## 2056	7	Changeup	215
## 2057	1	Slider	332
## 2058	2	Sinker	159
## 2059	2	Curveball	64
## 2060	2	Slider	119
## 2061	5	Sinker	142
## 2062	6	Changeup	269
## 2063	6	Sinker	197
## 2064	2	Slider	123
## 2065	3	4-Seam Fastball	143
## 2066	2	Slider	57
## 2067	6	Changeup	283
## 2068	2	4-Seam Fastball	157
## 2069	5	4-Seam Fastball	163
## 2070	6	4-Seam Fastball	189
## 2071	4	Changeup	233
## 2072	5	Sinker	141
## 2073	3	Changeup	127
## 2074	2	4-Seam Fastball	207
## 2075	4	4-Seam Fastball	222
## 2076	2	4-Seam Fastball	235
## 2077	2	Changeup	229
## 2078	6	Sinker	211
## 2079	2	Slider	54
## 2080	1	4-Seam Fastball	144
## 2081	2	Sinker	226
## 2082	5	Curveball	45
## 2083	2	4-Seam Fastball	212
## 2084	1	Cutter	134



## 2085	1 4-Seam Fastball	207
## 2086	4 Slider	103
## 2087	4 Changeup	251
## 2088	1 4-Seam Fastball	228
## 2089	2 Sinker	214
## 2090	3 Cutter	193
## 2091	2 4-Seam Fastball	197
## 2092	5 4-Seam Fastball	202
## 2093	1 4-Seam Fastball	168
## 2094	2 Sinker	219
## 2095	3 4-Seam Fastball	222
## 2096	1 4-Seam Fastball	231
## 2097	4 Sinker	233
## 2098	6 Slider	38
## 2099	1 Split-Finger	241
## 2100	1 Sinker	225
## 2101	4 Changeup	235
## 2102	1 4-Seam Fastball	217
## 2103	2 Changeup	133
## 2104	2 Slider	112
## 2105	2 4-Seam Fastball	208
## 2106	3 Slider	74
## 2107	2 4-Seam Fastball	210
## 2108	2 4-Seam Fastball	212
## 2109	7 Sinker	213
## 2110	5 4-Seam Fastball	201
## 2111	3 Slider	181
## 2112	4 4-Seam Fastball	208
## 2113	2 Sinker	181
## 2114	1 Changeup	118
## 2115	6 Sinker	217
## 2116	7 Slider	66
## 2117	1 4-Seam Fastball	235
## 2118	1 4-Seam Fastball	213
## 2119	1 4-Seam Fastball	157
## 2120	5 Changeup	119
## 2121	3 Cutter	194
## 2122	4 4-Seam Fastball	195
## 2123	4 Sinker	139
## 2124	5 Curveball	53
## 2125	1 Slider	124
## 2126	4 Sinker	229
## 2127	1 Slider	89
## 2128	2 Slider	83
## 2129	2 Sinker	206
## 2130	2 Sinker	147
## 2131	5 Changeup	274
## 2132	5 4-Seam Fastball	231
## 2133	3 Sinker	237
## 2134	3 4-Seam Fastball	216
## 2135	6 Changeup	237
## 2136	2 4-Seam Fastball	146
## 2137	1 Slider	114
## 2138	5 Slider	267

## 2139	3 4-Seam Fastball	208
## 2140	4 Curveball	33
## 2141	6 4-Seam Fastball	200
## 2142	1 Curveball	44
## 2143	1 4-Seam Fastball	206
## 2144	4 Cutter	169
## 2145	1 Curveball	41
## 2146	1 Slider	58
## 2147	3 4-Seam Fastball	213
## 2148	1 Sinker	234
## 2149	1 Sinker	222
## 2150	2 Changeup	260
## 2151	5 Sinker	209
## 2152	1 4-Seam Fastball	141
## 2153	3 Slider	186
## 2154	5 Cutter	191
## 2155	1 Cutter	167
## 2156	1 Curveball	336
## 2157	5 Cutter	172
## 2158	2 Changeup	125
## 2159	4 Slider	301
## 2160	5 Changeup	291
## 2161	1 Sinker	226
## 2162	1 Slider	167
## 2163	1 Curveball	60
## 2164	4 4-Seam Fastball	139
## 2165	1 Knuckle Curve	29
## 2166	4 4-Seam Fastball	159
## 2167	1 4-Seam Fastball	204
## 2168	1 Sinker	206
## 2169	2 Slider	71
## 2170	5 4-Seam Fastball	209
## 2171	5 Curveball	331
## 2172	4 4-Seam Fastball	139
## 2173	1 Changeup	132
## 2174	3 Sinker	208
## 2175	3 Changeup	199
## 2176	3 4-Seam Fastball	211
## 2177	2 Slider	103
## 2178	4 Changeup	268
## 2179	5 Sinker	209
## 2180	2 Cutter	198
## 2181	1 Sinker	210
## 2182	3 Slider	143
## 2183	4 Slider	109
## 2184	1 Slider	191
## 2185	5 Changeup	214
## 2186	2 Cutter	203
## 2187	1 Sinker	235
## 2188	6 Sinker	207
## 2189	3 Changeup	96
## 2190	2 Slider	169
## 2191	5 4-Seam Fastball	209
## 2192	1 4-Seam Fastball	206

## 2193	3	Changeup	136
## 2194	3	Changeup	232
## 2195	2	4-Seam Fastball	199
## 2196	4	Curveball	324
## 2197	4	Changeup	220
## 2198	4	Changeup	225
## 2199	3	Slider	108
## 2200	4	Knuckle Curve	23
## 2201	6	Cutter	172
## 2202	2	Slider	93
## 2203	4	Sinker	201
## 2204	4	Sinker	137
## 2205	5	Changeup	250
## 2206	1	Changeup	222
## 2207	3	Slider	127
## 2208	4	Knuckle Curve	18
## 2209	3	4-Seam Fastball	138
## 2210	6	4-Seam Fastball	229
## 2211	2	Sinker	209
## 2212	2	Changeup	242
## 2213	3	Changeup	248
## 2214	2	4-Seam Fastball	211
## 2215	4	Slider	255
## 2216	3	Cutter	183
## 2217	6	Sinker	NA
## 2218	3	4-Seam Fastball	180
## 2219	2	Sinker	220
## 2220	4	Slider	305
## 2221	4	Changeup	254
## 2222	5	Sinker	224
## 2223	1	4-Seam Fastball	146
## 2224	4	Curveball	49
## 2225	1	Cutter	210
## 2226	1	4-Seam Fastball	138
## 2227	5	Slider	123
## 2228	2	Slider	70
## 2229	4	4-Seam Fastball	224
## 2230	4	Cutter	160
## 2231	4	Changeup	245
## 2232	3	Curveball	29
## 2233	3	Changeup	130
## 2234	6	Sinker	213
## 2235	3	4-Seam Fastball	159
## 2236	5	Slider	103
## 2237	7	4-Seam Fastball	166
## 2238	1	4-Seam Fastball	211
## 2239	3	4-Seam Fastball	139
## 2240	3	4-Seam Fastball	151
## 2241	1	4-Seam Fastball	232
## 2242	4	Slider	42
## 2243	7	4-Seam Fastball	217
## 2244	2	Knuckle Curve	60
## 2245	3	4-Seam Fastball	201
## 2246	3	Curveball	324

## 2247	4	Changeup	242
## 2248	2	Slider	93
## 2249	2	Changeup	133
## 2250	2	Changeup	124
## 2251	2	Changeup	144
## 2252	9	4-Seam Fastball	220
## 2253	3	Cutter	208
## 2254	4	Slider	77
## 2255	1	Cutter	188
## 2256	4	4-Seam Fastball	224
## 2257	1	Slider	95
## 2258	5	Slider	31
## 2259	4	Slider	140
## 2260	4	Sinker	222
## 2261	3	Knuckle Curve	24
## 2262	3	4-Seam Fastball	202
## 2263	1	Curveball	34
## 2264	4	4-Seam Fastball	201
## 2265	3	Cutter	191
## 2266	1	Slider	147
## 2267	3	4-Seam Fastball	159
## 2268	6	Slider	107
## 2269	1	4-Seam Fastball	237
## 2270	3	Sinker	195
## 2271	3	Sinker	202
## 2272	1	Slider	162
## 2273	6	Knuckle Curve	340
## 2274	5	Sinker	156
## 2275	5	Changeup	243
## 2276	2	Slider	314
## 2277	3	4-Seam Fastball	226
## 2278	2	4-Seam Fastball	156
## 2279	2	Sinker	218
## 2280	1	Slider	198
## 2281	6	Cutter	175
## 2282	1	4-Seam Fastball	206
## 2283	2	4-Seam Fastball	204
## 2284	2	4-Seam Fastball	145
## 2285	3	Sinker	253
## 2286	2	Sinker	220
## 2287	1	Sinker	211
## 2288	2	Slider	91
## 2289	1	Knuckle Curve	58
## 2290	3	4-Seam Fastball	208
## 2291	5	Slider	60
## 2292	1	Sinker	226
## 2293	1	Sinker	209
## 2294	2	Slider	201
## 2295	1	4-Seam Fastball	216
## 2296	5	4-Seam Fastball	232
## 2297	4	Sinker	215
## 2298	3	Changeup	241
## 2299	2	4-Seam Fastball	198
## 2300	1	4-Seam Fastball	135

## 2301	3	Cutter	187
## 2302	3	Slider	335
## 2303	5	Cutter	175
## 2304	3	Slider	258
## 2305	2	4-Seam Fastball	220
## 2306	6	4-Seam Fastball	221
## 2307	5	Sinker	217
## 2308	3	Curveball	34
## 2309	2	Curveball	63
## 2310	2	Changeup	93
## 2311	2	Slider	157
## 2312	7	Split-Finger	226
## 2313	2	Cutter	179
## 2314	2	Slider	104
## 2315	1	4-Seam Fastball	129
## 2316	3	Sinker	208
## 2317	3	Slider	177
## 2318	6	Slider	188
## 2319	1	4-Seam Fastball	215
## 2320	2	Changeup	229
## 2321	1	Slider	319
## 2322	1	Slider	128
## 2323	4	4-Seam Fastball	214
## 2324	1	Slider	95
## 2325	1	Slider	76
## 2326	2	Sinker	201
## 2327	1	Knuckle Curve	40
## 2328	1	Slider	97
## 2329	7	4-Seam Fastball	217
## 2330	1	Curveball	302
## 2331	3	Slider	301
## 2332	2	Sinker	199
## 2333	4	Slider	56
## 2334	2	Changeup	245
## 2335	4	4-Seam Fastball	214
## 2336	6	Cutter	192
## 2337	1	Slider	149
## 2338	5	4-Seam Fastball	206
## 2339	4	Cutter	198
## 2340	4	Slider	45
## 2341	3	Sinker	219
## 2342	3	Sinker	210
## 2343	2	Changeup	118
## 2344	3	4-Seam Fastball	197
## 2345	2	4-Seam Fastball	228
## 2346	2	Curveball	59
## 2347	2	4-Seam Fastball	191
## 2348	5	4-Seam Fastball	199
## 2349	3	Slider	108
## 2350	2	Slider	50
## 2351	5	4-Seam Fastball	215
## 2352	5	Sinker	213
## 2353	1	4-Seam Fastball	152
## 2354	2	Knuckle Curve	21

## 2355	7	Changeup	222
## 2356	1	Curveball	317
## 2357	2	4-Seam Fastball	152
## 2358	4	Cutter	171
## 2359	1	4-Seam Fastball	188
## 2360	2	4-Seam Fastball	149
## 2361	7	Slider	101
## 2362	3	Sinker	220
## 2363	2	Curveball	48
## 2364	1	4-Seam Fastball	221
## 2365	1	Slider	57
## 2366	1	Curveball	64
## 2367	2	Sinker	222
## 2368	2	Changeup	215
## 2369	2	Sinker	251
## 2370	2	4-Seam Fastball	213
## 2371	5	4-Seam Fastball	164
## 2372	1	Cutter	170
## 2373	4	Sinker	154
## 2374	1	Slider	70
## 2375	3	4-Seam Fastball	208
## 2376	2	Curveball	332
## 2377	2	Sinker	231
## 2378	3	4-Seam Fastball	205
## 2379	2	Changeup	250
## 2380	6	Cutter	192
## 2381	8	Slider	288
## 2382	5	Slider	137
## 2383	1	Cutter	165
## 2384	4	4-Seam Fastball	229
## 2385	1	Slider	85
## 2386	4	4-Seam Fastball	219
## 2387	1	Curveball	313
## 2388	1	Sinker	139
## 2389	8	Sinker	217
## 2390	7	Cutter	147
## 2391	1	4-Seam Fastball	229
## 2392	2	4-Seam Fastball	135
## 2393	1	Cutter	166
## 2394	3	Cutter	187
## 2395	7	Split-Finger	222
## 2396	5	4-Seam Fastball	238
## 2397	4	Changeup	104
## 2398	5	4-Seam Fastball	154
## 2399	3	Slider	77
## 2400	5	4-Seam Fastball	210
## 2401	3	Slider	187
## 2402	5	4-Seam Fastball	222
## 2403	6	Slider	173
## 2404	1	Slider	32
## 2405	5	Slider	87
## 2406	6	4-Seam Fastball	200
## 2407	4	Sinker	220
## 2408	1	Curveball	25

## 2409	6	Sinker	219
## 2410	1	4-Seam Fastball	216
## 2411	1	Curveball	326
## 2412	6	Changeup	232
## 2413	4	Slider	189
## 2414	1	Sinker	203
## 2415	2	4-Seam Fastball	201
## 2416	1	4-Seam Fastball	213
## 2417	1	4-Seam Fastball	221
## 2418	3	4-Seam Fastball	240
## 2419	1	Cutter	189
## 2420	1	4-Seam Fastball	135
## 2421	4	Knuckle Curve	335
## 2422	1	4-Seam Fastball	235
## 2423	1	Slider	71
## 2424	4	Slider	150
## 2425	2	Slider	315
## 2426	1	Changeup	293
## 2427	5	Cutter	186
## 2428	4	4-Seam Fastball	214
## 2429	1	4-Seam Fastball	206
## 2430	7	4-Seam Fastball	147
## 2431	2	Slider	218
## 2432	4	4-Seam Fastball	198
## 2433	1	Curveball	335
## 2434	4	Slider	126
## 2435	1	Sinker	214
## 2436	5	Slider	332
## 2437	1	Curveball	44
## 2438	2	Sinker	211
## 2439	3	4-Seam Fastball	192
## 2440	6	4-Seam Fastball	217
## 2441	1	4-Seam Fastball	214
## 2442	3	Curveball	67
## 2443	2	4-Seam Fastball	211
## 2444	3	Slider	80
## 2445	3	Curveball	5
## 2446	2	Slider	63
## 2447	4	Knuckle Curve	35
## 2448	2	4-Seam Fastball	222
## 2449	2	4-Seam Fastball	229
## 2450	3	Slider	47
## 2451	5	4-Seam Fastball	228
## 2452	5	4-Seam Fastball	159
## 2453	4	Slider	103
## 2454	4	Knuckle Curve	26
## 2455	7	4-Seam Fastball	189
## 2456	1	4-Seam Fastball	145
## 2457	2	4-Seam Fastball	193
## 2458	1	4-Seam Fastball	192
## 2459	3	4-Seam Fastball	148
## 2460	1	Slider	104
## 2461	4	Slider	70
## 2462	4	Cutter	168

## 2463	5	Changeup	130
## 2464	3	Slider	59
## 2465	5	Changeup	113
## 2466	2	Changeup	224
## 2467	6	4-Seam Fastball	209
## 2468	2	Cutter	201
## 2469	2	Curveball	53
## 2470	4	4-Seam Fastball	210
## 2471	4	4-Seam Fastball	226
## 2472	5	Changeup	292
## 2473	3	4-Seam Fastball	192
## 2474	3	Knuckle Curve	31
## 2475	3	4-Seam Fastball	156
## 2476	1	Sinker	222
## 2477	4	4-Seam Fastball	147
## 2478	5	Sinker	199
## 2479	5	Changeup	236
## 2480	2	Slider	249
## 2481	5	4-Seam Fastball	200
## 2482	3	Changeup	253
## 2483	1	Slider	41
## 2484	3	Knuckle Curve	12
## 2485	4	4-Seam Fastball	219
## 2486	6	Sinker	233
## 2487	3	Slider	190
## 2488	6	Slider	248
## 2489	3	4-Seam Fastball	195
## 2490	3	Slider	34
## 2491	4	Cutter	151
## 2492	1	4-Seam Fastball	227
## 2493	3	Changeup	222
## 2494	4	Changeup	247
## 2495	1	Slider	184
## 2496	4	Slider	107
## 2497	1	4-Seam Fastball	196
## 2498	1	4-Seam Fastball	139
## 2499	2	4-Seam Fastball	219
## 2500	6	Curveball	42
## 2501	2	Changeup	246
## 2502	2	Slider	84
## 2503	5	Slider	50
## 2504	1	Curveball	68
## 2505	5	Changeup	242
## 2506	6	4-Seam Fastball	212
## 2507	3	4-Seam Fastball	227
## 2508	2	4-Seam Fastball	203
## 2509	2	Cutter	174
## 2510	2	Curveball	338
## 2511	4	Slider	88
## 2512	1	4-Seam Fastball	137
## 2513	3	Knuckle Curve	35
## 2514	9	Cutter	190
## 2515	4	Changeup	132
## 2516	2	4-Seam Fastball	204



## 2517	2 4-Seam Fastball	216
## 2518	4 4-Seam Fastball	155
## 2519	6 Knuckle Curve	55
## 2520	2 Slider	61
## 2521	1 Slider	84
## 2522	5 4-Seam Fastball	210
## 2523	6 4-Seam Fastball	143
## 2524	4 Changeup	118
## 2525	3 Slider	93
## 2526	2 Curveball	75
## 2527	4 Split-Finger	238
## 2528	3 Sinker	222
## 2529	3 Cutter	171
## 2530	4 Slider	324
## 2531	3 Changeup	289
## 2532	4 Cutter	212
## 2533	2 Cutter	173
## 2534	5 Changeup	245
## 2535	1 Slider	100
## 2536	5 Slider	97
## 2537	5 Changeup	229
## 2538	5 4-Seam Fastball	140
## 2539	6 Cutter	184
## 2540	1 4-Seam Fastball	138
## 2541	3 Slider	153
## 2542	4 Changeup	209
## 2543	1 Sinker	212
## 2544	5 Sinker	161
## 2545	5 Changeup	224
## 2546	3 Changeup	243
## 2547	2 Cutter	157
## 2548	3 4-Seam Fastball	145
## 2549	1 Curveball	298
## 2550	5 Changeup	220
## 2551	1 4-Seam Fastball	222
## 2552	2 4-Seam Fastball	214
## 2553	6 4-Seam Fastball	204
## 2554	1 4-Seam Fastball	207
## 2555	3 Cutter	105
## 2556	2 4-Seam Fastball	239
## 2557	1 Sinker	158
## 2558	4 Slider	66
## 2559	3 Slider	111
## 2560	4 Curveball	58
## 2561	4 Slider	308
## 2562	3 Cutter	189
## 2563	1 Slider	142
## 2564	2 Changeup	262
## 2565	1 Sinker	212
## 2566	3 Sinker	135
## 2567	1 Sinker	209
## 2568	1 4-Seam Fastball	213
## 2569	3 Changeup	240
## 2570	3 Changeup	232

## 2571	5	Sinker	221
## 2572	4	4-Seam Fastball	206
## 2573	3	4-Seam Fastball	158
## 2574	5	Sinker	225
## 2575	4	Slider	195
## 2576	1	Slider	89
## 2577	3	4-Seam Fastball	229
## 2578	2	Slider	72
## 2579	4	Curveball	55
## 2580	4	4-Seam Fastball	211
## 2581	2	4-Seam Fastball	214
## 2582	2	Knuckle Curve	343
## 2583	1	Sinker	155
## 2584	1	Sinker	222
## 2585	1	4-Seam Fastball	192
## 2586	2	4-Seam Fastball	232
## 2587	1	Cutter	167
## 2588	3	4-Seam Fastball	215
## 2589	5	4-Seam Fastball	200
## 2590	5	4-Seam Fastball	148
## 2591	2	Changeup	238
## 2592	2	Slider	126
## 2593	2	4-Seam Fastball	194
## 2594	4	Sinker	211
## 2595	2	Slider	171
## 2596	2	4-Seam Fastball	188
## 2597	5	Knuckle Curve	71
## 2598	2	Knuckle Curve	43
## 2599	5	Curveball	44
## 2600	6	Slider	313
## 2601	1	4-Seam Fastball	163
## 2602	3	4-Seam Fastball	155
## 2603	1	Sinker	230
## 2604	3	Slider	319
## 2605	3	4-Seam Fastball	228
## 2606	4	Slider	84
## 2607	5	Curveball	42
## 2608	9	4-Seam Fastball	137
## 2609	8	Slider	96
## 2610	6	Changeup	128
## 2611	2	Knuckle Curve	35
## 2612	5	Curveball	31
## 2613	4	Slider	61
## 2614	1	Changeup	253
## 2615	4	4-Seam Fastball	219
## 2616	4	Changeup	229
## 2617	3	4-Seam Fastball	134
## 2618	3	Sinker	156
## 2619	3	Slider	164
## 2620	1	4-Seam Fastball	199
## 2621	4	Slider	36
## 2622	8	4-Seam Fastball	174
## 2623	5	Curveball	319
## 2624	4	4-Seam Fastball	216

## 2625	3 4-Seam Fastball	216
## 2626	2 4-Seam Fastball	196
## 2627	4 Changeup	222
## 2628	5 Slider	306
## 2629	5 Curveball	51
## 2630	4 Changeup	277
## 2631	2 Curveball	37
## 2632	1 4-Seam Fastball	210
## 2633	5 Knuckle Curve	25
## 2634	4 Cutter	197
## 2635	2 Changeup	128
## 2636	6 4-Seam Fastball	228
## 2637	1 4-Seam Fastball	149
## 2638	3 Curveball	62
## 2639	7 Cutter	176
## 2640	6 Slider	116
## 2641	3 Slider	231
## 2642	4 Changeup	199
## 2643	4 Changeup	242
## 2644	3 Curveball	343
## 2645	7 Sinker	234
## 2646	7 Slider	78
## 2647	2 4-Seam Fastball	217
## 2648	2 4-Seam Fastball	160
## 2649	1 4-Seam Fastball	213
## 2650	5 4-Seam Fastball	220
## 2651	1 4-Seam Fastball	210
## 2652	1 Slider	49
## 2653	4 Knuckle Curve	66
## 2654	3 Changeup	275
## 2655	2 4-Seam Fastball	207
## 2656	6 Changeup	129
## 2657	5 Slider	313
## 2658	1 4-Seam Fastball	161
## 2659	5 4-Seam Fastball	201
## 2660	1 Knuckle Curve	36
## 2661	2 Sinker	229
## 2662	3 Slider	120
## 2663	4 4-Seam Fastball	207
## 2664	3 4-Seam Fastball	206
## 2665	2 Slider	83
## 2666	2 Changeup	234
## 2667	2 Slider	307
## 2668	2 4-Seam Fastball	215
## 2669	3 4-Seam Fastball	209
## 2670	4 Split-Finger	221
## 2671	4 Slider	217
## 2672	2 Sinker	227
## 2673	1 4-Seam Fastball	214
## 2674	1 Cutter	165
## 2675	1 Sinker	124
## 2676	2 Changeup	134
## 2677	3 Slider	59
## 2678	3 Slider	165

## 2679	1 4-Seam Fastball	202
## 2680	2 Sinker	138
## 2681	1 Slider	168
## 2682	4 Sinker	219
## 2683	3 Changeup	242
## 2684	1 4-Seam Fastball	230
## 2685	2 4-Seam Fastball	151
## 2686	3 Changeup	227
## 2687	2 Cutter	113
## 2688	1 4-Seam Fastball	216
## 2689	3 Slider	37
## 2690	4 Curveball	300
## 2691	7 Cutter	163
## 2692	5 4-Seam Fastball	134
## 2693	1 Sinker	228
## 2694	7 Sinker	208
## 2695	3 4-Seam Fastball	166
## 2696	4 4-Seam Fastball	215
## 2697	2 Changeup	229
## 2698	5 4-Seam Fastball	209
## 2699	1 Sinker	231
## 2700	4 4-Seam Fastball	144
## 2701	3 Sinker	100
## 2702	2 Slider	320
## 2703	3 Cutter	239
## 2704	8 Slider	339
## 2705	4 4-Seam Fastball	137
## 2706	3 4-Seam Fastball	216
## 2707	4 Cutter	171
## 2708	3 Sinker	224
## 2709	3 4-Seam Fastball	222
## 2710	1 4-Seam Fastball	192
## 2711	2 Curveball	46
## 2712	1 Slider	161
## 2713	3 Sinker	213
## 2714	4 Slider	100
## 2715	3 Sinker	206
## 2716	2 Curveball	36
## 2717	3 4-Seam Fastball	160
## 2718	4 Changeup	110
## 2719	3 4-Seam Fastball	203
## 2720	2 4-Seam Fastball	333
## 2721	2 Sinker	138
## 2722	5 Slider	94
## 2723	5 4-Seam Fastball	207
## 2724	5 Slider	94
## 2725	3 4-Seam Fastball	144
## 2726	2 Changeup	223
## 2727	2 Cutter	141
## 2728	2 Slider	92
## 2729	1 4-Seam Fastball	204
## 2730	1 Slider	320
## 2731	3 4-Seam Fastball	209
## 2732	6 Cutter	181

## 2733	1 4-Seam Fastball	212
## 2734	1 Sinker	140
## 2735	3 Curveball	50
## 2736	2 Curveball	322
## 2737	1 4-Seam Fastball	225
## 2738	1 4-Seam Fastball	207
## 2739	4 Slider	292
## 2740	5 Knuckle Curve	20
## 2741	2 Changeup	226
## 2742	2 Sinker	99
## 2743	2 Changeup	277
## 2744	5 Curveball	21
## 2745	1 4-Seam Fastball	225
## 2746	2 4-Seam Fastball	216
## 2747	8 Knuckle Curve	34
## 2748	2 Changeup	228
## 2749	6 Cutter	163
## 2750	2 Changeup	107
## 2751	6 Cutter	34
## 2752	6 4-Seam Fastball	209
## 2753	1 Slider	315
## 2754	1 Slider	36
## 2755	3 4-Seam Fastball	195
## 2756	3 Curveball	39
## 2757	4 4-Seam Fastball	219
## 2758	3 Changeup	118
## 2759	6 Changeup	231
## 2760	3 Changeup	209
## 2761	1 Changeup	210
## 2762	6 Split-Finger	241
## 2763	2 Slider	39
## 2764	3 Slider	187
## 2765	5 Changeup	128
## 2766	5 4-Seam Fastball	223
## 2767	4 4-Seam Fastball	207
## 2768	2 Slider	56
## 2769	2 Sinker	202
## 2770	1 Sinker	224
## 2771	1 Slider	107
## 2772	4 4-Seam Fastball	206
## 2773	3 Sinker	227
## 2774	1 Curveball	56
## 2775	2 Slider	98
## 2776	2 4-Seam Fastball	206
## 2777	5 4-Seam Fastball	195
## 2778	1 4-Seam Fastball	327
## 2779	2 Cutter	176
## 2780	2 Slider	105
## 2781	7 4-Seam Fastball	136
## 2782	2 Slider	233
## 2783	3 Cutter	173
## 2784	5 4-Seam Fastball	147
## 2785	5 Curveball	40
## 2786	4 Changeup	264

## 2787	4 4-Seam Fastball	158
## 2788	2 Cutter	208
## 2789	3 Sinker	228
## 2790	4 4-Seam Fastball	194
## 2791	2 4-Seam Fastball	139
## 2792	7 Slider	334
## 2793	4 Slider	99
## 2794	2 Sinker	283
## 2795	3 Cutter	185
## 2796	4 Sinker	144
## 2797	8 Changeup	305
## 2798	3 Split-Finger	228
## 2799	1 4-Seam Fastball	147
## 2800	3 Slider	235
## 2801	2 Slider	43
## 2802	4 Slider	101
## 2803	2 4-Seam Fastball	166
## 2804	6 Sinker	235
## 2805	1 4-Seam Fastball	159
## 2806	3 Slider	189
## 2807	2 Sinker	159
## 2808	1 Curveball	316
## 2809	5 4-Seam Fastball	194
## 2810	1 4-Seam Fastball	150
## 2811	3 Changeup	246
## 2812	1 Knuckle Curve	51
## 2813	1 4-Seam Fastball	215
## 2814	1 Slider	36
## 2815	4 4-Seam Fastball	212
## 2816	1 Curveball	53
## 2817	10 4-Seam Fastball	216
## 2818	3 Slider	83
## 2819	6 Sinker	135
## 2820	1 4-Seam Fastball	211
## 2821	3 4-Seam Fastball	209
## 2822	5 Slider	64
## 2823	2 Slider	174
## 2824	1 Cutter	157
## 2825	6 4-Seam Fastball	149
## 2826	1 Changeup	229
## 2827	6 4-Seam Fastball	135
## 2828	1 4-Seam Fastball	210
## 2829	1 Sinker	156
## 2830	1 Slider	26
## 2831	1 4-Seam Fastball	200
## 2832	1 Slider	205
## 2833	2 Cutter	200
## 2834	2 Curveball	65
## 2835	4 Curveball	35
## 2836	1 Slider	134
## 2837	1 4-Seam Fastball	216
## 2838	1 Sinker	194
## 2839	5 Cutter	39
## 2840	6 Changeup	239

## 2841	5	Changeup	226
## 2842	1	Sinker	208
## 2843	1	Sinker	125
## 2844	2	4-Seam Fastball	218
## 2845	4	Cutter	170
## 2846	2	Cutter	174
## 2847	3	Sinker	161
## 2848	1	Slider	99
## 2849	1	4-Seam Fastball	146
## 2850	9	Slider	106
## 2851	1	Slider	45
## 2852	1	Curveball	325
## 2853	3	Slider	51
## 2854	2	4-Seam Fastball	144
## 2855	2	Knuckle Curve	69
## 2856	3	Changeup	244
## 2857	5	Curveball	46
## 2858	6	4-Seam Fastball	196
## 2859	7	4-Seam Fastball	230
## 2860	3	Changeup	231
## 2861	4	Slider	102
## 2862	4	Cutter	216
## 2863	7	Split-Finger	234
## 2864	2	Sinker	216
## 2865	1	Sinker	198
## 2866	2	Slider	93
## 2867	6	Changeup	252
## 2868	1	4-Seam Fastball	228
## 2869	4	4-Seam Fastball	226
## 2870	2	Slider	182
## 2871	3	4-Seam Fastball	198
## 2872	2	4-Seam Fastball	142
## 2873	4	Sinker	224
## 2874	5	Cutter	178
## 2875	3	Slider	19
## 2876	1	Cutter	249
## 2877	4	Slider	NA
## 2878	5	Sinker	133
## 2879	2	Slider	252
## 2880	3	Curveball	42
## 2881	4	Cutter	189
## 2882	1	Curveball	334
## 2883	2	Sinker	231
## 2884	4	4-Seam Fastball	227
## 2885	1	Sinker	212
## 2886	7	4-Seam Fastball	225
## 2887	4	4-Seam Fastball	215
## 2888	3	Slider	165
## 2889	3	Slider	52
## 2890	6	Sinker	219
## 2891	3	Slider	98
## 2892	1	Slider	76
## 2893	2	Cutter	182
## 2894	3	Slider	112

## 2895	4	Changeup	133
## 2896	1	Slider	290
## 2897	5	Slider	132
## 2898	2	Cutter	200
## 2899	6	4-Seam Fastball	135
## 2900	4	4-Seam Fastball	201
## 2901	2	Sinker	185
## 2902	2	Curveball	37
## 2903	4	Slider	282
## 2904	2	4-Seam Fastball	199
## 2905	1	Changeup	133
## 2906	3	Sinker	211
## 2907	5	Slider	98
## 2908	3	4-Seam Fastball	157
## 2909	5	4-Seam Fastball	214
## 2910	2	Cutter	169
## 2911	1	Sinker	207
## 2912	5	Knuckle Curve	57
## 2913	3	Changeup	128
## 2914	1	4-Seam Fastball	209
## 2915	2	Slider	197
## 2916	1	Sinker	118
## 2917	3	Changeup	294
## 2918	1	Slider	64
## 2919	7	4-Seam Fastball	206
## 2920	3	4-Seam Fastball	206
## 2921	3	Slider	293
## 2922	1	Sinker	198
## 2923	4	Sinker	233
## 2924	1	Curveball	327
## 2925	3	4-Seam Fastball	160
## 2926	3	Slider	161
## 2927	1	Knuckle Curve	75
## 2928	2	Slider	150
## 2929	7	4-Seam Fastball	201
## 2930	4	Sinker	213
## 2931	2	Slider	35
## 2932	5	Slider	304
## 2933	1	Slider	72
## 2934	6	4-Seam Fastball	205
## 2935	4	4-Seam Fastball	234
## 2936	2	4-Seam Fastball	163
## 2937	6	4-Seam Fastball	207
## 2938	7	Changeup	143
## 2939	5	Slider	314
## 2940	3	Sinker	222
## 2941	2	Sinker	128
## 2942	3	4-Seam Fastball	218
## 2943	1	Slider	86
## 2944	3	4-Seam Fastball	200
## 2945	2	Slider	103
## 2946	1	4-Seam Fastball	220
## 2947	1	4-Seam Fastball	223
## 2948	4	Cutter	169



## 2949	1 4-Seam Fastball	202
## 2950	1 Cutter	173
## 2951	7 4-Seam Fastball	146
## 2952	2 Slider	82
## 2953	4 4-Seam Fastball	214
## 2954	1 Cutter	184
## 2955	5 Sinker	218
## 2956	2 Curveball	40
## 2957	1 Cutter	181
## 2958	5 Sinker	144
## 2959	5 4-Seam Fastball	149
## 2960	3 Curveball	279
## 2961	5 Slider	75
## 2962	6 4-Seam Fastball	211
## 2963	1 Cutter	184
## 2964	1 4-Seam Fastball	145
## 2965	1 4-Seam Fastball	212
## 2966	6 4-Seam Fastball	203
## 2967	5 Changeup	111
## 2968	6 Slider	54
## 2969	2 Slider	138
## 2970	4 4-Seam Fastball	210
## 2971	4 Sinker	205
## 2972	5 Cutter	157
## 2973	5 Curveball	45
## 2974	1 Sinker	214
## 2975	2 Changeup	269
## 2976	1 Slider	160
## 2977	4 Slider	94
## 2978	3 4-Seam Fastball	215
## 2979	1 Sinker	212
## 2980	6 4-Seam Fastball	211
## 2981	6 Changeup	276
## 2982	3 Changeup	119
## 2983	2 Changeup	227
## 2984	6 Slider	267
## 2985	2 Changeup	253
## 2986	6 4-Seam Fastball	206
## 2987	2 Slider	63
## 2988	5 Sinker	187
## 2989	3 4-Seam Fastball	202
## 2990	5 Slider	80
## 2991	6 Changeup	249
## 2992	3 Slider	176
## 2993	5 Knuckle Curve	57
## 2994	3 4-Seam Fastball	197
## 2995	1 4-Seam Fastball	218
## 2996	2 Changeup	130
## 2997	2 4-Seam Fastball	203
## 2998	2 Sinker	216
## 2999	4 Knuckle Curve	57
## 3000	2 Sinker	99
## 3001	2 4-Seam Fastball	210
## 3002	6 Split-Finger	235

## 3003	2	Slider	57
## 3004	5	4-Seam Fastball	281
## 3005	1	4-Seam Fastball	139
## 3006	4	4-Seam Fastball	219
## 3007	1	Slider	189
## 3008	2	Slider	86
## 3009	4	Slider	70
## 3010	1	Slider	90
## 3011	1	Slider	70
## 3012	5	Slider	95
## 3013	1	4-Seam Fastball	149
## 3014	1	4-Seam Fastball	198
## 3015	2	4-Seam Fastball	329
## 3016	2	Slider	312
## 3017	3	4-Seam Fastball	223
## 3018	3	4-Seam Fastball	197
## 3019	1	4-Seam Fastball	129
## 3020	8	Curveball	67
## 3021	4	Sinker	141
## 3022	6	Sinker	263
## 3023	7	Split-Finger	119
## 3024	5	4-Seam Fastball	215
## 3025	5	4-Seam Fastball	222
## 3026	3	Knuckle Curve	28
## 3027	3	Sinker	142
## 3028	4	4-Seam Fastball	216
## 3029	4	Slider	39
## 3030	4	Changeup	247
## 3031	1	Knuckle Curve	41
## 3032	4	Slider	63
## 3033	4	4-Seam Fastball	227
## 3034	4	Sinker	219
## 3035	1	4-Seam Fastball	209
## 3036	2	4-Seam Fastball	213
## 3037	3	4-Seam Fastball	220
## 3038	2	Curveball	43
## 3039	1	Slider	113
## 3040	1	4-Seam Fastball	167
## 3041	4	4-Seam Fastball	155
## 3042	2	4-Seam Fastball	146
## 3043	1	4-Seam Fastball	210
## 3044	3	Split-Finger	234
## 3045	5	4-Seam Fastball	220
## 3046	3	4-Seam Fastball	223
## 3047	1	Curveball	329
## 3048	6	4-Seam Fastball	162
## 3049	5	Changeup	277
## 3050	1	Sinker	222
## 3051	7	Slider	96
## 3052	1	Sinker	132
## 3053	5	Slider	68
## 3054	7	Sinker	207
## 3055	2	Cutter	168
## 3056	2	4-Seam Fastball	197

## 3057	7	Sinker	226
## 3058	3	Cutter	171
## 3059	2	Changeup	118
## 3060	6	Curveball	38
## 3061	6	Slider	84
## 3062	2	Cutter	121
## 3063	4	Slider	332
## 3064	3	4-Seam Fastball	228
## 3065	1	Sinker	251
## 3066	1	Slider	58
## 3067	5	Changeup	234
## 3068	3	4-Seam Fastball	214
## 3069	4	4-Seam Fastball	147
## 3070	6	Cutter	61
## 3071	3	4-Seam Fastball	202
## 3072	4	4-Seam Fastball	212
## 3073	3	Sinker	234
## 3074	1	Sinker	216
## 3075	2	Sinker	222
## 3076	5	4-Seam Fastball	209
## 3077	6	4-Seam Fastball	153
## 3078	4	Changeup	235
## 3079	1	Cutter	188
## 3080	2	Slider	175
## 3081	1	4-Seam Fastball	144
## 3082	3	Cutter	199
## 3083	5	4-Seam Fastball	215
## 3084	1	4-Seam Fastball	204
## 3085	9	Sinker	211
## 3086	4	Slider	93
## 3087	2	Slider	144
## 3088	3	Slider	209
## 3089	4	Curveball	307
## 3090	5	4-Seam Fastball	212
## 3091	1	Sinker	100
## 3092	4	Sinker	119
## 3093	3	Sinker	208
## 3094	2	4-Seam Fastball	216
## 3095	2	Changeup	124
## 3096	5	Slider	241
## 3097	2	Split-Finger	245
## 3098	4	Changeup	127
## 3099	4	Sinker	149
## 3100	2	Changeup	143
## 3101	2	Cutter	172
## 3102	3	Changeup	221
## 3103	5	4-Seam Fastball	219
## 3104	4	Sinker	290
## 3105	2	Cutter	175
## 3106	3	Cutter	52
## 3107	4	Slider	191
## 3108	4	Changeup	223
## 3109	5	Slider	249
## 3110	6	Changeup	127

## 3111	1	Knuckle Curve	15
## 3112	4	Curveball	72
## 3113	3	Slider	84
## 3114	4	Slider	107
## 3115	5	Slider	332
## 3116	1	Slider	99
## 3117	1	Slider	28
## 3118	6	4-Seam Fastball	141
## 3119	2	4-Seam Fastball	230
## 3120	5	Changeup	299
## 3121	1	4-Seam Fastball	216
## 3122	2	Slider	190
## 3123	3	Curveball	315
## 3124	3	Cutter	171
## 3125	5	4-Seam Fastball	150
## 3126	1	Slider	57
## 3127	3	Cutter	187
## 3128	3	4-Seam Fastball	148
## 3129	5	Knuckle Curve	13
## 3130	4	Slider	99
## 3131	5	Slider	49
## 3132	5	Curveball	38
## 3133	5	4-Seam Fastball	204
## 3134	1	4-Seam Fastball	217
## 3135	4	Slider	319
## 3136	1	Slider	99
## 3137	2	Sinker	214
## 3138	1	4-Seam Fastball	155
## 3139	5	Changeup	130
## 3140	4	Split-Finger	236
## 3141	4	Sinker	216
## 3142	5	4-Seam Fastball	217
## 3143	1	4-Seam Fastball	216
## 3144	4	Knuckle Curve	38
## 3145	5	Slider	293
## 3146	3	4-Seam Fastball	200
## 3147	2	Sinker	239
## 3148	6	4-Seam Fastball	221
## 3149	3	4-Seam Fastball	217
## 3150	4	Cutter	178
## 3151	2	Slider	224
## 3152	2	4-Seam Fastball	213
## 3153	3	Slider	351
## 3154	3	4-Seam Fastball	192
## 3155	3	Curveball	359
## 3156	2	Knuckle Curve	51
## 3157	3	Sinker	118
## 3158	5	4-Seam Fastball	211
## 3159	2	Curveball	54
## 3160	4	Cutter	184
## 3161	4	Changeup	293
## 3162	9	Knuckle Curve	35
## 3163	4	4-Seam Fastball	168
## 3164	3	Sinker	148

## 3165	2	Curveball	33
## 3166	2	Cutter	179
## 3167	4	Curveball	21
## 3168	5	4-Seam Fastball	328
## 3169	1	Curveball	50
## 3170	3	Slider	148
## 3171	4	Cutter	188
## 3172	3	Sinker	238
## 3173	3	Sinker	102
## 3174	4	4-Seam Fastball	217
## 3175	4	4-Seam Fastball	197
## 3176	5	4-Seam Fastball	130
## 3177	3	Slider	16
## 3178	1	Split-Finger	247
## 3179	4	4-Seam Fastball	209
## 3180	1	4-Seam Fastball	193
## 3181	3	Changeup	249
## 3182	1	Slider	141
## 3183	3	Sinker	140
## 3184	3	Slider	314
## 3185	1	4-Seam Fastball	213
## 3186	4	Slider	275
## 3187	3	4-Seam Fastball	209
## 3188	2	Split-Finger	218
## 3189	3	Slider	62
## 3190	4	Slider	75
## 3191	9	Curveball	33
## 3192	8	Changeup	223
## 3193	5	Changeup	128
## 3194	4	4-Seam Fastball	255
## 3195	6	4-Seam Fastball	159
## 3196	4	Slider	84
## 3197	1	Curveball	326
## 3198	4	Curveball	33
## 3199	6	Cutter	165
## 3200	3	Changeup	228
## 3201	3	4-Seam Fastball	193
## 3202	2	4-Seam Fastball	231
## 3203	3	Cutter	206
## 3204	1	Cutter	131
## 3205	1	Cutter	176
## 3206	3	4-Seam Fastball	147
## 3207	3	4-Seam Fastball	217
## 3208	3	Slider	90
## 3209	4	Changeup	247
## 3210	2	Sinker	154
## 3211	3	Changeup	239
## 3212	2	4-Seam Fastball	149
## 3213	1	Curveball	37
## 3214	1	Sinker	123
## 3215	1	Slider	210
## 3216	4	4-Seam Fastball	219
## 3217	4	Sinker	214
## 3218	4	4-Seam Fastball	208

## 3219	1	Slider	301
## 3220	3	Slider	64
## 3221	3	Sinker	266
## 3222	2	4-Seam Fastball	145
## 3223	3	Changeup	217
## 3224	4	Changeup	273
## 3225	2	4-Seam Fastball	207
## 3226	6	Slider	321
## 3227	4	4-Seam Fastball	146
## 3228	3	Curveball	320
## 3229	3	Cutter	173
## 3230	2	Sinker	204
## 3231	1	4-Seam Fastball	190
## 3232	2	4-Seam Fastball	221
## 3233	4	Changeup	238
## 3234	4	4-Seam Fastball	137
## 3235	2	Sinker	219
## 3236	6	Slider	78
## 3237	4	Sinker	225
## 3238	2	4-Seam Fastball	140
## 3239	2	4-Seam Fastball	199
## 3240	5	Slider	67
## 3241	4	4-Seam Fastball	209
## 3242	1	4-Seam Fastball	152
## 3243	1	Sinker	229
## 3244	2	Cutter	189
## 3245	2	Cutter	170
## 3246	5	4-Seam Fastball	143
## 3247	1	Changeup	252
## 3248	7	Sinker	206
## 3249	2	Cutter	170
## 3250	3	Slider	174
## 3251	3	4-Seam Fastball	161
## 3252	3	4-Seam Fastball	141
## 3253	2	4-Seam Fastball	215
## 3254	4	4-Seam Fastball	224
## 3255	1	Cutter	166
## 3256	1	4-Seam Fastball	202
## 3257	5	Slider	322
## 3258	3	Cutter	193
## 3259	3	4-Seam Fastball	205
## 3260	1	Curveball	24
## 3261	3	4-Seam Fastball	260
## 3262	2	4-Seam Fastball	139
## 3263	1	4-Seam Fastball	215
## 3264	8	Slider	23
## 3265	1	Curveball	46
## 3266	5	4-Seam Fastball	203
## 3267	8	Cutter	180
## 3268	1	4-Seam Fastball	221
## 3269	3	Slider	32
## 3270	4	Split-Finger	68
## 3271	2	Changeup	235
## 3272	4	4-Seam Fastball	330

## 3273	3	4-Seam Fastball	212
## 3274	4	Slider	60
## 3275	6	Cutter	128
## 3276	2	Slider	36
## 3277	2	Sinker	234
## 3278	3	Changeup	244
## 3279	2	Slider	58
## 3280	1	Sinker	154
## 3281	3	4-Seam Fastball	216
## 3282	3	4-Seam Fastball	135
## 3283	1	Cutter	175
## 3284	2	Changeup	231
## 3285	2	4-Seam Fastball	220
## 3286	1	Sinker	154
## 3287	8	Sinker	224
## 3288	3	Cutter	172
## 3289	1	Slider	309
## 3290	3	Slider	105
## 3291	1	4-Seam Fastball	222
## 3292	3	Knuckle Curve	18
## 3293	3	4-Seam Fastball	208
## 3294	2	4-Seam Fastball	210
## 3295	2	Curveball	327
## 3296	2	Sinker	140
## 3297	2	4-Seam Fastball	103
## 3298	3	Sinker	217
## 3299	1	Curveball	31
## 3300	2	Curveball	47
## 3301	5	Changeup	122
## 3302	2	Sinker	117
## 3303	3	4-Seam Fastball	203
## 3304	2	Sinker	279
## 3305	4	4-Seam Fastball	212
## 3306	5	4-Seam Fastball	159
## 3307	2	4-Seam Fastball	210
## 3308	6	Cutter	189
## 3309	1	4-Seam Fastball	217
## 3310	5	Changeup	236
## 3311	2	Slider	202
## 3312	1	Curveball	13
## 3313	3	4-Seam Fastball	146
## 3314	4	4-Seam Fastball	224
## 3315	7	Curveball	22
## 3316	3	Curveball	53
## 3317	3	Changeup	221
## 3318	2	Sinker	149
## 3319	1	4-Seam Fastball	135
## 3320	1	4-Seam Fastball	147
## 3321	1	4-Seam Fastball	151
## 3322	3	4-Seam Fastball	211
## 3323	3	4-Seam Fastball	206
## 3324	2	Cutter	169
## 3325	2	Changeup	257
## 3326	1	Curveball	305

```
## 3327          4 4-Seam Fastball          142
## 3328          1 4-Seam Fastball          224
## 3329          3          Slider           96
## 3330          4          Slider          103
## 3331          1          Sinker          140
## 3332          2          Cutter          199
## 3333          4 4-Seam Fastball          136
## [ reached 'max' / getOption("max.print") -- omitted 470148 rows ]
```

```
# remove NAs
df <- df[!(is.na(df$release_spin_rate)|is.na(df$pitch_type)|is.na(df$pitch_name)|is.na(df$zone)), ]
```

To normalize the spin rates in order to compare spin rates with different pitch velocities, I convert the spin rates to Bauer Units in a Bauer Units Column. I also convert the date values to Date data types in R. I then designate which team is pitching. I also remove pitch types not commonly used in the league.

```
#create Baur units column
df$b_units <- df$release_spin_rate/df$release_speed

#month and week of game date
df$month <- month(as_date(df$game_date))
df$week <- week(as_date(df$game_date))
df$week_of <- as.Date(sapply (as_date(df$game_date), function(d) { return (d + (-6 - as.POSIXlt(d)$wday
df$pitch_team <- ifelse(df$inning_topbot == "Bot", df$away_team,df$home_team)
df2 <- df[df$pitch_name != "Fastball" & df$pitch_name != "Knuckleball" & df$pitch_name != "Eephus" & df$
```

Here, I have grouped the data by its average daily, weekly, and monthly spin rates and taken averages of the points of data to get one point for each day, week, and month. Then, I have put that data in a table.

```
# start of analysis

daily_avg_spin <- aggregate(df2$release_spin_rate, list(df2$game_date), FUN=mean)
colnames(daily_avg_spin) <- c('date', 'spin_rate')
weekly_avg_spin <- aggregate(df2$release_spin_rate, list(df2$week_of), FUN=mean)
colnames(weekly_avg_spin) <- c('week_of', 'spin_rate')
monthly_avg_spin <- aggregate(df2$release_spin_rate, list(df2$month), FUN=mean)
colnames(monthly_avg_spin) <- c('month', 'spin_rate')
```

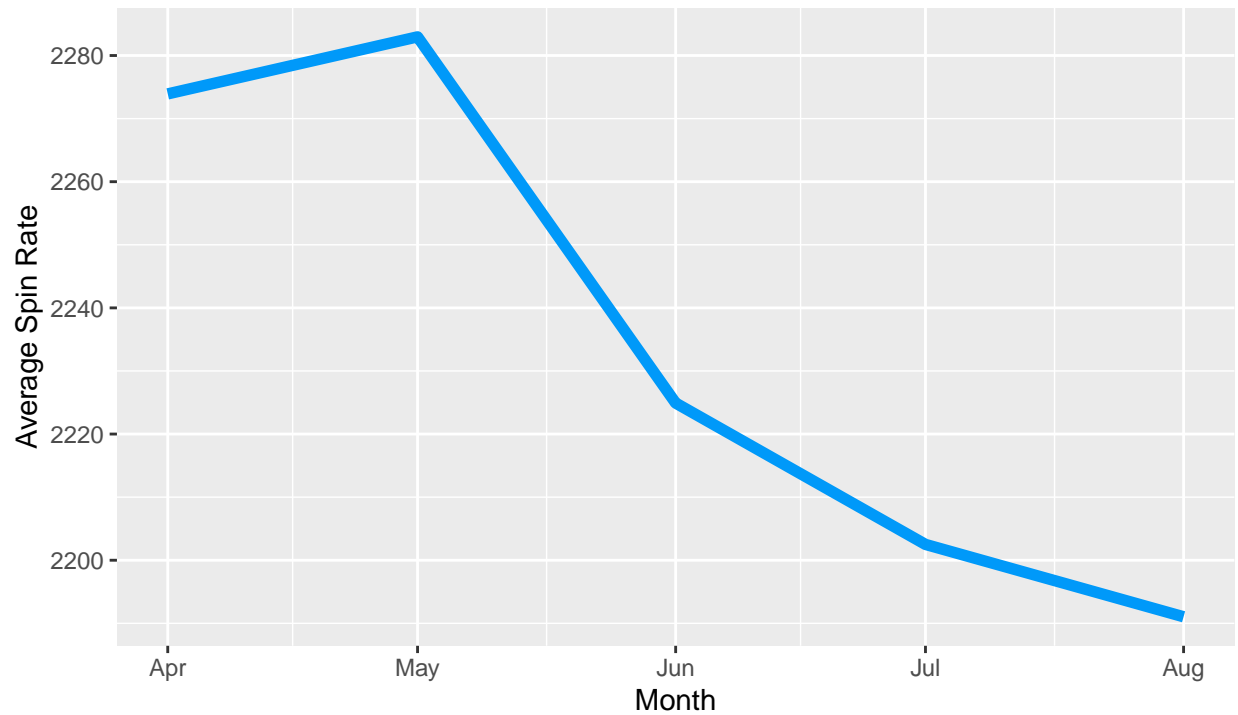
These are the graphs of the average daily, weekly, and monthly spin rates from April 1 to July 30.

```
ggplot(data=monthly_avg_spin, aes(x=as.Date(paste0("2021-", month, "-1")), y=spin_rate, group=1)) +
  geom_line(linetype="solid", size=2, color="#0099f9")+
  labs(
    x = "Month",
    y = "Average Spin Rate",
    title = "Average Spin Rate Per Month",
    subtitle = "All Pitches (2021)",
    caption = "Source: Baseball Savant"
  )+
  scale_x_date(date_labels = "%b")
```



## Average Spin Rate Per Month

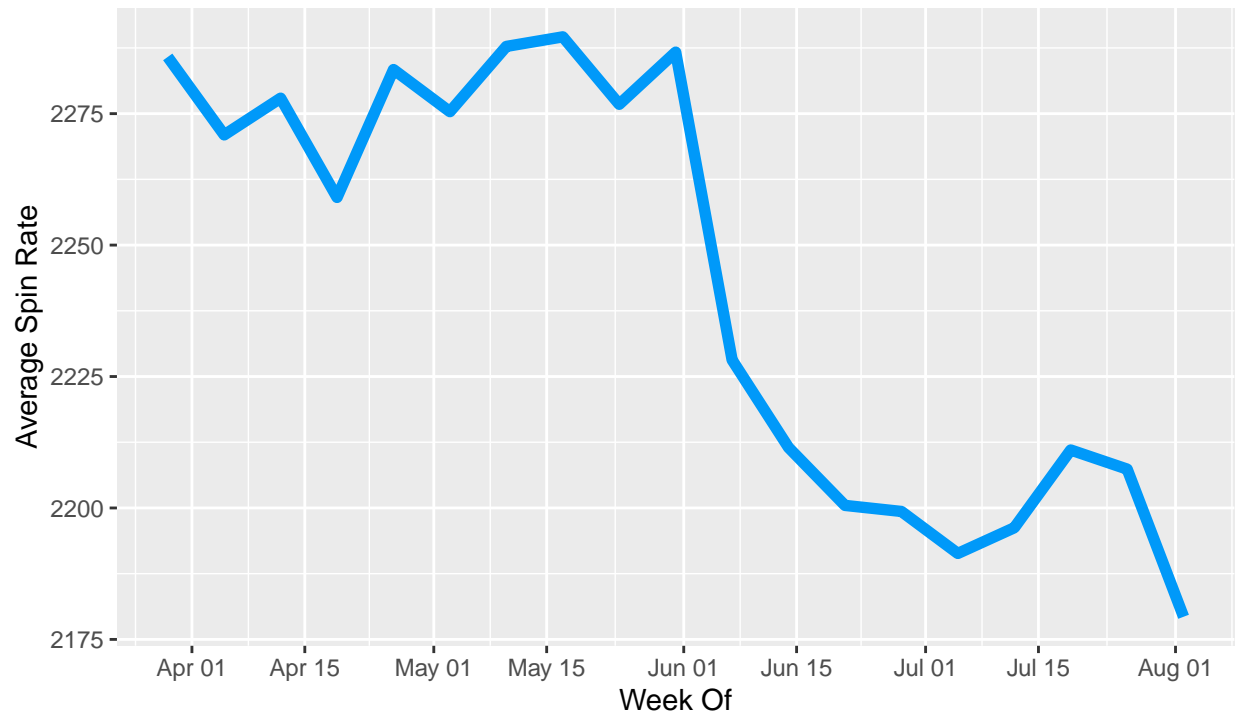
All Pitches (2021)



Source: Baseball Savant

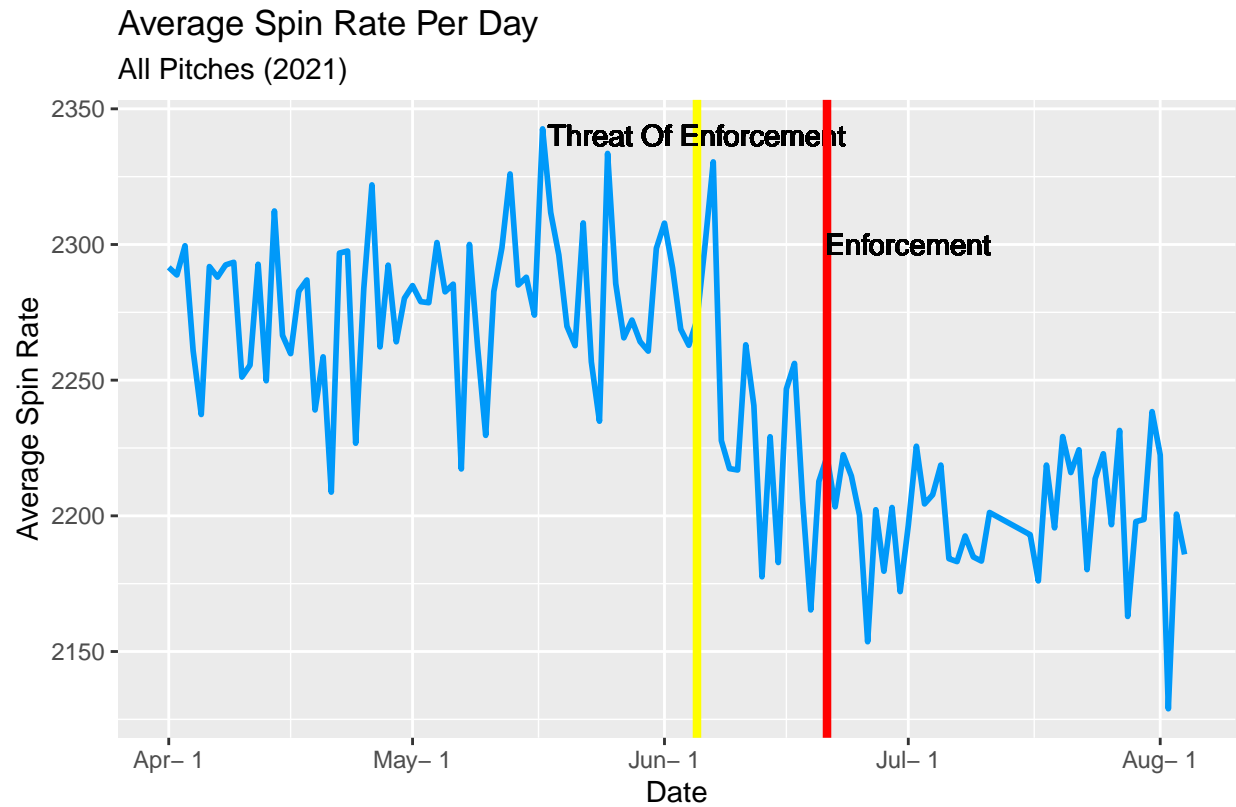
```
ggplot(data=weekly_avg_spin, aes(x=week_of, y=spin_rate, group=1)) +  
  geom_line(linetype="solid", size=2, color="#0099f9")+  
  labs(  
    x = "Week Of",  
    y = "Average Spin Rate",  
    title = "Average Spin Rate Per Week",  
    subtitle = "All Pitches (2021)",  
    caption = "Source: Baseball Savant"  
  ) +  
  scale_x_date(breaks = scales::breaks_pretty(10))
```

Average Spin Rate Per Week  
All Pitches (2021)



Source: Baseball Savant

```
ggplot(data=daily_avg_spin, aes(x=as.Date(date), y=spin_rate, group=1)) +
  geom_line(linetype="solid", size=1, color="#0099f9")+
  labs(
    x = "Date",
    y = "Average Spin Rate",
    title = "Average Spin Rate Per Day",
    subtitle = "All Pitches (2021)",
    caption = "Source: Baseball Savant"
  ) +
  scale_x_date(date_labels = "%b-%e") +
  geom_vline(xintercept = as.numeric(ymd("2021-06-05")), linetype="solid", color = "yellow", size=1.5) +
  geom_text(aes(x=as.Date("2021-06-05"), label="Threat Of Enforcement", y=2340)) +
  geom_vline(xintercept = as.numeric(ymd("2021-06-21")), linetype="solid", color = "red", size=1.5) +
  geom_text(aes(x=as.Date("2021-06-21")+10, label="Enforcement", y=2300))
```

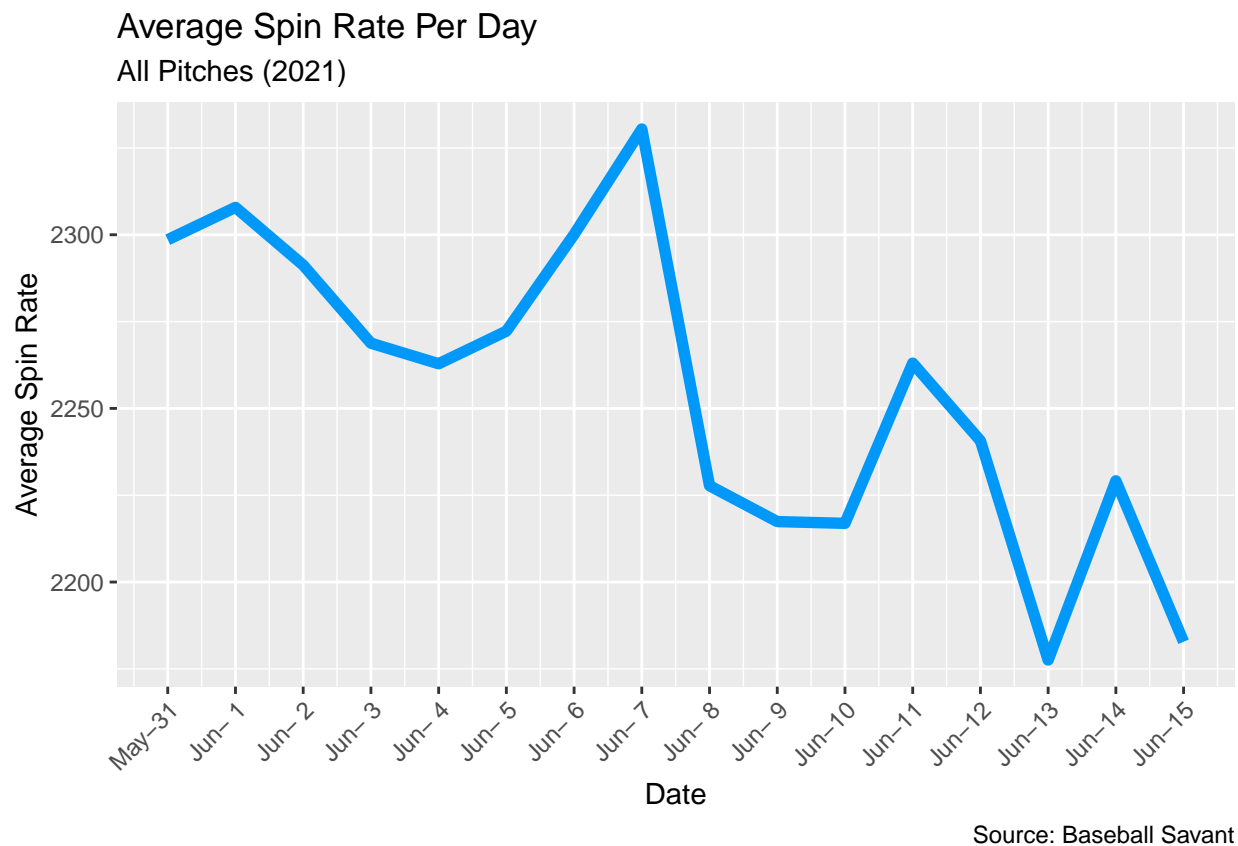


For the graph of the Average Daily Spin Rate, I included a line to mark the date when the threat of enforcement was announced (June 5) as well as a line to mark the date of actual enforcement (June 21). It seems as if the change in spin rate took a dive shortly after threat of enforcement, so I created a graph and a table to get a specific date that accounts for the drop.

```
june_1_15_daily_spin <- daily_avg_spin[daily_avg_spin$date >= '2021-05-31' & daily_avg_spin$date <= '2021-06-15']
june_1_15_daily_spin
```

##	date	spin_rate
## 61	2021-05-31	2298.575
## 62	2021-06-01	2307.881
## 63	2021-06-02	2291.262
## 64	2021-06-03	2268.776
## 65	2021-06-04	2262.858
## 66	2021-06-05	2272.236
## 67	2021-06-06	2300.092
## 68	2021-06-07	2330.453
## 69	2021-06-08	2227.731
## 70	2021-06-09	2217.410
## 71	2021-06-10	2216.898
## 72	2021-06-11	2263.036
## 73	2021-06-12	2240.673
## 74	2021-06-13	2177.533
## 75	2021-06-14	2229.150
## 76	2021-06-15	2182.798

```
ggplot(data=june_1_15_daily_spin, aes(x=as.Date(date), y=spin_rate, group=1)) +
  geom_line(linetype="solid", size=2, color="#0099f9")+
  labs(
    x = "Date",
    y = "Average Spin Rate",
    title = "Average Spin Rate Per Day",
    subtitle = "All Pitches (2021)",
    caption = "Source: Baseball Savant"
  ) +
  scale_x_date(date_labels = "%b-%e", date_breaks = "1 day") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```



The day on which there is a significant drop is June 8th, so up till June 7th, the threat of enforcement did not seem to have an effect on spin rate. The drop, however, remained constant after the June 21 enforcement. This shows that spin rate significantly decreased just by threat of enforcement, which means that teams most likely stopped using sticky substances after they were threatened with a suspension and did not wait until actual enforcement to do so.

It is also clear that universally, pitch spin rates were decreased by this threat. Next, I want to check whether this change in spin rate was actually due to pitchers having a lower spin value regardless of pitch or was it due to the pitchers using pitches that naturally do not have as high of a spin rate. To check this, I am going to visualize the frequency of types of pitches being thrown before and after June 7th and the change in spin rate on each of those pitches.

Now, I am grouping the data by its pitch name and finding the frequency of each pitch being thrown before and after June 7th. I am also finding the change in frequency in each pitch.

```

pre_freq <- df2[df2$game_date <= '2021-06-07',]
pre_freq <- aggregate(pre_freq$release_spin_rate, list(pre_freq$pitch_name), FUN = length)
colnames(pre_freq) <- c('pitch_name', 'pre_count')

pre_freq$pre_frequency <- round(pre_freq$pre_count / sum(pre_freq$pre_count) * 100, digits = 2)

post_freq <- df2[df2$game_date > '2021-06-07',]
post_freq <- aggregate(post_freq$release_spin_rate, list(post_freq$pitch_name), FUN = length)
colnames(post_freq) <- c('pitch_name', 'post_count')

post_freq$post_frequency <- round(post_freq$post_count / sum(post_freq$post_count) * 100, digits = 2)

pre_post_freq <- merge(pre_freq, post_freq, by = "pitch_name")

pre_post_freq$freq_diff <- pre_post_freq$post_frequency - pre_post_freq$pre_frequency

pre_post_freq$freq_diff_pct_freq <- round((pre_post_freq$freq_diff / pre_post_freq$pre_frequency) * 100

pre_post_freq

```

```

##      pitch_name pre_count pre_frequency post_count post_frequency freq_diff
## 1 4-Seam Fastball   89784         35.06    75082         35.00      -0.06
## 2      Changeup    29712         11.60    24034         11.20      -0.40
## 3     Curveball    21013          8.21    17998          8.39       0.18
## 4        Cutter    17867          6.98    14248          6.64      -0.34
## 5  Knuckle Curve     5831          2.28     3978          1.85      -0.43
## 6         Sinker    39184         15.30    34451         16.06       0.76
## 7         Slider    49111         19.18    41164         19.19       0.01
## 8   Split-Finger     3578          1.40     3573          1.67       0.27
##  freq_diff_pct_freq
## 1          -0.17
## 2         -3.45
## 3          2.19
## 4         -4.87
## 5        -18.86
## 6          4.97
## 7          0.05
## 8         19.29

```

As shown, the largest drop in frequency for a pitch was for the Knuckle-Curve pitch.

Next, I am going to look at the spin rates for each pitch before and after June 7th.

```

pre_spin <- df2[df2$game_date <= '2021-06-07',]
pre_spin <- aggregate(pre_spin$release_spin_rate, list(pre_spin$pitch_name), FUN = mean)
colnames(pre_spin) <- c('pitch_name', 'pre_spin')

post_spin <- df2[df2$game_date > '2021-06-07',]
post_spin <- aggregate(post_spin$release_spin_rate, list(post_spin$pitch_name), FUN = mean)
colnames(post_spin) <- c('pitch_name', 'post_spin')

pre_post_spin <- merge(pre_spin, post_spin, by = "pitch_name")

```

```
pre_post_spin$spin_diff <- pre_post_spin$post_spin - pre_post_spin$pre_spin

pre_post_spin$spin_diff_pct_spin <- (pre_post_spin$spin_diff / pre_post_spin$pre_spin) * 100

pre_post_spin
```

```
##      pitch_name pre_spin post_spin spin_diff spin_diff_pct_spin
## 1 4-Seam Fastball 2317.660 2241.492 -76.16811 -3.286422
## 2      Changeup 1784.398 1719.496 -64.90226 -3.637208
## 3      Curveball 2554.739 2474.215 -80.52378 -3.151938
## 4      Cutter 2416.577 2331.201 -85.37523 -3.532900
## 5 Knuckle Curve 2562.021 2500.527 -61.49412 -2.400219
## 6      Sinker 2158.137 2098.076 -60.06098 -2.783001
## 7      Slider 2462.543 2395.673 -66.87061 -2.715510
## 8 Split-Finger 1481.078 1300.416 -180.66124 -12.197958
```

For each pitch, there is a 2.5 - 3.5 % decrease in the spin rate after June 7th, so there was no dramatic decrease in spin rate for the Knuckle-Curve Pitch. It appears as though no matter the pitch, the enforcement of the “sticky stuff” rule decreased spin rate around the same amount. The exception for this is the Split-Finger pitch, but because it has a much lower frequency than any other pitch on the table, it is susceptible to outliers in its data set because the sample size is so small, so this data may not be entirely reliable for that pitch.

Next, I wanted to see which teams were impacted the most by this rule change. Did this problem affect some teams in particular, or was it fairly even across the board?

Here, I am grouping the data by pitch team to find the differences in average spin rate per team before and after June 7th. I have ordered the data in terms of largest to smallest difference.

```
team_pre_spin <- df2[df2$game_date <= '2021-06-07',]
team_pre_spin <- aggregate(team_pre_spin$release_spin_rate, list(team_pre_spin$pitch_team), FUN = mean)
colnames(team_pre_spin) <- c('pitch_team', 'pre_spin')

team_post_spin <- df2[df2$game_date > '2021-06-07',]
team_post_spin <- aggregate(team_post_spin$release_spin_rate, list(team_post_spin$pitch_team), FUN = mean)
colnames(team_post_spin) <- c('pitch_team', 'post_spin')

team_spin_comp <- merge(team_pre_spin, team_post_spin, by = "pitch_team")

team_spin_comp$difference <- team_spin_comp$post_spin - team_spin_comp$pre_spin

team_spin_comp <- team_spin_comp[order(team_spin_comp$difference),]
team_spin_comp
```

```
##      pitch_team pre_spin post_spin difference
## 14      LAD 2587.406 2388.657 -198.74886
## 10      DET 2229.156 2075.900 -153.25564
## 4       BOS 2295.623 2168.964 -126.65864
## 6       CIN 2362.781 2248.410 -114.37181
## 1       ARI 2289.747 2183.881 -105.86539
## 3       BAL 2285.101 2185.288 -99.81346
## 5       CHC 2277.628 2180.323 -97.30454
## 20      OAK 2151.146 2055.381 -95.76406
```

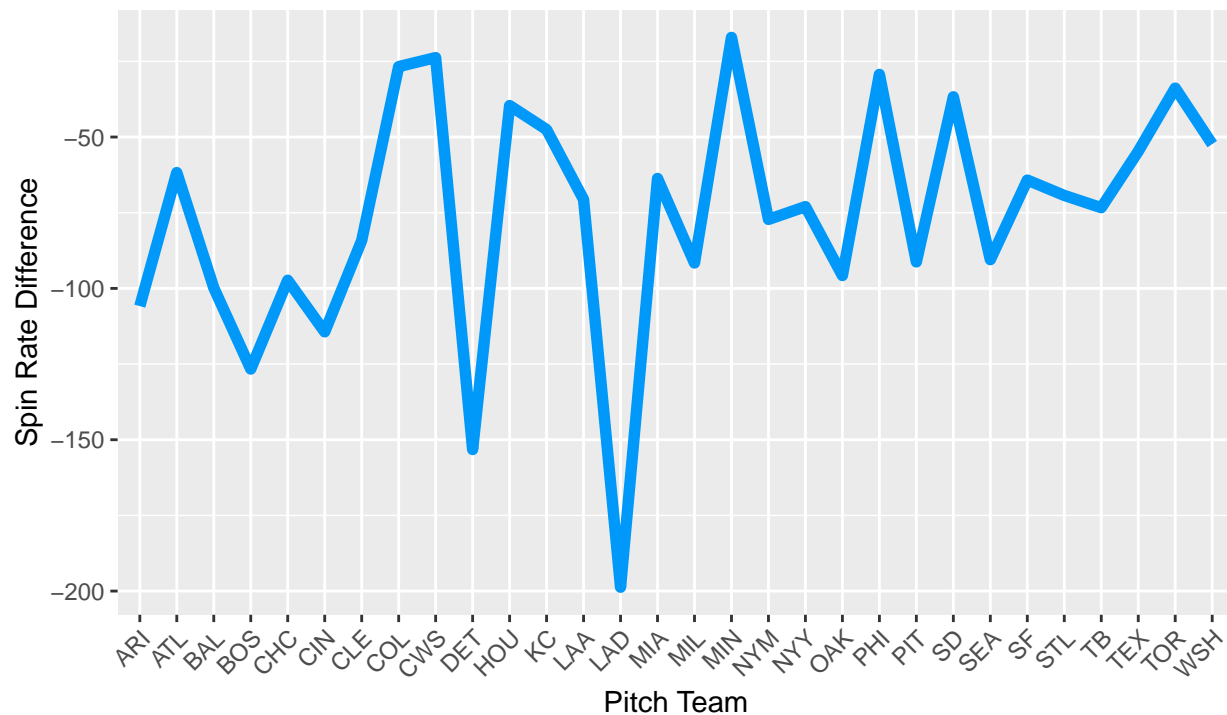
## 16	MIL	2313.647	2222.030	-91.61710
## 22	PIT	2369.129	2277.853	-91.27569
## 24	SEA	2243.864	2153.345	-90.51899
## 7	CLE	2297.337	2213.157	-84.18049
## 18	NYM	2274.814	2197.589	-77.22511
## 27	TB	2293.324	2219.983	-73.34027
## 19	NYY	2374.363	2301.380	-72.98350
## 13	LAA	2237.960	2167.340	-70.61957
## 26	STL	2270.807	2201.515	-69.29205
## 25	SF	2142.052	2077.835	-64.21689
## 15	MIA	2236.712	2173.038	-63.67405
## 2	ATL	2303.708	2241.975	-61.73307
## 28	TEX	2206.236	2151.514	-54.72176
## 30	WSH	2235.578	2183.248	-52.33023
## 12	KC	2323.144	2275.622	-47.52169
## 11	HOU	2297.345	2257.752	-39.59238
## 23	SD	2360.375	2323.686	-36.68911
## 29	TOR	2245.103	2211.283	-33.82038
## 21	PHI	2138.520	2109.227	-29.29293
## 8	COL	2302.159	2275.438	-26.72051
## 9	CWS	2263.647	2239.893	-23.75399
## 17	MIN	2168.978	2151.911	-17.06712

As shown, the LA Dodgers and the Detroit Tigers have seen the largest drop in average spin rate, but the Chicago White Sox and the Minnesota Twins have not seen a noticable drop in spin rate. Therefore, this rule change does not affect the league evenly, as some teams may have relied more on sticky substances than others and with the new enforcement have seen drastic drops in spin rate as a result.

```
ggplot(team_spin_comp, aes(x = pitch_team, y = difference, group = 1)) +
  geom_line(linetype="solid", size=2, color="#0099f9")+
  labs(
    x = "Pitch Team",
    y = "Spin Rate Difference",
    title = "Difference in Spin Rate by Team",
    subtitle = "All Pitches (2021)",
    caption = "Source: Baseball Savant"
  ) + theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

## Difference in Spin Rate by Team

### All Pitches (2021)



Source: Baseball Savant

It is obvious that this rule has had an affect on teams in the league, but has this rule affected specific players? Next, I want to check which pitchers have seen the largest drops in spin rate as a result of the rule. I group the data by pitcher and average their spin rate before and after June 7th and calculate the difference in spin rate.

```
pitcher_pre_spin <- df2[df2$game_date <= '2021-06-07',]
pitcher_pre_spin <- aggregate(pitcher_pre_spin$release_spin_rate, list(pitcher_pre_spin$player_name),
                              FUN = mean, na.rm = TRUE)
colnames(pitcher_pre_spin) <- c('player_name', 'pre_spin')

pitcher_post_spin <- df2[df2$game_date > '2021-06-07',]
pitcher_post_spin <- aggregate(pitcher_post_spin$release_spin_rate, list(pitcher_post_spin$player_name),
                              FUN = mean, na.rm = TRUE)
colnames(pitcher_post_spin) <- c('player_name', 'post_spin')

pitcher_spin_comp <- merge(pitcher_pre_spin, pitcher_post_spin, by = "player_name")

pitcher_spin_comp$spin_diff <- pitcher_spin_comp$post_spin - pitcher_spin_comp$pre_spin

pitcher_spin_comp <- pitcher_spin_comp[order(pitcher_spin_comp$spin_diff),]
pitcher_spin_comp
```

	player_name	pre_spin	post_spin	spin_diff
## 60	Bumgarner, Madison	2532.237	2136.009	-396.2278658
## 381	Richards, Garrett	2783.719	2423.646	-360.0732331
## 282	Maples, Dillon	2879.107	2520.600	-358.5069519
## 383	Ríos, Yacksel	2200.500	1877.934	-322.5661578
## 36	Bender, Anthony	2565.160	2248.299	-316.8618699



## 363	Ponce, Cody	2500.230	2200.209	-300.0212520
## 274	Lynch, Daniel	2201.098	1921.609	-279.4887903
## 22	Antone, Tejay	2864.119	2594.324	-269.7950172
## 45	Borucki, Ryan	2514.561	2245.337	-269.2241458
## 107	de Geus, Brett	2297.339	2028.637	-268.7015310
## 430	Smith, Burch	2431.469	2166.864	-264.6051440
## 497	Weems, Jordan	2216.524	1953.765	-262.7596844
## 489	Waddell, Brandon	2482.087	2219.495	-262.5911256
## 380	Reyes, Alex	2521.668	2260.867	-260.8012232
## 32	Bauer, Trevor	2888.071	2630.331	-257.7400639
## 176	González, Victor	2460.235	2213.317	-246.9180139
## 230	Karinchak, James	2438.693	2199.469	-239.2232127
## 14	Álvarez, José	2125.105	1892.175	-232.9292423
## 58	Buehler, Walker	2734.255	2501.952	-232.3030460
## 300	McGowin, Kyle	2724.857	2497.532	-227.3248328
## 240	Kikuchi, Yusei	2329.064	2102.625	-226.4393372
## 140	Feyereisen, J.P.	2499.268	2273.000	-226.2684564
## 161	Garrett, Braxton	2338.706	2113.096	-225.6103410
## 223	Jackson, Luke	2419.677	2194.809	-224.8680182
## 475	Tropeano, Nick	2065.253	1842.757	-222.4962553
## 52	Brice, Austin	2425.397	2203.477	-221.9201072
## 286	Martin, Chris	2220.096	1998.583	-221.5125571
## 256	Lange, Alex	2323.621	2102.240	-221.3812500
## 10	Allard, Kolby	2200.229	1979.154	-221.0751485
## 390	Rodríguez, Richard	2576.552	2357.657	-218.8954603
## 185	Guerra, Deolis	2159.815	1943.290	-216.5250924
## 292	Matzek, Tyler	2679.913	2465.338	-214.5745014
## 318	Montas, Frankie	2336.024	2121.525	-214.4993381
## 211	Holland, Derek	2402.122	2188.721	-213.4015518
## 229	Kaprielian, James	2080.551	1867.184	-213.3672746
## 386	Rodriguez, Chris	2266.862	2055.946	-210.9161572
## 326	Nance, Tommy	2613.285	2403.937	-209.3473548
## 217	Howard, Sam	2441.105	2232.304	-208.8009919
## 272	Luzardo, Jesús	2319.596	2111.449	-208.1469254
## 278	Mahle, Tyler	2457.535	2251.816	-205.7188179
## 57	Buchter, Ryan	2294.940	2089.258	-205.6818033
## 181	Gray, Sonny	2579.307	2375.441	-203.8656509
## 316	Misiewicz, Anthony	2599.032	2395.547	-203.4844696
## 136	Farmer, Buck	2336.714	2135.332	-201.3820573
## 418	Selman, Sam	2494.172	2299.469	-194.7030260
## 405	Sandlin, Nick	2561.290	2366.962	-194.3281133
## 196	Head, Louis	2561.338	2368.198	-193.1407044
## 208	Hill, Rich	2553.539	2363.334	-190.2048121
## 62	Bundy, Dylan	2420.826	2233.719	-187.1070354
## 340	Ottavino, Adam	2669.379	2482.495	-186.8831712
## 281	Mantiply, Joe	2266.338	2083.283	-183.0543178
## 213	Holloway, Jordan	2298.680	2115.968	-182.7124145
## 413	Sborz, Josh	2337.458	2157.921	-179.5370869
## 317	Mize, Casey	2101.211	1922.081	-179.1303574
## 339	Okert, Steven	2500.778	2323.041	-177.7366819
## 432	Smith, Drew	2646.265	2469.868	-176.3979068
## 452	Stroman, Marcus	2399.660	2223.341	-176.3192207
## 24	Baragar, Caleb	2458.536	2282.300	-176.2364964
## 20	Anderson, Tyler	2338.881	2163.061	-175.8194519

## 190	Hand, Brad	2437.289	2262.877	-174.4113919
## 501	White, Mitch	2491.968	2320.214	-171.7548321
## 426	Sims, Lucas	2897.065	2725.456	-171.6085932
## 408	Santana, Edgar	2338.369	2167.490	-170.8789959
## 79	Chatwood, Tyler	2589.487	2419.418	-170.0696570
## 425	Shreve, Chasen	1958.207	1788.214	-169.9927973
## 191	Happ, J.A.	2289.082	2120.752	-168.3303889
## 41	Bieber, Shane	2456.309	2288.444	-167.8651308
## 224	Jansen, Kenley	2656.500	2489.202	-167.2975460
## 433	Smith, Joe	2086.449	1921.129	-165.3196481
## 519	Yardley, Eric	2215.912	2053.958	-161.9541667
## 89	Cobb, Alex	2060.795	1901.695	-159.1002812
## 287	Martin, Corbin	2390.155	2233.089	-157.0658867
## 360	Plutko, Adam	2444.464	2288.028	-156.4363012
## 402	Sadler, Casey	2675.758	2520.165	-155.5928699
## 327	Neidert, Nick	2099.714	1944.936	-154.7785059
## 150	Fry, Paul	2578.342	2424.822	-153.5197740
## 412	Sawamura, Hirokazu	1937.871	1784.948	-152.9225803
## 370	Quijada, José	2318.377	2167.810	-150.5670137
## 424	Shoemaker, Matt	1860.843	1710.400	-150.4427095
## 394	Romano, Jordan	2429.997	2279.635	-150.3622744
## 90	Cole, Gerrit	2512.598	2362.495	-150.1034225
## 304	Megill, Trevor	2627.944	2479.490	-148.4544444
## 65	Burr, Ryan	2282.484	2134.553	-147.9304729
## 456	Sulser, Cole	2137.701	1989.926	-147.7755568
## 307	Menez, Conner	2223.488	2076.189	-147.2996928
## 478	Ureña, José	2141.075	1994.706	-146.3692195
## 218	Howard, Spencer	2136.705	1990.630	-146.0749547
## 103	Davidson, Tucker	2221.931	2076.028	-145.9032780
## 466	Thielbar, Caleb	2426.671	2281.245	-145.4256631
## 247	Kittredge, Andrew	2624.181	2478.975	-145.2059487
## 64	Burnes, Corbin	2746.157	2601.115	-145.0418323
## 175	González, Chi Chi	2406.919	2263.051	-143.8680609
## 337	Odorizzi, Jake	2009.839	1866.266	-143.5734626
## 105	Davis, Austin	2346.000	2203.597	-142.4031414
## 351	Peralta, Wandy	2279.225	2138.324	-140.9013028
## 23	Arrieta, Jake	2261.345	2120.904	-140.4415298
## 27	Barnes, Jacob	2329.370	2189.044	-140.3256452
## 469	Thompson, Zach	2449.818	2312.802	-137.0162649
## 250	Kremer, Dean	2341.355	2204.865	-136.4896592
## 294	Mayers, Mike	2362.811	2226.463	-136.3478140
## 299	McGee, Jake	2222.940	2086.661	-136.2783359
## 428	Skubal, Tarik	2096.975	1961.157	-135.8170828
## 37	Benjamin, Wes	2353.795	2218.208	-135.5862403
## 113	Díaz, Edwin	2344.061	2209.297	-134.7636607
## 15	Alzolay, Adbert	2437.316	2302.621	-134.6953361
## 407	Santana, Dennis	2552.611	2418.733	-133.8783510
## 436	Smyly, Drew	2162.669	2028.953	-133.7152361
## 73	Cease, Dylan	2645.174	2512.065	-133.1095326
## 303	Means, John	2373.170	2240.731	-132.4393939
## 308	Middleton, Keynan	2362.353	2232.325	-130.0276985
## 102	Darvish, Yu	2681.775	2552.550	-129.2251013
## 68	Canning, Griffin	2326.358	2197.477	-128.8808484
## 108	De Jong, Chase	2556.301	2427.875	-128.4259996

## 157	García, Jarlín	2295.816	2167.547	-128.2699441
## 38	Berrios, José	2203.515	2076.809	-126.7055951
## 389	Rodriguez, Nivaldo	1984.789	1859.744	-125.0445463
## 446	Stephan, Trevor	2428.072	2303.196	-124.8759739
## 492	Warren, Art	2548.854	2425.099	-123.7551364
## 280	Manoah, Alek	2348.519	2224.784	-123.7342666
## 270	Luetge, Lucas	2694.501	2571.179	-123.3217143
## 379	Reid-Foley, Sean	2111.032	1988.404	-122.6278447
## 518	Yarbrough, Ryan	2147.626	2025.363	-122.2629003
## 123	Dunn, Justin	2433.338	2311.216	-122.1219930
## 415	Scherzer, Max	2339.667	2217.613	-122.0539906
## 392	Rogers, Trevor	2103.184	1982.171	-121.0123911
## 92	Coonrod, Sam	2276.118	2155.829	-120.2895099
## 515	Workman, Brandon	2353.223	2235.799	-117.4234067
## 78	Chargois, JT	2314.298	2198.027	-116.2708051
## 77	Chapman, Aroldis	2310.273	2194.172	-116.1008420
## 362	Ponce de Leon, Daniel	2306.012	2191.213	-114.7991045
## 512	Wood, Alex	2081.273	1968.212	-113.0613163
## 71	Castro, Anthony	2650.057	2537.913	-112.1439513
## 74	Cessa, Luis	2365.364	2253.330	-112.0342593
## 341	Oviedo, Johan	2367.305	2255.606	-111.6991544
## 458	Swanson, Erik	2189.834	2078.392	-111.4421709
## 28	Barnes, Matt	2272.528	2161.375	-111.1523131
## 471	Tice, Ty	2360.101	2249.077	-111.0238521
## 19	Anderson, Shaun	2707.307	2596.720	-110.5872289
## 510	Wisler, Matt	2550.893	2441.893	-108.9994922
## 335	O'Day, Darren	2347.697	2239.029	-108.6673624
## 179	Graveman, Kendall	2287.983	2179.325	-108.6578760
## 167	Gilbreath, Lucas	2502.259	2393.901	-108.3572688
## 445	Steckenrider, Drew	2256.388	2148.725	-107.6632797
## 128	Elledge, Seth	2332.364	2225.642	-106.7218453
## 338	Ohtani, Shohei	2209.509	2103.888	-105.6213509
## 87	Clay, Sam	2126.104	2020.894	-105.2107601
## 336	Ober, Bailey	2239.361	2135.423	-103.9377095
## 296	Mazza, Chris	2200.388	2096.926	-103.4620206
## 354	Pérez, Martín	2102.235	1999.324	-102.9106240
## 236	Kelly, Merrill	2363.062	2262.575	-100.4876649
## 214	Holmes, Clay	2407.779	2308.718	-99.0609755
## 361	Pomeranz, Drew	2483.987	2384.945	-99.0423257
## 238	Kershaw, Clayton	2611.490	2514.018	-97.4720864
## 474	Trivino, Lou	2133.748	2036.690	-97.0571619
## 134	Falter, Bailey	1871.200	1774.341	-96.8585366
## 321	Moore, Matt	2239.124	2142.375	-96.7486737
## 350	Peralta, Freddy	2297.303	2200.643	-96.6605850
## 496	Webb, Logan	2095.079	2000.477	-94.6012613
## 97	Crismatt, Nabil	1955.290	1860.967	-94.3232596
## 227	Johnson, Pierce	2762.592	2669.321	-93.2712744
## 162	Garza Jr., Ralph	2277.158	2185.354	-91.8039622
## 485	Vesia, Alex	2377.485	2285.860	-91.6245544
## 203	Hendrix, Ryan	2376.049	2285.058	-90.9916679
## 505	Williams, Devin	2648.542	2558.762	-89.7804440
## 183	Greinke, Zack	2151.154	2061.652	-89.5016330
## 491	Walker, Taijuan	2155.130	2065.905	-89.2248688
## 271	Lugo, Seth	2580.780	2493.020	-87.7600570

## 253	Lakins Sr., Travis	2381.830	2295.158	-86.6720764
## 377	Rasmussen, Drew	2553.244	2467.563	-85.6809617
## 233	Keller, Kyle	2528.795	2443.350	-85.4442667
## 9	Alexander, Tyler	2204.988	2120.226	-84.7619864
## 1	Abbott, Cory	2388.747	2305.157	-83.5895986
## 4	Adams, Austin	2865.997	2783.013	-82.9839849
## 288	Martínez, Carlos	2066.684	1983.863	-82.8202622
## 99	Crowe, Wil	2412.236	2329.888	-82.3480292
## 472	Tomlin, Josh	2555.621	2473.662	-81.9587679
## 67	Cahill, Trevor	2216.825	2135.486	-81.3394050
## 141	Finnegan, Kyle	2025.119	1944.341	-80.7778689
## 330	Nelson, Nick	2073.603	1992.877	-80.7259816
## 245	Kinley, Tyler	2487.520	2408.073	-79.4467516
## 306	Melancon, Mark	2410.313	2330.959	-79.3545269
## 357	Pineda, Michael	1946.783	1867.638	-79.1445108
## 410	Santiago, Héctor	2074.092	1995.148	-78.9442540
## 122	Dugger, Robert	2165.018	2086.788	-78.2298311
## 273	Lyles, Jordan	2462.453	2384.533	-77.9199679
## 226	Jiménez, Joe	2451.075	2373.406	-77.6687003
## 2	Abreu, Albert	2167.449	2089.809	-77.6395703
## 329	Nelson, Kyle	2520.515	2443.233	-77.2816864
## 82	Cisnero, José	2412.620	2335.404	-77.2152239
## 163	Gausman, Kevin	2009.994	1933.503	-76.4909640
## 429	Slegers, Aaron	1998.025	1921.667	-76.3586142
## 16	Anderson, Brett	1841.475	1765.143	-76.3329152
## 172	Godley, Zack	2238.315	2162.133	-76.1817352
## 513	Woodford, Jake	2238.413	2162.248	-76.1645971
## 262	Lester, Jon	2198.283	2123.182	-75.1010908
## 467	Thompson, Keegan	2506.031	2431.550	-74.4805556
## 7	Alcantara, Sandy	2286.956	2213.619	-73.3372419
## 499	Wendelken, J.B.	2381.587	2308.405	-73.1815385
## 154	Gallen, Zac	2248.221	2175.218	-73.0035095
## 434	Smith, Riley	2216.815	2144.188	-72.6277012
## 88	Cleavinger, Garrett	2529.291	2457.220	-72.0714186
## 200	Hembree, Heath	2689.628	2617.598	-72.0298748
## 120	Duffey, Tyler	2418.443	2346.456	-71.9875858
## 332	Newcomb, Sean	2509.602	2438.090	-71.5128574
## 514	Woodruff, Brandon	2378.997	2308.113	-70.8841905
## 328	Nelson, Jimmy	2860.205	2789.711	-70.4948791
## 207	Heuer, Codi	2296.643	2226.250	-70.3932432
## 522	Zimmer, Kyle	2195.861	2125.984	-69.8763236
## 174	Gonzales, Marco	2215.224	2145.450	-69.7738386
## 252	Kuhl, Chad	2300.275	2231.113	-69.1621654
## 431	Smith, Caleb	2408.717	2339.874	-68.8426812
## 464	Taylor, Josh	2284.527	2216.541	-67.9860208
## 444	Staumont, Josh	2429.887	2361.928	-67.9585745
## 241	Kim, Kwang Hyun	2096.736	2028.999	-67.7371863
## 197	Heaney, Andrew	2441.860	2374.129	-67.7303231
## 455	Suero, Wander	2499.004	2431.778	-67.2255077
## 13	Alvarado, José	2155.277	2088.739	-66.5381385
## 441	Springs, Jeffrey	2093.072	2027.107	-65.9652553
## 459	Swarzak, Anthony	2385.697	2320.180	-65.5165186
## 320	Montgomery, Jordan	2154.760	2089.523	-65.2366787
## 486	Vest, Will	2009.940	1944.734	-65.2054308

## 275	Lynn, Lance	2426.717	2361.792	-64.9249147
## 119	Doolittle, Sean	2291.833	2227.135	-64.6983076
## 435	Smith, Will	2271.590	2207.230	-64.3598807
## 259	Lawrence, Justin	2557.000	2493.828	-63.1717172
## 156	Garcia, Bryan	2145.094	2082.209	-62.8853519
## 352	Perdomo, Angel	2498.116	2435.463	-62.6528672
## 414	Sceroler, Mac	2340.323	2278.371	-61.9511521
## 153	Gallegos, Giovanny	2387.430	2325.709	-61.7202074
## 202	Hendriks, Liam	2362.765	2301.132	-61.6325345
## 310	Miller, Andrew	2339.559	2278.586	-60.9721613
## 173	Gomber, Austin	2094.608	2033.932	-60.6761091
## 186	Guerra, Junior	2181.830	2121.758	-60.0716113
## 234	Keller, Mitch	2384.054	2324.125	-59.9288012
## 311	Mills, Alec	2191.289	2133.569	-57.7204633
## 460	Taillon, Jameson	2495.654	2438.204	-57.4500991
## 42	Bielak, Brandon	2372.364	2315.455	-56.9087627
## 504	Wieck, Brad	2331.508	2275.659	-55.8492759
## 212	Holland, Greg	2200.784	2145.226	-55.5576691
## 5	Akin, Keegan	2289.457	2233.902	-55.5556874
## 146	Foltynewicz, Mike	2209.834	2154.333	-55.5004591
## 171	Glasnow, Tyler	2601.470	2546.593	-54.8772711
## 205	Hernández, Carlos	2271.686	2216.917	-54.7694604
## 21	Andriese, Matt	2363.403	2309.712	-53.6908645
## 267	Loup, Aaron	2312.636	2259.552	-53.0830864
## 403	Sanchez, Aaron	2062.398	2009.789	-52.6083041
## 314	Minor, Mike	2540.055	2488.738	-51.3165965
## 54	Brothers, Rex	2152.297	2101.404	-50.8924866
## 477	Underwood Jr., Duane	2085.894	2035.420	-50.4742780
## 210	Hoffman, Jeff	2336.555	2286.085	-50.4700168
## 132	Evans, Demarcus	2477.895	2427.918	-49.9770326
## 169	Giolito, Lucas	2035.526	1986.231	-49.2943802
## 488	Wacha, Michael	1954.192	1905.059	-49.1328182
## 31	Bassitt, Chris	2188.384	2139.644	-48.7407984
## 165	Gibson, Kyle	2239.914	2191.215	-48.6985326
## 479	Urías, Julio	2548.623	2500.144	-48.4788572
## 159	García, Yimi	2516.763	2468.303	-48.4604998
## 114	Diaz, Miguel	1992.660	1944.205	-48.4550146
## 182	Green, Chad	2552.149	2503.763	-48.3857986
## 129	Eovaldi, Nathan	2109.360	2061.338	-48.0223827
## 257	Lauer, Eric	2231.149	2183.482	-47.6665207
## 470	Thornton, Trent	2552.037	2505.173	-46.8637251
## 277	Maeda, Kenta	2155.902	2109.921	-45.9816798
## 51	Brentz, Jake	2193.052	2147.330	-45.7218220
## 219	Hoyt, James	2435.161	2389.575	-45.5860016
## 98	Crochet, Garrett	2298.624	2253.095	-45.5287412
## 30	Bass, Anthony	2109.520	2064.720	-44.8003517
## 358	Pivetta, Nick	2398.973	2354.572	-44.4005884
## 126	Edwards Jr., Carl	2498.114	2454.781	-43.3326741
## 375	Ramirez, Noé	2332.277	2289.025	-43.2511720
## 409	Santana, Ervin	2268.273	2225.104	-43.1689461
## 76	Chafin, Andrew	2208.408	2165.367	-43.0412314
## 193	Hartlieb, Geoff	2456.061	2413.034	-43.0270365
## 269	Lucchesi, Joey	2172.784	2130.235	-42.5496645
## 246	Kintzler, Brandon	2059.735	2017.275	-42.4600308

## 465	Tepera, Ryan	2206.447	2164.158	-42.2889528
## 511	Wittgren, Nick	2041.651	2000.259	-41.3922065
## 364	Pop, Zach	2282.112	2240.960	-41.1515585
## 166	Gilbert, Logan	2170.896	2129.900	-40.9961696
## 44	Bolaños, Ronald	2395.920	2355.025	-40.8953086
## 368	Price, David	1943.238	1902.663	-40.5750216
## 509	Winkler, Dan	2564.786	2524.516	-40.2697760
## 192	Harper, Ryne	2097.977	2059.267	-38.7106061
## 476	Uceta, Edwin	2238.554	2200.160	-38.3941823
## 387	Rodriguez, Eduardo	2115.007	2076.725	-38.2824556
## 124	Dunning, Dane	2061.318	2023.279	-38.0394573
## 523	Zimmermann, Bruce	2312.903	2275.076	-37.8272727
## 484	Velasquez, Vince	2270.612	2233.168	-37.4436078
## 249	Kowar, Jackson	2243.667	2206.818	-36.8484848
## 398	Ross, Joe	2036.793	2000.589	-36.2035405
## 447	Stephenson, Robert	2773.546	2737.810	-35.7361826
## 100	Cueto, Johnny	2052.667	2016.940	-35.7271201
## 178	Graterol, Brusdar	2250.889	2215.361	-35.5275444
## 374	Ramirez, Nick	1876.731	1841.438	-35.2933415
## 137	Farrell, Luke	2513.057	2478.127	-34.9295455
## 451	Stripling, Ross	2211.364	2176.544	-34.8199848
## 93	Corbin, Patrick	2143.423	2108.778	-34.6452991
## 355	Peterson, David	2099.745	2065.219	-34.5261594
## 80	Cimber, Adam	2262.653	2229.508	-33.1449719
## 49	Brach, Brad	2148.627	2116.215	-32.4123195
## 507	Wilson, Bryse	1986.653	1955.028	-31.6248744
## 251	Kriske, Brooks	1793.116	1761.643	-31.4734219
## 376	Ramirez, Yohan	2323.390	2292.531	-30.8592183
## 127	Eflin, Zach	2069.063	2038.473	-30.5899345
## 118	Dolis, Rafael	2203.267	2173.021	-30.2459386
## 359	Plesac, Zach	1949.849	1919.658	-30.1912682
## 417	Scrubb, Andre	2531.319	2502.854	-28.4643562
## 268	Lowther, Zac	2214.957	2186.518	-28.4396179
## 508	Wilson, Justin	2314.082	2285.843	-28.2398333
## 315	Minter, A.J.	2372.106	2344.477	-27.6298580
## 133	Fairbanks, Pete	2403.058	2375.972	-27.0863598
## 367	Pressly, Ryan	2762.540	2735.557	-26.9825891
## 18	Anderson, Ian	1893.712	1866.922	-26.7896067
## 96	Crick, Kyle	2914.834	2888.223	-26.6111197
## 517	Yang, Hyeon-Jong	2096.991	2070.406	-26.5850354
## 365	Poppen, Sean	2119.673	2093.491	-26.1827013
## 462	Tate, Dillon	2049.073	2022.979	-26.0937612
## 524	Zuber, Tyler	2322.493	2296.667	-25.8260020
## 449	Stratton, Chris	2741.950	2716.310	-25.6391930
## 243	King, John	1972.375	1946.824	-25.5517566
## 144	Floro, Dylan	2096.671	2071.558	-25.1130195
## 437	Snell, Blake	2306.953	2282.552	-24.4009646
## 177	Goudeau, Ashton	2029.978	2005.607	-24.3711180
## 3	Abreu, Bryan	2439.802	2415.793	-24.0088328
## 347	Patiño, Luis	2434.562	2410.882	-23.6807519
## 53	Brogdon, Connor	2171.934	2148.574	-23.3598724
## 34	Bednar, David	2147.314	2124.985	-22.3291101
## 440	Soto, Gregory	2395.246	2373.579	-21.6662268
## 204	Hentges, Sam	2253.161	2231.637	-21.5237994

## 482	Valdez, Framber	2314.782	2293.448	-21.3332255
## 312	Milner, Hoby	1949.000	1927.701	-21.2989130
## 101	Curtiss, John	2446.687	2425.797	-20.8903667
## 170	Givens, Mychal	2425.333	2405.697	-19.6362179
## 344	Pagán, Emilio	2446.090	2426.580	-19.5094460
## 295	Mayza, Tim	2098.684	2079.708	-18.9767006
## 457	Suter, Brent	2156.906	2138.041	-18.8651620
## 473	Treinen, Blake	2386.057	2367.410	-18.6473766
## 420	Sewald, Paul	2324.861	2307.042	-17.8187330
## 520	Young, Alex	2163.464	2145.773	-17.6914287
## 39	Bettinger, Alec	2129.413	2112.600	-16.8134078
## 201	Hendricks, Kyle	2042.352	2026.032	-16.3202664
## 255	Lamet, Dinelson	2463.129	2446.964	-16.1647263
## 506	Williams, Trevor	2168.675	2152.733	-15.9427919
## 117	Dobnak, Randy	2095.328	2080.145	-15.1827311
## 395	Romano, Sal	2149.057	2133.909	-15.1483109
## 46	Bowden, Ben	2345.035	2330.364	-14.6701461
## 199	Helsley, Ryan	2472.239	2458.199	-14.0397341
## 91	Colomé, Alex	2141.838	2127.819	-14.0189463
## 309	Miley, Wade	2164.587	2150.650	-13.9378904
## 11	Allen, Logan	2112.043	2098.228	-13.8152687
## 121	Duffy, Danny	2337.148	2323.458	-13.6901458
## 373	Raley, Brooks	2616.034	2602.967	-13.0665893
## 266	López, Pablo	2096.003	2084.902	-11.1011462
## 86	Claudio, Alex	1957.138	1946.302	-10.8356718
## 33	Beasley, Jeremy	2229.680	2219.186	-10.4939732
## 242	Kimbrel, Craig	2414.302	2404.295	-10.0074775
## 404	Sánchez, Cristopher	2010.227	2000.221	-10.0059613
## 155	Gant, John	2239.588	2229.776	-9.8115568
## 237	Kennedy, Ian	2409.952	2400.323	-9.6296296
## 17	Anderson, Chase	2164.356	2155.119	-9.2366430
## 258	Law, Derek	2219.913	2211.056	-8.8568076
## 498	Wells, Tyler	2408.345	2400.469	-7.8753475
## 142	Fleming, Josh	1769.872	1762.416	-7.4552883
## 209	Hill, Tim	2179.687	2172.298	-7.3896016
## 216	Houser, Adrian	2052.455	2045.463	-6.9919067
## 343	Paddack, Chris	2095.294	2088.329	-6.9645721
## 84	Clarke, Taylor	2116.019	2109.293	-6.7255301
## 145	Foley, Jason	2129.278	2122.762	-6.5152778
## 502	Whitlock, Garrett	2038.541	2032.171	-6.3696384
## 422	Sheffield, Justus	2156.980	2151.059	-5.9211578
## 48	Boyd, Matthew	2251.004	2245.138	-5.8664005
## 111	DeSclafani, Anthony	2107.994	2102.195	-5.7988843
## 503	Widener, Taylor	2109.518	2104.476	-5.0425250
## 419	Senzatela, Antonio	2098.484	2093.718	-4.7655782
## 135	Familia, Jeurys	2228.988	2225.061	-3.9275752
## 260	LeBlanc, Wade	1902.870	1899.137	-3.7329818
## 160	Garrett, Amir	2019.453	2016.288	-3.1643687
## 222	Irvin, Cole	1863.351	1860.372	-2.9790638
## 399	Ruiz, José	2326.903	2324.059	-2.8441433
## 59	Bukauskas, J.B.	2278.417	2276.061	-2.3560417
## 115	Díaz, Yennsy	1902.588	1900.956	-1.6320600
## 285	Martin, Brett	2185.173	2183.984	-1.1892634
## 371	Quintana, José	1999.941	1999.150	-0.7903123

## 265	López, Jorge	2027.257	2026.682	-0.5748338
## 393	Rogers, Tyler	2022.452	2022.060	-0.3916201
## 112	Detwiler, Ross	2064.913	2065.189	0.2760747
## 279	Manaea, Sean	1836.065	1836.820	0.7547571
## 106	Davis, Wade	2501.889	2502.661	0.7717172
## 109	De Los Santos, Enyel	2117.956	2119.987	2.0311554
## 35	Bedrosian, Cam	2242.514	2245.671	3.1573726
## 248	Kopech, Michael	2489.871	2493.436	3.5651134
## 369	Quantrill, Cal	2046.035	2050.081	4.0466187
## 301	McHugh, Collin	2621.209	2625.294	4.0843463
## 427	Singer, Brady	2313.270	2317.956	4.6861600
## 331	Neris, Héctor	1750.670	1755.420	4.7499475
## 378	Ray, Robbie	2211.745	2218.023	6.2778010
## 487	Voth, Austin	2491.203	2497.762	6.5580431
## 215	Houck, Tanner	2238.479	2245.090	6.6108807
## 151	Fulmer, Michael	2209.750	2216.832	7.0821678
## 356	Petit, Yusmeiro	2046.673	2054.249	7.5759018
## 254	Lambert, Jimmy	2071.108	2079.235	8.1271860
## 264	Loáisiga, Jonathan	2317.879	2326.028	8.1489044
## 138	Fedde, Erick	1944.546	1952.942	8.3965019
## 63	Burdi, Zack	2471.755	2480.234	8.4785428
## 72	Castro, Miguel	2437.063	2445.835	8.7720534
## 125	Duplantier, Jon	2163.579	2172.450	8.8701020
## 55	Brubaker, JT	2407.316	2416.368	9.0512019
## 221	Iglesias, Raisel	2303.771	2313.257	9.4863196
## 69	Castillo, Diego	2153.881	2163.957	10.0765166
## 416	Scott, Tanner	2619.102	2630.101	10.9987771
## 187	Gutierrez, Vladimir	2250.528	2261.621	11.0929872
## 372	Rainey, Tanner	2365.225	2376.347	11.1220041
## 149	Fried, Max	2327.356	2338.691	11.3355815
## 284	Marshall, Evan	2224.366	2236.587	12.2209795
## 291	Matz, Steven	2202.765	2215.770	13.0049230
## 500	Wheeler, Zack	2342.460	2356.027	13.5663510
## 194	Harvey, Hunter	2048.773	2063.000	14.2272727
## 43	Bleier, Richard	1980.548	1995.051	14.5031260
## 130	Espino, Paolo	2445.527	2460.307	14.7805609
## 290	Mattson, Isaac	2119.056	2134.423	15.3675214
## 461	Tapia, Domingo	2220.156	2235.989	15.8322557
## 261	Leone, Dominic	2334.812	2350.679	15.8663991
## 490	Wainwright, Adam	2449.184	2465.640	16.4555207
## 148	Freeland, Kyle	2205.214	2221.841	16.6267081
## 450	Strickland, Hunter	2506.398	2523.026	16.6283058
## 81	Cishek, Steve	2351.367	2368.065	16.6978710
## 85	Clase, Emmanuel	2567.379	2584.116	16.7374912
## 198	Hearn, Taylor	2156.879	2174.147	17.2675624
## 293	May, Trevor	2290.250	2307.854	17.6042274
## 454	Suárez, Ranger	1766.876	1784.510	17.6340326
## 483	Valdez, Phillips	2086.127	2104.057	17.9299752
## 104	Davies, Zach	1935.677	1953.835	18.1577416
## 448	Stewart, Kohl	2193.095	2212.596	19.5008542
## 453	Suarez, José	2126.774	2146.822	20.0475578
## 493	Watson, Tony	2316.546	2336.667	20.1209150
## 400	Ryan, Kyle	1871.288	1891.439	20.1511167
## 228	Jones, Nate	2354.693	2374.938	20.2440134



## 382	Richards, Trevor	2225.343	2245.636	20.2937063
## 83	Civale, Aaron	2386.051	2407.351	21.3001560
## 388	Rodríguez, Joely	1689.736	1715.360	25.6244451
## 50	Bradley, Archie	1969.392	1995.277	25.8850457
## 283	Márquez, Germán	2279.814	2305.793	25.9796452
## 421	Shaw, Bryan	2364.483	2390.641	26.1572917
## 481	Valdez, César	1850.794	1877.307	26.5134999
## 442	Stammen, Craig	2242.196	2269.847	27.6510548
## 12	Almonte, Yency	2143.720	2171.528	27.8074219
## 225	Javier, Cristian	2394.871	2423.674	28.8031147
## 189	Hale, David	2082.436	2111.771	29.3355311
## 158	Garcia, Luis	2288.424	2317.961	29.5362435
## 29	Barría, Jaime	2151.609	2181.894	30.2854842
## 231	Kay, Anthony	2320.981	2351.516	30.5350732
## 305	Mejía, J.C.	2169.961	2200.655	30.6939626
## 70	Castillo, Luis	2185.102	2215.970	30.8676936
## 131	Estévez, Carlos	2034.227	2067.712	33.4851128
## 297	McClanahan, Shane	2288.215	2322.065	33.8501435
## 47	Boxberger, Brad	2152.467	2186.468	34.0009921
## 319	Montero, Rafael	2183.655	2217.732	34.0766901
## 348	Payamps, Joel	2356.724	2391.276	34.5520525
## 391	Rogers, Taylor	2308.306	2342.929	34.6237380
## 147	Foster, Matt	2141.274	2175.926	34.6522944
## 139	Fernández, Junior	2056.603	2091.314	34.7109605
## 195	Harvey, Matt	2157.508	2192.614	35.1058581
## 95	Crichton, Stefan	2039.223	2075.031	35.8086223
## 324	Morton, Charlie	2529.949	2565.979	36.0304691
## 168	Ginkel, Kevin	2333.790	2369.878	36.0872284
## 443	Stanek, Ryne	1925.900	1963.312	37.4116147
## 220	Hudson, Daniel	2315.379	2353.093	37.7136827
## 66	Cabrera, Génesis	2200.027	2239.070	39.0436323
## 94	Cortes, Nestor	2148.162	2187.347	39.1854158
## 6	Alcala, Jorge	2346.145	2385.953	39.8085342
## 26	Barlow, Scott	2357.594	2399.009	41.4141823
## 397	Rondón, Angel	1985.636	2027.714	42.0779221
## 116	Diekman, Jake	2365.590	2407.775	42.1852564
## 480	Urquidy, José	2208.856	2252.290	43.4337702
## 494	Weathers, Ryan	2062.457	2106.583	44.1258435
## 8	Alexander, Scott	2169.885	2214.153	44.2678837
## 188	Hader, Josh	2111.159	2155.540	44.3812256
## 164	Germán, Domingo	2448.896	2494.771	45.8742694
## 323	Morimando, Shawn	2252.136	2298.811	46.6747475
## 325	Musgrove, Joe	2614.780	2662.908	48.1276839
## 401	Ryu, Hyun Jin	1880.029	1928.535	48.5059026
## 302	McKenzie, Triston	2174.302	2223.432	49.1295224
## 143	Flexen, Chris	2095.768	2146.334	50.5657101
## 56	Bubic, Kris	1962.467	2013.372	50.9042592
## 110	deGrom, Jacob	2388.132	2439.906	51.7740293
## 423	Sherriff, Ryan	2211.364	2264.694	53.3299120
## 232	Keller, Brad	2320.624	2374.826	54.2017576
## 152	Funkhouser, Kyle	2105.494	2160.142	54.6481830
## 25	Bard, Daniel	2763.025	2819.153	56.1276204
## 298	McCullers Jr., Lance	2380.659	2437.405	56.7464348
## 263	Littell, Zack	1972.631	2029.470	56.8385375

## 75	Chacín, Jhoulys	2245.588	2304.072	58.4842717
## 40	Bickford, Phil	2301.261	2362.503	61.2419506
## 180	Gray, Jon	2168.760	2231.129	62.3693350
## 406	Sandoval, Patrick	2025.086	2087.856	62.7696174
## 239	Keuchel, Dallas	1926.183	1988.973	62.7902223
## 313	Minaya, Juan	1951.977	2017.107	65.1298701
## 244	King, Michael	2283.554	2351.086	67.5312471
## 206	Hernandez, Darwinzon	2359.656	2427.289	67.6330357
## 463	Taylor, Blake	2247.246	2317.049	69.8024176
## 438	Solomon, Peter	2205.667	2276.714	71.0476190
## 468	Thompson, Ryan	2052.392	2124.623	72.2306415
## 333	Nola, Aaron	2082.924	2156.884	73.9601321
## 289	Maton, Phil	2616.593	2691.428	74.8343498
## 345	Paredes, Enoli	2568.813	2646.324	77.5107440
## 385	Rodón, Carlos	2220.300	2300.320	80.0195402
## 516	Wright, Kyle	2319.282	2402.345	83.0634033
## 384	Robles, Hansel	2011.271	2099.235	87.9632331
## 396	Romo, Sergio	2485.048	2574.454	89.4066182
## 411	Santos, Antonio	2018.688	2109.477	90.7890625
## 276	Madero, Luís	2393.387	2485.846	92.4590571
## 349	Peacock, Matt	2118.574	2214.342	95.7683790
## 184	Gsellman, Robert	1960.976	2059.396	98.4201785
## 61	Bummer, Aaron	2087.655	2187.012	99.3564643
## 521	Zeuch, T.J.	2077.652	2178.594	100.9421663
## 322	Morgan, Eli	2115.800	2219.663	103.8630037
## 439	Soria, Joakim	2285.652	2398.299	112.6467952
## 342	Oviedo, Luis	2176.958	2295.000	118.0419162
## 366	Poteet, Cody	2463.250	2581.433	118.1831210
## 334	Norris, Daniel	2148.000	2268.906	120.9055375
## 353	Pérez, Cionel	2195.673	2320.333	124.6607670
## 495	Webb, Jacob	2322.318	2512.239	189.9215629
## 235	Kelly, Joe	2289.176	2484.812	195.6367424
## 346	Parker, Blake	1288.316	1528.760	240.4439508

I also create a table to show the number of pitches thrown by each player.

```

pitches_thrown <- df2
pitches_thrown <- aggregate(pitches_thrown$pitch_name, list(pitches_thrown$player_name), FUN = sum)
colnames(pitches_thrown) <- c('player_name', 'pitches_thrown')

```

Here, I create a table to show the number of appearances of each player in games before and after June 7th and the total appearances up till July 30th.

```

df_after_june_7 <- df2[df2$game_date >= '2021-06-07',]
apps_after_grouper <- aggregate(df_after_june_7$game_date, list(df_after_june_7$player_name), FUN = sum)
colnames(apps_after_grouper) <- c('player_name', 'appearances_june_7_later')

df_before_june_7 <- df2[df2$game_date < '2021-06-07',]
apps_before_grouper <- aggregate(df_before_june_7$game_date, list(df_before_june_7$player_name), FUN = sum)
colnames(apps_before_grouper) <- c('player_name', 'appearances_june_7_before')

apps <- merge(apps_after_grouper, apps_before_grouper, by = "player_name")
apps$total_apps <- apps$appearances_june_7_later + apps$appearances_june_7_before

```

This table shows the combined number of pitches and appearances made by each pitcher.

```
pitches_apps <- merge(apps, pitches_thrown, by = "player_name")
pitches_apps$pitches_per_app <- round((pitches_apps$pitches_thrown / pitches_apps$total_apps), digits = 1)
```

This data frame combines the number of pitches, the number of appearances, and the spin rate of each player before and after June 7th.

```
apps_spin_diff <- merge(pitches_apps, pitcher_spin_comp, by = "player_name")
apps_spin_diff
```

##	player_name	appearances_june_7_later	appearances_june_7_before
## 1	Abbott, Cory	5	1
## 2	Abreu, Albert	6	4
## 3	Abreu, Bryan	9	21
## 4	Adams, Austin	22	25
## 5	Akin, Keegan	9	6
## 6	Alcala, Jorge	19	23
## 7	Alcantara, Sandy	9	13
## 8	Alexander, Scott	5	13
## 9	Alexander, Tyler	14	16
## 10	Allard, Kolby	10	12
## 11	Allen, Logan	2	5
## 12	Almonte, Yency	11	20
## 13	Alvarado, José	20	23
## 14	Álvarez, José	21	18
## 15	Alzolay, Adbert	9	10
## 16	Anderson, Brett	7	9
## 17	Anderson, Chase	3	11
## 18	Anderson, Ian	7	11
## 19	Anderson, Shaun	7	4
## 20	Anderson, Tyler	8	11
## 21	Andriese, Matt	8	18
## 22	Antone, Tejay	2	20
## 23	Arrieta, Jake	7	11
## 24	Baragar, Caleb	1	21
## 25	Bard, Daniel	21	22
## 26	Barlow, Scott	21	27
## 27	Barnes, Jacob	11	17
## 28	Barnes, Matt	18	26
## 29	Barría, Jaime	2	2
## 30	Bass, Anthony	24	26
## 31	Bassitt, Chris	10	12
## 32	Bauer, Trevor	4	12
## 33	Beasley, Jeremy	3	5
## 34	Bednar, David	22	24
## 35	Bedrosian, Cam	6	9
## 36	Bender, Anthony	25	13
## 37	Benjamin, Wes	1	6
## 38	Berríos, José	9	12
## 39	Bettinger, Alec	1	3
## 40	Bickford, Phil	24	8
## 41	Bieber, Shane	2	12

## 42	Bielak, Brandon	10	13
## 43	Bleier, Richard	22	26
## 44	Bolaños, Ronald	2	1
## 45	Borucki, Ryan	6	13
## 46	Bowden, Ben	12	16
## 47	Boxberger, Brad	22	24
## 48	Boyd, Matthew	2	11
## 49	Brach, Brad	25	7
## 50	Bradley, Archie	21	12
## 51	Brentz, Jake	22	29
## 52	Brice, Austin	1	12
## 53	Brogdon, Connor	19	23
## 54	Brothers, Rex	20	22
## 55	Brubaker, JT	9	10
## 56	Bubic, Kris	11	8
## 57	Buchter, Ryan	15	3
## 58	Buehler, Walker	11	11
## 59	Bukauskas, J.B.	10	11
## 60	Bumgarner, Madison	4	12
## 61	Bummer, Aaron	15	24
## 62	Bundy, Dylan	9	10
## 63	Burdi, Zack	5	1
## 64	Burnes, Corbin	8	10
## 65	Burr, Ryan	17	2
## 66	Cabrera, Génesis	22	27
## 67	Cahill, Trevor	1	8
## 68	Canning, Griffin	4	10
## 69	Castillo, Diego	19	21
## 70	Castillo, Luis	11	12
## 71	Castro, Anthony	11	11
## 72	Castro, Miguel	21	24
## 73	Cease, Dylan	10	12
## 74	Cessa, Luis	14	19
## 75	Chacín, Jhoulys	15	9
## 76	Chafin, Andrew	19	28
## 77	Chapman, Aroldis	19	23
## 78	Chargois, JT	20	14
## 79	Chatwood, Tyler	9	21
## 80	Cimber, Adam	21	25
## 81	Cishek, Steve	26	27
## 82	Cisnero, José	23	27
## 83	Civale, Aaron	3	12
## 84	Clarke, Taylor	3	27
## 85	Clase, Emmanuel	20	26
## 86	Claudio, Alex	15	26
## 87	Clay, Sam	22	23
## 88	Cleavinger, Garrett	13	8
## 89	Cobb, Alex	7	8
## 90	Cole, Gerrit	9	12
## 91	Colomé, Alex	19	22
## 92	Coonrod, Sam	4	23
## 93	Corbin, Patrick	10	11
## 94	Cortes, Nestor	9	2
## 95	Crichton, Stefan	9	22

## 96	Crick, Kyle	10	17
## 97	Crismatt, Nabil	15	13
## 98	Crochet, Garrett	16	16
## 99	Crowe, Wil	8	8
## 100	Cueto, Johnny	9	9
## 101	Curtiss, John	16	22
## 102	Darvish, Yu	9	12
## 103	Davidson, Tucker	2	2
## 104	Davies, Zach	11	12
## 105	Davis, Austin	11	1
## 106	Davis, Wade	10	17
## 107	de Geus, Brett	18	16
## 108	De Jong, Chase	7	2
## 109	De Los Santos, Enyel	13	3
## 110	deGrom, Jacob	6	9
## 111	DeSclafani, Anthony	10	12
## 112	Detwiler, Ross	15	23
## 113	Díaz, Edwin	20	23
## 114	Diaz, Miguel	11	8
## 115	Díaz, Yennsy	10	2
## 116	Diekman, Jake	18	25
## 117	Dobnak, Randy	3	10
## 118	Dolis, Rafael	13	21
## 119	Doolittle, Sean	18	23
## 120	Duffey, Tyler	18	24
## 121	Duffy, Danny	6	7
## 122	Dugger, Robert	1	10
## 123	Dunn, Justin	2	9
## 124	Dunning, Dane	8	12
## 125	Duplantier, Jon	2	2
## 126	Edwards Jr., Carl	3	4
## 127	Eflin, Zach	7	11
## 128	Elledge, Seth	4	7
## 129	Eovaldi, Nathan	9	12
## 130	Espino, Paolo	13	12
## 131	Estévez, Carlos	24	15
## 132	Evans, Demarcus	9	4
## 133	Fairbanks, Pete	19	15
## 134	Falter, Bailey	8	1
## 135	Familia, Jeurys	18	21
## 136	Farmer, Buck	21	12
## 137	Farrell, Luke	5	8
## 138	Fedde, Erick	9	8
## 139	Fernández, Junior	9	5
## 140	Feyereisen, J.P.	14	27
## 141	Finnegan, Kyle	18	26
## 142	Fleming, Josh	8	10
## 143	Flexen, Chris	10	10
## 144	Floro, Dylan	19	28
## 145	Foley, Jason	3	1
## 146	Foltynewicz, Mike	9	12
## 147	Foster, Matt	11	17
## 148	Freeland, Kyle	10	3
## 149	Fried, Max	9	9

## 150	Fry, Paul	20	23
## 151	Fulmer, Michael	9	20
## 152	Funkhouser, Kyle	21	11
## 153	Gallegos, Giovanni	21	27
## 154	Gallen, Zac	8	5
## 155	Gant, John	16	11
## 156	Garcia, Bryan	12	20
## 157	García, Jarlín	19	16
## 158	Garcia, Luis	8	12
## 159	García, Yimi	16	25
## 160	Garrett, Amir	26	19
## 161	Garrett, Braxton	4	1
## 162	Garza Jr., Ralph	8	1
## 163	Gausman, Kevin	10	12
## 164	Germán, Domingo	10	11
## 165	Gibson, Kyle	9	11
## 166	Gilbert, Logan	9	5
## 167	Gilbreath, Lucas	15	9
## 168	Ginkel, Kevin	5	26
## 169	Giolito, Lucas	10	12
## 170	Givens, Mychal	13	22
## 171	Glasnow, Tyler	2	12
## 172	Godley, Zack	1	1
## 173	Gomber, Austin	6	12
## 174	Gonzales, Marco	8	6
## 175	González, Chi Chi	8	11
## 176	González, Victor	18	24
## 177	Goudeau, Ashton	4	2
## 178	Graterol, Brusdar	8	3
## 179	Graveman, Kendall	18	14
## 180	Gray, Jon	8	12
## 181	Gray, Sonny	6	9
## 182	Green, Chad	17	25
## 183	Greinke, Zack	9	13
## 184	Gsellman, Robert	2	13
## 185	Guerra, Deolis	15	16
## 186	Guerra, Junior	14	15
## 187	Gutierrez, Vladimir	10	2
## 188	Hader, Josh	16	23
## 189	Hale, David	4	13
## 190	Hand, Brad	21	21
## 191	Happ, J.A.	10	10
## 192	Harper, Ryne	13	2
## 193	Hartlieb, Geoff	5	1
## 194	Harvey, Hunter	7	2
## 195	Harvey, Matt	10	12
## 196	Head, Louis	7	6
## 197	Heaney, Andrew	9	10
## 198	Hearn, Taylor	14	18
## 199	Helsley, Ryan	21	26
## 200	Hembree, Heath	24	17
## 201	Hendricks, Kyle	10	12
## 202	Hendriks, Liam	21	24
## 203	Hendrix, Ryan	19	17

## 204	Hentges, Sam	8	9
## 205	Hernández, Carlos	12	4
## 206	Hernandez, Darwinzon	20	21
## 207	Heuer, Codi	20	23
## 208	Hill, Rich	9	12
## 209	Hill, Tim	25	28
## 210	Hoffman, Jeff	3	10
## 211	Holland, Derek	9	13
## 212	Holland, Greg	22	22
## 213	Holloway, Jordan	5	8
## 214	Holmes, Clay	23	25
## 215	Houck, Tanner	3	3
## 216	Houser, Adrian	10	11
## 217	Howard, Sam	10	28
## 218	Howard, Spencer	5	6
## 219	Hoyt, James	5	2
## 220	Hudson, Daniel	9	22
## 221	Iglesias, Raisel	23	22
## 222	Irvin, Cole	9	12
## 223	Jackson, Luke	22	24
## 224	Jansen, Kenley	19	23
## 225	Javier, Cristian	13	11
## 226	Jiménez, Joe	24	11
## 227	Johnson, Pierce	20	22
## 228	Jones, Nate	2	18
## 229	Kaprielian, James	8	5
## 230	Karinchak, James	23	27
## 231	Kay, Anthony	6	5
## 232	Keller, Brad	10	12
## 233	Keller, Kyle	12	3
## 234	Keller, Mitch	2	11
## 235	Kelly, Joe	20	10
## 236	Kelly, Merrill	10	12
## 237	Kennedy, Ian	14	21
## 238	Kershaw, Clayton	5	13
## 239	Keuchel, Dallas	9	12
## 240	Kikuchi, Yusei	9	11
## 241	Kim, Kwang Hyun	9	9
## 242	Kimbrel, Craig	17	24
## 243	King, John	6	21
## 244	King, Michael	5	9
## 245	Kinley, Tyler	19	24
## 246	Kintzler, Brandon	9	20
## 247	Kittredge, Andrew	19	20
## 248	Kopech, Michael	11	14
## 249	Kremer, Dean	3	9
## 250	Kriske, Brooks	4	3
## 251	Kuhl, Chad	8	6
## 252	Lakins Sr., Travis	6	18
## 253	Lambert, Jimmy	2	1
## 254	Lamet, Dinelson	4	7
## 255	Lange, Alex	4	15
## 256	Lauer, Eric	9	5
## 257	Law, Derek	4	5

## 258	Lawrence, Justin	11	7
## 259	LeBlanc, Wade	10	6
## 260	Leone, Dominic	23	3
## 261	Lester, Jon	10	7
## 262	Littell, Zack	20	18
## 263	Loáisiga, Jonathan	18	24
## 264	López, Jorge	10	12
## 265	López, Pablo	7	12
## 266	Loup, Aaron	23	19
## 267	Lowther, Zac	2	3
## 268	Lucchesi, Joey	2	9
## 269	Luetge, Lucas	18	21
## 270	Lugo, Seth	22	2
## 271	Luzardo, Jesús	5	9
## 272	Lyles, Jordan	10	12
## 273	Lynch, Daniel	2	3
## 274	Lynn, Lance	9	10
## 275	Madero, Luís	1	2
## 276	Maeda, Kenta	9	9
## 277	Mahle, Tyler	10	12
## 278	Manaea, Sean	10	12
## 279	Manoah, Alek	7	2
## 280	Mantiply, Joe	22	9
## 281	Maples, Dillon	8	16
## 282	Márquez, Germán	9	13
## 283	Marshall, Evan	6	21
## 284	Martin, Brett	22	23
## 285	Martin, Chris	19	11
## 286	Martin, Corbin	3	2
## 287	Martínez, Carlos	6	10
## 288	Maton, Phil	23	18
## 289	Mattson, Isaac	1	1
## 290	Matz, Steven	7	12
## 291	Matzek, Tyler	20	24
## 292	May, Trevor	22	23
## 293	Mayers, Mike	22	28
## 294	Mayza, Tim	20	23
## 295	Mazza, Chris	4	6
## 296	McClanahan, Shane	9	7
## 297	McCullers Jr., Lance	9	9
## 298	McGee, Jake	20	26
## 299	McGowin, Kyle	9	13
## 300	McHugh, Collin	10	13
## 301	McKenzie, Triston	5	10
## 302	Means, John	3	12
## 303	Megill, Trevor	7	2
## 304	Mejía, J.C.	10	4
## 305	Melancon, Mark	21	25
## 306	Menez, Conner	5	3
## 307	Middleton, Keynan	10	18
## 308	Miley, Wade	9	10
## 309	Miller, Andrew	16	11
## 310	Mills, Alec	10	12
## 311	Milner, Hoby	9	2



## 312	Minaya, Juan	5	4
## 313	Minor, Mike	10	12
## 314	Minter, A.J.	16	26
## 315	Misiewicz, Anthony	21	26
## 316	Mize, Casey	10	11
## 317	Montas, Frankie	10	12
## 318	Montero, Rafael	16	26
## 319	Montgomery, Jordan	10	11
## 320	Moore, Matt	7	9
## 321	Morgan, Eli	7	1
## 322	Morimando, Shawn	1	1
## 323	Morton, Charlie	10	12
## 324	Musgrove, Joe	10	12
## 325	Nance, Tommy	9	10
## 326	Neidert, Nick	3	4
## 327	Nelson, Jimmy	11	17
## 328	Nelson, Kyle	4	6
## 329	Nelson, Nick	2	8
## 330	Neris, Héctor	21	25
## 331	Newcomb, Sean	9	17
## 332	Nola, Aaron	9	12
## 333	Norris, Daniel	20	21
## 334	O'Day, Darren	2	10
## 335	Ober, Bailey	9	2
## 336	Odorizzi, Jake	10	5
## 337	Ohtani, Shohei	8	8
## 338	Okert, Steven	13	1
## 339	Ottavino, Adam	20	27
## 340	Oviedo, Johan	8	6
## 341	Oviedo, Luis	2	12
## 342	Paddack, Chris	9	11
## 343	Pagán, Emilio	22	25
## 344	Paredes, Enoli	2	10
## 345	Parker, Blake	21	1
## 346	Patiño, Luis	4	5
## 347	Payamps, Joel	4	18
## 348	Peacock, Matt	15	11
## 349	Peralta, Freddy	9	11
## 350	Peralta, Wandy	7	25
## 351	Perdomo, Angel	4	13
## 352	Pérez, Cionel	5	18
## 353	Pérez, Martín	10	11
## 354	Peterson, David	5	10
## 355	Petit, Yusmeiro	24	29
## 356	Pineda, Michael	6	9
## 357	Pivetta, Nick	10	11
## 358	Plesac, Zach	5	10
## 359	Plutko, Adam	14	22
## 360	Pomeranz, Drew	11	14
## 361	Ponce de Leon, Daniel	4	13
## 362	Ponce, Cody	5	1
## 363	Pop, Zach	19	17
## 364	Poppen, Sean	3	3
## 365	Poteet, Cody	2	5

## 366	Pressly, Ryan	19	23
## 367	Price, David	15	13
## 368	Quantrill, Cal	11	19
## 369	Quijada, José	3	2
## 370	Quintana, José	10	9
## 371	Rainey, Tanner	11	20
## 372	Raley, Brooks	12	27
## 373	Ramirez, Nick	6	7
## 374	Ramirez, Noé	16	2
## 375	Ramirez, Yohan	5	2
## 376	Rasmussen, Drew	11	15
## 377	Ray, Robbie	11	10
## 378	Reid-Foley, Sean	6	6
## 379	Reyes, Alex	18	28
## 380	Richards, Garrett	9	12
## 381	Richards, Trevor	18	10
## 382	Ríos, Yacksel	19	1
## 383	Robles, Hansel	20	26
## 384	Rodón, Carlos	9	9
## 385	Rodriguez, Chris	6	8
## 386	Rodriguez, Eduardo	10	11
## 387	Rodríguez, Joely	16	17
## 388	Rodriguez, Nivaldo	2	2
## 389	Rodríguez, Richard	17	23
## 390	Rogers, Taylor	18	22
## 391	Rogers, Trevor	8	12
## 392	Rogers, Tyler	21	29
## 393	Romano, Jordan	18	21
## 394	Romano, Sal	2	14
## 395	Romo, Sergio	21	23
## 396	Rondón, Angel	1	1
## 397	Ross, Joe	7	11
## 398	Ruiz, José	17	22
## 399	Ryan, Kyle	6	3
## 400	Ryu, Hyun Jin	10	11
## 401	Sadler, Casey	6	11
## 402	Sanchez, Aaron	2	6
## 403	Sánchez, Cristopher	4	1
## 404	Sandlin, Nick	20	11
## 405	Sandoval, Patrick	8	7
## 406	Santana, Dennis	13	16
## 407	Santana, Edgar	18	12
## 408	Santana, Ervin	12	10
## 409	Santiago, Héctor	11	2
## 410	Santos, Antonio	5	2
## 411	Sawamura, Hirokazu	20	21
## 412	Sborz, Josh	16	25
## 413	Sceroler, Mac	3	2
## 414	Scherzer, Max	8	12
## 415	Scott, Tanner	20	28
## 416	Scrubb, Andre	5	13
## 417	Selman, Sam	2	7
## 418	Senzatela, Antonio	6	11
## 419	Sewald, Paul	24	10

## 420	Shaw, Bryan	24	25
## 421	Sheffield, Justus	5	10
## 422	Sherriff, Ryan	8	3
## 423	Shoemaker, Matt	5	11
## 424	Shreve, Chasen	24	11
## 425	Sims, Lucas	6	22
## 426	Singer, Brady	7	12
## 427	Skubal, Tarik	9	12
## 428	Slegers, Aaron	4	23
## 429	Smith, Burch	10	12
## 430	Smith, Caleb	9	21
## 431	Smith, Drew	20	7
## 432	Smith, Joe	7	22
## 433	Smith, Riley	10	14
## 434	Smith, Will	21	25
## 435	Smyly, Drew	10	9
## 436	Snell, Blake	8	12
## 437	Solomon, Peter	1	2
## 438	Soria, Joakim	19	13
## 439	Soto, Gregory	19	27
## 440	Springs, Jeffrey	18	25
## 441	Stammen, Craig	22	25
## 442	Stanek, Ryne	22	27
## 443	Staumont, Josh	17	22
## 444	Steckenrider, Drew	21	16
## 445	Stephan, Trevor	12	14
## 446	Stephenson, Robert	4	23
## 447	Stewart, Kohl	2	2
## 448	Stratton, Chris	22	22
## 449	Strickland, Hunter	14	22
## 450	Stripling, Ross	9	9
## 451	Stroman, Marcus	10	13
## 452	Suarez, José	10	4
## 453	Suárez, Ranger	18	10
## 454	Suero, Wander	19	19
## 455	Sulser, Cole	20	19
## 456	Suter, Brent	20	22
## 457	Swanson, Erik	8	9
## 458	Swarzak, Anthony	7	6
## 459	Taillon, Jameson	10	11
## 460	Tapia, Domingo	5	2
## 461	Tate, Dillon	24	15
## 462	Taylor, Blake	22	9
## 463	Taylor, Josh	21	23
## 464	Tepera, Ryan	18	28
## 465	Thielbar, Caleb	17	20
## 466	Thompson, Keegan	16	11
## 467	Thompson, Ryan	10	26
## 468	Thornton, Trent	10	18
## 469	Tice, Ty	1	4
## 470	Tomlin, Josh	14	19
## 471	Treinen, Blake	22	24
## 472	Trivino, Lou	23	24
## 473	Tropeano, Nick	1	4

## 474	Uceta, Edwin	5	7			
## 475	Underwood Jr., Duane	13	21			
## 476	Ureña, José	6	11			
## 477	Urías, Julio	10	12			
## 478	Urquidy, José	4	10			
## 479	Valdez, César	11	22			
## 480	Valdez, Framber	10	2			
## 481	Valdez, Phillips	5	17			
## 482	Velasquez, Vince	9	12			
## 483	Vesia, Alex	9	10			
## 484	Vest, Will	9	23			
## 485	Voth, Austin	14	19			
## 486	Wacha, Michael	9	10			
## 487	Waddell, Brandon	4	5			
## 488	Wainwright, Adam	10	11			
## 489	Walker, Taijuan	10	11			
## 490	Warren, Art	16	2			
## 491	Watson, Tony	16	22			
## 492	Weathers, Ryan	7	12			
## 493	Webb, Jacob	2	16			
## 494	Webb, Logan	5	10			
## 495	Weems, Jordan	2	5			
## 496	Wells, Tyler	14	15			
## 497	Wendelken, J.B.	10	15			
## 498	Wheeler, Zack	10	12			
## 499	White, Mitch	5	10			
## 500	Whitlock, Garrett	16	15			
## 501	Widener, Taylor	4	5			
## 502	Wieck, Brad	7	8			
## 503	Williams, Devin	18	23			
## 504	Williams, Trevor	3	10			
## 505	Wilson, Bryse	4	5			
## 506	Wilson, Justin	9	15			
## 507	Winkler, Dan	18	24			
## 508	Wisler, Matt	22	20			
## 509	Wittgren, Nick	18	20			
## 510	Wood, Alex	9	9			
## 511	Woodford, Jake	10	10			
## 512	Woodruff, Brandon	9	12			
## 513	Workman, Brandon	17	12			
## 514	Wright, Kyle	1	1			
## 515	Yang, Hyeon-Jong	1	7			
## 516	Yarbrough, Ryan	9	12			
## 517	Yardley, Eric	4	13			
## 518	Young, Alex	5	25			
## 519	Zeuch, T.J.	1	4			
## 520	Zimmer, Kyle	22	19			
## 521	Zimmermann, Bruce	2	10			
## 522	Zuber, Tyler	1	20			
##	total_apps	pitches_thrown	pitches_per_app	pre_spin	post_spin	spin_diff
## 1	6	266	44.3	2388.747	2305.157	-83.5895986
## 2	10	300	30.0	2167.449	2089.809	-77.6395703
## 3	30	652	21.7	2439.802	2415.793	-24.0088328
## 4	47	663	14.1	2865.997	2783.013	-82.9839849

## 5	15	983	65.5	2289.457	2233.902	-55.5556874
## 6	42	625	14.9	2346.145	2385.953	39.8085342
## 7	22	2024	92.0	2286.956	2213.619	-73.3372419
## 8	18	259	14.4	2169.885	2214.153	44.2678837
## 9	30	845	28.2	2204.988	2120.226	-84.7619864
## 10	22	1366	62.1	2200.229	1979.154	-221.0751485
## 11	7	460	65.7	2112.043	2098.228	-13.8152687
## 12	31	519	16.7	2143.720	2171.528	27.8074219
## 13	43	781	18.2	2155.277	2088.739	-66.5381385
## 14	39	593	15.2	2125.105	1892.175	-232.9292423
## 15	19	1536	80.8	2437.316	2302.621	-134.6953361
## 16	16	998	62.4	1841.475	1765.143	-76.3329152
## 17	14	849	60.6	2164.356	2155.119	-9.2366430
## 18	18	1647	91.5	1893.712	1866.922	-26.7896067
## 19	11	366	33.3	2707.307	2596.720	-110.5872289
## 20	19	1666	87.7	2338.881	2163.061	-175.8194519
## 21	26	681	26.2	2363.403	2309.712	-53.6908645
## 22	22	523	23.8	2864.119	2594.324	-269.7950172
## 23	18	1384	76.9	2261.345	2120.904	-140.4415298
## 24	22	284	12.9	2458.536	2282.300	-176.2364964
## 25	43	822	19.1	2763.025	2819.153	56.1276204
## 26	48	854	17.8	2357.594	2399.009	41.4141823
## 27	28	548	19.6	2329.370	2189.044	-140.3256452
## 28	44	665	15.1	2272.528	2161.375	-111.1523131
## 29	4	304	76.0	2151.609	2181.894	30.2854842
## 30	50	678	13.6	2109.520	2064.720	-44.8003517
## 31	22	2065	93.9	2188.384	2139.644	-48.7407984
## 32	16	1670	104.4	2888.071	2630.331	-257.7400639
## 33	8	198	24.8	2229.680	2219.186	-10.4939732
## 34	46	682	14.8	2147.314	2124.985	-22.3291101
## 35	15	264	17.6	2242.514	2245.671	3.1573726
## 36	38	614	16.2	2565.160	2248.299	-316.8618699
## 37	7	282	40.3	2353.795	2218.208	-135.5862403
## 38	21	2006	95.5	2203.515	2076.809	-126.7055951
## 39	4	199	49.8	2129.413	2112.600	-16.8134078
## 40	32	452	14.1	2301.261	2362.503	61.2419506
## 41	14	1467	104.8	2456.309	2288.444	-167.8651308
## 42	23	629	27.3	2372.364	2315.455	-56.9087627
## 43	48	504	10.5	1980.548	1995.051	14.5031260
## 44	3	106	35.3	2395.920	2355.025	-40.8953086
## 45	19	285	15.0	2514.561	2245.337	-269.2241458
## 46	28	445	15.9	2345.035	2330.364	-14.6701461
## 47	46	714	15.5	2152.467	2186.468	34.0009921
## 48	13	1118	86.0	2251.004	2245.138	-5.8664005
## 49	32	538	16.8	2148.627	2116.215	-32.4123195
## 50	33	538	16.3	1969.392	1995.277	25.8850457
## 51	51	794	15.6	2193.052	2147.330	-45.7218220
## 52	13	273	21.0	2425.397	2203.477	-221.9201072
## 53	42	674	16.0	2171.934	2148.574	-23.3598724
## 54	42	718	17.1	2152.297	2101.404	-50.8924866
## 55	19	1549	81.5	2407.316	2416.368	9.0512019
## 56	19	1363	71.7	1962.467	2013.372	50.9042592
## 57	18	294	16.3	2294.940	2089.258	-205.6818033
## 58	22	2154	97.9	2734.255	2501.952	-232.3030460

## 59	21	286	13.6	2278.417	2276.061	-2.3560417
## 60	16	1372	85.8	2532.237	2136.009	-396.2278658
## 61	39	638	16.4	2087.655	2187.012	99.3564643
## 62	19	1254	66.0	2420.826	2233.719	-187.1070354
## 63	6	156	26.0	2471.755	2480.234	8.4785428
## 64	18	1662	92.3	2746.157	2601.115	-145.0418323
## 65	19	340	17.9	2282.484	2134.553	-147.9304729
## 66	49	827	16.9	2200.027	2239.070	39.0436323
## 67	9	664	73.8	2216.825	2135.486	-81.3394050
## 68	14	1072	76.6	2326.358	2197.477	-128.8808484
## 69	40	609	15.2	2153.881	2163.957	10.0765166
## 70	23	2167	94.2	2185.102	2215.970	30.8676936
## 71	22	377	17.1	2650.057	2537.913	-112.1439513
## 72	45	832	18.5	2437.063	2445.835	8.7720534
## 73	22	2036	92.5	2645.174	2512.065	-133.1095326
## 74	33	630	19.1	2365.364	2253.330	-112.0342593
## 75	24	618	25.8	2245.588	2304.072	58.4842717
## 76	47	603	12.8	2208.408	2165.367	-43.0412314
## 77	42	663	15.8	2310.273	2194.172	-116.1008420
## 78	34	504	14.8	2314.298	2198.027	-116.2708051
## 79	30	505	16.8	2589.487	2419.418	-170.0696570
## 80	46	665	14.5	2262.653	2229.508	-33.1449719
## 81	53	850	16.0	2351.367	2368.065	16.6978710
## 82	50	782	15.6	2412.620	2335.404	-77.2152239
## 83	15	1454	96.9	2386.051	2407.351	21.3001560
## 84	30	541	18.0	2116.019	2109.293	-6.7255301
## 85	46	697	15.2	2567.379	2584.116	16.7374912
## 86	41	584	14.2	1957.138	1946.302	-10.8356718
## 87	45	626	13.9	2126.104	2020.894	-105.2107601
## 88	21	348	16.6	2529.291	2457.220	-72.0714186
## 89	15	1320	88.0	2060.795	1901.695	-159.1002812
## 90	21	2087	99.4	2512.598	2362.495	-150.1034225
## 91	41	702	17.1	2141.838	2127.819	-14.0189463
## 92	27	439	16.3	2276.118	2155.829	-120.2895099
## 93	21	1837	87.5	2143.423	2108.778	-34.6452991
## 94	11	537	48.8	2148.162	2187.347	39.1854158
## 95	31	402	13.0	2039.223	2075.031	35.8086223
## 96	27	434	16.1	2914.834	2888.223	-26.6111197
## 97	28	887	31.7	1955.290	1860.967	-94.3232596
## 98	32	560	17.5	2298.624	2253.095	-45.5287412
## 99	16	1326	82.9	2412.236	2329.888	-82.3480292
## 100	18	1553	86.3	2052.667	2016.940	-35.7271201
## 101	38	641	16.9	2446.687	2425.797	-20.8903667
## 102	21	1950	92.9	2681.775	2552.550	-129.2251013
## 103	4	303	75.8	2221.931	2076.028	-145.9032780
## 104	23	1892	82.3	1935.677	1953.835	18.1577416
## 105	12	198	16.5	2346.000	2203.597	-142.4031414
## 106	27	543	20.1	2501.889	2502.661	0.7717172
## 107	34	665	19.6	2297.339	2028.637	-268.7015310
## 108	9	775	86.1	2556.301	2427.875	-128.4259996
## 109	16	346	21.6	2117.956	2119.987	2.0311554
## 110	15	1226	81.7	2388.132	2439.906	51.7740293
## 111	22	1884	85.6	2107.994	2102.195	-5.7988843
## 112	38	670	17.6	2064.913	2065.189	0.2760747

## 113	43	713	16.6	2344.061	2209.297	-134.7636607
## 114	19	541	28.5	1992.660	1944.205	-48.4550146
## 115	12	285	23.8	1902.588	1900.956	-1.6320600
## 116	43	709	16.5	2365.590	2407.775	42.1852564
## 117	13	676	52.0	2095.328	2080.145	-15.1827311
## 118	34	502	14.8	2203.267	2173.021	-30.2459386
## 119	41	622	15.2	2291.833	2227.135	-64.6983076
## 120	42	697	16.6	2418.443	2346.456	-71.9875858
## 121	13	1009	77.6	2337.148	2323.458	-13.6901458
## 122	11	380	34.5	2165.018	2086.788	-78.2298311
## 123	11	869	79.0	2433.338	2311.216	-122.1219930
## 124	20	1495	74.8	2061.318	2023.279	-38.0394573
## 125	4	216	54.0	2163.579	2172.450	8.8701020
## 126	7	111	15.9	2498.114	2454.781	-43.3326741
## 127	18	1611	89.5	2069.063	2038.473	-30.5899345
## 128	11	221	20.1	2332.364	2225.642	-106.7218453
## 129	21	1949	92.8	2109.360	2061.338	-48.0223827
## 130	25	1013	40.5	2445.527	2460.307	14.7805609
## 131	39	624	16.0	2034.227	2067.712	33.4851128
## 132	13	295	22.7	2477.895	2427.918	-49.9770326
## 133	34	524	15.4	2403.058	2375.972	-27.0863598
## 134	9	276	30.7	1871.200	1774.341	-96.8585366
## 135	39	659	16.9	2228.988	2225.061	-3.9275752
## 136	33	666	20.2	2336.714	2135.332	-201.3820573
## 137	13	286	22.0	2513.057	2478.127	-34.9295455
## 138	17	1435	84.4	1944.546	1952.942	8.3965019
## 139	14	320	22.9	2056.603	2091.314	34.7109605
## 140	41	704	17.2	2499.268	2273.000	-226.2684564
## 141	44	793	18.0	2025.119	1944.341	-80.7778689
## 142	18	1334	74.1	1769.872	1762.416	-7.4552883
## 143	20	1791	89.6	2095.768	2146.334	50.5657101
## 144	47	747	15.9	2096.671	2071.558	-25.1130195
## 145	4	98	24.5	2129.278	2122.762	-6.5152778
## 146	21	1815	86.4	2209.834	2154.333	-55.5004591
## 147	28	566	20.2	2141.274	2175.926	34.6522944
## 148	13	1043	80.2	2205.214	2221.841	16.6267081
## 149	18	1605	89.2	2327.356	2338.691	11.3355815
## 150	43	708	16.5	2578.342	2424.822	-153.5197740
## 151	29	731	25.2	2209.750	2216.832	7.0821678
## 152	32	690	21.6	2105.494	2160.142	54.6481830
## 153	48	839	17.5	2387.430	2325.709	-61.7202074
## 154	13	1095	84.2	2248.221	2175.218	-73.0035095
## 155	27	1429	52.9	2239.588	2229.776	-9.8115568
## 156	32	607	19.0	2145.094	2082.209	-62.8853519
## 157	35	574	16.4	2295.816	2167.547	-128.2699441
## 158	20	1678	83.9	2288.424	2317.961	29.5362435
## 159	41	622	15.2	2516.763	2468.303	-48.4604998
## 160	45	577	12.8	2019.453	2016.288	-3.1643687
## 161	5	365	73.0	2338.706	2113.096	-225.6103410
## 162	9	197	21.9	2277.158	2185.354	-91.8039622
## 163	22	2012	91.5	2009.994	1933.503	-76.4909640
## 164	21	1545	73.6	2448.896	2494.771	45.8742694
## 165	20	1872	93.6	2239.914	2191.215	-48.6985326
## 166	14	1173	83.8	2170.896	2129.900	-40.9961696

## 167	24	390	16.2	2502.259	2393.901	-108.3572688
## 168	31	532	17.2	2333.790	2369.878	36.0872284
## 169	22	2137	97.1	2035.526	1986.231	-49.2943802
## 170	35	556	15.9	2425.333	2405.697	-19.6362179
## 171	14	1337	95.5	2601.470	2546.593	-54.8772711
## 172	2	88	44.0	2238.315	2162.133	-76.1817352
## 173	18	1405	78.1	2094.608	2033.932	-60.6761091
## 174	14	1238	88.4	2215.224	2145.450	-69.7738386
## 175	19	1421	74.8	2406.919	2263.051	-143.8680609
## 176	42	525	12.5	2460.235	2213.317	-246.9180139
## 177	6	214	35.7	2029.978	2005.607	-24.3711180
## 178	11	155	14.1	2250.889	2215.361	-35.5275444
## 179	32	522	16.3	2287.983	2179.325	-108.6578760
## 180	20	1807	90.3	2168.760	2231.129	62.3693350
## 181	15	1295	86.3	2579.307	2375.441	-203.8656509
## 182	42	804	19.1	2552.149	2503.763	-48.3857986
## 183	22	1959	89.0	2151.154	2061.652	-89.5016330
## 184	15	387	25.8	1960.976	2059.396	98.4201785
## 185	31	630	20.3	2159.815	1943.290	-216.5250924
## 186	29	873	30.1	2181.830	2121.758	-60.0716113
## 187	12	1059	88.2	2250.528	2261.621	11.0929872
## 188	39	609	15.6	2111.159	2155.540	44.3812256
## 189	17	460	27.1	2082.436	2111.771	29.3355311
## 190	42	734	17.5	2437.289	2262.877	-174.4113919
## 191	20	1859	93.0	2289.082	2120.752	-168.3303889
## 192	15	254	16.9	2097.977	2059.267	-38.7106061
## 193	6	166	27.7	2456.061	2413.034	-43.0270365
## 194	9	139	15.4	2048.773	2063.000	14.2272727
## 195	22	1731	78.7	2157.508	2192.614	35.1058581
## 196	13	298	22.9	2561.338	2368.198	-193.1407044
## 197	19	1778	93.6	2441.860	2374.129	-67.7303231
## 198	32	930	29.1	2156.879	2174.147	17.2675624
## 199	47	741	15.8	2472.239	2458.199	-14.0397341
## 200	41	778	19.0	2689.628	2617.598	-72.0298748
## 201	22	1896	86.2	2042.352	2026.032	-16.3202664
## 202	45	751	16.7	2362.765	2301.132	-61.6325345
## 203	36	540	15.0	2376.049	2285.058	-90.9916679
## 204	17	863	50.8	2253.161	2231.637	-21.5237994
## 205	16	718	44.9	2271.686	2216.917	-54.7694604
## 206	41	632	15.4	2359.656	2427.289	67.6330357
## 207	43	678	15.8	2296.643	2226.250	-70.3932432
## 208	21	1592	75.8	2553.539	2363.334	-190.2048121
## 209	53	679	12.8	2179.687	2172.298	-7.3896016
## 210	13	912	70.2	2336.555	2286.085	-50.4700168
## 211	22	449	20.4	2402.122	2188.721	-213.4015518
## 212	44	758	17.2	2200.784	2145.226	-55.5576691
## 213	13	661	50.8	2298.680	2115.968	-182.7124145
## 214	48	776	16.2	2407.779	2308.718	-99.0609755
## 215	6	355	59.2	2238.479	2245.090	6.6108807
## 216	21	1745	83.1	2052.455	2045.463	-6.9919067
## 217	38	572	15.1	2441.105	2232.304	-208.8009919
## 218	11	524	47.6	2136.705	1990.630	-146.0749547
## 219	7	143	20.4	2435.161	2389.575	-45.5860016
## 220	31	539	17.4	2315.379	2353.093	37.7136827



## 221	45	754	16.8	2303.771	2313.257	9.4863196
## 222	21	1784	85.0	1863.351	1860.372	-2.9790638
## 223	46	681	14.8	2419.677	2194.809	-224.8680182
## 224	42	704	16.8	2656.500	2489.202	-167.2975460
## 225	24	1366	56.9	2394.871	2423.674	28.8031147
## 226	35	587	16.8	2451.075	2373.406	-77.6687003
## 227	42	668	15.9	2762.592	2669.321	-93.2712744
## 228	20	309	15.4	2354.693	2374.938	20.2440134
## 229	13	1193	91.8	2080.551	1867.184	-213.3672746
## 230	50	858	17.2	2438.693	2199.469	-239.2232127
## 231	11	648	58.9	2320.981	2351.516	30.5350732
## 232	22	1955	88.9	2320.624	2374.826	54.2017576
## 233	15	270	18.0	2528.795	2443.350	-85.4442667
## 234	13	1007	77.5	2384.054	2324.125	-59.9288012
## 235	30	469	15.6	2289.176	2484.812	195.6367424
## 236	22	1959	89.0	2363.062	2262.575	-100.4876649
## 237	35	504	14.4	2409.952	2400.323	-9.6296296
## 238	18	1565	86.9	2611.490	2514.018	-97.4720864
## 239	21	1834	87.3	1926.183	1988.973	62.7902223
## 240	20	1859	93.0	2329.064	2102.625	-226.4393372
## 241	18	1423	79.1	2096.736	2028.999	-67.7371863
## 242	41	625	15.2	2414.302	2404.295	-10.0074775
## 243	27	692	25.6	1972.375	1946.824	-25.5517566
## 244	14	781	55.8	2283.554	2351.086	67.5312471
## 245	43	714	16.6	2487.520	2408.073	-79.4467516
## 246	29	510	17.6	2059.735	2017.275	-42.4600308
## 247	39	700	17.9	2624.181	2478.975	-145.2059487
## 248	25	730	29.2	2489.871	2493.436	3.5651134
## 249	12	919	76.6	2341.355	2204.865	-136.4896592
## 250	7	113	16.1	1793.116	1761.643	-31.4734219
## 251	14	1183	84.5	2300.275	2231.113	-69.1621654
## 252	24	499	20.8	2381.830	2295.158	-86.6720764
## 253	3	176	58.7	2071.108	2079.235	8.1271860
## 254	11	583	53.0	2463.129	2446.964	-16.1647263
## 255	19	336	17.7	2323.621	2102.240	-221.3812500
## 256	14	1075	76.8	2231.149	2183.482	-47.6665207
## 257	9	292	32.4	2219.913	2211.056	-8.8568076
## 258	18	306	17.0	2557.000	2493.828	-63.1717172
## 259	16	678	42.4	1902.870	1899.137	-3.7329818
## 260	26	391	15.0	2334.812	2350.679	15.8663991
## 261	17	1407	82.8	2198.283	2123.182	-75.1010908
## 262	38	538	14.2	1972.631	2029.470	56.8385375
## 263	42	787	18.7	2317.879	2326.028	8.1489044
## 264	22	1813	82.4	2027.257	2026.682	-0.5748338
## 265	19	1626	85.6	2096.003	2084.902	-11.1011462
## 266	42	549	13.1	2312.636	2259.552	-53.0830864
## 267	5	202	40.4	2214.957	2186.518	-28.4396179
## 268	11	644	58.5	2172.784	2130.235	-42.5496645
## 269	39	820	21.0	2694.501	2571.179	-123.3217143
## 270	24	401	16.7	2580.780	2493.020	-87.7600570
## 271	14	728	52.0	2319.596	2111.449	-208.1469254
## 272	22	1972	89.6	2462.453	2384.533	-77.9199679
## 273	5	376	75.2	2201.098	1921.609	-279.4887903
## 274	19	1793	94.4	2426.717	2361.792	-64.9249147

## 275	3	75	25.0	2393.387	2485.846	92.4590571
## 276	18	1509	83.8	2155.902	2109.921	-45.9816798
## 277	22	2082	94.6	2457.535	2251.816	-205.7188179
## 278	22	2061	93.7	1836.065	1836.820	0.7547571
## 279	9	797	88.6	2348.519	2224.784	-123.7342666
## 280	31	390	12.6	2266.338	2083.283	-183.0543178
## 281	24	479	20.0	2879.107	2520.600	-358.5069519
## 282	22	1953	88.8	2279.814	2305.793	25.9796452
## 283	27	435	16.1	2224.366	2236.587	12.2209795
## 284	45	645	14.3	2185.173	2183.984	-1.1892634
## 285	30	422	14.1	2220.096	1998.583	-221.5125571
## 286	5	342	68.4	2390.155	2233.089	-157.0658867
## 287	16	1276	79.8	2066.684	1983.863	-82.8202622
## 288	41	782	19.1	2616.593	2691.428	74.8343498
## 289	2	44	22.0	2119.056	2134.423	15.3675214
## 290	19	1623	85.4	2202.765	2215.770	13.0049230
## 291	44	707	16.1	2679.913	2465.338	-214.5745014
## 292	45	723	16.1	2290.250	2307.854	17.6042274
## 293	50	834	16.7	2362.811	2226.463	-136.3478140
## 294	43	557	13.0	2098.684	2079.708	-18.9767006
## 295	10	299	29.9	2200.388	2096.926	-103.4620206
## 296	16	1253	78.3	2288.215	2322.065	33.8501435
## 297	18	1771	98.4	2380.659	2437.405	56.7464348
## 298	46	609	13.2	2222.940	2086.661	-136.2783359
## 299	22	442	20.1	2724.857	2497.532	-227.3248328
## 300	23	642	27.9	2621.209	2625.294	4.0843463
## 301	15	1158	77.2	2174.302	2223.432	49.1295224
## 302	15	1320	88.0	2373.170	2240.731	-132.4393939
## 303	9	136	15.1	2627.944	2479.490	-148.4544444
## 304	14	900	64.3	2169.961	2200.655	30.6939626
## 305	46	750	16.3	2410.313	2330.959	-79.3545269
## 306	8	245	30.6	2223.488	2076.189	-147.2996928
## 307	28	461	16.5	2362.353	2232.325	-130.0276985
## 308	19	1788	94.1	2164.587	2150.650	-13.9378904
## 309	27	416	15.4	2339.559	2278.586	-60.9721613
## 310	22	1148	52.2	2191.289	2133.569	-57.7204633
## 311	11	233	21.2	1949.000	1927.701	-21.2989130
## 312	9	228	25.3	1951.977	2017.107	65.1298701
## 313	22	2041	92.8	2540.055	2488.738	-51.3165965
## 314	42	599	14.3	2372.106	2344.477	-27.6298580
## 315	47	650	13.8	2599.032	2395.547	-203.4844696
## 316	21	1785	85.0	2101.211	1922.081	-179.1303574
## 317	22	2065	93.9	2336.024	2121.525	-214.4993381
## 318	42	821	19.5	2183.655	2217.732	34.0766901
## 319	21	1824	86.9	2154.760	2089.523	-65.2366787
## 320	16	856	53.5	2239.124	2142.375	-96.7486737
## 321	8	611	76.4	2115.800	2219.663	103.8630037
## 322	2	112	56.0	2252.136	2298.811	46.6747475
## 323	22	2006	91.2	2529.949	2565.979	36.0304691
## 324	22	1971	89.6	2614.780	2662.908	48.1276839
## 325	19	330	17.4	2613.285	2403.937	-209.3473548
## 326	7	526	75.1	2099.714	1944.936	-154.7785059
## 327	28	522	18.6	2860.205	2789.711	-70.4948791
## 328	10	176	17.6	2520.515	2443.233	-77.2816864

## 329	10	309	30.9	2073.603	1992.877	-80.7259816
## 330	46	781	17.0	1750.670	1755.420	4.7499475
## 331	26	533	20.5	2509.602	2438.090	-71.5128574
## 332	21	1994	95.0	2082.924	2156.884	73.9601321
## 333	41	642	15.7	2148.000	2268.906	120.9055375
## 334	12	189	15.8	2347.697	2239.029	-108.6673624
## 335	11	797	72.5	2239.361	2135.423	-103.9377095
## 336	15	1146	76.4	2009.839	1866.266	-143.5734626
## 337	16	1337	83.6	2209.509	2103.888	-105.6213509
## 338	14	255	18.2	2500.778	2323.041	-177.7366819
## 339	47	782	16.6	2669.379	2482.495	-186.8831712
## 340	14	1082	77.3	2367.305	2255.606	-111.6991544
## 341	14	416	29.7	2176.958	2295.000	118.0419162
## 342	20	1624	81.2	2095.294	2088.329	-6.9645721
## 343	47	762	16.2	2446.090	2426.580	-19.5094460
## 344	12	253	21.1	2568.813	2646.324	77.5107440
## 345	22	327	14.9	1288.316	1528.760	240.4439508
## 346	9	677	75.2	2434.562	2410.882	-23.6807519
## 347	22	482	21.9	2356.724	2391.276	34.5520525
## 348	26	1030	39.6	2118.574	2214.342	95.7683790
## 349	20	1709	85.4	2297.303	2200.643	-96.6605850
## 350	32	400	12.5	2279.225	2138.324	-140.9013028
## 351	17	313	18.4	2498.116	2435.463	-62.6528672
## 352	23	420	18.3	2195.673	2320.333	124.6607670
## 353	21	1584	75.4	2102.235	1999.324	-102.9106240
## 354	15	1122	74.8	2099.745	2065.219	-34.5261594
## 355	53	762	14.4	2046.673	2054.249	7.5759018
## 356	15	1185	79.0	1946.783	1867.638	-79.1445108
## 357	21	1985	94.5	2398.973	2354.572	-44.4005884
## 358	15	1293	86.2	1949.849	1919.658	-30.1912682
## 359	36	933	25.9	2444.464	2288.028	-156.4363012
## 360	25	403	16.1	2483.987	2384.945	-99.0423257
## 361	17	477	28.1	2306.012	2191.213	-114.7991045
## 362	6	365	60.8	2500.230	2200.209	-300.0212520
## 363	36	686	19.1	2282.112	2240.960	-41.1515585
## 364	6	154	25.7	2119.673	2093.491	-26.1827013
## 365	7	549	78.4	2463.250	2581.433	118.1831210
## 366	42	667	15.9	2762.540	2735.557	-26.9825891
## 367	28	734	26.2	1943.238	1902.663	-40.5750216
## 368	30	1380	46.0	2046.035	2050.081	4.0466187
## 369	5	111	22.2	2318.377	2167.810	-150.5670137
## 370	19	959	50.5	1999.941	1999.150	-0.7903123
## 371	31	535	17.3	2365.225	2376.347	11.1220041
## 372	39	596	15.3	2616.034	2602.967	-13.0665893
## 373	13	313	24.1	1876.731	1841.438	-35.2933415
## 374	18	283	15.7	2332.277	2289.025	-43.2511720
## 375	7	157	22.4	2323.390	2292.531	-30.8592183
## 376	26	664	25.5	2553.244	2467.563	-85.6809617
## 377	21	2037	97.0	2211.745	2218.023	6.2778010
## 378	12	371	30.9	2111.032	1988.404	-122.6278447
## 379	46	830	18.0	2521.668	2260.867	-260.8012232
## 380	21	1809	86.1	2783.719	2423.646	-360.0732331
## 381	28	693	24.8	2225.343	2245.636	20.2937063
## 382	20	405	20.2	2200.500	1877.934	-322.5661578

## 383	46	781	17.0	2011.271	2099.235	87.9632331
## 384	18	1760	97.8	2220.300	2300.320	80.0195402
## 385	14	434	31.0	2266.862	2055.946	-210.9161572
## 386	21	1834	87.3	2115.007	2076.725	-38.2824556
## 387	33	537	16.3	1689.736	1715.360	25.6244451
## 388	4	114	28.5	1984.789	1859.744	-125.0445463
## 389	40	588	14.7	2576.552	2357.657	-218.8954603
## 390	40	642	16.0	2308.306	2342.929	34.6237380
## 391	20	1729	86.4	2103.184	1982.171	-121.0123911
## 392	50	697	13.9	2022.452	2022.060	-0.3916201
## 393	39	654	16.8	2429.997	2279.635	-150.3622744
## 394	16	364	22.8	2149.057	2133.909	-15.1483109
## 395	44	631	14.3	2485.048	2574.454	89.4066182
## 396	2	29	14.5	1985.636	2027.714	42.0779221
## 397	18	1524	84.7	2036.793	2000.589	-36.2035405
## 398	39	700	17.9	2326.903	2324.059	-2.8441433
## 399	9	166	18.4	1871.288	1891.439	20.1511167
## 400	21	1885	89.8	1880.029	1928.535	48.5059026
## 401	17	283	16.6	2675.758	2520.165	-155.5928699
## 402	8	545	68.1	2062.398	2009.789	-52.6083041
## 403	5	144	28.8	2010.227	2000.221	-10.0059613
## 404	31	561	18.1	2561.290	2366.962	-194.3281133
## 405	15	1257	83.8	2025.086	2087.856	62.7696174
## 406	29	533	18.4	2552.611	2418.733	-133.8783510
## 407	30	453	15.1	2338.369	2167.490	-170.8789959
## 408	22	668	30.4	2268.273	2225.104	-43.1689461
## 409	13	491	37.8	2074.092	1995.148	-78.9442540
## 410	7	176	25.1	2018.688	2109.477	90.7890625
## 411	41	717	17.5	1937.871	1784.948	-152.9225803
## 412	41	698	17.0	2337.458	2157.921	-179.5370869
## 413	5	198	39.6	2340.323	2278.371	-61.9511521
## 414	20	1895	94.8	2339.667	2217.613	-122.0539906
## 415	48	775	16.1	2619.102	2630.101	10.9987771
## 416	18	354	19.7	2531.319	2502.854	-28.4643562
## 417	9	223	24.8	2494.172	2299.469	-194.7030260
## 418	17	1487	87.5	2098.484	2093.718	-4.7655782
## 419	34	578	17.0	2324.861	2307.042	-17.8187330
## 420	49	868	17.7	2364.483	2390.641	26.1572917
## 421	15	1319	87.9	2156.980	2151.059	-5.9211578
## 422	11	168	15.3	2211.364	2264.694	53.3299120
## 423	16	1061	66.3	1860.843	1710.400	-150.4427095
## 424	35	528	15.1	1958.207	1788.214	-169.9927973
## 425	28	519	18.5	2897.065	2725.456	-171.6085932
## 426	19	1602	84.3	2313.270	2317.956	4.6861600
## 427	21	1853	88.2	2096.975	1961.157	-135.8170828
## 428	27	425	15.7	1998.025	1921.667	-76.3586142
## 429	22	461	21.0	2431.469	2166.864	-264.6051440
## 430	30	1562	52.1	2408.717	2339.874	-68.8426812
## 431	27	551	20.4	2646.265	2469.868	-176.3979068
## 432	29	434	15.0	2086.449	1921.129	-165.3196481
## 433	24	1071	44.6	2216.815	2144.188	-72.6277012
## 434	46	681	14.8	2271.590	2207.230	-64.3598807
## 435	19	1659	87.3	2162.669	2028.953	-133.7152361
## 436	20	1703	85.2	2306.953	2282.552	-24.4009646

## 437	3	57	19.0	2205.667	2276.714	71.0476190
## 438	32	475	14.8	2285.652	2398.299	112.6467952
## 439	46	815	17.7	2395.246	2373.579	-21.6662268
## 440	43	750	17.4	2093.072	2027.107	-65.9652553
## 441	47	899	19.1	2242.196	2269.847	27.6510548
## 442	49	803	16.4	1925.900	1963.312	37.4116147
## 443	39	726	18.6	2429.887	2361.928	-67.9585745
## 444	37	631	17.1	2256.388	2148.725	-107.6632797
## 445	26	727	28.0	2428.072	2303.196	-124.8759739
## 446	27	424	15.7	2773.546	2737.810	-35.7361826
## 447	4	231	57.8	2193.095	2212.596	19.5008542
## 448	44	944	21.5	2741.950	2716.310	-25.6391930
## 449	36	630	17.5	2506.398	2523.026	16.6283058
## 450	18	1406	78.1	2211.364	2176.544	-34.8199848
## 451	23	1810	78.7	2399.660	2223.341	-176.3192207
## 452	14	847	60.5	2126.774	2146.822	20.0475578
## 453	28	630	22.5	1766.876	1784.510	17.6340326
## 454	38	605	15.9	2499.004	2431.778	-67.2255077
## 455	39	727	18.6	2137.701	1989.926	-147.7755568
## 456	42	891	21.2	2156.906	2138.041	-18.8651620
## 457	17	324	19.1	2189.834	2078.392	-111.4421709
## 458	13	199	15.3	2385.697	2320.180	-65.5165186
## 459	21	1764	84.0	2495.654	2438.204	-57.4500991
## 460	7	119	17.0	2220.156	2235.989	15.8322557
## 461	39	712	18.3	2049.073	2022.979	-26.0937612
## 462	31	480	15.5	2247.246	2317.049	69.8024176
## 463	44	615	14.0	2284.527	2216.541	-67.9860208
## 464	46	678	14.7	2206.447	2164.158	-42.2889528
## 465	37	709	19.2	2426.671	2281.245	-145.4256631
## 466	27	680	25.2	2506.031	2431.550	-74.4805556
## 467	36	481	13.4	2052.392	2124.623	72.2306415
## 468	28	719	25.7	2552.037	2505.173	-46.8637251
## 469	5	142	28.4	2360.101	2249.077	-111.0238521
## 470	33	716	21.7	2555.621	2473.662	-81.9587679
## 471	46	665	14.5	2386.057	2367.410	-18.6473766
## 472	47	777	16.5	2133.748	2036.690	-97.0571619
## 473	5	120	24.0	2065.253	1842.757	-222.4962553
## 474	12	314	26.2	2238.554	2200.160	-38.3941823
## 475	34	933	27.4	2085.894	2035.420	-50.4742780
## 476	17	1360	80.0	2141.075	1994.706	-146.3692195
## 477	22	1931	87.8	2548.623	2500.144	-48.4788572
## 478	14	1155	82.5	2208.856	2252.290	43.4337702
## 479	33	650	19.7	1850.794	1877.307	26.5134999
## 480	12	1133	94.4	2314.782	2293.448	-21.3332255
## 481	22	521	23.7	2086.127	2104.057	17.9299752
## 482	21	1516	72.2	2270.612	2233.168	-37.4436078
## 483	19	334	17.6	2377.485	2285.860	-91.6245544
## 484	32	603	18.8	2009.940	1944.734	-65.2054308
## 485	33	701	21.2	2491.203	2497.762	6.5580431
## 486	19	1198	63.1	1954.192	1905.059	-49.1328182
## 487	9	213	23.7	2482.087	2219.495	-262.5911256
## 488	21	1989	94.7	2449.184	2465.640	16.4555207
## 489	21	1768	84.2	2155.130	2065.905	-89.2248688
## 490	18	244	13.6	2548.854	2425.099	-123.7551364

## 491	38	552	14.5	2316.546	2336.667	20.1209150
## 492	19	1125	59.2	2062.457	2106.583	44.1258435
## 493	18	342	19.0	2322.318	2512.239	189.9215629
## 494	15	1116	74.4	2095.079	2000.477	-94.6012613
## 495	7	133	19.0	2216.524	1953.765	-262.7596844
## 496	29	675	23.3	2408.345	2400.469	-7.8753475
## 497	25	408	16.3	2381.587	2308.405	-73.1815385
## 498	22	2221	101.0	2342.460	2356.027	13.5663510
## 499	15	442	29.5	2491.968	2320.214	-171.7548321
## 500	31	802	25.9	2038.541	2032.171	-6.3696384
## 501	9	714	79.3	2109.518	2104.476	-5.0425250
## 502	15	292	19.5	2331.508	2275.659	-55.8492759
## 503	41	710	17.3	2648.542	2558.762	-89.7804440
## 504	13	1037	79.8	2168.675	2152.733	-15.9427919
## 505	9	607	67.4	1986.653	1955.028	-31.6248744
## 506	24	382	15.9	2314.082	2285.843	-28.2398333
## 507	42	666	15.9	2564.786	2524.516	-40.2697760
## 508	42	730	17.4	2550.893	2441.893	-108.9994922
## 509	38	604	15.9	2041.651	2000.259	-41.3922065
## 510	18	1560	86.7	2081.273	1968.212	-113.0613163
## 511	20	710	35.5	2238.413	2162.248	-76.1645971
## 512	21	2000	95.2	2378.997	2308.113	-70.8841905
## 513	29	515	17.8	2353.223	2235.799	-117.4234067
## 514	2	133	66.5	2319.282	2402.345	83.0634033
## 515	8	491	61.4	2096.991	2070.406	-26.5850354
## 516	21	1801	85.8	2147.626	2025.363	-122.2629003
## 517	17	312	18.4	2215.912	2053.958	-161.9541667
## 518	30	726	24.2	2163.464	2145.773	-17.6914287
## 519	5	285	57.0	2077.652	2178.594	100.9421663
## 520	41	717	17.5	2195.861	2125.984	-69.8763236
## 521	12	999	83.2	2312.903	2275.076	-37.8272727
## 522	21	350	16.7	2322.493	2296.667	-25.8260020

Next, I am going to compare the xWoba and the Bauer Units(pitch spin rate / pitch spin velocity) for each player before and after June 7th.

First, I am going to focus on xWoba. This is the expected value of a batted ball for a player based on a launch angle and launch velocity when it leaves the bat. Here, I group the data based on player name and find the average xWoba for each player before and after June 7th to find the difference in xWoba based on pitcher appearances.

```
pitcher_pre_xwoba <- aggregate(df_before_june_7$estimated_woba_using_speedangle, list(df_before_june_7$player_name),
colnames(pitcher_pre_xwoba) <- c('player_name', 'Pre_xwOBA')
pitcher_post_xwoba <- aggregate(df_after_june_7$estimated_woba_using_speedangle, list(df_after_june_7$player_name),
colnames(pitcher_post_xwoba) <- c('player_name', 'Post_xwOBA')
pitcher_xwoba_comp <- merge(pitcher_pre_xwoba,pitcher_post_xwoba,by = "player_name")
pitcher_xwoba_comp$xwOBA_diff <- pitcher_xwoba_comp$Post_xwOBA - pitcher_xwoba_comp$Pre_xwOBA
apps_spin_xwoba <- merge(apps_spin_diff, pitcher_xwoba_comp, by = "player_name")
apps_spin_xwoba
```

##	player_name	appearances_june_7_later	appearances_june_7_before
## 1	Abbott, Cory	5	1
## 2	Abreu, Albert	6	4
## 3	Abreu, Bryan	9	21

## 4	Adams, Austin	22	25
## 5	Akin, Keegan	9	6
## 6	Alcala, Jorge	19	23
## 7	Alcantara, Sandy	9	13
## 8	Alexander, Scott	5	13
## 9	Alexander, Tyler	14	16
## 10	Allard, Kolby	10	12
## 11	Allen, Logan	2	5
## 12	Almonte, Yency	11	20
## 13	Alvarado, José	20	23
## 14	Álvarez, José	21	18
## 15	Alzolay, Adbert	9	10
## 16	Anderson, Brett	7	9
## 17	Anderson, Chase	3	11
## 18	Anderson, Ian	7	11
## 19	Anderson, Shaun	7	4
## 20	Anderson, Tyler	8	11
## 21	Andriese, Matt	8	18
## 22	Antone, Tejay	2	20
## 23	Arrieta, Jake	7	11
## 24	Baragar, Caleb	1	21
## 25	Bard, Daniel	21	22
## 26	Barlow, Scott	21	27
## 27	Barnes, Jacob	11	17
## 28	Barnes, Matt	18	26
## 29	Barría, Jaime	2	2
## 30	Bass, Anthony	24	26
## 31	Bassitt, Chris	10	12
## 32	Bauer, Trevor	4	12
## 33	Beasley, Jeremy	3	5
## 34	Bednar, David	22	24
## 35	Bedrosian, Cam	6	9
## 36	Bender, Anthony	25	13
## 37	Benjamin, Wes	1	6
## 38	Berríos, José	9	12
## 39	Bettinger, Alec	1	3
## 40	Bickford, Phil	24	8
## 41	Bieber, Shane	2	12
## 42	Bielak, Brandon	10	13
## 43	Bleier, Richard	22	26
## 44	Bolaños, Ronald	2	1
## 45	Borucki, Ryan	6	13
## 46	Bowden, Ben	12	16
## 47	Boxberger, Brad	22	24
## 48	Boyd, Matthew	2	11
## 49	Brach, Brad	25	7
## 50	Bradley, Archie	21	12
## 51	Brentz, Jake	22	29
## 52	Brice, Austin	1	12
## 53	Brogdon, Connor	19	23
## 54	Brothers, Rex	20	22
## 55	Brubaker, JT	9	10
## 56	Bubic, Kris	11	8
## 57	Buchter, Ryan	15	3

## 58	Buehler, Walker	11	11
## 59	Bukauskas, J.B.	10	11
## 60	Bumgarner, Madison	4	12
## 61	Bummer, Aaron	15	24
## 62	Bundy, Dylan	9	10
## 63	Burdi, Zack	5	1
## 64	Burnes, Corbin	8	10
## 65	Burr, Ryan	17	2
## 66	Cabrera, Génesis	22	27
## 67	Cahill, Trevor	1	8
## 68	Canning, Griffin	4	10
## 69	Castillo, Diego	19	21
## 70	Castillo, Luis	11	12
## 71	Castro, Anthony	11	11
## 72	Castro, Miguel	21	24
## 73	Cease, Dylan	10	12
## 74	Cessa, Luis	14	19
## 75	Chacín, Jhoulys	15	9
## 76	Chafin, Andrew	19	28
## 77	Chapman, Aroldis	19	23
## 78	Chargois, JT	20	14
## 79	Chatwood, Tyler	9	21
## 80	Cimber, Adam	21	25
## 81	Cishek, Steve	26	27
## 82	Cisnero, José	23	27
## 83	Civale, Aaron	3	12
## 84	Clarke, Taylor	3	27
## 85	Clase, Emmanuel	20	26
## 86	Claudio, Alex	15	26
## 87	Clay, Sam	22	23
## 88	Cleavinger, Garrett	13	8
## 89	Cobb, Alex	7	8
## 90	Cole, Gerrit	9	12
## 91	Colomé, Alex	19	22
## 92	Coonrod, Sam	4	23
## 93	Corbin, Patrick	10	11
## 94	Cortes, Nestor	9	2
## 95	Crichton, Stefan	9	22
## 96	Crick, Kyle	10	17
## 97	Crismatt, Nabil	15	13
## 98	Crochet, Garrett	16	16
## 99	Crowe, Wil	8	8
## 100	Cueto, Johnny	9	9
## 101	Curtiss, John	16	22
## 102	Darvish, Yu	9	12
## 103	Davidson, Tucker	2	2
## 104	Davies, Zach	11	12
## 105	Davis, Austin	11	1
## 106	Davis, Wade	10	17
## 107	de Geus, Brett	18	16
## 108	De Jong, Chase	7	2
## 109	De Los Santos, Enyel	13	3
## 110	deGrom, Jacob	6	9
## 111	DeSclafani, Anthony	10	12



## 112	Detwiler, Ross	15	23
## 113	Díaz, Edwin	20	23
## 114	Diaz, Miguel	11	8
## 115	Díaz, Yennsy	10	2
## 116	Diekman, Jake	18	25
## 117	Dobnak, Randy	3	10
## 118	Dolis, Rafael	13	21
## 119	Doolittle, Sean	18	23
## 120	Duffey, Tyler	18	24
## 121	Duffy, Danny	6	7
## 122	Dugger, Robert	1	10
## 123	Dunn, Justin	2	9
## 124	Dunning, Dane	8	12
## 125	Duplantier, Jon	2	2
## 126	Edwards Jr., Carl	3	4
## 127	Eflin, Zach	7	11
## 128	Elledge, Seth	4	7
## 129	Eovaldi, Nathan	9	12
## 130	Espino, Paolo	13	12
## 131	Estévez, Carlos	24	15
## 132	Evans, Demarcus	9	4
## 133	Fairbanks, Pete	19	15
## 134	Falter, Bailey	8	1
## 135	Familia, Jeurys	18	21
## 136	Farmer, Buck	21	12
## 137	Farrell, Luke	5	8
## 138	Fedde, Erick	9	8
## 139	Fernández, Junior	9	5
## 140	Feyereisen, J.P.	14	27
## 141	Finnegan, Kyle	18	26
## 142	Fleming, Josh	8	10
## 143	Flexen, Chris	10	10
## 144	Floro, Dylan	19	28
## 145	Foley, Jason	3	1
## 146	Foltynewicz, Mike	9	12
## 147	Foster, Matt	11	17
## 148	Freeland, Kyle	10	3
## 149	Fried, Max	9	9
## 150	Fry, Paul	20	23
## 151	Fulmer, Michael	9	20
## 152	Funkhouser, Kyle	21	11
## 153	Gallegos, Giovanny	21	27
## 154	Gallen, Zac	8	5
## 155	Gant, John	16	11
## 156	Garcia, Bryan	12	20
## 157	García, Jarlín	19	16
## 158	Garcia, Luis	8	12
## 159	García, Yimi	16	25
## 160	Garrett, Amir	26	19
## 161	Garrett, Braxton	4	1
## 162	Garza Jr., Ralph	8	1
## 163	Gausman, Kevin	10	12
## 164	Germán, Domingo	10	11
## 165	Gibson, Kyle	9	11

## 166	Gilbert, Logan	9	5
## 167	Gilbreath, Lucas	15	9
## 168	Ginkel, Kevin	5	26
## 169	Giolito, Lucas	10	12
## 170	Givens, Mychal	13	22
## 171	Glasnow, Tyler	2	12
## 172	Godley, Zack	1	1
## 173	Gomber, Austin	6	12
## 174	Gonzales, Marco	8	6
## 175	González, Chi Chi	8	11
## 176	González, Victor	18	24
## 177	Goudeau, Ashton	4	2
## 178	Graterol, Brusdar	8	3
## 179	Graveman, Kendall	18	14
## 180	Gray, Jon	8	12
## 181	Gray, Sonny	6	9
## 182	Green, Chad	17	25
## 183	Greinke, Zack	9	13
## 184	Gsellman, Robert	2	13
## 185	Guerra, Deolis	15	16
## 186	Guerra, Junior	14	15
## 187	Gutierrez, Vladimir	10	2
## 188	Hader, Josh	16	23
## 189	Hale, David	4	13
## 190	Hand, Brad	21	21
## 191	Happ, J.A.	10	10
## 192	Harper, Ryne	13	2
## 193	Hartlieb, Geoff	5	1
## 194	Harvey, Hunter	7	2
## 195	Harvey, Matt	10	12
## 196	Head, Louis	7	6
## 197	Heaney, Andrew	9	10
## 198	Hearn, Taylor	14	18
## 199	Helsley, Ryan	21	26
## 200	Hembree, Heath	24	17
## 201	Hendricks, Kyle	10	12
## 202	Hendriks, Liam	21	24
## 203	Hendrix, Ryan	19	17
## 204	Hentges, Sam	8	9
## 205	Hernández, Carlos	12	4
## 206	Hernandez, Darwinzon	20	21
## 207	Heuer, Codi	20	23
## 208	Hill, Rich	9	12
## 209	Hill, Tim	25	28
## 210	Hoffman, Jeff	3	10
## 211	Holland, Derek	9	13
## 212	Holland, Greg	22	22
## 213	Holloway, Jordan	5	8
## 214	Holmes, Clay	23	25
## 215	Houck, Tanner	3	3
## 216	Houser, Adrian	10	11
## 217	Howard, Sam	10	28
## 218	Howard, Spencer	5	6
## 219	Hoyt, James	5	2

## 220	Hudson, Daniel	9	22
## 221	Iglesias, Raisel	23	22
## 222	Irvin, Cole	9	12
## 223	Jackson, Luke	22	24
## 224	Jansen, Kenley	19	23
## 225	Javier, Cristian	13	11
## 226	Jiménez, Joe	24	11
## 227	Johnson, Pierce	20	22
## 228	Jones, Nate	2	18
## 229	Kaprielian, James	8	5
## 230	Karinchak, James	23	27
## 231	Kay, Anthony	6	5
## 232	Keller, Brad	10	12
## 233	Keller, Kyle	12	3
## 234	Keller, Mitch	2	11
## 235	Kelly, Joe	20	10
## 236	Kelly, Merrill	10	12
## 237	Kennedy, Ian	14	21
## 238	Kershaw, Clayton	5	13
## 239	Keuchel, Dallas	9	12
## 240	Kikuchi, Yusei	9	11
## 241	Kim, Kwang Hyun	9	9
## 242	Kimbrel, Craig	17	24
## 243	King, John	6	21
## 244	King, Michael	5	9
## 245	Kinley, Tyler	19	24
## 246	Kintzler, Brandon	9	20
## 247	Kittredge, Andrew	19	20
## 248	Kopech, Michael	11	14
## 249	Kremer, Dean	3	9
## 250	Kriske, Brooks	4	3
## 251	Kuhl, Chad	8	6
## 252	Lakins Sr., Travis	6	18
## 253	Lambert, Jimmy	2	1
## 254	Lamet, Dinelson	4	7
## 255	Lange, Alex	4	15
## 256	Lauer, Eric	9	5
## 257	Law, Derek	4	5
## 258	Lawrence, Justin	11	7
## 259	LeBlanc, Wade	10	6
## 260	Leone, Dominic	23	3
## 261	Lester, Jon	10	7
## 262	Littell, Zack	20	18
## 263	Loáisiga, Jonathan	18	24
## 264	López, Jorge	10	12
## 265	López, Pablo	7	12
## 266	Loup, Aaron	23	19
## 267	Lowther, Zac	2	3
## 268	Lucchesi, Joey	2	9
## 269	Luetge, Lucas	18	21
## 270	Lugo, Seth	22	2
## 271	Luzardo, Jesús	5	9
## 272	Lyles, Jordan	10	12
## 273	Lynch, Daniel	2	3

## 274	Lynn, Lance	9	10
## 275	Madero, Luís	1	2
## 276	Maeda, Kenta	9	9
## 277	Mahle, Tyler	10	12
## 278	Manaea, Sean	10	12
## 279	Manoah, Alek	7	2
## 280	Mantiply, Joe	22	9
## 281	Maples, Dillon	8	16
## 282	Márquez, Germán	9	13
## 283	Marshall, Evan	6	21
## 284	Martin, Brett	22	23
## 285	Martin, Chris	19	11
## 286	Martin, Corbin	3	2
## 287	Martínez, Carlos	6	10
## 288	Maton, Phil	23	18
## 289	Mattson, Isaac	1	1
## 290	Matz, Steven	7	12
## 291	Matzek, Tyler	20	24
## 292	May, Trevor	22	23
## 293	Mayers, Mike	22	28
## 294	Mayza, Tim	20	23
## 295	Mazza, Chris	4	6
## 296	McClanahan, Shane	9	7
## 297	McCullers Jr., Lance	9	9
## 298	McGee, Jake	20	26
## 299	McGowin, Kyle	9	13
## 300	McHugh, Collin	10	13
## 301	McKenzie, Triston	5	10
## 302	Means, John	3	12
## 303	Megill, Trevor	7	2
## 304	Mejía, J.C.	10	4
## 305	Melancon, Mark	21	25
## 306	Menez, Conner	5	3
## 307	Middleton, Keynan	10	18
## 308	Miley, Wade	9	10
## 309	Miller, Andrew	16	11
## 310	Mills, Alec	10	12
## 311	Milner, Hoby	9	2
## 312	Minaya, Juan	5	4
## 313	Minor, Mike	10	12
## 314	Minter, A.J.	16	26
## 315	Misiewicz, Anthony	21	26
## 316	Mize, Casey	10	11
## 317	Montas, Frankie	10	12
## 318	Montero, Rafael	16	26
## 319	Montgomery, Jordan	10	11
## 320	Moore, Matt	7	9
## 321	Morgan, Eli	7	1
## 322	Morimando, Shawn	1	1
## 323	Morton, Charlie	10	12
## 324	Musgrove, Joe	10	12
## 325	Nance, Tommy	9	10
## 326	Neidert, Nick	3	4
## 327	Nelson, Jimmy	11	17

## 328	Nelson, Kyle	4	6
## 329	Nelson, Nick	2	8
## 330	Neris, Héctor	21	25
## 331	Newcomb, Sean	9	17
## 332	Nola, Aaron	9	12
## 333	Norris, Daniel	20	21
## 334	O'Day, Darren	2	10
## 335	Ober, Bailey	9	2
## 336	Odorizzi, Jake	10	5
## 337	Ohtani, Shohei	8	8
## 338	Okert, Steven	13	1
## 339	Ottavino, Adam	20	27
## 340	Oviedo, Johan	8	6
## 341	Oviedo, Luis	2	12
## 342	Paddack, Chris	9	11
## 343	Pagán, Emilio	22	25
## 344	Paredes, Enoli	2	10
## 345	Parker, Blake	21	1
## 346	Patiño, Luis	4	5
## 347	Payamps, Joel	4	18
## 348	Peacock, Matt	15	11
## 349	Peralta, Freddy	9	11
## 350	Peralta, Wandy	7	25
## 351	Perdomo, Angel	4	13
## 352	Pérez, Cionel	5	18
## 353	Pérez, Martín	10	11
## 354	Peterson, David	5	10
## 355	Petit, Yusmeiro	24	29
## 356	Pineda, Michael	6	9
## 357	Pivetta, Nick	10	11
## 358	Plesac, Zach	5	10
## 359	Plutko, Adam	14	22
## 360	Pomeranz, Drew	11	14
## 361	Ponce de Leon, Daniel	4	13
## 362	Ponce, Cody	5	1
## 363	Pop, Zach	19	17
## 364	Poppen, Sean	3	3
## 365	Poteet, Cody	2	5
## 366	Pressly, Ryan	19	23
## 367	Price, David	15	13
## 368	Quantrill, Cal	11	19
## 369	Quijada, José	3	2
## 370	Quintana, José	10	9
## 371	Rainey, Tanner	11	20
## 372	Raley, Brooks	12	27
## 373	Ramirez, Nick	6	7
## 374	Ramirez, Noé	16	2
## 375	Ramirez, Yohan	5	2
## 376	Rasmussen, Drew	11	15
## 377	Ray, Robbie	11	10
## 378	Reid-Foley, Sean	6	6
## 379	Reyes, Alex	18	28
## 380	Richards, Garrett	9	12
## 381	Richards, Trevor	18	10

## 382	Ríos, Yacksel	19	1
## 383	Robles, Hansel	20	26
## 384	Rodón, Carlos	9	9
## 385	Rodriguez, Chris	6	8
## 386	Rodriguez, Eduardo	10	11
## 387	Rodríguez, Joely	16	17
## 388	Rodriguez, Nivaldo	2	2
## 389	Rodríguez, Richard	17	23
## 390	Rogers, Taylor	18	22
## 391	Rogers, Trevor	8	12
## 392	Rogers, Tyler	21	29
## 393	Romano, Jordan	18	21
## 394	Romano, Sal	2	14
## 395	Romo, Sergio	21	23
## 396	Rondón, Angel	1	1
## 397	Ross, Joe	7	11
## 398	Ruiz, José	17	22
## 399	Ryan, Kyle	6	3
## 400	Ryu, Hyun Jin	10	11
## 401	Sadler, Casey	6	11
## 402	Sanchez, Aaron	2	6
## 403	Sánchez, Cristopher	4	1
## 404	Sandlin, Nick	20	11
## 405	Sandoval, Patrick	8	7
## 406	Santana, Dennis	13	16
## 407	Santana, Edgar	18	12
## 408	Santana, Ervin	12	10
## 409	Santiago, Héctor	11	2
## 410	Santos, Antonio	5	2
## 411	Sawamura, Hirokazu	20	21
## 412	Sborz, Josh	16	25
## 413	Sceroler, Mac	3	2
## 414	Scherzer, Max	8	12
## 415	Scott, Tanner	20	28
## 416	Scrubb, Andre	5	13
## 417	Selman, Sam	2	7
## 418	Senzatela, Antonio	6	11
## 419	Sewald, Paul	24	10
## 420	Shaw, Bryan	24	25
## 421	Sheffield, Justus	5	10
## 422	Sherriff, Ryan	8	3
## 423	Shoemaker, Matt	5	11
## 424	Shreve, Chasen	24	11
## 425	Sims, Lucas	6	22
## 426	Singer, Brady	7	12
## 427	Skubal, Tarik	9	12
## 428	Slegers, Aaron	4	23
## 429	Smith, Burch	10	12
## 430	Smith, Caleb	9	21
## 431	Smith, Drew	20	7
## 432	Smith, Joe	7	22
## 433	Smith, Riley	10	14
## 434	Smith, Will	21	25
## 435	Smyly, Drew	10	9

## 436	Snell, Blake	8	12
## 437	Solomon, Peter	1	2
## 438	Soria, Joakim	19	13
## 439	Soto, Gregory	19	27
## 440	Springs, Jeffrey	18	25
## 441	Stammen, Craig	22	25
## 442	Stanek, Ryne	22	27
## 443	Staumont, Josh	17	22
## 444	Steckenrider, Drew	21	16
## 445	Stephan, Trevor	12	14
## 446	Stephenson, Robert	4	23
## 447	Stewart, Kohl	2	2
## 448	Stratton, Chris	22	22
## 449	Strickland, Hunter	14	22
## 450	Stripling, Ross	9	9
## 451	Stroman, Marcus	10	13
## 452	Suarez, José	10	4
## 453	Suárez, Ranger	18	10
## 454	Suero, Wander	19	19
## 455	Sulser, Cole	20	19
## 456	Suter, Brent	20	22
## 457	Swanson, Erik	8	9
## 458	Swarzak, Anthony	7	6
## 459	Taillon, Jameson	10	11
## 460	Tapia, Domingo	5	2
## 461	Tate, Dillon	24	15
## 462	Taylor, Blake	22	9
## 463	Taylor, Josh	21	23
## 464	Tepera, Ryan	18	28
## 465	Thielbar, Caleb	17	20
## 466	Thompson, Keegan	16	11
## 467	Thompson, Ryan	10	26
## 468	Thornton, Trent	10	18
## 469	Tice, Ty	1	4
## 470	Tomlin, Josh	14	19
## 471	Treinen, Blake	22	24
## 472	Trivino, Lou	23	24
## 473	Tropeano, Nick	1	4
## 474	Uceta, Edwin	5	7
## 475	Underwood Jr., Duane	13	21
## 476	Ureña, José	6	11
## 477	Urías, Julio	10	12
## 478	Urquidy, José	4	10
## 479	Valdez, César	11	22
## 480	Valdez, Framber	10	2
## 481	Valdez, Phillips	5	17
## 482	Velasquez, Vince	9	12
## 483	Vesia, Alex	9	10
## 484	Vest, Will	9	23
## 485	Voth, Austin	14	19
## 486	Wacha, Michael	9	10
## 487	Waddell, Brandon	4	5
## 488	Wainwright, Adam	10	11
## 489	Walker, Taijuan	10	11

## 490	Warren, Art	16	2			
## 491	Watson, Tony	16	22			
## 492	Weathers, Ryan	7	12			
## 493	Webb, Jacob	2	16			
## 494	Webb, Logan	5	10			
## 495	Weems, Jordan	2	5			
## 496	Wells, Tyler	14	15			
## 497	Wendelken, J.B.	10	15			
## 498	Wheeler, Zack	10	12			
## 499	White, Mitch	5	10			
## 500	Whitlock, Garrett	16	15			
## 501	Widener, Taylor	4	5			
## 502	Wieck, Brad	7	8			
## 503	Williams, Devin	18	23			
## 504	Williams, Trevor	3	10			
## 505	Wilson, Bryse	4	5			
## 506	Wilson, Justin	9	15			
## 507	Winkler, Dan	18	24			
## 508	Wisler, Matt	22	20			
## 509	Wittgren, Nick	18	20			
## 510	Wood, Alex	9	9			
## 511	Woodford, Jake	10	10			
## 512	Woodruff, Brandon	9	12			
## 513	Workman, Brandon	17	12			
## 514	Wright, Kyle	1	1			
## 515	Yang, Hyeon-Jong	1	7			
## 516	Yarbrough, Ryan	9	12			
## 517	Yardley, Eric	4	13			
## 518	Young, Alex	5	25			
## 519	Zeuch, T.J.	1	4			
## 520	Zimmer, Kyle	22	19			
## 521	Zimmermann, Bruce	2	10			
## 522	Zuber, Tyler	1	20			
##	total_apps	pitches_thrown	pitches_per_app	pre_spin	post_spin	spin_diff
## 1	6	266	44.3	2388.747	2305.157	-83.5895986
## 2	10	300	30.0	2167.449	2089.809	-77.6395703
## 3	30	652	21.7	2439.802	2415.793	-24.0088328
## 4	47	663	14.1	2865.997	2783.013	-82.9839849
## 5	15	983	65.5	2289.457	2233.902	-55.5556874
## 6	42	625	14.9	2346.145	2385.953	39.8085342
## 7	22	2024	92.0	2286.956	2213.619	-73.3372419
## 8	18	259	14.4	2169.885	2214.153	44.2678837
## 9	30	845	28.2	2204.988	2120.226	-84.7619864
## 10	22	1366	62.1	2200.229	1979.154	-221.0751485
## 11	7	460	65.7	2112.043	2098.228	-13.8152687
## 12	31	519	16.7	2143.720	2171.528	27.8074219
## 13	43	781	18.2	2155.277	2088.739	-66.5381385
## 14	39	593	15.2	2125.105	1892.175	-232.9292423
## 15	19	1536	80.8	2437.316	2302.621	-134.6953361
## 16	16	998	62.4	1841.475	1765.143	-76.3329152
## 17	14	849	60.6	2164.356	2155.119	-9.2366430
## 18	18	1647	91.5	1893.712	1866.922	-26.7896067
## 19	11	366	33.3	2707.307	2596.720	-110.5872289
## 20	19	1666	87.7	2338.881	2163.061	-175.8194519



## 21	26	681	26.2	2363.403	2309.712	-53.6908645
## 22	22	523	23.8	2864.119	2594.324	-269.7950172
## 23	18	1384	76.9	2261.345	2120.904	-140.4415298
## 24	22	284	12.9	2458.536	2282.300	-176.2364964
## 25	43	822	19.1	2763.025	2819.153	56.1276204
## 26	48	854	17.8	2357.594	2399.009	41.4141823
## 27	28	548	19.6	2329.370	2189.044	-140.3256452
## 28	44	665	15.1	2272.528	2161.375	-111.1523131
## 29	4	304	76.0	2151.609	2181.894	30.2854842
## 30	50	678	13.6	2109.520	2064.720	-44.8003517
## 31	22	2065	93.9	2188.384	2139.644	-48.7407984
## 32	16	1670	104.4	2888.071	2630.331	-257.7400639
## 33	8	198	24.8	2229.680	2219.186	-10.4939732
## 34	46	682	14.8	2147.314	2124.985	-22.3291101
## 35	15	264	17.6	2242.514	2245.671	3.1573726
## 36	38	614	16.2	2565.160	2248.299	-316.8618699
## 37	7	282	40.3	2353.795	2218.208	-135.5862403
## 38	21	2006	95.5	2203.515	2076.809	-126.7055951
## 39	4	199	49.8	2129.413	2112.600	-16.8134078
## 40	32	452	14.1	2301.261	2362.503	61.2419506
## 41	14	1467	104.8	2456.309	2288.444	-167.8651308
## 42	23	629	27.3	2372.364	2315.455	-56.9087627
## 43	48	504	10.5	1980.548	1995.051	14.5031260
## 44	3	106	35.3	2395.920	2355.025	-40.8953086
## 45	19	285	15.0	2514.561	2245.337	-269.2241458
## 46	28	445	15.9	2345.035	2330.364	-14.6701461
## 47	46	714	15.5	2152.467	2186.468	34.0009921
## 48	13	1118	86.0	2251.004	2245.138	-5.8664005
## 49	32	538	16.8	2148.627	2116.215	-32.4123195
## 50	33	538	16.3	1969.392	1995.277	25.8850457
## 51	51	794	15.6	2193.052	2147.330	-45.7218220
## 52	13	273	21.0	2425.397	2203.477	-221.9201072
## 53	42	674	16.0	2171.934	2148.574	-23.3598724
## 54	42	718	17.1	2152.297	2101.404	-50.8924866
## 55	19	1549	81.5	2407.316	2416.368	9.0512019
## 56	19	1363	71.7	1962.467	2013.372	50.9042592
## 57	18	294	16.3	2294.940	2089.258	-205.6818033
## 58	22	2154	97.9	2734.255	2501.952	-232.3030460
## 59	21	286	13.6	2278.417	2276.061	-2.3560417
## 60	16	1372	85.8	2532.237	2136.009	-396.2278658
## 61	39	638	16.4	2087.655	2187.012	99.3564643
## 62	19	1254	66.0	2420.826	2233.719	-187.1070354
## 63	6	156	26.0	2471.755	2480.234	8.4785428
## 64	18	1662	92.3	2746.157	2601.115	-145.0418323
## 65	19	340	17.9	2282.484	2134.553	-147.9304729
## 66	49	827	16.9	2200.027	2239.070	39.0436323
## 67	9	664	73.8	2216.825	2135.486	-81.3394050
## 68	14	1072	76.6	2326.358	2197.477	-128.8808484
## 69	40	609	15.2	2153.881	2163.957	10.0765166
## 70	23	2167	94.2	2185.102	2215.970	30.8676936
## 71	22	377	17.1	2650.057	2537.913	-112.1439513
## 72	45	832	18.5	2437.063	2445.835	8.7720534
## 73	22	2036	92.5	2645.174	2512.065	-133.1095326
## 74	33	630	19.1	2365.364	2253.330	-112.0342593

## 75	24	618	25.8	2245.588	2304.072	58.4842717
## 76	47	603	12.8	2208.408	2165.367	-43.0412314
## 77	42	663	15.8	2310.273	2194.172	-116.1008420
## 78	34	504	14.8	2314.298	2198.027	-116.2708051
## 79	30	505	16.8	2589.487	2419.418	-170.0696570
## 80	46	665	14.5	2262.653	2229.508	-33.1449719
## 81	53	850	16.0	2351.367	2368.065	16.6978710
## 82	50	782	15.6	2412.620	2335.404	-77.2152239
## 83	15	1454	96.9	2386.051	2407.351	21.3001560
## 84	30	541	18.0	2116.019	2109.293	-6.7255301
## 85	46	697	15.2	2567.379	2584.116	16.7374912
## 86	41	584	14.2	1957.138	1946.302	-10.8356718
## 87	45	626	13.9	2126.104	2020.894	-105.2107601
## 88	21	348	16.6	2529.291	2457.220	-72.0714186
## 89	15	1320	88.0	2060.795	1901.695	-159.1002812
## 90	21	2087	99.4	2512.598	2362.495	-150.1034225
## 91	41	702	17.1	2141.838	2127.819	-14.0189463
## 92	27	439	16.3	2276.118	2155.829	-120.2895099
## 93	21	1837	87.5	2143.423	2108.778	-34.6452991
## 94	11	537	48.8	2148.162	2187.347	39.1854158
## 95	31	402	13.0	2039.223	2075.031	35.8086223
## 96	27	434	16.1	2914.834	2888.223	-26.6111197
## 97	28	887	31.7	1955.290	1860.967	-94.3232596
## 98	32	560	17.5	2298.624	2253.095	-45.5287412
## 99	16	1326	82.9	2412.236	2329.888	-82.3480292
## 100	18	1553	86.3	2052.667	2016.940	-35.7271201
## 101	38	641	16.9	2446.687	2425.797	-20.8903667
## 102	21	1950	92.9	2681.775	2552.550	-129.2251013
## 103	4	303	75.8	2221.931	2076.028	-145.9032780
## 104	23	1892	82.3	1935.677	1953.835	18.1577416
## 105	12	198	16.5	2346.000	2203.597	-142.4031414
## 106	27	543	20.1	2501.889	2502.661	0.7717172
## 107	34	665	19.6	2297.339	2028.637	-268.7015310
## 108	9	775	86.1	2556.301	2427.875	-128.4259996
## 109	16	346	21.6	2117.956	2119.987	2.0311554
## 110	15	1226	81.7	2388.132	2439.906	51.7740293
## 111	22	1884	85.6	2107.994	2102.195	-5.7988843
## 112	38	670	17.6	2064.913	2065.189	0.2760747
## 113	43	713	16.6	2344.061	2209.297	-134.7636607
## 114	19	541	28.5	1992.660	1944.205	-48.4550146
## 115	12	285	23.8	1902.588	1900.956	-1.6320600
## 116	43	709	16.5	2365.590	2407.775	42.1852564
## 117	13	676	52.0	2095.328	2080.145	-15.1827311
## 118	34	502	14.8	2203.267	2173.021	-30.2459386
## 119	41	622	15.2	2291.833	2227.135	-64.6983076
## 120	42	697	16.6	2418.443	2346.456	-71.9875858
## 121	13	1009	77.6	2337.148	2323.458	-13.6901458
## 122	11	380	34.5	2165.018	2086.788	-78.2298311
## 123	11	869	79.0	2433.338	2311.216	-122.1219930
## 124	20	1495	74.8	2061.318	2023.279	-38.0394573
## 125	4	216	54.0	2163.579	2172.450	8.8701020
## 126	7	111	15.9	2498.114	2454.781	-43.3326741
## 127	18	1611	89.5	2069.063	2038.473	-30.5899345
## 128	11	221	20.1	2332.364	2225.642	-106.7218453

## 129	21	1949	92.8	2109.360	2061.338	-48.0223827
## 130	25	1013	40.5	2445.527	2460.307	14.7805609
## 131	39	624	16.0	2034.227	2067.712	33.4851128
## 132	13	295	22.7	2477.895	2427.918	-49.9770326
## 133	34	524	15.4	2403.058	2375.972	-27.0863598
## 134	9	276	30.7	1871.200	1774.341	-96.8585366
## 135	39	659	16.9	2228.988	2225.061	-3.9275752
## 136	33	666	20.2	2336.714	2135.332	-201.3820573
## 137	13	286	22.0	2513.057	2478.127	-34.9295455
## 138	17	1435	84.4	1944.546	1952.942	8.3965019
## 139	14	320	22.9	2056.603	2091.314	34.7109605
## 140	41	704	17.2	2499.268	2273.000	-226.2684564
## 141	44	793	18.0	2025.119	1944.341	-80.7778689
## 142	18	1334	74.1	1769.872	1762.416	-7.4552883
## 143	20	1791	89.6	2095.768	2146.334	50.5657101
## 144	47	747	15.9	2096.671	2071.558	-25.1130195
## 145	4	98	24.5	2129.278	2122.762	-6.5152778
## 146	21	1815	86.4	2209.834	2154.333	-55.5004591
## 147	28	566	20.2	2141.274	2175.926	34.6522944
## 148	13	1043	80.2	2205.214	2221.841	16.6267081
## 149	18	1605	89.2	2327.356	2338.691	11.3355815
## 150	43	708	16.5	2578.342	2424.822	-153.5197740
## 151	29	731	25.2	2209.750	2216.832	7.0821678
## 152	32	690	21.6	2105.494	2160.142	54.6481830
## 153	48	839	17.5	2387.430	2325.709	-61.7202074
## 154	13	1095	84.2	2248.221	2175.218	-73.0035095
## 155	27	1429	52.9	2239.588	2229.776	-9.8115568
## 156	32	607	19.0	2145.094	2082.209	-62.8853519
## 157	35	574	16.4	2295.816	2167.547	-128.2699441
## 158	20	1678	83.9	2288.424	2317.961	29.5362435
## 159	41	622	15.2	2516.763	2468.303	-48.4604998
## 160	45	577	12.8	2019.453	2016.288	-3.1643687
## 161	5	365	73.0	2338.706	2113.096	-225.6103410
## 162	9	197	21.9	2277.158	2185.354	-91.8039622
## 163	22	2012	91.5	2009.994	1933.503	-76.4909640
## 164	21	1545	73.6	2448.896	2494.771	45.8742694
## 165	20	1872	93.6	2239.914	2191.215	-48.6985326
## 166	14	1173	83.8	2170.896	2129.900	-40.9961696
## 167	24	390	16.2	2502.259	2393.901	-108.3572688
## 168	31	532	17.2	2333.790	2369.878	36.0872284
## 169	22	2137	97.1	2035.526	1986.231	-49.2943802
## 170	35	556	15.9	2425.333	2405.697	-19.6362179
## 171	14	1337	95.5	2601.470	2546.593	-54.8772711
## 172	2	88	44.0	2238.315	2162.133	-76.1817352
## 173	18	1405	78.1	2094.608	2033.932	-60.6761091
## 174	14	1238	88.4	2215.224	2145.450	-69.7738386
## 175	19	1421	74.8	2406.919	2263.051	-143.8680609
## 176	42	525	12.5	2460.235	2213.317	-246.9180139
## 177	6	214	35.7	2029.978	2005.607	-24.3711180
## 178	11	155	14.1	2250.889	2215.361	-35.5275444
## 179	32	522	16.3	2287.983	2179.325	-108.6578760
## 180	20	1807	90.3	2168.760	2231.129	62.3693350
## 181	15	1295	86.3	2579.307	2375.441	-203.8656509
## 182	42	804	19.1	2552.149	2503.763	-48.3857986

## 183	22	1959	89.0	2151.154	2061.652	-89.5016330
## 184	15	387	25.8	1960.976	2059.396	98.4201785
## 185	31	630	20.3	2159.815	1943.290	-216.5250924
## 186	29	873	30.1	2181.830	2121.758	-60.0716113
## 187	12	1059	88.2	2250.528	2261.621	11.0929872
## 188	39	609	15.6	2111.159	2155.540	44.3812256
## 189	17	460	27.1	2082.436	2111.771	29.3355311
## 190	42	734	17.5	2437.289	2262.877	-174.4113919
## 191	20	1859	93.0	2289.082	2120.752	-168.3303889
## 192	15	254	16.9	2097.977	2059.267	-38.7106061
## 193	6	166	27.7	2456.061	2413.034	-43.0270365
## 194	9	139	15.4	2048.773	2063.000	14.2272727
## 195	22	1731	78.7	2157.508	2192.614	35.1058581
## 196	13	298	22.9	2561.338	2368.198	-193.1407044
## 197	19	1778	93.6	2441.860	2374.129	-67.7303231
## 198	32	930	29.1	2156.879	2174.147	17.2675624
## 199	47	741	15.8	2472.239	2458.199	-14.0397341
## 200	41	778	19.0	2689.628	2617.598	-72.0298748
## 201	22	1896	86.2	2042.352	2026.032	-16.3202664
## 202	45	751	16.7	2362.765	2301.132	-61.6325345
## 203	36	540	15.0	2376.049	2285.058	-90.9916679
## 204	17	863	50.8	2253.161	2231.637	-21.5237994
## 205	16	718	44.9	2271.686	2216.917	-54.7694604
## 206	41	632	15.4	2359.656	2427.289	67.6330357
## 207	43	678	15.8	2296.643	2226.250	-70.3932432
## 208	21	1592	75.8	2553.539	2363.334	-190.2048121
## 209	53	679	12.8	2179.687	2172.298	-7.3896016
## 210	13	912	70.2	2336.555	2286.085	-50.4700168
## 211	22	449	20.4	2402.122	2188.721	-213.4015518
## 212	44	758	17.2	2200.784	2145.226	-55.5576691
## 213	13	661	50.8	2298.680	2115.968	-182.7124145
## 214	48	776	16.2	2407.779	2308.718	-99.0609755
## 215	6	355	59.2	2238.479	2245.090	6.6108807
## 216	21	1745	83.1	2052.455	2045.463	-6.9919067
## 217	38	572	15.1	2441.105	2232.304	-208.8009919
## 218	11	524	47.6	2136.705	1990.630	-146.0749547
## 219	7	143	20.4	2435.161	2389.575	-45.5860016
## 220	31	539	17.4	2315.379	2353.093	37.7136827
## 221	45	754	16.8	2303.771	2313.257	9.4863196
## 222	21	1784	85.0	1863.351	1860.372	-2.9790638
## 223	46	681	14.8	2419.677	2194.809	-224.8680182
## 224	42	704	16.8	2656.500	2489.202	-167.2975460
## 225	24	1366	56.9	2394.871	2423.674	28.8031147
## 226	35	587	16.8	2451.075	2373.406	-77.6687003
## 227	42	668	15.9	2762.592	2669.321	-93.2712744
## 228	20	309	15.4	2354.693	2374.938	20.2440134
## 229	13	1193	91.8	2080.551	1867.184	-213.3672746
## 230	50	858	17.2	2438.693	2199.469	-239.2232127
## 231	11	648	58.9	2320.981	2351.516	30.5350732
## 232	22	1955	88.9	2320.624	2374.826	54.2017576
## 233	15	270	18.0	2528.795	2443.350	-85.4442667
## 234	13	1007	77.5	2384.054	2324.125	-59.9288012
## 235	30	469	15.6	2289.176	2484.812	195.6367424
## 236	22	1959	89.0	2363.062	2262.575	-100.4876649

## 237	35	504	14.4	2409.952	2400.323	-9.6296296
## 238	18	1565	86.9	2611.490	2514.018	-97.4720864
## 239	21	1834	87.3	1926.183	1988.973	62.7902223
## 240	20	1859	93.0	2329.064	2102.625	-226.4393372
## 241	18	1423	79.1	2096.736	2028.999	-67.7371863
## 242	41	625	15.2	2414.302	2404.295	-10.0074775
## 243	27	692	25.6	1972.375	1946.824	-25.5517566
## 244	14	781	55.8	2283.554	2351.086	67.5312471
## 245	43	714	16.6	2487.520	2408.073	-79.4467516
## 246	29	510	17.6	2059.735	2017.275	-42.4600308
## 247	39	700	17.9	2624.181	2478.975	-145.2059487
## 248	25	730	29.2	2489.871	2493.436	3.5651134
## 249	12	919	76.6	2341.355	2204.865	-136.4896592
## 250	7	113	16.1	1793.116	1761.643	-31.4734219
## 251	14	1183	84.5	2300.275	2231.113	-69.1621654
## 252	24	499	20.8	2381.830	2295.158	-86.6720764
## 253	3	176	58.7	2071.108	2079.235	8.1271860
## 254	11	583	53.0	2463.129	2446.964	-16.1647263
## 255	19	336	17.7	2323.621	2102.240	-221.3812500
## 256	14	1075	76.8	2231.149	2183.482	-47.6665207
## 257	9	292	32.4	2219.913	2211.056	-8.8568076
## 258	18	306	17.0	2557.000	2493.828	-63.1717172
## 259	16	678	42.4	1902.870	1899.137	-3.7329818
## 260	26	391	15.0	2334.812	2350.679	15.8663991
## 261	17	1407	82.8	2198.283	2123.182	-75.1010908
## 262	38	538	14.2	1972.631	2029.470	56.8385375
## 263	42	787	18.7	2317.879	2326.028	8.1489044
## 264	22	1813	82.4	2027.257	2026.682	-0.5748338
## 265	19	1626	85.6	2096.003	2084.902	-11.1011462
## 266	42	549	13.1	2312.636	2259.552	-53.0830864
## 267	5	202	40.4	2214.957	2186.518	-28.4396179
## 268	11	644	58.5	2172.784	2130.235	-42.5496645
## 269	39	820	21.0	2694.501	2571.179	-123.3217143
## 270	24	401	16.7	2580.780	2493.020	-87.7600570
## 271	14	728	52.0	2319.596	2111.449	-208.1469254
## 272	22	1972	89.6	2462.453	2384.533	-77.9199679
## 273	5	376	75.2	2201.098	1921.609	-279.4887903
## 274	19	1793	94.4	2426.717	2361.792	-64.9249147
## 275	3	75	25.0	2393.387	2485.846	92.4590571
## 276	18	1509	83.8	2155.902	2109.921	-45.9816798
## 277	22	2082	94.6	2457.535	2251.816	-205.7188179
## 278	22	2061	93.7	1836.065	1836.820	0.7547571
## 279	9	797	88.6	2348.519	2224.784	-123.7342666
## 280	31	390	12.6	2266.338	2083.283	-183.0543178
## 281	24	479	20.0	2879.107	2520.600	-358.5069519
## 282	22	1953	88.8	2279.814	2305.793	25.9796452
## 283	27	435	16.1	2224.366	2236.587	12.2209795
## 284	45	645	14.3	2185.173	2183.984	-1.1892634
## 285	30	422	14.1	2220.096	1998.583	-221.5125571
## 286	5	342	68.4	2390.155	2233.089	-157.0658867
## 287	16	1276	79.8	2066.684	1983.863	-82.8202622
## 288	41	782	19.1	2616.593	2691.428	74.8343498
## 289	2	44	22.0	2119.056	2134.423	15.3675214
## 290	19	1623	85.4	2202.765	2215.770	13.0049230

## 291	44	707	16.1	2679.913	2465.338	-214.5745014
## 292	45	723	16.1	2290.250	2307.854	17.6042274
## 293	50	834	16.7	2362.811	2226.463	-136.3478140
## 294	43	557	13.0	2098.684	2079.708	-18.9767006
## 295	10	299	29.9	2200.388	2096.926	-103.4620206
## 296	16	1253	78.3	2288.215	2322.065	33.8501435
## 297	18	1771	98.4	2380.659	2437.405	56.7464348
## 298	46	609	13.2	2222.940	2086.661	-136.2783359
## 299	22	442	20.1	2724.857	2497.532	-227.3248328
## 300	23	642	27.9	2621.209	2625.294	4.0843463
## 301	15	1158	77.2	2174.302	2223.432	49.1295224
## 302	15	1320	88.0	2373.170	2240.731	-132.4393939
## 303	9	136	15.1	2627.944	2479.490	-148.4544444
## 304	14	900	64.3	2169.961	2200.655	30.6939626
## 305	46	750	16.3	2410.313	2330.959	-79.3545269
## 306	8	245	30.6	2223.488	2076.189	-147.2996928
## 307	28	461	16.5	2362.353	2232.325	-130.0276985
## 308	19	1788	94.1	2164.587	2150.650	-13.9378904
## 309	27	416	15.4	2339.559	2278.586	-60.9721613
## 310	22	1148	52.2	2191.289	2133.569	-57.7204633
## 311	11	233	21.2	1949.000	1927.701	-21.2989130
## 312	9	228	25.3	1951.977	2017.107	65.1298701
## 313	22	2041	92.8	2540.055	2488.738	-51.3165965
## 314	42	599	14.3	2372.106	2344.477	-27.6298580
## 315	47	650	13.8	2599.032	2395.547	-203.4844696
## 316	21	1785	85.0	2101.211	1922.081	-179.1303574
## 317	22	2065	93.9	2336.024	2121.525	-214.4993381
## 318	42	821	19.5	2183.655	2217.732	34.0766901
## 319	21	1824	86.9	2154.760	2089.523	-65.2366787
## 320	16	856	53.5	2239.124	2142.375	-96.7486737
## 321	8	611	76.4	2115.800	2219.663	103.8630037
## 322	2	112	56.0	2252.136	2298.811	46.6747475
## 323	22	2006	91.2	2529.949	2565.979	36.0304691
## 324	22	1971	89.6	2614.780	2662.908	48.1276839
## 325	19	330	17.4	2613.285	2403.937	-209.3473548
## 326	7	526	75.1	2099.714	1944.936	-154.7785059
## 327	28	522	18.6	2860.205	2789.711	-70.4948791
## 328	10	176	17.6	2520.515	2443.233	-77.2816864
## 329	10	309	30.9	2073.603	1992.877	-80.7259816
## 330	46	781	17.0	1750.670	1755.420	4.7499475
## 331	26	533	20.5	2509.602	2438.090	-71.5128574
## 332	21	1994	95.0	2082.924	2156.884	73.9601321
## 333	41	642	15.7	2148.000	2268.906	120.9055375
## 334	12	189	15.8	2347.697	2239.029	-108.6673624
## 335	11	797	72.5	2239.361	2135.423	-103.9377095
## 336	15	1146	76.4	2009.839	1866.266	-143.5734626
## 337	16	1337	83.6	2209.509	2103.888	-105.6213509
## 338	14	255	18.2	2500.778	2323.041	-177.7366819
## 339	47	782	16.6	2669.379	2482.495	-186.8831712
## 340	14	1082	77.3	2367.305	2255.606	-111.6991544
## 341	14	416	29.7	2176.958	2295.000	118.0419162
## 342	20	1624	81.2	2095.294	2088.329	-6.9645721
## 343	47	762	16.2	2446.090	2426.580	-19.5094460
## 344	12	253	21.1	2568.813	2646.324	77.5107440

## 345	22	327	14.9	1288.316	1528.760	240.4439508
## 346	9	677	75.2	2434.562	2410.882	-23.6807519
## 347	22	482	21.9	2356.724	2391.276	34.5520525
## 348	26	1030	39.6	2118.574	2214.342	95.7683790
## 349	20	1709	85.4	2297.303	2200.643	-96.6605850
## 350	32	400	12.5	2279.225	2138.324	-140.9013028
## 351	17	313	18.4	2498.116	2435.463	-62.6528672
## 352	23	420	18.3	2195.673	2320.333	124.6607670
## 353	21	1584	75.4	2102.235	1999.324	-102.9106240
## 354	15	1122	74.8	2099.745	2065.219	-34.5261594
## 355	53	762	14.4	2046.673	2054.249	7.5759018
## 356	15	1185	79.0	1946.783	1867.638	-79.1445108
## 357	21	1985	94.5	2398.973	2354.572	-44.4005884
## 358	15	1293	86.2	1949.849	1919.658	-30.1912682
## 359	36	933	25.9	2444.464	2288.028	-156.4363012
## 360	25	403	16.1	2483.987	2384.945	-99.0423257
## 361	17	477	28.1	2306.012	2191.213	-114.7991045
## 362	6	365	60.8	2500.230	2200.209	-300.0212520
## 363	36	686	19.1	2282.112	2240.960	-41.1515585
## 364	6	154	25.7	2119.673	2093.491	-26.1827013
## 365	7	549	78.4	2463.250	2581.433	118.1831210
## 366	42	667	15.9	2762.540	2735.557	-26.9825891
## 367	28	734	26.2	1943.238	1902.663	-40.5750216
## 368	30	1380	46.0	2046.035	2050.081	4.0466187
## 369	5	111	22.2	2318.377	2167.810	-150.5670137
## 370	19	959	50.5	1999.941	1999.150	-0.7903123
## 371	31	535	17.3	2365.225	2376.347	11.1220041
## 372	39	596	15.3	2616.034	2602.967	-13.0665893
## 373	13	313	24.1	1876.731	1841.438	-35.2933415
## 374	18	283	15.7	2332.277	2289.025	-43.2511720
## 375	7	157	22.4	2323.390	2292.531	-30.8592183
## 376	26	664	25.5	2553.244	2467.563	-85.6809617
## 377	21	2037	97.0	2211.745	2218.023	6.2778010
## 378	12	371	30.9	2111.032	1988.404	-122.6278447
## 379	46	830	18.0	2521.668	2260.867	-260.8012232
## 380	21	1809	86.1	2783.719	2423.646	-360.0732331
## 381	28	693	24.8	2225.343	2245.636	20.2937063
## 382	20	405	20.2	2200.500	1877.934	-322.5661578
## 383	46	781	17.0	2011.271	2099.235	87.9632331
## 384	18	1760	97.8	2220.300	2300.320	80.0195402
## 385	14	434	31.0	2266.862	2055.946	-210.9161572
## 386	21	1834	87.3	2115.007	2076.725	-38.2824556
## 387	33	537	16.3	1689.736	1715.360	25.6244451
## 388	4	114	28.5	1984.789	1859.744	-125.0445463
## 389	40	588	14.7	2576.552	2357.657	-218.8954603
## 390	40	642	16.0	2308.306	2342.929	34.6237380
## 391	20	1729	86.4	2103.184	1982.171	-121.0123911
## 392	50	697	13.9	2022.452	2022.060	-0.3916201
## 393	39	654	16.8	2429.997	2279.635	-150.3622744
## 394	16	364	22.8	2149.057	2133.909	-15.1483109
## 395	44	631	14.3	2485.048	2574.454	89.4066182
## 396	2	29	14.5	1985.636	2027.714	42.0779221
## 397	18	1524	84.7	2036.793	2000.589	-36.2035405
## 398	39	700	17.9	2326.903	2324.059	-2.8441433

## 399	9	166	18.4	1871.288	1891.439	20.1511167
## 400	21	1885	89.8	1880.029	1928.535	48.5059026
## 401	17	283	16.6	2675.758	2520.165	-155.5928699
## 402	8	545	68.1	2062.398	2009.789	-52.6083041
## 403	5	144	28.8	2010.227	2000.221	-10.0059613
## 404	31	561	18.1	2561.290	2366.962	-194.3281133
## 405	15	1257	83.8	2025.086	2087.856	62.7696174
## 406	29	533	18.4	2552.611	2418.733	-133.8783510
## 407	30	453	15.1	2338.369	2167.490	-170.8789959
## 408	22	668	30.4	2268.273	2225.104	-43.1689461
## 409	13	491	37.8	2074.092	1995.148	-78.9442540
## 410	7	176	25.1	2018.688	2109.477	90.7890625
## 411	41	717	17.5	1937.871	1784.948	-152.9225803
## 412	41	698	17.0	2337.458	2157.921	-179.5370869
## 413	5	198	39.6	2340.323	2278.371	-61.9511521
## 414	20	1895	94.8	2339.667	2217.613	-122.0539906
## 415	48	775	16.1	2619.102	2630.101	10.9987771
## 416	18	354	19.7	2531.319	2502.854	-28.4643562
## 417	9	223	24.8	2494.172	2299.469	-194.7030260
## 418	17	1487	87.5	2098.484	2093.718	-4.7655782
## 419	34	578	17.0	2324.861	2307.042	-17.8187330
## 420	49	868	17.7	2364.483	2390.641	26.1572917
## 421	15	1319	87.9	2156.980	2151.059	-5.9211578
## 422	11	168	15.3	2211.364	2264.694	53.3299120
## 423	16	1061	66.3	1860.843	1710.400	-150.4427095
## 424	35	528	15.1	1958.207	1788.214	-169.9927973
## 425	28	519	18.5	2897.065	2725.456	-171.6085932
## 426	19	1602	84.3	2313.270	2317.956	4.6861600
## 427	21	1853	88.2	2096.975	1961.157	-135.8170828
## 428	27	425	15.7	1998.025	1921.667	-76.3586142
## 429	22	461	21.0	2431.469	2166.864	-264.6051440
## 430	30	1562	52.1	2408.717	2339.874	-68.8426812
## 431	27	551	20.4	2646.265	2469.868	-176.3979068
## 432	29	434	15.0	2086.449	1921.129	-165.3196481
## 433	24	1071	44.6	2216.815	2144.188	-72.6277012
## 434	46	681	14.8	2271.590	2207.230	-64.3598807
## 435	19	1659	87.3	2162.669	2028.953	-133.7152361
## 436	20	1703	85.2	2306.953	2282.552	-24.4009646
## 437	3	57	19.0	2205.667	2276.714	71.0476190
## 438	32	475	14.8	2285.652	2398.299	112.6467952
## 439	46	815	17.7	2395.246	2373.579	-21.6662268
## 440	43	750	17.4	2093.072	2027.107	-65.9652553
## 441	47	899	19.1	2242.196	2269.847	27.6510548
## 442	49	803	16.4	1925.900	1963.312	37.4116147
## 443	39	726	18.6	2429.887	2361.928	-67.9585745
## 444	37	631	17.1	2256.388	2148.725	-107.6632797
## 445	26	727	28.0	2428.072	2303.196	-124.8759739
## 446	27	424	15.7	2773.546	2737.810	-35.7361826
## 447	4	231	57.8	2193.095	2212.596	19.5008542
## 448	44	944	21.5	2741.950	2716.310	-25.6391930
## 449	36	630	17.5	2506.398	2523.026	16.6283058
## 450	18	1406	78.1	2211.364	2176.544	-34.8199848
## 451	23	1810	78.7	2399.660	2223.341	-176.3192207
## 452	14	847	60.5	2126.774	2146.822	20.0475578



## 453	28	630	22.5	1766.876	1784.510	17.6340326
## 454	38	605	15.9	2499.004	2431.778	-67.2255077
## 455	39	727	18.6	2137.701	1989.926	-147.7755568
## 456	42	891	21.2	2156.906	2138.041	-18.8651620
## 457	17	324	19.1	2189.834	2078.392	-111.4421709
## 458	13	199	15.3	2385.697	2320.180	-65.5165186
## 459	21	1764	84.0	2495.654	2438.204	-57.4500991
## 460	7	119	17.0	2220.156	2235.989	15.8322557
## 461	39	712	18.3	2049.073	2022.979	-26.0937612
## 462	31	480	15.5	2247.246	2317.049	69.8024176
## 463	44	615	14.0	2284.527	2216.541	-67.9860208
## 464	46	678	14.7	2206.447	2164.158	-42.2889528
## 465	37	709	19.2	2426.671	2281.245	-145.4256631
## 466	27	680	25.2	2506.031	2431.550	-74.4805556
## 467	36	481	13.4	2052.392	2124.623	72.2306415
## 468	28	719	25.7	2552.037	2505.173	-46.8637251
## 469	5	142	28.4	2360.101	2249.077	-111.0238521
## 470	33	716	21.7	2555.621	2473.662	-81.9587679
## 471	46	665	14.5	2386.057	2367.410	-18.6473766
## 472	47	777	16.5	2133.748	2036.690	-97.0571619
## 473	5	120	24.0	2065.253	1842.757	-222.4962553
## 474	12	314	26.2	2238.554	2200.160	-38.3941823
## 475	34	933	27.4	2085.894	2035.420	-50.4742780
## 476	17	1360	80.0	2141.075	1994.706	-146.3692195
## 477	22	1931	87.8	2548.623	2500.144	-48.4788572
## 478	14	1155	82.5	2208.856	2252.290	43.4337702
## 479	33	650	19.7	1850.794	1877.307	26.5134999
## 480	12	1133	94.4	2314.782	2293.448	-21.3332255
## 481	22	521	23.7	2086.127	2104.057	17.9299752
## 482	21	1516	72.2	2270.612	2233.168	-37.4436078
## 483	19	334	17.6	2377.485	2285.860	-91.6245544
## 484	32	603	18.8	2009.940	1944.734	-65.2054308
## 485	33	701	21.2	2491.203	2497.762	6.5580431
## 486	19	1198	63.1	1954.192	1905.059	-49.1328182
## 487	9	213	23.7	2482.087	2219.495	-262.5911256
## 488	21	1989	94.7	2449.184	2465.640	16.4555207
## 489	21	1768	84.2	2155.130	2065.905	-89.2248688
## 490	18	244	13.6	2548.854	2425.099	-123.7551364
## 491	38	552	14.5	2316.546	2336.667	20.1209150
## 492	19	1125	59.2	2062.457	2106.583	44.1258435
## 493	18	342	19.0	2322.318	2512.239	189.9215629
## 494	15	1116	74.4	2095.079	2000.477	-94.6012613
## 495	7	133	19.0	2216.524	1953.765	-262.7596844
## 496	29	675	23.3	2408.345	2400.469	-7.8753475
## 497	25	408	16.3	2381.587	2308.405	-73.1815385
## 498	22	2221	101.0	2342.460	2356.027	13.5663510
## 499	15	442	29.5	2491.968	2320.214	-171.7548321
## 500	31	802	25.9	2038.541	2032.171	-6.3696384
## 501	9	714	79.3	2109.518	2104.476	-5.0425250
## 502	15	292	19.5	2331.508	2275.659	-55.8492759
## 503	41	710	17.3	2648.542	2558.762	-89.7804440
## 504	13	1037	79.8	2168.675	2152.733	-15.9427919
## 505	9	607	67.4	1986.653	1955.028	-31.6248744
## 506	24	382	15.9	2314.082	2285.843	-28.2398333

## 507	42	666	15.9	2564.786	2524.516	-40.2697760
## 508	42	730	17.4	2550.893	2441.893	-108.9994922
## 509	38	604	15.9	2041.651	2000.259	-41.3922065
## 510	18	1560	86.7	2081.273	1968.212	-113.0613163
## 511	20	710	35.5	2238.413	2162.248	-76.1645971
## 512	21	2000	95.2	2378.997	2308.113	-70.8841905
## 513	29	515	17.8	2353.223	2235.799	-117.4234067
## 514	2	133	66.5	2319.282	2402.345	83.0634033
## 515	8	491	61.4	2096.991	2070.406	-26.5850354
## 516	21	1801	85.8	2147.626	2025.363	-122.2629003
## 517	17	312	18.4	2215.912	2053.958	-161.9541667
## 518	30	726	24.2	2163.464	2145.773	-17.6914287
## 519	5	285	57.0	2077.652	2178.594	100.9421663
## 520	41	717	17.5	2195.861	2125.984	-69.8763236
## 521	12	999	83.2	2312.903	2275.076	-37.8272727
## 522	21	350	16.7	2322.493	2296.667	-25.8260020
##	Pre_xwOBA	Post_xwOBA	xwOBA_diff			
## 1	0.1901667	0.4239744	0.2338076923			
## 2	0.3298824	0.4854615	0.1555791855			
## 3	0.3566857	0.3678571	0.0111714286			
## 4	0.2872564	0.3234545	0.0361981352			
## 5	0.3535574	0.4382315	0.0846741044			
## 6	0.3963585	0.4047049	0.0083464275			
## 7	0.3142523	0.3243082	0.0100558825			
## 8	0.2494737	0.4188750	0.1694013158			
## 9	0.3953514	0.3832857	-0.0120656371			
## 10	0.4086026	0.3803693	-0.0282332459			
## 11	0.4702778	0.4474231	-0.0228547009			
## 12	0.3781111	0.3769355	-0.0011756272			
## 13	0.3205581	0.3938723	0.0733142009			
## 14	0.3334262	0.3051935	-0.0282326811			
## 15	0.3882624	0.4316818	0.0434194068			
## 16	0.4619478	0.3367812	-0.1251665761			
## 17	0.3956320	0.3362333	-0.0593986667			
## 18	0.3839936	0.3483178	-0.0356758736			
## 19	0.3363030	0.3915714	0.0552683983			
## 20	0.3896067	0.3552866	-0.0343201174			
## 21	0.3937381	0.5104634	0.1167253194			
## 22	0.3338548	0.6592500	0.3253951613			
## 23	0.4250888	0.4427326	0.0176438007			
## 24	0.2751064	0.6630000	0.3878936170			
## 25	0.4004754	0.3516545	-0.0488208644			
## 26	0.3406667	0.3474912	0.0068245614			
## 27	0.3534286	0.4231333	0.0697047619			
## 28	0.3159756	0.3176829	0.0017073171			
## 29	0.3600000	0.3662143	0.0062142857			
## 30	0.3551967	0.3985517	0.0433550028			
## 31	0.3314192	0.3716215	0.0402022770			
## 32	0.3704286	0.4109545	0.0405259740			
## 33	0.4368125	0.3630000	-0.0738125000			
## 34	0.3769423	0.3048627	-0.0720795626			
## 35	0.4923437	0.4172857	-0.0750580357			
## 36	0.2466552	0.3498364	0.1031811912			
## 37	0.3247750	0.1180000	-0.2067750000			

## 38	0.4086398	0.3455894	-0.0630503810
## 39	0.3728108	0.4440000	0.0711891892
## 40	0.4290000	0.3401636	-0.0888363636
## 41	0.4163408	0.3713611	-0.0449796710
## 42	0.3173611	0.3957872	0.0784261229
## 43	0.3742615	0.2928983	-0.0813632334
## 44	0.2650000	0.2258889	-0.0391111111
## 45	0.3053750	0.5319333	0.2265583333
## 46	0.4224348	0.3510000	-0.0714347826
## 47	0.3371111	0.3568372	0.0197260982
## 48	0.3438763	0.3234000	-0.0204763441
## 49	0.4355625	0.3210156	-0.1145468750
## 50	0.3831379	0.3207324	-0.0624055367
## 51	0.3627761	0.3798478	0.0170717067
## 52	0.3546286	0.3032000	-0.0514285714
## 53	0.3403788	0.2752909	-0.0650878788
## 54	0.4148286	0.4700000	0.0551714286
## 55	0.3802609	0.4035185	0.0232576490
## 56	0.3425895	0.4349143	0.0923248120
## 57	0.3533333	0.4414211	0.0880877193
## 58	0.3820745	0.2843352	-0.0977392408
## 59	0.4027097	0.3905862	-0.0121234705
## 60	0.3796353	0.3756104	-0.0040249045
## 61	0.3406226	0.2338485	-0.1067741567
## 62	0.3799934	0.4144267	0.0344332456
## 63	0.4317778	0.4142917	-0.0174861111
## 64	0.2843898	0.3040079	0.0196181060
## 65	0.1175000	0.3088627	0.1913627451
## 66	0.3360141	0.3281778	-0.0078363067
## 67	0.3755556	0.1290000	-0.2465555556
## 68	0.4199915	0.3259385	-0.0940529915
## 69	0.3380000	0.3230488	-0.0149512195
## 70	0.3639365	0.3316047	-0.0323318568
## 71	0.2997931	0.4600435	0.1602503748
## 72	0.3483226	0.3972241	0.0489015573
## 73	0.3604129	0.4003433	0.0399303804
## 74	0.3750952	0.2799661	-0.0951291364
## 75	0.3565873	0.3386200	-0.0179673016
## 76	0.2497910	0.3354286	0.0856375267
## 77	0.3800323	0.5331053	0.1530730051
## 78	0.3459118	0.3207400	-0.0251717647
## 79	0.3634694	0.2405500	-0.1229193878
## 80	0.3157375	0.2462857	-0.0694517857
## 81	0.2924444	0.3151803	0.0227358834
## 82	0.4683968	0.2757037	-0.1926931217
## 83	0.3797866	0.3134651	-0.0663214946
## 84	0.3360217	0.4652222	0.1292004831
## 85	0.2859167	0.3049636	0.0190469697
## 86	0.3495507	0.4321471	0.0825963342
## 87	0.3210167	0.3907656	0.0697489583
## 88	0.4240588	0.3315161	-0.0925426945
## 89	0.3618750	0.3737364	0.0118613636
## 90	0.3543869	0.4064058	0.0520188923
## 91	0.4579500	0.3441231	-0.1138269231

## 92	0.3297246	0.4901818	0.1604571805
## 93	0.4276906	0.3937358	-0.0339548564
## 94	0.2940000	0.3121935	0.0181935484
## 95	0.3375263	0.3994231	0.0618967611
## 96	0.2446111	0.3897692	0.1451581197
## 97	0.3177083	0.3458041	0.0280957904
## 98	0.3100000	0.3300278	0.0200277778
## 99	0.4252857	0.3533478	-0.0719378882
## 100	0.3996200	0.3992222	-0.0003977778
## 101	0.3592958	0.3717800	0.0124842254
## 102	0.3374659	0.3699699	0.0325040157
## 103	0.3758333	0.5050370	0.1292037037
## 104	0.3880802	0.3724970	-0.0155831725
## 105	0.1126667	0.4283600	0.3156933333
## 106	0.4418333	0.4203000	-0.0215333333
## 107	0.3415882	0.3876122	0.0460240096
## 108	0.4408333	0.4463832	0.0055498442
## 109	0.2987143	0.4780476	0.1793333333
## 110	0.3009038	0.3436613	0.0427574442
## 111	0.3471158	0.3800125	0.0328967105
## 112	0.2775490	0.4627778	0.1852287582
## 113	0.3344340	0.3432105	0.0087765641
## 114	0.3467442	0.4451351	0.0983909491
## 115	0.1555000	0.3714884	0.2159883721
## 116	0.3957377	0.4540667	0.0583289617
## 117	0.4238716	0.4838235	0.0599519698
## 118	0.2788444	0.4139630	0.1351185185
## 119	0.4636122	0.2718704	-0.1917418745
## 120	0.3606207	0.3003571	-0.0602635468
## 121	0.3903909	0.3804000	-0.0099909091
## 122	0.3788667	0.4021818	0.0233151515
## 123	0.3672051	0.4163158	0.0491106613
## 124	0.3803742	0.3622072	-0.0181670259
## 125	0.4349524	0.3562222	-0.0787301587
## 126	0.4017143	0.3948750	-0.0068392857
## 127	0.3859055	0.3460984	-0.0398071120
## 128	0.3329600	0.5360000	0.2030400000
## 129	0.3419133	0.3592331	0.0173198635
## 130	0.4365000	0.3581742	-0.0783258065
## 131	0.3958158	0.3398219	-0.0559938717
## 132	0.2150000	0.3814783	0.1664782609
## 133	0.3042778	0.3044444	0.0001666667
## 134	0.5317143	0.3899000	-0.1418142857
## 135	0.2902778	0.4091778	0.1189000000
## 136	0.4870811	0.4055161	-0.0815649520
## 137	0.3785833	0.4765000	0.0979166667
## 138	0.3726875	0.4014046	0.0287170802
## 139	0.2685714	0.4214375	0.1528660714
## 140	0.3223934	0.3335333	0.0111398907
## 141	0.3117313	0.3295400	0.0178086567
## 142	0.3369639	0.3490531	0.0120892419
## 143	0.3698516	0.3335842	-0.0362674378
## 144	0.3138701	0.3482542	0.0343841074
## 145	0.2483333	0.3100000	0.0616666667

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## 146 0.3774346 0.4412013 0.0637667628
## 147 0.4539487 0.4344200 -0.0195287179
## 148 0.3276957 0.3770303 0.0493346509
## 149 0.3675735 0.3816449 0.0140713981
## 150 0.3160851 0.3053404 -0.0107446809
## 151 0.3493301 0.5192381 0.1699079982
## 152 0.2378250 0.3787763 0.1409513158
## 153 0.3368333 0.3222708 -0.0145625000
## 154 0.3208806 0.3818866 0.0610060009
## 155 0.3792805 0.3671571 -0.0121233449
## 156 0.3905424 0.5461087 0.1555663228
## 157 0.4105111 0.2615532 -0.1489579196
## 158 0.3524589 0.3952342 0.0427753301
## 159 0.4028485 0.4325610 0.0297124908
## 160 0.4680889 0.3469444 -0.1211444444
## 161 0.5493333 0.4227966 -0.1265367232
## 162 0.4957500 0.4776667 -0.0180833333
## 163 0.3608033 0.3625942 0.0017909242
## 164 0.3628621 0.3918037 0.0289416694
## 165 0.3087283 0.3480387 0.0393104488
## 166 0.4533710 0.3446667 -0.1087043011
## 167 0.4239286 0.3092353 -0.1146932773
## 168 0.3816290 0.4915294 0.1099003795
## 169 0.3762890 0.3323232 -0.0439658466
## 170 0.3945577 0.3510645 -0.0434931762
## 171 0.3606766 0.3588636 -0.0018130103
## 172 0.2810000 0.8255000 0.5445000000
## 173 0.3525089 0.3672805 0.0147716121
## 174 0.4896989 0.4440672 -0.0456317606
## 175 0.3916135 0.4681748 0.0765613282
## 176 0.2582745 0.4623721 0.2040975832
## 177 0.2680909 0.4026923 0.1346013986
## 178 0.3656667 0.3436154 -0.0220512821
## 179 0.3160270 0.3910000 0.0749729730
## 180 0.3222147 0.3353680 0.0131533403
## 181 0.3737886 0.3598228 -0.0139658331
## 182 0.3751528 0.3806545 0.0055017677
## 183 0.3454798 0.3726821 0.0272022805
## 184 0.3220580 0.5297647 0.2077067349
## 185 0.3191803 0.2629778 -0.0562025501
## 186 0.2712727 0.2891944 0.0179217172
## 187 0.2616897 0.3632732 0.1015835689
## 188 0.3096111 0.3839615 0.0743504274
## 189 0.3970448 0.5042353 0.1071905180
## 190 0.4131228 0.3582609 -0.0548619375
## 191 0.3763455 0.4389189 0.0625734644
## 192 0.2676667 0.3133571 0.0456904762
## 193 0.2658000 0.2953125 0.0295125000
## 194 0.3348750 0.3217895 -0.0130855263
## 195 0.3994068 0.3894485 -0.0099582948
## 196 0.2985385 0.2070952 -0.0914432234
## 197 0.4328788 0.4038647 -0.0290141262
## 198 0.3979359 0.4015254 0.0035895263
## 199 0.4057887 0.3180000 -0.0877887324

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## 200 0.3354286 0.4658537 0.1304250871
## 201 0.4155633 0.3268757 -0.0886876431
## 202 0.3535200 0.4187500 0.0652300000
## 203 0.4276098 0.4188980 -0.0087117969
## 204 0.4783855 0.3622698 -0.1161157009
## 205 0.2482381 0.3946974 0.1464592732
## 206 0.3571622 0.3492564 -0.0079057519
## 207 0.4192192 0.3582885 -0.0609307165
## 208 0.3805484 0.3690385 -0.0115099256
## 209 0.3861385 0.3096591 -0.0764793706
## 210 0.3921750 0.2644231 -0.1277519231
## 211 0.3901875 0.3859600 -0.0042275000
## 212 0.4112105 0.4852187 0.0740082237
## 213 0.2516735 0.3935745 0.1419009987
## 214 0.2908267 0.3246792 0.0338525786
## 215 0.3762333 0.3592727 -0.0169606061
## 216 0.3770000 0.2916013 -0.0853986928
## 217 0.3444524 0.3414091 -0.0030432900
## 218 0.3016875 0.3546818 0.0529943182
## 219 0.3085000 0.2931429 -0.0153571429
## 220 0.3418958 0.4500741 0.1081782407
## 221 0.4107692 0.3076852 -0.1030840456
## 222 0.3591195 0.3642711 0.0051516153
## 223 0.3887069 0.3865098 -0.0021970926
## 224 0.2832766 0.3890417 0.1057650709
## 225 0.3956328 0.4297174 0.0340845788
## 226 0.3167778 0.3306786 0.0139007937
## 227 0.3808421 0.3932000 0.0123578947
## 228 0.3306792 0.8801429 0.5494636119
## 229 0.3676286 0.3706218 0.0029932773
## 230 0.4117727 0.3444906 -0.0672821612
## 231 0.3554583 0.4560417 0.1005833333
## 232 0.4464890 0.4086685 -0.0378204717
## 233 0.4285000 0.3345172 -0.0939827586
## 234 0.4063333 0.5025484 0.0962150538
## 235 0.4276552 0.3064167 -0.1212385057
## 236 0.3918303 0.3457318 -0.0460984317
## 237 0.3532885 0.4550769 0.1017884615
## 238 0.3557500 0.3757042 0.0199542254
## 239 0.4015780 0.4096474 0.0080694542
## 240 0.4087429 0.3827014 -0.0260414683
## 241 0.3795433 0.3143139 -0.0652294385
## 242 0.3256905 0.2237273 -0.1019632035
## 243 0.3100106 0.3078049 -0.0022057602
## 244 0.3947778 0.3402833 -0.0544944444
## 245 0.3165000 0.3828226 0.0663225806
## 246 0.4693529 0.3589024 -0.1104505022
## 247 0.3356757 0.3638654 0.0281897089
## 248 0.3272388 0.3997500 0.0725111940
## 249 0.4411240 0.3463235 -0.0948004375
## 250 0.2622500 0.4141429 0.1518928571
## 251 0.3156056 0.3522703 0.0366646365
## 252 0.3660000 0.3766333 0.0106333333
## 253 0.5290000 0.5413333 0.0123333333

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## 254 0.4071429 0.3653958 -0.0417470238
## 255 0.5184651 0.5530909 0.0346257928
## 256 0.5064737 0.2837795 -0.2226941567
## 257 0.5448000 0.2598750 -0.2849250000
## 258 0.3809444 0.3363333 -0.0446111111
## 259 0.4392000 0.3740168 -0.0651831933
## 260 0.3869000 0.2850200 -0.1018800000
## 261 0.3532072 0.3896726 0.0364654118
## 262 0.3183256 0.3785345 0.0602089014
## 263 0.2576071 0.2789831 0.0213759080
## 264 0.4084375 0.3761677 -0.0322697581
## 265 0.3606393 0.3639634 0.0033240704
## 266 0.3681000 0.2964118 -0.0716882353
## 267 0.5187000 0.5957143 0.0770142857
## 268 0.3596364 0.3496800 -0.0099563636
## 269 0.3265976 0.4026610 0.0760634560
## 270 0.4593750 0.4290678 -0.0303072034
## 271 0.3522959 0.5288065 0.1765105332
## 272 0.4170259 0.3811176 -0.0359082597
## 273 0.5201176 0.3811739 -0.1389437340
## 274 0.3063618 0.3377231 0.0313612348
## 275 0.2830714 0.4243333 0.1412619048
## 276 0.4010882 0.3375537 -0.0635345163
## 277 0.3450063 0.3746224 0.0296160485
## 278 0.3793869 0.3682318 -0.0111551466
## 279 0.3941818 0.3090106 -0.0851711799
## 280 0.3582000 0.3386458 -0.0195541667
## 281 0.3471190 0.2828667 -0.0642523810
## 282 0.3556198 0.3385686 -0.0170511642
## 283 0.3422615 0.3273077 -0.0149538462
## 284 0.3580143 0.2951127 -0.0629016097
## 285 0.3369063 0.3911250 0.0542187500
## 286 0.4790357 0.4830000 0.0039642857
## 287 0.3843488 0.3964588 0.0121099863
## 288 0.4410465 0.3447333 -0.0963131783
## 289 1.1000000 0.2250000 -0.8750000000
## 290 0.3631011 0.4023069 0.0392058669
## 291 0.3259600 0.2581556 -0.0678044444
## 292 0.4168793 0.2911250 -0.1257543103
## 293 0.4017971 0.3802857 -0.0215113872
## 294 0.3452245 0.2902045 -0.0550199443
## 295 0.3437381 0.3414667 -0.0022714286
## 296 0.3902338 0.3918504 0.0016166275
## 297 0.3360960 0.2922313 -0.0438646567
## 298 0.3561905 0.3199608 -0.0362296919
## 299 0.2779512 0.4058148 0.1278635953
## 300 0.4098837 0.2255208 -0.1843628876
## 301 0.4183596 0.3844921 -0.0338674871
## 302 0.3733243 0.3588475 -0.0144768667
## 303 0.1788333 0.5489474 0.3701140351
## 304 0.2007500 0.4363409 0.2355909091
## 305 0.3050000 0.4113934 0.1063934426
## 306 0.2165833 0.4187812 0.2021979167
## 307 0.3372000 0.3741316 0.0369315789

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## 308 0.3426832 0.3274439 -0.0152393795
## 309 0.4251176 0.2897750 -0.1353426471
## 310 0.3471842 0.3529392 0.0057549787
## 311 0.6805000 0.4848621 -0.1956379310
## 312 0.2968947 0.2981250 0.0012302632
## 313 0.3870884 0.3674835 -0.0196048813
## 314 0.2959167 0.3739714 0.0780547619
## 315 0.3934032 0.3179608 -0.0754424415
## 316 0.3622265 0.4219045 0.0596779393
## 317 0.3915450 0.3986974 0.0071523684
## 318 0.2964444 0.3346986 0.0382541857
## 319 0.3692289 0.3586405 -0.0105883928
## 320 0.4297049 0.3468218 -0.0828831359
## 321 0.4733846 0.4480515 -0.0253330690
## 322 0.4348333 0.2453846 -0.1894487179
## 323 0.3906098 0.3062740 -0.0843357835
## 324 0.4018121 0.3303025 -0.0715096114
## 325 0.2300000 0.3738857 0.1438857143
## 326 0.4094000 0.2961463 -0.1132536585
## 327 0.2271111 0.3111053 0.0839941520
## 328 0.3128947 0.2896667 -0.0232280702
## 329 0.4223103 0.2540000 -0.1683103448
## 330 0.3306140 0.3473860 0.0167719298
## 331 0.3572121 0.3706129 0.0134007820
## 332 0.3715825 0.4053008 0.0337182777
## 333 0.4364906 0.3219608 -0.1145297817
## 334 0.3415385 0.6380000 0.2964615385
## 335 0.4854800 0.3913925 -0.0940874766
## 336 0.3687174 0.3988849 0.0301675008
## 337 0.3629425 0.3102203 -0.0527221898
## 338 0.2938000 0.3338824 0.0400823529
## 339 0.3078571 0.2880179 -0.0198392857
## 340 0.3758451 0.3883902 0.0125451735
## 341 0.4219286 0.6301250 0.2081964286
## 342 0.3827834 0.4264122 0.0436287743
## 343 0.4087091 0.3415574 -0.0671517139
## 344 0.3968421 NaN NaN
## 345 0.3916667 0.3123966 -0.0792701149
## 346 0.3554054 0.3641940 0.0087886244
## 347 0.2862083 0.1392500 -0.1469583333
## 348 0.3363034 0.3366954 0.0003919935
## 349 0.3113274 0.2808073 -0.0305200942
## 350 0.3315741 0.3862222 0.0546481481
## 351 0.4542800 0.6654000 0.2111200000
## 352 0.3297170 0.4166000 0.0868830189
## 353 0.3716647 0.4457676 0.0741028998
## 354 0.4579915 0.3904615 -0.0675299870
## 355 0.2860505 0.3799176 0.0938671420
## 356 0.4025758 0.3819307 -0.0206450645
## 357 0.3555533 0.3788933 0.0233400000
## 358 0.3422350 0.3884536 0.0462186356
## 359 0.4105385 0.4157750 0.0052365385
## 360 0.3593793 0.3129259 -0.0464533844
## 361 0.3506667 0.3287857 -0.0218809524

```



```

## 362 0.2869000 0.4176977 0.1307976744
## 363 0.4203878 0.3005441 -0.1198436375
## 364 0.5564211 0.4773333 -0.0790877193
## 365 0.3154697 0.7203333 0.4048636364
## 366 0.3248529 0.3674359 0.0425829563
## 367 0.3463455 0.3248315 -0.0215139939
## 368 0.3682474 0.3559821 -0.0122652798
## 369 0.2596667 0.7651429 0.5054761905
## 370 0.4506067 0.3900857 -0.0605210273
## 371 0.4657442 0.2945217 -0.1712224469
## 372 0.3869032 0.4736923 0.0867890819
## 373 0.3453889 0.3206765 -0.0247124183
## 374 0.4251429 0.2150789 -0.2100639098
## 375 0.4873333 0.1745385 -0.3127948718
## 376 0.3951000 0.3614510 -0.0336490196
## 377 0.4260265 0.3776748 -0.0483516434
## 378 0.3952333 0.4280000 0.0327666667
## 379 0.3639016 0.2533750 -0.1105266393
## 380 0.3776455 0.4691169 0.0914713805
## 381 0.4547660 0.4020682 -0.0526977756
## 382 0.1675000 0.3220175 0.1545175439
## 383 0.3642187 0.4506786 0.0864598214
## 384 0.3420696 0.3457295 0.0036599430
## 385 0.2331111 0.3559706 0.1228594771
## 386 0.3704734 0.3807167 0.0102432939
## 387 0.3894583 0.2813409 -0.1081174242
## 388 0.5662000 0.4120000 -0.1542000000
## 389 0.2624478 0.3971224 0.1346746878
## 390 0.3849492 0.3264500 -0.0584991525
## 391 0.3399152 0.3755676 0.0356524161
## 392 0.2216180 0.3730980 0.1514800617
## 393 0.2649545 0.3510000 0.0860454545
## 394 0.3967681 0.2381429 -0.1586252588
## 395 0.3171587 0.3012143 -0.0159444444
## 396 0.2973333 0.2350000 -0.0623333333
## 397 0.3908269 0.3698621 -0.0209648541
## 398 0.3931212 0.3937193 0.0005980861
## 399 0.4405455 0.3465000 -0.0940454545
## 400 0.3627074 0.3624121 -0.0002953589
## 401 0.2970690 0.3950000 0.0979310345
## 402 0.3160602 0.2847059 -0.0313543586
## 403 0.2460000 0.3343333 0.0883333333
## 404 0.2437692 0.3245789 0.0808097166
## 405 0.3915395 0.2954483 -0.0960911978
## 406 0.3376538 0.3291951 -0.0084587242
## 407 0.4002353 0.3541311 -0.0461041466
## 408 0.4191905 0.4534000 0.0342095238
## 409 0.2868000 0.2993607 0.0125606557
## 410 0.3150000 0.3172857 0.0022857143
## 411 0.4803793 0.3555682 -0.1248111285
## 412 0.3719194 0.3792632 0.0073438031
## 413 0.6361818 0.4827222 -0.1534595960
## 414 0.3717636 0.3999063 0.0281426136
## 415 0.3775283 0.3517000 -0.0258283019

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```

## 416 0.5183250 0.2420909 -0.2762340909
## 417 0.3312000 0.3780000 0.0468000000
## 418 0.3354826 0.3602564 0.0247738232
## 419 0.4998333 0.2716098 -0.2282235772
## 420 0.2826415 0.4203973 0.1377557508
## 421 0.4022800 0.5368082 0.1345282192
## 422 0.3132727 0.3063333 -0.0069393939
## 423 0.3897143 0.4577222 0.0680079365
## 424 0.3428333 0.3014930 -0.0413403756
## 425 0.3100638 0.5042500 0.1941861702
## 426 0.3270287 0.3674348 0.0404060470
## 427 0.4449861 0.4720405 0.0270544294
## 428 0.3316212 0.3925000 0.0608787879
## 429 0.3804706 0.3036875 -0.0767830882
## 430 0.4128571 0.3657304 -0.0471267081
## 431 0.3554783 0.3871622 0.0316839013
## 432 0.3515574 0.3378750 -0.0136823770
## 433 0.3903631 0.3362955 -0.0540676028
## 434 0.3453636 0.3599821 0.0146185065
## 435 0.4449371 0.3435267 -0.1014103963
## 436 0.4582656 0.4181019 -0.0401637731
## 437 0.1228000 0.2266000 0.1038000000
## 438 0.3814000 0.3088723 -0.0725276596
## 439 0.3021270 0.3150851 0.0129581223
## 440 0.4029853 0.3940000 -0.0089852941
## 441 0.3871158 0.3281795 -0.0589363023
## 442 0.4258596 0.3362885 -0.0895711876
## 443 0.3300508 0.4335918 0.1035409893
## 444 0.3095625 0.3520877 0.0425252193
## 445 0.4542500 0.4820588 0.0278088235
## 446 0.4248197 0.1911429 -0.2336768150
## 447 0.3536923 0.4347222 0.0810299145
## 448 0.3537209 0.3509565 -0.0027644085
## 449 0.4085429 0.3332703 -0.0752725869
## 450 0.4347167 0.3843306 -0.0503860215
## 451 0.3600096 0.4037468 0.0437371839
## 452 0.3815152 0.3415766 -0.0399385749
## 453 0.2463953 0.3110645 0.0646691673
## 454 0.3457333 0.4562759 0.1105425287
## 455 0.4007556 0.3279792 -0.0727763889
## 456 0.3645806 0.2682424 -0.0963382209
## 457 0.2301852 0.3060000 0.0758148148
## 458 0.4472500 0.4957241 0.0484741379
## 459 0.3711149 0.3586387 -0.0124761552
## 460 0.4845000 0.4380769 -0.0464230769
## 461 0.3144211 0.3550541 0.0406330014
## 462 0.3482917 0.2478571 -0.1004345238
## 463 0.4278182 0.3476316 -0.0801866029
## 464 0.3372419 0.2951818 -0.0420601173
## 465 0.4676111 0.3654783 -0.1021328502
## 466 0.3890833 0.4315254 0.0424420904
## 467 0.3628841 0.4787059 0.1158218244
## 468 0.4205867 0.5360588 0.1154721569
## 469 0.4413913 0.1855000 -0.2558913043

```

```

## 470 0.4003596 0.3761094 -0.0242501756
## 471 0.3016452 0.2472222 -0.0544229391
## 472 0.3711690 0.2766719 -0.0944971391
## 473 0.3571667 0.2619000 -0.0952666667
## 474 0.3999143 0.3756429 -0.0242714286
## 475 0.3883131 0.3912875 0.0029743687
## 476 0.3698827 0.4308481 0.0609654482
## 477 0.3829842 0.3565714 -0.0264127820
## 478 0.3559877 0.3628361 0.0068484113
## 479 0.3953611 0.3826415 -0.0127196017
## 480 0.2797778 0.3191156 0.0393378292
## 481 0.2868393 0.4783333 0.1914940476
## 482 0.4192385 0.3619746 -0.0572639558
## 483 0.4317500 0.2435600 -0.1881900000
## 484 0.3884304 0.3245862 -0.0638441729
## 485 0.4211053 0.5126585 0.0915532734
## 486 0.4636937 0.4066121 -0.0570816247
## 487 0.5024167 0.4365000 -0.0659166667
## 488 0.3513436 0.3777486 0.0264049817
## 489 0.3574416 0.4060728 0.0486312892
## 490 0.0865000 0.3324615 0.2459615385
## 491 0.3534464 0.2901111 -0.0633353175
## 492 0.4050273 0.3658876 -0.0391396323
## 493 0.3882727 0.3287778 -0.0594949495
## 494 0.3402713 0.3427571 0.0024858250
## 495 0.5261818 0.6938000 0.1676181818
## 496 0.4484286 0.3561395 -0.0922890365
## 497 0.3622632 0.3719118 0.0096486068
## 498 0.3331117 0.3073222 -0.0257894529
## 499 0.3674722 0.3458824 -0.0215898693
## 500 0.3598472 0.3226912 -0.0371560458
## 501 0.4271918 0.3917959 -0.0353958625
## 502 0.3464286 0.3037500 -0.0426785714
## 503 0.4119070 0.2878000 -0.1241069767
## 504 0.3909762 0.3614231 -0.0295531136
## 505 0.3606707 0.3568235 -0.0038472023
## 506 0.3780250 0.3540500 -0.0239750000
## 507 0.2951538 0.3012439 0.0060900563
## 508 0.4227708 0.3031129 -0.1196579301
## 509 0.4269000 0.4806364 0.0537363636
## 510 0.3754706 0.3719187 -0.0035518890
## 511 0.3135652 0.4295769 0.1160117057
## 512 0.3211471 0.3503699 0.0292228042
## 513 0.4817857 0.4279839 -0.0538018433
## 514 0.4017273 0.6215556 0.2198282828
## 515 0.3903140 0.7642857 0.3739717608
## 516 0.3640784 0.3600405 -0.0040378908
## 517 0.3322963 0.3158235 -0.0164727669
## 518 0.3902500 0.4458413 0.0555912698
## 519 0.5528293 0.3086154 -0.2442138837
## 520 0.2802500 0.4300566 0.1498066038
## 521 0.4510127 0.4013793 -0.0496333479
## 522 0.4855870 0.3925000 -0.0930869565

```

Second, I am going to focus on Bauer Units. Here, I group the data based on player name and average the Bauer Units before and after June 7th to find the difference in Bauer Units due to the rule change.

```
pitcher_pre_bu <- aggregate(df_before_june_7$b_units, list(df_before_june_7$player_name), FUN = mean)
colnames(pitcher_pre_bu) <- c('player_name', 'Pre_b_units')
pitcher_post_bu <- aggregate(df_after_june_7$b_units, list(df_after_june_7$player_name), FUN = mean)
colnames(pitcher_post_bu) <- c('player_name', 'Post_b_units')
pitcher_bu_comp <- merge(pitcher_pre_bu, pitcher_post_bu, by = "player_name")
pitcher_bu_comp$bu_diff <- pitcher_bu_comp$Post_b_units - pitcher_bu_comp$Pre_b_units
pitcher_bu_comp
```

##	player_name	Pre_b_units	Post_b_units	bu_diff
## 1	Abbott, Cory	26.17766	25.80636	-0.37130591
## 2	Abreu, Albert	23.91939	22.69770	-1.22169255
## 3	Abreu, Bryan	26.80922	26.58625	-0.22296699
## 4	Adams, Austin	32.61611	31.96578	-0.65033681
## 5	Akin, Keegan	26.13866	25.52136	-0.61729623
## 6	Alcala, Jorge	25.22535	25.56480	0.33945766
## 7	Alcantara, Sandy	24.44300	23.45151	-0.99149232
## 8	Alexander, Scott	24.05888	24.58727	0.52838776
## 9	Alexander, Tyler	25.22101	24.25055	-0.97045927
## 10	Allard, Kolby	25.11576	22.70676	-2.40900109
## 11	Allen, Logan	24.57695	24.83971	0.26276051
## 12	Almonte, Yency	24.31391	24.41436	0.10044407
## 13	Alvarado, José	21.97207	21.33085	-0.64122133
## 14	Álvarez, José	24.43290	21.63999	-2.79291091
## 15	Alzolay, Adbert	27.36748	25.91036	-1.45712492
## 16	Anderson, Brett	21.62922	20.99866	-0.63056638
## 17	Anderson, Chase	25.03370	25.79587	0.76217199
## 18	Anderson, Ian	21.14057	20.78256	-0.35800700
## 19	Anderson, Shaun	30.39697	29.31496	-1.08200924
## 20	Anderson, Tyler	27.24587	24.92668	-2.31918464
## 21	Andriese, Matt	26.94463	26.20242	-0.74221142
## 22	Antone, Tejay	33.49177	30.22391	-3.26786063
## 23	Arrieta, Jake	25.88594	23.89551	-1.99043285
## 24	Baragar, Caleb	27.02751	25.56496	-1.46254634
## 25	Bard, Daniel	29.97708	30.83534	0.85825540
## 26	Barlow, Scott	27.04306	27.73238	0.68931929
## 27	Barnes, Jacob	25.37759	23.72075	-1.65683950
## 28	Barnes, Matt	24.93493	23.88797	-1.04696512
## 29	Barria, Jaime	24.41818	24.08011	-0.33806688
## 30	Bass, Anthony	23.45659	22.88414	-0.57244706
## 31	Bassitt, Chris	24.92275	24.42805	-0.49470509
## 32	Bauer, Trevor	33.13192	30.09535	-3.03657112
## 33	Beasley, Jeremy	24.58912	24.69037	0.10124973
## 34	Bednar, David	23.91573	23.48334	-0.43239161
## 35	Bedrosian, Cam	25.49940	26.13303	0.63363258
## 36	Bender, Anthony	28.41714	24.99379	-3.42335758
## 37	Benjamin, Wes	27.01997	26.63262	-0.38735717
## 38	Berríos, José	24.61666	23.42703	-1.18962283
## 39	Bettinger, Alec	24.50074	24.59411	0.09336902
## 40	Bickford, Phil	25.30763	26.31506	1.00742573
## 41	Bieber, Shane	28.13562	26.18612	-1.94950438
## 42	Bielak, Brandon	26.70253	25.78894	-0.91358891

## 43	Bleier, Richard	22.75572	22.58510	-0.17061774
## 44	Bolaños, Ronald	26.72992	26.49820	-0.23172439
## 45	Borucki, Ryan	27.41314	24.68658	-2.72655729
## 46	Bowden, Ben	26.48461	25.70396	-0.78064883
## 47	Boxberger, Brad	23.83282	24.18205	0.34923894
## 48	Boyd, Matthew	26.59396	26.23802	-0.35593971
## 49	Brach, Brad	23.83132	23.68563	-0.14569171
## 50	Bradley, Archie	22.29361	21.93127	-0.36234673
## 51	Brentz, Jake	23.88990	23.07059	-0.81930486
## 52	Brice, Austin	27.74888	25.05288	-2.69600371
## 53	Brogdon, Connor	23.73086	23.86523	0.13436607
## 54	Brothers, Rex	23.39436	22.98391	-0.41044791
## 55	Brubaker, JT	27.07108	27.34292	0.27184067
## 56	Bubic, Kris	23.06723	23.82716	0.75992354
## 57	Buchter, Ryan	26.61633	24.80779	-1.80853474
## 58	Buehler, Walker	30.17441	27.71656	-2.45785035
## 59	Bukauskas, J.B.	25.16455	25.36013	0.19558101
## 60	Bumgarner, Madison	29.46920	25.32444	-4.14476029
## 61	Bummer, Aaron	22.74391	24.43184	1.68793195
## 62	Bundy, Dylan	28.68536	26.55298	-2.13238623
## 63	Burdi, Zack	27.35720	26.59219	-0.76501668
## 64	Burnes, Corbin	29.79768	28.67275	-1.12492578
## 65	Burr, Ryan	26.00853	24.01022	-1.99831380
## 66	Cabrera, Génesis	24.24982	24.19224	-0.05757798
## 67	Cahill, Trevor	26.37061	24.87631	-1.49429806
## 68	Canning, Griffin	25.81545	24.83633	-0.97912625
## 69	Castillo, Diego	24.21685	24.13537	-0.08148244
## 70	Castillo, Luis	23.91559	23.85415	-0.06144150
## 71	Castro, Anthony	29.99015	28.04328	-1.94687415
## 72	Castro, Miguel	26.46550	26.99333	0.52783696
## 73	Cease, Dylan	29.86526	28.44527	-1.41998645
## 74	Cessa, Luis	27.66538	26.10503	-1.56035341
## 75	Chacín, Jhoulys	25.93722	26.22071	0.28349003
## 76	Chafin, Andrew	24.81905	24.21695	-0.60209361
## 77	Chapman, Aroldis	24.40580	23.28490	-1.12089283
## 78	Chargois, JT	26.37229	24.19793	-2.17435979
## 79	Chatwood, Tyler	28.23661	26.46989	-1.76671844
## 80	Cimber, Adam	27.16133	26.46218	-0.69914929
## 81	Cishek, Steve	28.10165	27.87215	-0.22949353
## 82	Cisnero, José	25.96393	24.72426	-1.23966663
## 83	Civale, Aaron	27.68594	27.98076	0.29482737
## 84	Clarke, Taylor	23.02273	22.87982	-0.14290241
## 85	Clase, Emmanuel	26.20234	26.59152	0.38917751
## 86	Claudio, Alex	24.94412	24.26173	-0.68239299
## 87	Clay, Sam	23.79444	22.41808	-1.37635941
## 88	Cleavinger, Garrett	28.05653	27.88021	-0.17631970
## 89	Cobb, Alex	23.33059	21.31819	-2.01240198
## 90	Cole, Gerrit	27.55750	25.65595	-1.90155293
## 91	Colomé, Alex	23.62471	23.46975	-0.15495451
## 92	Coonrod, Sam	23.83223	22.95769	-0.87454147
## 93	Corbin, Patrick	24.97004	24.32876	-0.64127979
## 94	Cortes, Nestor	25.20318	25.74091	0.53772285
## 95	Crichton, Stefan	23.71553	24.36953	0.65400424
## 96	Crick, Kyle	35.11927	35.19784	0.07856983

## 97	Crismatt, Nabil	24.46995	23.09144	-1.37850772
## 98	Crochet, Garrett	24.52295	24.48262	-0.04032531
## 99	Crowe, Wil	27.03968	26.42781	-0.61187196
## 100	Cueto, Johnny	23.37362	22.89397	-0.47965353
## 101	Curtiss, John	26.89434	26.72987	-0.16447320
## 102	Darvish, Yu	31.34522	29.28729	-2.05793250
## 103	Davidson, Tucker	25.10040	23.42294	-1.67746750
## 104	Davies, Zach	23.37767	23.34428	-0.03338409
## 105	Davis, Austin	27.50355	24.85492	-2.64863041
## 106	Davis, Wade	28.11023	28.31248	0.20225639
## 107	de Geus, Brett	25.69821	22.62794	-3.07026502
## 108	De Jong, Chase	29.51886	28.03380	-1.48506083
## 109	De Los Santos, Enyel	22.85129	23.11025	0.25896675
## 110	deGrom, Jacob	24.79536	25.70288	0.90751715
## 111	DeSclafani, Anthony	23.38981	23.14005	-0.24976379
## 112	Detwiler, Ross	23.75460	23.37608	-0.37852547
## 113	Díaz, Edwin	24.33354	23.17918	-1.15436315
## 114	Diaz, Miguel	22.31384	21.48659	-0.82724697
## 115	Díaz, Yennsy	20.80337	20.37287	-0.43049618
## 116	Diekman, Jake	26.13232	26.72474	0.59241969
## 117	Dobnak, Randy	23.83407	23.29055	-0.54351878
## 118	Dolis, Rafael	23.95480	23.62391	-0.33089245
## 119	Doolittle, Sean	25.14916	24.55495	-0.59420942
## 120	Duffey, Tyler	27.92479	27.08402	-0.84076456
## 121	Duffy, Danny	26.54764	26.33973	-0.20791243
## 122	Dugger, Robert	26.23855	26.17473	-0.06381739
## 123	Dunn, Justin	27.91626	26.32304	-1.59322539
## 124	Dunning, Dane	23.86218	23.61359	-0.24858366
## 125	Duplantier, Jon	24.91060	24.74378	-0.16681783
## 126	Edwards Jr., Carl	28.20555	27.71351	-0.49203928
## 127	Eflin, Zach	23.34568	23.00199	-0.34368452
## 128	Elledge, Seth	25.80849	24.82759	-0.98090245
## 129	Eovaldi, Nathan	23.39030	22.81352	-0.57678060
## 130	Espino, Paolo	30.09516	30.36397	0.26880692
## 131	Estévez, Carlos	21.81013	21.94668	0.13654674
## 132	Evans, Demarcus	27.74172	27.39228	-0.34943801
## 133	Fairbanks, Pete	26.42813	25.91175	-0.51637805
## 134	Falter, Bailey	21.10409	19.98445	-1.11964465
## 135	Familia, Jeurys	23.59726	23.53512	-0.06214456
## 136	Farmer, Buck	26.47818	23.86530	-2.61288526
## 137	Farrell, Luke	29.50035	29.09049	-0.40986040
## 138	Fedde, Erick	21.70282	22.02433	0.32150405
## 139	Fernández, Junior	22.12056	22.51621	0.39564863
## 140	Feyereisen, J.P.	27.77932	25.23436	-2.54496330
## 141	Finnegan, Kyle	21.76002	20.77468	-0.98533842
## 142	Fleming, Josh	20.31850	20.33143	0.01293071
## 143	Flexen, Chris	24.21137	24.59151	0.38013480
## 144	Floro, Dylan	23.14807	22.65474	-0.49332919
## 145	Foley, Jason	22.75372	23.27724	0.52351633
## 146	Foltynewicz, Mike	24.86366	25.00995	0.14628659
## 147	Foster, Matt	23.69715	23.86601	0.16885599
## 148	Freeland, Kyle	25.32343	25.52907	0.20564251
## 149	Fried, Max	27.18097	27.56352	0.38254487
## 150	Fry, Paul	28.75337	27.29749	-1.45588007

## 151	Fulmer, Michael	24.00139	23.89959	-0.10180539
## 152	Funkhouser, Kyle	22.92626	23.46211	0.53585583
## 153	Gallegos, Giovanny	26.68270	25.80170	-0.88100163
## 154	Gallen, Zac	25.10501	24.36299	-0.74202028
## 155	Gant, John	26.18256	25.28624	-0.89632787
## 156	Garcia, Bryan	23.71436	22.98850	-0.72586103
## 157	García, Jarlín	26.15665	24.35981	-1.79683566
## 158	Garcia, Luis	26.32410	26.54232	0.21822068
## 159	García, Yimi	27.66974	26.72558	-0.94415847
## 160	Garrett, Amir	22.52864	22.25075	-0.27789357
## 161	Garrett, Braxton	27.18133	25.00284	-2.17848976
## 162	Garza Jr., Ralph	25.77367	25.53050	-0.24317275
## 163	Gausman, Kevin	22.47666	21.52544	-0.95122141
## 164	Germán, Domingo	28.09869	28.59000	0.49130744
## 165	Gibson, Kyle	25.40705	25.00031	-0.40674122
## 166	Gilbert, Logan	24.89811	23.78144	-1.11666836
## 167	Gilbreath, Lucas	27.72798	27.09636	-0.63161542
## 168	Ginkel, Kevin	25.94165	26.25971	0.31805836
## 169	Giolito, Lucas	22.97344	22.42742	-0.54601755
## 170	Givens, Mychal	27.57522	26.83462	-0.74060621
## 171	Glasnow, Tyler	28.53265	27.93147	-0.60118576
## 172	Godley, Zack	25.88785	24.89811	-0.98973332
## 173	Gomber, Austin	24.71142	23.82356	-0.88785661
## 174	Gonzales, Marco	26.72040	25.81394	-0.90646741
## 175	González, Chi Chi	27.20026	25.45708	-1.74318072
## 176	González, Victor	27.36281	24.74183	-2.62098865
## 177	Goudeau, Ashton	23.92715	23.70029	-0.22685469
## 178	Graterol, Brusdar	24.00461	23.21782	-0.78678583
## 179	Graveman, Kendall	24.44865	23.10966	-1.33898158
## 180	Gray, Jon	24.35098	24.80521	0.45423251
## 181	Gray, Sonny	29.74808	27.41103	-2.33705666
## 182	Green, Chad	28.01719	27.41872	-0.59847001
## 183	Greinke, Zack	25.87598	24.53435	-1.34163148
## 184	Gsellman, Robert	21.41829	22.67989	1.26159534
## 185	Guerra, Deolis	24.94816	22.60068	-2.34748021
## 186	Guerra, Junior	24.96108	23.95691	-1.00416886
## 187	Gutierrez, Vladimir	26.20367	26.45596	0.25229352
## 188	Hader, Josh	23.18345	23.52912	0.34567409
## 189	Hale, David	23.56410	23.96039	0.39629251
## 190	Hand, Brad	28.14672	25.83520	-2.31151427
## 191	Happ, J.A.	25.99630	23.83367	-2.16262933
## 192	Harper, Ryne	27.40879	27.54924	0.14045290
## 193	Hartlieb, Geoff	27.35959	27.07574	-0.28384753
## 194	Harvey, Hunter	22.00118	22.36364	0.36245994
## 195	Harvey, Matt	24.13434	24.72261	0.58827543
## 196	Head, Louis	29.26863	26.94252	-2.32610790
## 197	Heaney, Andrew	27.93221	27.22734	-0.70487156
## 198	Hearn, Taylor	23.45177	23.56988	0.11811479
## 199	Helsley, Ryan	26.83903	26.56759	-0.27144426
## 200	Hembree, Heath	29.93257	28.76235	-1.17021393
## 201	Hendricks, Kyle	24.91460	24.66894	-0.24565827
## 202	Hendriks, Liam	25.00922	24.34877	-0.66044195
## 203	Hendrix, Ryan	26.47384	25.30936	-1.16447792
## 204	Hentges, Sam	25.56117	25.40020	-0.16096631

## 205	Hernández, Carlos	24.86159	24.23265	-0.62894196
## 206	Hernandez, Darwinzon	25.91839	26.57194	0.65355741
## 207	Heuer, Codi	24.73588	24.32890	-0.40697836
## 208	Hill, Rich	32.03869	30.16735	-1.87134180
## 209	Hill, Tim	24.12015	23.84371	-0.27643862
## 210	Hoffman, Jeff	26.68805	25.52833	-1.15972110
## 211	Holland, Derek	26.76489	24.70007	-2.06481362
## 212	Holland, Greg	25.29640	24.53026	-0.76614242
## 213	Holloway, Jordan	25.93078	23.71058	-2.22019765
## 214	Holmes, Clay	26.85144	25.40086	-1.45057409
## 215	Houck, Tanner	25.14740	25.01585	-0.13154519
## 216	Houser, Adrian	22.79290	22.70204	-0.09085416
## 217	Howard, Sam	27.50997	25.17758	-2.33238912
## 218	Howard, Spencer	23.59030	22.13402	-1.45628135
## 219	Hoyt, James	27.87518	28.11747	0.24228906
## 220	Hudson, Daniel	24.48890	24.94884	0.45994819
## 221	Iglesias, Raisel	25.48094	25.42729	-0.05364532
## 222	Irvin, Cole	21.29241	21.13469	-0.15772284
## 223	Jackson, Luke	26.93365	24.39637	-2.53728712
## 224	Jansen, Kenley	29.08562	27.34449	-1.74112287
## 225	Javier, Cristian	27.46366	27.11255	-0.35111629
## 226	Jiménez, Joe	27.20958	26.01732	-1.19225647
## 227	Johnson, Pierce	31.95722	30.79702	-1.16019951
## 228	Jones, Nate	25.45683	25.79197	0.33514194
## 229	Kaprielian, James	23.47652	21.11276	-2.36376477
## 230	Karinchak, James	26.54284	24.00967	-2.53316703
## 231	Kay, Anthony	25.86958	26.21988	0.35029483
## 232	Keller, Brad	25.47302	26.36519	0.89217002
## 233	Keller, Kyle	27.83178	27.72055	-0.11123112
## 234	Keller, Mitch	26.67311	26.30996	-0.36314555
## 235	Kelly, Joe	24.86838	27.53611	2.66772529
## 236	Kelly, Merrill	26.84240	25.33860	-1.50380128
## 237	Kennedy, Ian	26.03899	26.07017	0.03118727
## 238	Kershaw, Clayton	30.34002	28.88079	-1.45922815
## 239	Keuchel, Dallas	23.02942	23.70136	0.67194192
## 240	Kikuchi, Yusei	25.77669	23.32329	-2.45339779
## 241	Kim, Kwang Hyun	25.08313	24.21213	-0.87099645
## 242	Kimbrel, Craig	26.25739	26.13328	-0.12411549
## 243	King, John	22.63921	22.42169	-0.21752173
## 244	King, Michael	25.36560	26.07445	0.70885106
## 245	Kinley, Tyler	26.97667	26.06006	-0.91660586
## 246	Kintzler, Brandon	22.85235	22.29070	-0.56164684
## 247	Kittredge, Andrew	28.61487	26.93845	-1.67642017
## 248	Kopech, Michael	27.17367	27.19618	0.02251302
## 249	Kremer, Dean	26.76360	25.08018	-1.68342012
## 250	Kriske, Brooks	19.32448	18.91507	-0.40940731
## 251	Kuhl, Chad	25.87408	24.97895	-0.89512307
## 252	Lakins Sr., Travis	26.69674	25.65897	-1.03777378
## 253	Lambert, Jimmy	23.93381	23.63068	-0.30313315
## 254	Lamet, Dinelson	27.26629	27.03490	-0.23139092
## 255	Lange, Alex	25.91999	23.07813	-2.84186452
## 256	Lauer, Eric	25.20632	24.52531	-0.68101318
## 257	Law, Derek	25.49115	25.39016	-0.10099786
## 258	Lawrence, Justin	28.20337	27.44738	-0.75598837



## 259	LeBlanc, Wade	22.65172	22.87491	0.22319075
## 260	Leone, Dominic	25.42083	26.06538	0.64454451
## 261	Lester, Jon	25.73491	24.97569	-0.75922370
## 262	Littell, Zack	21.63001	22.20506	0.57505049
## 263	Loáisiga, Jonathan	24.84189	24.62350	-0.21838448
## 264	López, Jorge	22.47455	22.55310	0.07854568
## 265	López, Pablo	23.28968	23.19691	-0.09276168
## 266	Loup, Aaron	26.78979	25.95998	-0.82980591
## 267	Lowther, Zac	25.44860	24.91214	-0.53646599
## 268	Lucchesi, Joey	25.18591	24.75109	-0.43481824
## 269	Luetge, Lucas	31.74485	30.64865	-1.09620403
## 270	Lugo, Seth	29.89608	28.48831	-1.40777189
## 271	Luzardo, Jesús	25.46615	23.08653	-2.37962160
## 272	Lyles, Jordan	28.32823	27.56163	-0.76660073
## 273	Lynch, Daniel	24.35423	21.67806	-2.67616935
## 274	Lynn, Lance	26.53261	25.96034	-0.57227192
## 275	Madero, Luís	28.31433	28.98446	0.67012848
## 276	Maeda, Kenta	25.33160	24.91667	-0.41492852
## 277	Mahle, Tyler	27.14746	24.80733	-2.34012901
## 278	Manaea, Sean	20.88385	20.56436	-0.31948783
## 279	Manoah, Alek	26.11979	24.97523	-1.14455583
## 280	Mantipty, Joe	26.18744	24.19852	-1.98892507
## 281	Maples, Dillon	31.82698	28.51346	-3.31352799
## 282	Márquez, Germán	25.44043	25.73941	0.29898421
## 283	Marshall, Evan	25.26595	25.50715	0.24119861
## 284	Martin, Brett	24.49440	24.37288	-0.12151787
## 285	Martin, Chris	24.62636	21.89286	-2.73350220
## 286	Martin, Corbin	26.31774	24.55093	-1.76680315
## 287	Martínez, Carlos	23.30288	22.47608	-0.82679444
## 288	Maton, Phil	30.25079	31.77975	1.52896197
## 289	Mattson, Isaac	23.46118	23.75716	0.29598173
## 290	Matz, Steven	24.88193	24.96142	0.07949886
## 291	Matzek, Tyler	29.30594	26.96352	-2.34241717
## 292	May, Trevor	25.07671	25.13706	0.06035577
## 293	Mayers, Mike	26.12112	24.41531	-1.70581229
## 294	Mayza, Tim	22.86239	22.29656	-0.56583625
## 295	Mazza, Chris	25.50641	25.01922	-0.48718566
## 296	McClanahan, Shane	24.79802	25.69027	0.89225151
## 297	McCullers Jr., Lance	27.12892	27.76363	0.63471174
## 298	McGee, Jake	23.89454	22.08661	-1.80792779
## 299	McGowin, Kyle	32.52264	29.75967	-2.76297002
## 300	McHugh, Collin	31.57710	31.86123	0.28413149
## 301	McKenzie, Triston	24.67154	25.04915	0.37761432
## 302	Means, John	27.15025	26.14229	-1.00796253
## 303	Megill, Trevor	28.81242	27.01905	-1.79336346
## 304	Mejía, J.C.	23.99584	24.99301	0.99717080
## 305	Melancon, Mark	27.52203	26.52455	-0.99748399
## 306	Menez, Conner	26.00511	24.46746	-1.53764876
## 307	Middleton, Keynan	26.10184	24.16321	-1.93863232
## 308	Miley, Wade	25.56389	25.48513	-0.07876697
## 309	Miller, Andrew	29.19822	28.11036	-1.08786275
## 310	Mills, Alec	26.61906	25.81023	-0.80883163
## 311	Milner, Hoby	23.09742	22.49778	-0.59963600
## 312	Minaya, Juan	21.52845	21.68349	0.15503770

## 313	Minor, Mike	29.34316	28.59974	-0.74341786
## 314	Minter, A.J.	25.98707	25.56737	-0.41970459
## 315	Misiewicz, Anthony	29.82443	27.20601	-2.61842663
## 316	Mize, Casey	23.28654	21.51076	-1.77578002
## 317	Montas, Frankie	25.04239	22.86023	-2.18215532
## 318	Montero, Rafael	23.78426	23.82053	0.03627112
## 319	Montgomery, Jordan	24.89028	24.25006	-0.64021942
## 320	Moore, Matt	25.34147	24.23474	-1.10672937
## 321	Morgan, Eli	25.28034	26.09355	0.81320600
## 322	Morimando, Shawn	25.36161	26.94837	1.58675673
## 323	Morton, Charlie	28.97460	29.34394	0.36934705
## 324	Musgrove, Joe	30.10526	30.81821	0.71294546
## 325	Nance, Tommy	28.39868	26.52796	-1.87072217
## 326	Neidert, Nick	23.95516	22.68841	-1.26675642
## 327	Nelson, Jimmy	32.41313	31.84625	-0.56688543
## 328	Nelson, Kyle	29.23432	28.10954	-1.12478574
## 329	Nelson, Nick	22.58146	21.45101	-1.13045588
## 330	Neris, Héctor	19.60270	19.15772	-0.44497816
## 331	Newcomb, Sean	27.85325	27.05493	-0.79831692
## 332	Nola, Aaron	24.16141	25.03347	0.87206115
## 333	Norris, Daniel	24.35932	25.28704	0.92772436
## 334	O'Day, Darren	28.72563	26.88940	-1.83623053
## 335	Ober, Bailey	26.00908	24.68753	-1.32155561
## 336	Odorizzi, Jake	22.72845	21.01988	-1.70856515
## 337	Ohtani, Shohei	24.61790	23.59606	-1.02184060
## 338	Okert, Steven	30.01096	27.14059	-2.87036367
## 339	Ottavino, Adam	31.12935	28.81957	-2.30977418
## 340	Oviedo, Johan	26.52116	25.38785	-1.13330508
## 341	Oviedo, Luis	25.15576	26.45458	1.29882240
## 342	Paddack, Chris	23.21241	23.18381	-0.02859500
## 343	Pagán, Emilio	26.68734	26.61216	-0.07518560
## 344	Paredes, Enoli	28.21041	30.19856	1.98814728
## 345	Parker, Blake	14.66050	17.92012	3.25962090
## 346	Patiño, Luis	26.69300	26.64456	-0.04843759
## 347	Payamps, Joel	26.42003	26.70970	0.28967223
## 348	Peacock, Matt	23.26533	24.35249	1.08715761
## 349	Peralta, Freddy	26.23445	25.17610	-1.05834985
## 350	Peralta, Wandy	25.03731	23.84899	-1.18831949
## 351	Perdomo, Angel	27.50417	26.96882	-0.53535410
## 352	Pérez, Cionel	24.29228	25.52027	1.22798195
## 353	Pérez, Martín	23.84399	22.58833	-1.25565102
## 354	Peterson, David	23.80080	23.51130	-0.28949904
## 355	Petit, Yusmeiro	24.45456	24.40157	-0.05298683
## 356	Pineda, Michael	22.40344	21.54790	-0.85553552
## 357	Pivetta, Nick	27.18680	26.86801	-0.31878862
## 358	Plesac, Zach	21.97342	21.57833	-0.39508692
## 359	Plutko, Adam	27.87122	25.93639	-1.93483115
## 360	Pomeranz, Drew	26.96534	26.20901	-0.75632483
## 361	Ponce de Leon, Daniel	25.30794	24.37213	-0.93580627
## 362	Ponce, Cody	28.74922	25.20260	-3.54661638
## 363	Pop, Zach	25.13023	24.50845	-0.62178236
## 364	Poppen, Sean	23.87261	23.57677	-0.29583746
## 365	Poteet, Cody	27.88721	29.37300	1.48578101
## 366	Pressly, Ryan	30.75291	30.41783	-0.33508242

## 367	Price, David	21.59589	21.09720	-0.49868937
## 368	Quantrill, Cal	22.41358	22.53679	0.12321586
## 369	Quijada, José	25.52867	24.18585	-1.34282557
## 370	Quintana, José	23.14897	22.63685	-0.51212134
## 371	Rainey, Tanner	25.71900	25.14418	-0.57482412
## 372	Raley, Brooks	30.52325	30.95585	0.43259811
## 373	Ramirez, Nick	22.19957	21.60909	-0.59047616
## 374	Ramirez, Noé	27.65208	27.42352	-0.22855899
## 375	Ramirez, Yohan	25.68280	24.67700	-1.00580314
## 376	Rasmussen, Drew	27.29530	26.48962	-0.80568389
## 377	Ray, Robbie	24.14805	23.96952	-0.17852926
## 378	Reid-Foley, Sean	23.44867	21.88576	-1.56291458
## 379	Reyes, Alex	27.88068	24.72962	-3.15106181
## 380	Richards, Garrett	31.20356	27.11579	-4.08776764
## 381	Richards, Trevor	25.33250	25.14822	-0.18427419
## 382	Ríos, Yacksel	23.58122	20.08953	-3.49168471
## 383	Robles, Hansel	21.57956	22.23413	0.65457293
## 384	Rodón, Carlos	24.48013	25.06417	0.58403183
## 385	Rodriguez, Chris	24.41009	22.90577	-1.50431852
## 386	Rodriguez, Eduardo	23.71299	23.20598	-0.50700880
## 387	Rodríguez, Joely	18.31844	18.63297	0.31452323
## 388	Rodriguez, Nivaldo	22.38654	21.20785	-1.17869534
## 389	Rodríguez, Richard	28.16830	25.74012	-2.42818398
## 390	Rogers, Taylor	26.11699	26.53099	0.41399989
## 391	Rogers, Trevor	23.13783	21.98213	-1.15569541
## 392	Rogers, Tyler	26.19818	26.38823	0.19004970
## 393	Romano, Jordan	26.18084	24.07579	-2.10505104
## 394	Romano, Sal	23.64119	23.77409	0.13289959
## 395	Romo, Sergio	31.37695	32.60901	1.23206832
## 396	Rondón, Angel	23.05046	22.78678	-0.26367764
## 397	Ross, Joe	22.55365	22.04316	-0.51048922
## 398	Ruiz, José	25.43793	24.95465	-0.48327240
## 399	Ryan, Kyle	21.23888	21.83929	0.60040522
## 400	Ryu, Hyun Jin	22.79545	22.85395	0.05849323
## 401	Sadler, Casey	31.40388	29.55208	-1.85179983
## 402	Sanchez, Aaron	25.15729	23.90390	-1.25338915
## 403	Sánchez, Cristopher	22.58661	22.17810	-0.40851012
## 404	Sandlin, Nick	29.95332	27.49713	-2.45619545
## 405	Sandoval, Patrick	23.10858	23.96005	0.85146715
## 406	Santana, Dennis	28.09150	27.05913	-1.03237049
## 407	Santana, Edgar	25.59972	23.78839	-1.81132519
## 408	Santana, Ervin	25.69870	25.53638	-0.16232348
## 409	Santiago, Héctor	23.70597	22.75506	-0.95090859
## 410	Santos, Antonio	22.72249	23.14350	0.42101777
## 411	Sawamura, Hirokazu	21.08994	19.18785	-1.90209694
## 412	Sborz, Josh	25.35919	23.59420	-1.76498839
## 413	Sceroler, Mac	26.94575	25.77669	-1.16905735
## 414	Scherzer, Max	26.25437	24.86083	-1.39354321
## 415	Scott, Tanner	28.13497	28.58045	0.44547911
## 416	Scrubb, Andre	29.15244	28.75476	-0.39767303
## 417	Selman, Sam	29.35230	26.39692	-2.95538519
## 418	Senzatela, Antonio	23.42435	23.11993	-0.30441894
## 419	Sewald, Paul	26.68443	26.15871	-0.52571589
## 420	Shaw, Bryan	26.04134	26.30522	0.26387854

## 421	Sheffield, Justus	24.80056	24.96293	0.16237247
## 422	Sherriff, Ryan	25.94802	26.27729	0.32927440
## 423	Shoemaker, Matt	21.38244	19.44844	-1.93400553
## 424	Shreve, Chasen	22.20840	20.58015	-1.62825250
## 425	Sims, Lucas	33.12762	30.69244	-2.43517972
## 426	Singer, Brady	25.63256	25.88285	0.25028679
## 427	Skubal, Tarik	23.54299	22.01977	-1.52322131
## 428	Slegers, Aaron	22.29305	21.41510	-0.87794309
## 429	Smith, Burch	27.22987	24.42164	-2.80822531
## 430	Smith, Caleb	27.75199	27.13421	-0.61778720
## 431	Smith, Drew	28.68788	27.42375	-1.26412920
## 432	Smith, Joe	25.33586	23.10302	-2.23283664
## 433	Smith, Riley	24.93869	24.23364	-0.70504686
## 434	Smith, Will	26.14936	25.54109	-0.60827062
## 435	Smyly, Drew	25.00427	23.76167	-1.24259980
## 436	Snell, Blake	25.68375	25.34476	-0.33899089
## 437	Solomon, Peter	25.12481	25.40912	0.28431902
## 438	Soria, Joakim	26.89075	27.32280	0.43205548
## 439	Soto, Gregory	25.60034	25.09036	-0.50998665
## 440	Springs, Jeffrey	23.97800	22.95097	-1.02702431
## 441	Stammen, Craig	25.77662	25.83128	0.05465794
## 442	Stanek, Ryne	20.49756	20.85891	0.36134816
## 443	Staumont, Josh	26.64777	26.50623	-0.14154639
## 444	Steckenrider, Drew	25.52861	23.69410	-1.83450974
## 445	Stephan, Trevor	27.06896	25.02760	-2.04136429
## 446	Stephenson, Robert	31.62916	31.52231	-0.10684547
## 447	Stewart, Kohl	24.81886	25.21937	0.40050301
## 448	Stratton, Chris	31.46302	31.16379	-0.29922779
## 449	Strickland, Hunter	27.77607	28.49914	0.72306946
## 450	Stripling, Ross	25.56993	24.89732	-0.67261513
## 451	Stroman, Marcus	26.85270	25.03154	-1.82115780
## 452	Suarez, José	25.02259	24.94098	-0.08160703
## 453	Suárez, Ranger	19.79727	19.62032	-0.17695520
## 454	Suero, Wander	27.69960	26.89157	-0.80803312
## 455	Sulser, Cole	23.90281	22.36113	-1.54167904
## 456	Suter, Brent	25.23906	24.90544	-0.33362355
## 457	Swanson, Erik	23.79257	22.52708	-1.26548438
## 458	Swarzak, Anthony	26.60672	26.25517	-0.35154548
## 459	Taillon, Jameson	28.06664	27.48181	-0.58483442
## 460	Tapia, Domingo	22.90619	23.60313	0.69694079
## 461	Tate, Dillon	22.83679	22.11358	-0.72321132
## 462	Taylor, Blake	24.84295	25.75079	0.90784512
## 463	Taylor, Josh	25.43236	24.57000	-0.86236220
## 464	Tepera, Ryan	24.59123	24.27787	-0.31336011
## 465	Thielbar, Caleb	29.19887	27.10866	-2.09020557
## 466	Thompson, Keegan	28.16388	26.94983	-1.21404489
## 467	Thompson, Ryan	24.22867	24.71863	0.48996662
## 468	Thornton, Trent	29.45455	28.27202	-1.18253361
## 469	Tice, Ty	26.68636	25.87908	-0.80727682
## 470	Tomlin, Josh	30.60886	29.65856	-0.95029743
## 471	Treinen, Blake	25.72934	25.85130	0.12195928
## 472	Trivino, Lou	23.22570	22.06451	-1.16118488
## 473	Tropeano, Nick	24.67388	21.72277	-2.95111319
## 474	Uceta, Edwin	25.15650	24.71767	-0.43883501

## 475	Underwood Jr., Duane	23.81977	22.84586	-0.97391446
## 476	Ureña, José	23.47147	22.02554	-1.44592164
## 477	Urías, Julio	28.87356	28.50945	-0.36410293
## 478	Urquidy, José	25.63036	25.77280	0.14244016
## 479	Valdez, César	23.35142	23.62042	0.26899696
## 480	Valdez, Framber	26.58818	26.73714	0.14895468
## 481	Valdez, Phillips	24.02813	23.56741	-0.46071585
## 482	Velasquez, Vince	25.38434	25.07283	-0.31151042
## 483	Vesia, Alex	26.06309	25.06185	-1.00123891
## 484	Vest, Will	22.43254	21.69344	-0.73909376
## 485	Voth, Austin	28.13681	28.11212	-0.02469335
## 486	Wacha, Michael	21.78698	21.24209	-0.54488304
## 487	Waddell, Brandon	27.89791	24.83598	-3.06192505
## 488	Wainwright, Adam	30.02588	30.57988	0.55400197
## 489	Walker, Taijuan	24.05850	23.03736	-1.02113866
## 490	Warren, Art	28.13245	27.23743	-0.89502332
## 491	Watson, Tony	26.64296	26.61697	-0.02598903
## 492	Weathers, Ryan	22.66626	23.09280	0.42653985
## 493	Webb, Jacob	26.40030	28.23322	1.83291892
## 494	Webb, Logan	23.94488	22.83243	-1.11245062
## 495	Weems, Jordan	24.19426	21.75611	-2.43814563
## 496	Wells, Tyler	26.63469	25.75504	-0.87964569
## 497	Wendelken, J.B.	26.51843	25.97494	-0.54348688
## 498	Wheeler, Zack	25.01793	25.37310	0.35517866
## 499	White, Mitch	27.77421	25.67202	-2.10219181
## 500	Whitlock, Garrett	22.62077	22.19421	-0.42656263
## 501	Widener, Taylor	23.34414	23.51496	0.17081633
## 502	Wieck, Brad	26.14817	25.38416	-0.76401033
## 503	Williams, Devin	30.37762	29.43905	-0.93857460
## 504	Williams, Trevor	24.83434	25.03347	0.19912884
## 505	Wilson, Bryse	22.10322	22.00981	-0.09341283
## 506	Wilson, Justin	25.34920	24.82248	-0.52671645
## 507	Winkler, Dan	28.12559	27.57823	-0.54735906
## 508	Wisler, Matt	30.76001	29.85647	-0.90354118
## 509	Wittgren, Nick	22.70642	22.31666	-0.38975961
## 510	Wood, Alex	23.66914	22.37423	-1.29491278
## 511	Woodford, Jake	25.85034	25.00663	-0.84371196
## 512	Woodruff, Brandon	25.87178	25.24911	-0.62266587
## 513	Workman, Brandon	28.13527	27.01192	-1.12335267
## 514	Wright, Kyle	26.13570	26.96995	0.83424953
## 515	Yang, Hyeon-Jong	24.90283	24.60956	-0.29327236
## 516	Yarbrough, Ryan	27.00538	25.58227	-1.42311081
## 517	Yardley, Eric	26.92762	24.73736	-2.19026014
## 518	Young, Alex	24.94228	24.86041	-0.08187049
## 519	Zeuch, T.J.	23.28657	23.86589	0.57932793
## 520	Zimmer, Kyle	25.07813	24.12085	-0.95727475
## 521	Zimmermann, Bruce	26.45501	26.16840	-0.28661062
## 522	Zuber, Tyler	25.83575	25.14983	-0.68591019

Now I merge the xWOBA comparison data frame with the Bauer Units comparison data frame.

```
apps_spin_xwoba_bu <- merge(apps_spin_xwoba, pitcher_bu_comp, by = "player_name")
apps_spin_xwoba_bu$percent_spin_change <- (apps_spin_xwoba_bu$spin_diff / apps_spin_xwoba_bu$pre_spin)
apps_spin_xwoba_bu
```

##	player_name	appearances_june_7_later	appearances_june_7_before
## 1	Abbott, Cory	5	1
## 2	Abreu, Albert	6	4
## 3	Abreu, Bryan	9	21
## 4	Adams, Austin	22	25
## 5	Akin, Keegan	9	6
## 6	Alcala, Jorge	19	23
## 7	Alcantara, Sandy	9	13
## 8	Alexander, Scott	5	13
## 9	Alexander, Tyler	14	16
## 10	Allard, Kolby	10	12
## 11	Allen, Logan	2	5
## 12	Almonte, Yency	11	20
## 13	Alvarado, José	20	23
## 14	Álvarez, José	21	18
## 15	Alzolay, Adbert	9	10
## 16	Anderson, Brett	7	9
## 17	Anderson, Chase	3	11
## 18	Anderson, Ian	7	11
## 19	Anderson, Shaun	7	4
## 20	Anderson, Tyler	8	11
## 21	Andriese, Matt	8	18
## 22	Antone, Tejay	2	20
## 23	Arrieta, Jake	7	11
## 24	Baragar, Caleb	1	21
## 25	Bard, Daniel	21	22
## 26	Barlow, Scott	21	27
## 27	Barnes, Jacob	11	17
## 28	Barnes, Matt	18	26
## 29	Barría, Jaime	2	2
## 30	Bass, Anthony	24	26
## 31	Bassitt, Chris	10	12
## 32	Bauer, Trevor	4	12
## 33	Beasley, Jeremy	3	5
## 34	Bednar, David	22	24
## 35	Bedrosian, Cam	6	9
## 36	Bender, Anthony	25	13
## 37	Benjamin, Wes	1	6
## 38	Berrios, José	9	12
## 39	Bettinger, Alec	1	3
## 40	Bickford, Phil	24	8
## 41	Bieber, Shane	2	12
## 42	Bielak, Brandon	10	13
## 43	Bleier, Richard	22	26
## 44	Bolaños, Ronald	2	1
## 45	Borucki, Ryan	6	13
## 46	Bowden, Ben	12	16
## 47	Boxberger, Brad	22	24
## 48	Boyd, Matthew	2	11
## 49	Brach, Brad	25	7
## 50	Bradley, Archie	21	12
## 51	Brentz, Jake	22	29
## 52	Brice, Austin	1	12
## 53	Brogdon, Connor	19	23

## 54	Brothers, Rex	20	22
## 55	Brubaker, JT	9	10
## 56	Bubic, Kris	11	8
## 57	Buchter, Ryan	15	3
## 58	Buehler, Walker	11	11
## 59	Bukauskas, J.B.	10	11
## 60	Bumgarner, Madison	4	12
## 61	Bummer, Aaron	15	24
## 62	Bundy, Dylan	9	10
## 63	Burdi, Zack	5	1
## 64	Burnes, Corbin	8	10
## 65	Burr, Ryan	17	2
## 66	Cabrera, Génesis	22	27
## 67	Cahill, Trevor	1	8
## 68	Canning, Griffin	4	10
## 69	Castillo, Diego	19	21
## 70	Castillo, Luis	11	12
## 71	Castro, Anthony	11	11
## 72	Castro, Miguel	21	24
## 73	Cease, Dylan	10	12
## 74	Cessa, Luis	14	19
## 75	Chacín, Jhoulys	15	9
## 76	Chafin, Andrew	19	28
## 77	Chapman, Aroldis	19	23
## 78	Chargois, JT	20	14
## 79	Chatwood, Tyler	9	21
## 80	Cimber, Adam	21	25
## 81	Cishek, Steve	26	27
## 82	Cisnero, José	23	27
## 83	Civale, Aaron	3	12
## 84	Clarke, Taylor	3	27
## 85	Clase, Emmanuel	20	26
## 86	Claudio, Alex	15	26
## 87	Clay, Sam	22	23
## 88	Cleavinger, Garrett	13	8
## 89	Cobb, Alex	7	8
## 90	Cole, Gerrit	9	12
## 91	Colomé, Alex	19	22
## 92	Coonrod, Sam	4	23
## 93	Corbin, Patrick	10	11
## 94	Cortes, Nestor	9	2
## 95	Crichton, Stefan	9	22
## 96	Crick, Kyle	10	17
## 97	Crismatt, Nabil	15	13
## 98	Crochet, Garrett	16	16
## 99	Crowe, Wil	8	8
## 100	Cueto, Johnny	9	9
## 101	Curtiss, John	16	22
## 102	Darvish, Yu	9	12
## 103	Davidson, Tucker	2	2
## 104	Davies, Zach	11	12
## 105	Davis, Austin	11	1
## 106	Davis, Wade	10	17
## 107	de Geus, Brett	18	16

## 108	De Jong, Chase	7	2
## 109	De Los Santos, Enyel	13	3
## 110	deGrom, Jacob	6	9
## 111	DeSclafani, Anthony	10	12
## 112	Detwiler, Ross	15	23
## 113	Díaz, Edwin	20	23
## 114	Diaz, Miguel	11	8
## 115	Díaz, Yennsy	10	2
## 116	Diekman, Jake	18	25
## 117	Dobnak, Randy	3	10
## 118	Dolis, Rafael	13	21
## 119	Doolittle, Sean	18	23
## 120	Duffey, Tyler	18	24
## 121	Duffy, Danny	6	7
## 122	Dugger, Robert	1	10
## 123	Dunn, Justin	2	9
## 124	Dunning, Dane	8	12
## 125	Duplantier, Jon	2	2
## 126	Edwards Jr., Carl	3	4
## 127	Eflin, Zach	7	11
## 128	Elledge, Seth	4	7
## 129	Eovaldi, Nathan	9	12
## 130	Espino, Paolo	13	12
## 131	Estévez, Carlos	24	15
## 132	Evans, Demarcus	9	4
## 133	Fairbanks, Pete	19	15
## 134	Falter, Bailey	8	1
## 135	Familia, Jeurys	18	21
## 136	Farmer, Buck	21	12
## 137	Farrell, Luke	5	8
## 138	Fedde, Erick	9	8
## 139	Fernández, Junior	9	5
## 140	Feyereisen, J.P.	14	27
## 141	Finnegan, Kyle	18	26
## 142	Fleming, Josh	8	10
## 143	Flexen, Chris	10	10
## 144	Floro, Dylan	19	28
## 145	Foley, Jason	3	1
## 146	Foltynewicz, Mike	9	12
## 147	Foster, Matt	11	17
## 148	Freeland, Kyle	10	3
## 149	Fried, Max	9	9
## 150	Fry, Paul	20	23
## 151	Fulmer, Michael	9	20
## 152	Funkhouser, Kyle	21	11
## 153	Gallegos, Giovanny	21	27
## 154	Gallen, Zac	8	5
## 155	Gant, John	16	11
## 156	Garcia, Bryan	12	20
## 157	García, Jarlín	19	16
## 158	Garcia, Luis	8	12
## 159	García, Yimi	16	25
## 160	Garrett, Amir	26	19
## 161	Garrett, Braxton	4	1



## 162	Garza Jr., Ralph	8	1
## 163	Gausman, Kevin	10	12
## 164	Germán, Domingo	10	11
## 165	Gibson, Kyle	9	11
## 166	Gilbert, Logan	9	5
## 167	Gilbreath, Lucas	15	9
## 168	Ginkel, Kevin	5	26
## 169	Giolito, Lucas	10	12
## 170	Givens, Mychal	13	22
## 171	Glasnow, Tyler	2	12
## 172	Godley, Zack	1	1
## 173	Gomber, Austin	6	12
## 174	Gonzales, Marco	8	6
## 175	González, Chi Chi	8	11
## 176	González, Victor	18	24
## 177	Goudeau, Ashton	4	2
## 178	Graterol, Brusdar	8	3
## 179	Graveman, Kendall	18	14
## 180	Gray, Jon	8	12
## 181	Gray, Sonny	6	9
## 182	Green, Chad	17	25
## 183	Greinke, Zack	9	13
## 184	Gsellman, Robert	2	13
## 185	Guerra, Deolis	15	16
## 186	Guerra, Junior	14	15
## 187	Gutierrez, Vladimir	10	2
## 188	Hader, Josh	16	23
## 189	Hale, David	4	13
## 190	Hand, Brad	21	21
## 191	Happ, J.A.	10	10
## 192	Harper, Ryne	13	2
## 193	Hartlieb, Geoff	5	1
## 194	Harvey, Hunter	7	2
## 195	Harvey, Matt	10	12
## 196	Head, Louis	7	6
## 197	Heaney, Andrew	9	10
## 198	Hearn, Taylor	14	18
## 199	Helsley, Ryan	21	26
## 200	Hembree, Heath	24	17
## 201	Hendricks, Kyle	10	12
## 202	Hendriks, Liam	21	24
## 203	Hendrix, Ryan	19	17
## 204	Hentges, Sam	8	9
## 205	Hernández, Carlos	12	4
## 206	Hernandez, Darwinzon	20	21
## 207	Heuer, Codi	20	23
## 208	Hill, Rich	9	12
## 209	Hill, Tim	25	28
## 210	Hoffman, Jeff	3	10
## 211	Holland, Derek	9	13
## 212	Holland, Greg	22	22
## 213	Holloway, Jordan	5	8
## 214	Holmes, Clay	23	25
## 215	Houck, Tanner	3	3

## 216	Houser, Adrian	10	11
## 217	Howard, Sam	10	28
## 218	Howard, Spencer	5	6
## 219	Hoyt, James	5	2
## 220	Hudson, Daniel	9	22
## 221	Iglesias, Raisel	23	22
## 222	Irvin, Cole	9	12
## 223	Jackson, Luke	22	24
## 224	Jansen, Kenley	19	23
## 225	Javier, Cristian	13	11
## 226	Jiménez, Joe	24	11
## 227	Johnson, Pierce	20	22
## 228	Jones, Nate	2	18
## 229	Kaprielian, James	8	5
## 230	Karinchak, James	23	27
## 231	Kay, Anthony	6	5
## 232	Keller, Brad	10	12
## 233	Keller, Kyle	12	3
## 234	Keller, Mitch	2	11
## 235	Kelly, Joe	20	10
## 236	Kelly, Merrill	10	12
## 237	Kennedy, Ian	14	21
## 238	Kershaw, Clayton	5	13
## 239	Keuchel, Dallas	9	12
## 240	Kikuchi, Yusei	9	11
## 241	Kim, Kwang Hyun	9	9
## 242	Kimbrel, Craig	17	24
## 243	King, John	6	21
## 244	King, Michael	5	9
## 245	Kinley, Tyler	19	24
## 246	Kintzler, Brandon	9	20
## 247	Kittredge, Andrew	19	20
## 248	Kopech, Michael	11	14
## 249	Kremer, Dean	3	9
## 250	Kriske, Brooks	4	3
## 251	Kuhl, Chad	8	6
## 252	Lakins Sr., Travis	6	18
## 253	Lambert, Jimmy	2	1
## 254	Lamet, Dinelson	4	7
## 255	Lange, Alex	4	15
## 256	Lauer, Eric	9	5
## 257	Law, Derek	4	5
## 258	Lawrence, Justin	11	7
## 259	LeBlanc, Wade	10	6
## 260	Leone, Dominic	23	3
## 261	Lester, Jon	10	7
## 262	Littell, Zack	20	18
## 263	Loáisiga, Jonathan	18	24
## 264	López, Jorge	10	12
## 265	López, Pablo	7	12
## 266	Loup, Aaron	23	19
## 267	Lowther, Zac	2	3
## 268	Lucchesi, Joey	2	9
## 269	Luetge, Lucas	18	21

## 270	Lugo, Seth	22	2
## 271	Luzardo, Jesús	5	9
## 272	Lyles, Jordan	10	12
## 273	Lynch, Daniel	2	3
## 274	Lynn, Lance	9	10
## 275	Madero, Luís	1	2
## 276	Maeda, Kenta	9	9
## 277	Mahle, Tyler	10	12
## 278	Manaea, Sean	10	12
## 279	Manoah, Alek	7	2
## 280	Mantiply, Joe	22	9
## 281	Maples, Dillon	8	16
## 282	Márquez, Germán	9	13
## 283	Marshall, Evan	6	21
## 284	Martin, Brett	22	23
## 285	Martin, Chris	19	11
## 286	Martin, Corbin	3	2
## 287	Martínez, Carlos	6	10
## 288	Maton, Phil	23	18
## 289	Mattson, Isaac	1	1
## 290	Matz, Steven	7	12
## 291	Matzek, Tyler	20	24
## 292	May, Trevor	22	23
## 293	Mayers, Mike	22	28
## 294	Mayza, Tim	20	23
## 295	Mazza, Chris	4	6
## 296	McClanahan, Shane	9	7
## 297	McCullers Jr., Lance	9	9
## 298	McGee, Jake	20	26
## 299	McGowin, Kyle	9	13
## 300	McHugh, Collin	10	13
## 301	McKenzie, Triston	5	10
## 302	Means, John	3	12
## 303	Megill, Trevor	7	2
## 304	Mejía, J.C.	10	4
## 305	Melancon, Mark	21	25
## 306	Menez, Conner	5	3
## 307	Middleton, Keynan	10	18
## 308	Miley, Wade	9	10
## 309	Miller, Andrew	16	11
## 310	Mills, Alec	10	12
## 311	Milner, Hoby	9	2
## 312	Minaya, Juan	5	4
## 313	Minor, Mike	10	12
## 314	Minter, A.J.	16	26
## 315	Misiewicz, Anthony	21	26
## 316	Mize, Casey	10	11
## 317	Montas, Frankie	10	12
## 318	Montero, Rafael	16	26
## 319	Montgomery, Jordan	10	11
## 320	Moore, Matt	7	9
## 321	Morgan, Eli	7	1
## 322	Morimando, Shawn	1	1
## 323	Morton, Charlie	10	12

## 324	Musgrove, Joe	10	12
## 325	Nance, Tommy	9	10
## 326	Neidert, Nick	3	4
## 327	Nelson, Jimmy	11	17
## 328	Nelson, Kyle	4	6
## 329	Nelson, Nick	2	8
## 330	Neris, Héctor	21	25
## 331	Newcomb, Sean	9	17
## 332	Nola, Aaron	9	12
## 333	Norris, Daniel	20	21
## 334	O'Day, Darren	2	10
## 335	Ober, Bailey	9	2
## 336	Odorizzi, Jake	10	5
## 337	Ohtani, Shohei	8	8
## 338	Okert, Steven	13	1
## 339	Ottavino, Adam	20	27
## 340	Oviedo, Johan	8	6
## 341	Oviedo, Luis	2	12
## 342	Paddack, Chris	9	11
## 343	Pagán, Emilio	22	25
## 344	Paredes, Enoli	2	10
## 345	Parker, Blake	21	1
## 346	Patiño, Luis	4	5
## 347	Payamps, Joel	4	18
## 348	Peacock, Matt	15	11
## 349	Peralta, Freddy	9	11
## 350	Peralta, Wandy	7	25
## 351	Perdomo, Angel	4	13
## 352	Pérez, Cionel	5	18
## 353	Pérez, Martín	10	11
## 354	Peterson, David	5	10
## 355	Petit, Yusmeiro	24	29
## 356	Pineda, Michael	6	9
## 357	Pivetta, Nick	10	11
## 358	Plesac, Zach	5	10
## 359	Plutko, Adam	14	22
## 360	Pomeranz, Drew	11	14
## 361	Ponce de Leon, Daniel	4	13
## 362	Ponce, Cody	5	1
## 363	Pop, Zach	19	17
## 364	Poppen, Sean	3	3
## 365	Poteet, Cody	2	5
## 366	Pressly, Ryan	19	23
## 367	Price, David	15	13
## 368	Quantrill, Cal	11	19
## 369	Quijada, José	3	2
## 370	Quintana, José	10	9
## 371	Rainey, Tanner	11	20
## 372	Raley, Brooks	12	27
## 373	Ramirez, Nick	6	7
## 374	Ramirez, Noé	16	2
## 375	Ramirez, Yohan	5	2
## 376	Rasmussen, Drew	11	15
## 377	Ray, Robbie	11	10

## 378	Reid-Foley, Sean	6	6
## 379	Reyes, Alex	18	28
## 380	Richards, Garrett	9	12
## 381	Richards, Trevor	18	10
## 382	Ríos, Yacksel	19	1
## 383	Robles, Hansel	20	26
## 384	Rodón, Carlos	9	9
## 385	Rodriguez, Chris	6	8
## 386	Rodriguez, Eduardo	10	11
## 387	Rodríguez, Joely	16	17
## 388	Rodriguez, Nivaldo	2	2
## 389	Rodríguez, Richard	17	23
## 390	Rogers, Taylor	18	22
## 391	Rogers, Trevor	8	12
## 392	Rogers, Tyler	21	29
## 393	Romano, Jordan	18	21
## 394	Romano, Sal	2	14
## 395	Romo, Sergio	21	23
## 396	Rondón, Angel	1	1
## 397	Ross, Joe	7	11
## 398	Ruiz, José	17	22
## 399	Ryan, Kyle	6	3
## 400	Ryu, Hyun Jin	10	11
## 401	Sadler, Casey	6	11
## 402	Sanchez, Aaron	2	6
## 403	Sánchez, Cristopher	4	1
## 404	Sandlin, Nick	20	11
## 405	Sandoval, Patrick	8	7
## 406	Santana, Dennis	13	16
## 407	Santana, Edgar	18	12
## 408	Santana, Ervin	12	10
## 409	Santiago, Héctor	11	2
## 410	Santos, Antonio	5	2
## 411	Sawamura, Hirokazu	20	21
## 412	Sborz, Josh	16	25
## 413	Sceroler, Mac	3	2
## 414	Scherzer, Max	8	12
## 415	Scott, Tanner	20	28
## 416	Scrubb, Andre	5	13
## 417	Selman, Sam	2	7
## 418	Senzatela, Antonio	6	11
## 419	Sewald, Paul	24	10
## 420	Shaw, Bryan	24	25
## 421	Sheffield, Justus	5	10
## 422	Sherriff, Ryan	8	3
## 423	Shoemaker, Matt	5	11
## 424	Shreve, Chasen	24	11
## 425	Sims, Lucas	6	22
## 426	Singer, Brady	7	12
## 427	Skubal, Tarik	9	12
## 428	Slegers, Aaron	4	23
## 429	Smith, Burch	10	12
## 430	Smith, Caleb	9	21
## 431	Smith, Drew	20	7

## 432	Smith, Joe	7	22
## 433	Smith, Riley	10	14
## 434	Smith, Will	21	25
## 435	Smyly, Drew	10	9
## 436	Snell, Blake	8	12
## 437	Solomon, Peter	1	2
## 438	Soria, Joakim	19	13
## 439	Soto, Gregory	19	27
## 440	Springs, Jeffrey	18	25
## 441	Stammen, Craig	22	25
## 442	Stanek, Ryne	22	27
## 443	Staumont, Josh	17	22
## 444	Steckenrider, Drew	21	16
## 445	Stephan, Trevor	12	14
## 446	Stephenson, Robert	4	23
## 447	Stewart, Kohl	2	2
## 448	Stratton, Chris	22	22
## 449	Strickland, Hunter	14	22
## 450	Stripling, Ross	9	9
## 451	Stroman, Marcus	10	13
## 452	Suarez, José	10	4
## 453	Suárez, Ranger	18	10
## 454	Suero, Wander	19	19
## 455	Sulser, Cole	20	19
## 456	Suter, Brent	20	22
## 457	Swanson, Erik	8	9
## 458	Swarzak, Anthony	7	6
## 459	Taillon, Jameson	10	11
## 460	Tapia, Domingo	5	2
## 461	Tate, Dillon	24	15
## 462	Taylor, Blake	22	9
## 463	Taylor, Josh	21	23
## 464	Tepera, Ryan	18	28
## 465	Thielbar, Caleb	17	20
## 466	Thompson, Keegan	16	11
## 467	Thompson, Ryan	10	26
## 468	Thornton, Trent	10	18
## 469	Tice, Ty	1	4
## 470	Tomlin, Josh	14	19
## 471	Treinen, Blake	22	24
## 472	Trivino, Lou	23	24
## 473	Tropeano, Nick	1	4
## 474	Uceta, Edwin	5	7
## 475	Underwood Jr., Duane	13	21
## 476	Ureña, José	6	11
## 477	Urías, Julio	10	12
## 478	Urquidy, José	4	10
## 479	Valdez, César	11	22
## 480	Valdez, Framber	10	2
## 481	Valdez, Phillips	5	17
## 482	Velasquez, Vince	9	12
## 483	Vesia, Alex	9	10
## 484	Vest, Will	9	23
## 485	Voth, Austin	14	19

## 486	Wacha, Michael	9	10			
## 487	Waddell, Brandon	4	5			
## 488	Wainwright, Adam	10	11			
## 489	Walker, Taijuan	10	11			
## 490	Warren, Art	16	2			
## 491	Watson, Tony	16	22			
## 492	Weathers, Ryan	7	12			
## 493	Webb, Jacob	2	16			
## 494	Webb, Logan	5	10			
## 495	Weems, Jordan	2	5			
## 496	Wells, Tyler	14	15			
## 497	Wendelken, J.B.	10	15			
## 498	Wheeler, Zack	10	12			
## 499	White, Mitch	5	10			
## 500	Whitlock, Garrett	16	15			
## 501	Widener, Taylor	4	5			
## 502	Wieck, Brad	7	8			
## 503	Williams, Devin	18	23			
## 504	Williams, Trevor	3	10			
## 505	Wilson, Bryse	4	5			
## 506	Wilson, Justin	9	15			
## 507	Winkler, Dan	18	24			
## 508	Wisler, Matt	22	20			
## 509	Wittgren, Nick	18	20			
## 510	Wood, Alex	9	9			
## 511	Woodford, Jake	10	10			
## 512	Woodruff, Brandon	9	12			
## 513	Workman, Brandon	17	12			
## 514	Wright, Kyle	1	1			
## 515	Yang, Hyeon-Jong	1	7			
## 516	Yarbrough, Ryan	9	12			
## 517	Yardley, Eric	4	13			
## 518	Young, Alex	5	25			
## 519	Zeuch, T.J.	1	4			
## 520	Zimmer, Kyle	22	19			
## 521	Zimmermann, Bruce	2	10			
## 522	Zuber, Tyler	1	20			
##	total_apps	pitches_thrown	pitches_per_app	pre_spin	post_spin	spin_diff
## 1	6	266	44.3	2388.747	2305.157	-83.5895986
## 2	10	300	30.0	2167.449	2089.809	-77.6395703
## 3	30	652	21.7	2439.802	2415.793	-24.0088328
## 4	47	663	14.1	2865.997	2783.013	-82.9839849
## 5	15	983	65.5	2289.457	2233.902	-55.5556874
## 6	42	625	14.9	2346.145	2385.953	39.8085342
## 7	22	2024	92.0	2286.956	2213.619	-73.3372419
## 8	18	259	14.4	2169.885	2214.153	44.2678837
## 9	30	845	28.2	2204.988	2120.226	-84.7619864
## 10	22	1366	62.1	2200.229	1979.154	-221.0751485
## 11	7	460	65.7	2112.043	2098.228	-13.8152687
## 12	31	519	16.7	2143.720	2171.528	27.8074219
## 13	43	781	18.2	2155.277	2088.739	-66.5381385
## 14	39	593	15.2	2125.105	1892.175	-232.9292423
## 15	19	1536	80.8	2437.316	2302.621	-134.6953361
## 16	16	998	62.4	1841.475	1765.143	-76.3329152

## 17	14	849	60.6	2164.356	2155.119	-9.2366430
## 18	18	1647	91.5	1893.712	1866.922	-26.7896067
## 19	11	366	33.3	2707.307	2596.720	-110.5872289
## 20	19	1666	87.7	2338.881	2163.061	-175.8194519
## 21	26	681	26.2	2363.403	2309.712	-53.6908645
## 22	22	523	23.8	2864.119	2594.324	-269.7950172
## 23	18	1384	76.9	2261.345	2120.904	-140.4415298
## 24	22	284	12.9	2458.536	2282.300	-176.2364964
## 25	43	822	19.1	2763.025	2819.153	56.1276204
## 26	48	854	17.8	2357.594	2399.009	41.4141823
## 27	28	548	19.6	2329.370	2189.044	-140.3256452
## 28	44	665	15.1	2272.528	2161.375	-111.1523131
## 29	4	304	76.0	2151.609	2181.894	30.2854842
## 30	50	678	13.6	2109.520	2064.720	-44.8003517
## 31	22	2065	93.9	2188.384	2139.644	-48.7407984
## 32	16	1670	104.4	2888.071	2630.331	-257.7400639
## 33	8	198	24.8	2229.680	2219.186	-10.4939732
## 34	46	682	14.8	2147.314	2124.985	-22.3291101
## 35	15	264	17.6	2242.514	2245.671	3.1573726
## 36	38	614	16.2	2565.160	2248.299	-316.8618699
## 37	7	282	40.3	2353.795	2218.208	-135.5862403
## 38	21	2006	95.5	2203.515	2076.809	-126.7055951
## 39	4	199	49.8	2129.413	2112.600	-16.8134078
## 40	32	452	14.1	2301.261	2362.503	61.2419506
## 41	14	1467	104.8	2456.309	2288.444	-167.8651308
## 42	23	629	27.3	2372.364	2315.455	-56.9087627
## 43	48	504	10.5	1980.548	1995.051	14.5031260
## 44	3	106	35.3	2395.920	2355.025	-40.8953086
## 45	19	285	15.0	2514.561	2245.337	-269.2241458
## 46	28	445	15.9	2345.035	2330.364	-14.6701461
## 47	46	714	15.5	2152.467	2186.468	34.0009921
## 48	13	1118	86.0	2251.004	2245.138	-5.8664005
## 49	32	538	16.8	2148.627	2116.215	-32.4123195
## 50	33	538	16.3	1969.392	1995.277	25.8850457
## 51	51	794	15.6	2193.052	2147.330	-45.7218220
## 52	13	273	21.0	2425.397	2203.477	-221.9201072
## 53	42	674	16.0	2171.934	2148.574	-23.3598724
## 54	42	718	17.1	2152.297	2101.404	-50.8924866
## 55	19	1549	81.5	2407.316	2416.368	9.0512019
## 56	19	1363	71.7	1962.467	2013.372	50.9042592
## 57	18	294	16.3	2294.940	2089.258	-205.6818033
## 58	22	2154	97.9	2734.255	2501.952	-232.3030460
## 59	21	286	13.6	2278.417	2276.061	-2.3560417
## 60	16	1372	85.8	2532.237	2136.009	-396.2278658
## 61	39	638	16.4	2087.655	2187.012	99.3564643
## 62	19	1254	66.0	2420.826	2233.719	-187.1070354
## 63	6	156	26.0	2471.755	2480.234	8.4785428
## 64	18	1662	92.3	2746.157	2601.115	-145.0418323
## 65	19	340	17.9	2282.484	2134.553	-147.9304729
## 66	49	827	16.9	2200.027	2239.070	39.0436323
## 67	9	664	73.8	2216.825	2135.486	-81.3394050
## 68	14	1072	76.6	2326.358	2197.477	-128.8808484
## 69	40	609	15.2	2153.881	2163.957	10.0765166
## 70	23	2167	94.2	2185.102	2215.970	30.8676936



## 71	22	377	17.1	2650.057	2537.913	-112.1439513
## 72	45	832	18.5	2437.063	2445.835	8.7720534
## 73	22	2036	92.5	2645.174	2512.065	-133.1095326
## 74	33	630	19.1	2365.364	2253.330	-112.0342593
## 75	24	618	25.8	2245.588	2304.072	58.4842717
## 76	47	603	12.8	2208.408	2165.367	-43.0412314
## 77	42	663	15.8	2310.273	2194.172	-116.1008420
## 78	34	504	14.8	2314.298	2198.027	-116.2708051
## 79	30	505	16.8	2589.487	2419.418	-170.0696570
## 80	46	665	14.5	2262.653	2229.508	-33.1449719
## 81	53	850	16.0	2351.367	2368.065	16.6978710
## 82	50	782	15.6	2412.620	2335.404	-77.2152239
## 83	15	1454	96.9	2386.051	2407.351	21.3001560
## 84	30	541	18.0	2116.019	2109.293	-6.7255301
## 85	46	697	15.2	2567.379	2584.116	16.7374912
## 86	41	584	14.2	1957.138	1946.302	-10.8356718
## 87	45	626	13.9	2126.104	2020.894	-105.2107601
## 88	21	348	16.6	2529.291	2457.220	-72.0714186
## 89	15	1320	88.0	2060.795	1901.695	-159.1002812
## 90	21	2087	99.4	2512.598	2362.495	-150.1034225
## 91	41	702	17.1	2141.838	2127.819	-14.0189463
## 92	27	439	16.3	2276.118	2155.829	-120.2895099
## 93	21	1837	87.5	2143.423	2108.778	-34.6452991
## 94	11	537	48.8	2148.162	2187.347	39.1854158
## 95	31	402	13.0	2039.223	2075.031	35.8086223
## 96	27	434	16.1	2914.834	2888.223	-26.6111197
## 97	28	887	31.7	1955.290	1860.967	-94.3232596
## 98	32	560	17.5	2298.624	2253.095	-45.5287412
## 99	16	1326	82.9	2412.236	2329.888	-82.3480292
## 100	18	1553	86.3	2052.667	2016.940	-35.7271201
## 101	38	641	16.9	2446.687	2425.797	-20.8903667
## 102	21	1950	92.9	2681.775	2552.550	-129.2251013
## 103	4	303	75.8	2221.931	2076.028	-145.9032780
## 104	23	1892	82.3	1935.677	1953.835	18.1577416
## 105	12	198	16.5	2346.000	2203.597	-142.4031414
## 106	27	543	20.1	2501.889	2502.661	0.7717172
## 107	34	665	19.6	2297.339	2028.637	-268.7015310
## 108	9	775	86.1	2556.301	2427.875	-128.4259996
## 109	16	346	21.6	2117.956	2119.987	2.0311554
## 110	15	1226	81.7	2388.132	2439.906	51.7740293
## 111	22	1884	85.6	2107.994	2102.195	-5.7988843
## 112	38	670	17.6	2064.913	2065.189	0.2760747
## 113	43	713	16.6	2344.061	2209.297	-134.7636607
## 114	19	541	28.5	1992.660	1944.205	-48.4550146
## 115	12	285	23.8	1902.588	1900.956	-1.6320600
## 116	43	709	16.5	2365.590	2407.775	42.1852564
## 117	13	676	52.0	2095.328	2080.145	-15.1827311
## 118	34	502	14.8	2203.267	2173.021	-30.2459386
## 119	41	622	15.2	2291.833	2227.135	-64.6983076
## 120	42	697	16.6	2418.443	2346.456	-71.9875858
## 121	13	1009	77.6	2337.148	2323.458	-13.6901458
## 122	11	380	34.5	2165.018	2086.788	-78.2298311
## 123	11	869	79.0	2433.338	2311.216	-122.1219930
## 124	20	1495	74.8	2061.318	2023.279	-38.0394573

## 125	4	216	54.0	2163.579	2172.450	8.8701020
## 126	7	111	15.9	2498.114	2454.781	-43.3326741
## 127	18	1611	89.5	2069.063	2038.473	-30.5899345
## 128	11	221	20.1	2332.364	2225.642	-106.7218453
## 129	21	1949	92.8	2109.360	2061.338	-48.0223827
## 130	25	1013	40.5	2445.527	2460.307	14.7805609
## 131	39	624	16.0	2034.227	2067.712	33.4851128
## 132	13	295	22.7	2477.895	2427.918	-49.9770326
## 133	34	524	15.4	2403.058	2375.972	-27.0863598
## 134	9	276	30.7	1871.200	1774.341	-96.8585366
## 135	39	659	16.9	2228.988	2225.061	-3.9275752
## 136	33	666	20.2	2336.714	2135.332	-201.3820573
## 137	13	286	22.0	2513.057	2478.127	-34.9295455
## 138	17	1435	84.4	1944.546	1952.942	8.3965019
## 139	14	320	22.9	2056.603	2091.314	34.7109605
## 140	41	704	17.2	2499.268	2273.000	-226.2684564
## 141	44	793	18.0	2025.119	1944.341	-80.7778689
## 142	18	1334	74.1	1769.872	1762.416	-7.4552883
## 143	20	1791	89.6	2095.768	2146.334	50.5657101
## 144	47	747	15.9	2096.671	2071.558	-25.1130195
## 145	4	98	24.5	2129.278	2122.762	-6.5152778
## 146	21	1815	86.4	2209.834	2154.333	-55.5004591
## 147	28	566	20.2	2141.274	2175.926	34.6522944
## 148	13	1043	80.2	2205.214	2221.841	16.6267081
## 149	18	1605	89.2	2327.356	2338.691	11.3355815
## 150	43	708	16.5	2578.342	2424.822	-153.5197740
## 151	29	731	25.2	2209.750	2216.832	7.0821678
## 152	32	690	21.6	2105.494	2160.142	54.6481830
## 153	48	839	17.5	2387.430	2325.709	-61.7202074
## 154	13	1095	84.2	2248.221	2175.218	-73.0035095
## 155	27	1429	52.9	2239.588	2229.776	-9.8115568
## 156	32	607	19.0	2145.094	2082.209	-62.8853519
## 157	35	574	16.4	2295.816	2167.547	-128.2699441
## 158	20	1678	83.9	2288.424	2317.961	29.5362435
## 159	41	622	15.2	2516.763	2468.303	-48.4604998
## 160	45	577	12.8	2019.453	2016.288	-3.1643687
## 161	5	365	73.0	2338.706	2113.096	-225.6103410
## 162	9	197	21.9	2277.158	2185.354	-91.8039622
## 163	22	2012	91.5	2009.994	1933.503	-76.4909640
## 164	21	1545	73.6	2448.896	2494.771	45.8742694
## 165	20	1872	93.6	2239.914	2191.215	-48.6985326
## 166	14	1173	83.8	2170.896	2129.900	-40.9961696
## 167	24	390	16.2	2502.259	2393.901	-108.3572688
## 168	31	532	17.2	2333.790	2369.878	36.0872284
## 169	22	2137	97.1	2035.526	1986.231	-49.2943802
## 170	35	556	15.9	2425.333	2405.697	-19.6362179
## 171	14	1337	95.5	2601.470	2546.593	-54.8772711
## 172	2	88	44.0	2238.315	2162.133	-76.1817352
## 173	18	1405	78.1	2094.608	2033.932	-60.6761091
## 174	14	1238	88.4	2215.224	2145.450	-69.7738386
## 175	19	1421	74.8	2406.919	2263.051	-143.8680609
## 176	42	525	12.5	2460.235	2213.317	-246.9180139
## 177	6	214	35.7	2029.978	2005.607	-24.3711180
## 178	11	155	14.1	2250.889	2215.361	-35.5275444

## 179	32	522	16.3	2287.983	2179.325	-108.6578760
## 180	20	1807	90.3	2168.760	2231.129	62.3693350
## 181	15	1295	86.3	2579.307	2375.441	-203.8656509
## 182	42	804	19.1	2552.149	2503.763	-48.3857986
## 183	22	1959	89.0	2151.154	2061.652	-89.5016330
## 184	15	387	25.8	1960.976	2059.396	98.4201785
## 185	31	630	20.3	2159.815	1943.290	-216.5250924
## 186	29	873	30.1	2181.830	2121.758	-60.0716113
## 187	12	1059	88.2	2250.528	2261.621	11.0929872
## 188	39	609	15.6	2111.159	2155.540	44.3812256
## 189	17	460	27.1	2082.436	2111.771	29.3355311
## 190	42	734	17.5	2437.289	2262.877	-174.4113919
## 191	20	1859	93.0	2289.082	2120.752	-168.3303889
## 192	15	254	16.9	2097.977	2059.267	-38.7106061
## 193	6	166	27.7	2456.061	2413.034	-43.0270365
## 194	9	139	15.4	2048.773	2063.000	14.2272727
## 195	22	1731	78.7	2157.508	2192.614	35.1058581
## 196	13	298	22.9	2561.338	2368.198	-193.1407044
## 197	19	1778	93.6	2441.860	2374.129	-67.7303231
## 198	32	930	29.1	2156.879	2174.147	17.2675624
## 199	47	741	15.8	2472.239	2458.199	-14.0397341
## 200	41	778	19.0	2689.628	2617.598	-72.0298748
## 201	22	1896	86.2	2042.352	2026.032	-16.3202664
## 202	45	751	16.7	2362.765	2301.132	-61.6325345
## 203	36	540	15.0	2376.049	2285.058	-90.9916679
## 204	17	863	50.8	2253.161	2231.637	-21.5237994
## 205	16	718	44.9	2271.686	2216.917	-54.7694604
## 206	41	632	15.4	2359.656	2427.289	67.6330357
## 207	43	678	15.8	2296.643	2226.250	-70.3932432
## 208	21	1592	75.8	2553.539	2363.334	-190.2048121
## 209	53	679	12.8	2179.687	2172.298	-7.3896016
## 210	13	912	70.2	2336.555	2286.085	-50.4700168
## 211	22	449	20.4	2402.122	2188.721	-213.4015518
## 212	44	758	17.2	2200.784	2145.226	-55.5576691
## 213	13	661	50.8	2298.680	2115.968	-182.7124145
## 214	48	776	16.2	2407.779	2308.718	-99.0609755
## 215	6	355	59.2	2238.479	2245.090	6.6108807
## 216	21	1745	83.1	2052.455	2045.463	-6.9919067
## 217	38	572	15.1	2441.105	2232.304	-208.8009919
## 218	11	524	47.6	2136.705	1990.630	-146.0749547
## 219	7	143	20.4	2435.161	2389.575	-45.5860016
## 220	31	539	17.4	2315.379	2353.093	37.7136827
## 221	45	754	16.8	2303.771	2313.257	9.4863196
## 222	21	1784	85.0	1863.351	1860.372	-2.9790638
## 223	46	681	14.8	2419.677	2194.809	-224.8680182
## 224	42	704	16.8	2656.500	2489.202	-167.2975460
## 225	24	1366	56.9	2394.871	2423.674	28.8031147
## 226	35	587	16.8	2451.075	2373.406	-77.6687003
## 227	42	668	15.9	2762.592	2669.321	-93.2712744
## 228	20	309	15.4	2354.693	2374.938	20.2440134
## 229	13	1193	91.8	2080.551	1867.184	-213.3672746
## 230	50	858	17.2	2438.693	2199.469	-239.2232127
## 231	11	648	58.9	2320.981	2351.516	30.5350732
## 232	22	1955	88.9	2320.624	2374.826	54.2017576

## 233	15	270	18.0	2528.795	2443.350	-85.4442667
## 234	13	1007	77.5	2384.054	2324.125	-59.9288012
## 235	30	469	15.6	2289.176	2484.812	195.6367424
## 236	22	1959	89.0	2363.062	2262.575	-100.4876649
## 237	35	504	14.4	2409.952	2400.323	-9.6296296
## 238	18	1565	86.9	2611.490	2514.018	-97.4720864
## 239	21	1834	87.3	1926.183	1988.973	62.7902223
## 240	20	1859	93.0	2329.064	2102.625	-226.4393372
## 241	18	1423	79.1	2096.736	2028.999	-67.7371863
## 242	41	625	15.2	2414.302	2404.295	-10.0074775
## 243	27	692	25.6	1972.375	1946.824	-25.5517566
## 244	14	781	55.8	2283.554	2351.086	67.5312471
## 245	43	714	16.6	2487.520	2408.073	-79.4467516
## 246	29	510	17.6	2059.735	2017.275	-42.4600308
## 247	39	700	17.9	2624.181	2478.975	-145.2059487
## 248	25	730	29.2	2489.871	2493.436	3.5651134
## 249	12	919	76.6	2341.355	2204.865	-136.4896592
## 250	7	113	16.1	1793.116	1761.643	-31.4734219
## 251	14	1183	84.5	2300.275	2231.113	-69.1621654
## 252	24	499	20.8	2381.830	2295.158	-86.6720764
## 253	3	176	58.7	2071.108	2079.235	8.1271860
## 254	11	583	53.0	2463.129	2446.964	-16.1647263
## 255	19	336	17.7	2323.621	2102.240	-221.3812500
## 256	14	1075	76.8	2231.149	2183.482	-47.6665207
## 257	9	292	32.4	2219.913	2211.056	-8.8568076
## 258	18	306	17.0	2557.000	2493.828	-63.1717172
## 259	16	678	42.4	1902.870	1899.137	-3.7329818
## 260	26	391	15.0	2334.812	2350.679	15.8663991
## 261	17	1407	82.8	2198.283	2123.182	-75.1010908
## 262	38	538	14.2	1972.631	2029.470	56.8385375
## 263	42	787	18.7	2317.879	2326.028	8.1489044
## 264	22	1813	82.4	2027.257	2026.682	-0.5748338
## 265	19	1626	85.6	2096.003	2084.902	-11.1011462
## 266	42	549	13.1	2312.636	2259.552	-53.0830864
## 267	5	202	40.4	2214.957	2186.518	-28.4396179
## 268	11	644	58.5	2172.784	2130.235	-42.5496645
## 269	39	820	21.0	2694.501	2571.179	-123.3217143
## 270	24	401	16.7	2580.780	2493.020	-87.7600570
## 271	14	728	52.0	2319.596	2111.449	-208.1469254
## 272	22	1972	89.6	2462.453	2384.533	-77.9199679
## 273	5	376	75.2	2201.098	1921.609	-279.4887903
## 274	19	1793	94.4	2426.717	2361.792	-64.9249147
## 275	3	75	25.0	2393.387	2485.846	92.4590571
## 276	18	1509	83.8	2155.902	2109.921	-45.9816798
## 277	22	2082	94.6	2457.535	2251.816	-205.7188179
## 278	22	2061	93.7	1836.065	1836.820	0.7547571
## 279	9	797	88.6	2348.519	2224.784	-123.7342666
## 280	31	390	12.6	2266.338	2083.283	-183.0543178
## 281	24	479	20.0	2879.107	2520.600	-358.5069519
## 282	22	1953	88.8	2279.814	2305.793	25.9796452
## 283	27	435	16.1	2224.366	2236.587	12.2209795
## 284	45	645	14.3	2185.173	2183.984	-1.1892634
## 285	30	422	14.1	2220.096	1998.583	-221.5125571
## 286	5	342	68.4	2390.155	2233.089	-157.0658867

## 287	16	1276	79.8	2066.684	1983.863	-82.8202622
## 288	41	782	19.1	2616.593	2691.428	74.8343498
## 289	2	44	22.0	2119.056	2134.423	15.3675214
## 290	19	1623	85.4	2202.765	2215.770	13.0049230
## 291	44	707	16.1	2679.913	2465.338	-214.5745014
## 292	45	723	16.1	2290.250	2307.854	17.6042274
## 293	50	834	16.7	2362.811	2226.463	-136.3478140
## 294	43	557	13.0	2098.684	2079.708	-18.9767006
## 295	10	299	29.9	2200.388	2096.926	-103.4620206
## 296	16	1253	78.3	2288.215	2322.065	33.8501435
## 297	18	1771	98.4	2380.659	2437.405	56.7464348
## 298	46	609	13.2	2222.940	2086.661	-136.2783359
## 299	22	442	20.1	2724.857	2497.532	-227.3248328
## 300	23	642	27.9	2621.209	2625.294	4.0843463
## 301	15	1158	77.2	2174.302	2223.432	49.1295224
## 302	15	1320	88.0	2373.170	2240.731	-132.4393939
## 303	9	136	15.1	2627.944	2479.490	-148.4544444
## 304	14	900	64.3	2169.961	2200.655	30.6939626
## 305	46	750	16.3	2410.313	2330.959	-79.3545269
## 306	8	245	30.6	2223.488	2076.189	-147.2996928
## 307	28	461	16.5	2362.353	2232.325	-130.0276985
## 308	19	1788	94.1	2164.587	2150.650	-13.9378904
## 309	27	416	15.4	2339.559	2278.586	-60.9721613
## 310	22	1148	52.2	2191.289	2133.569	-57.7204633
## 311	11	233	21.2	1949.000	1927.701	-21.2989130
## 312	9	228	25.3	1951.977	2017.107	65.1298701
## 313	22	2041	92.8	2540.055	2488.738	-51.3165965
## 314	42	599	14.3	2372.106	2344.477	-27.6298580
## 315	47	650	13.8	2599.032	2395.547	-203.4844696
## 316	21	1785	85.0	2101.211	1922.081	-179.1303574
## 317	22	2065	93.9	2336.024	2121.525	-214.4993381
## 318	42	821	19.5	2183.655	2217.732	34.0766901
## 319	21	1824	86.9	2154.760	2089.523	-65.2366787
## 320	16	856	53.5	2239.124	2142.375	-96.7486737
## 321	8	611	76.4	2115.800	2219.663	103.8630037
## 322	2	112	56.0	2252.136	2298.811	46.6747475
## 323	22	2006	91.2	2529.949	2565.979	36.0304691
## 324	22	1971	89.6	2614.780	2662.908	48.1276839
## 325	19	330	17.4	2613.285	2403.937	-209.3473548
## 326	7	526	75.1	2099.714	1944.936	-154.7785059
## 327	28	522	18.6	2860.205	2789.711	-70.4948791
## 328	10	176	17.6	2520.515	2443.233	-77.2816864
## 329	10	309	30.9	2073.603	1992.877	-80.7259816
## 330	46	781	17.0	1750.670	1755.420	4.7499475
## 331	26	533	20.5	2509.602	2438.090	-71.5128574
## 332	21	1994	95.0	2082.924	2156.884	73.9601321
## 333	41	642	15.7	2148.000	2268.906	120.9055375
## 334	12	189	15.8	2347.697	2239.029	-108.6673624
## 335	11	797	72.5	2239.361	2135.423	-103.9377095
## 336	15	1146	76.4	2009.839	1866.266	-143.5734626
## 337	16	1337	83.6	2209.509	2103.888	-105.6213509
## 338	14	255	18.2	2500.778	2323.041	-177.7366819
## 339	47	782	16.6	2669.379	2482.495	-186.8831712
## 340	14	1082	77.3	2367.305	2255.606	-111.6991544

## 341	14	416	29.7	2176.958	2295.000	118.0419162
## 342	20	1624	81.2	2095.294	2088.329	-6.9645721
## 343	47	762	16.2	2446.090	2426.580	-19.5094460
## 344	12	253	21.1	2568.813	2646.324	77.5107440
## 345	22	327	14.9	1288.316	1528.760	240.4439508
## 346	9	677	75.2	2434.562	2410.882	-23.6807519
## 347	22	482	21.9	2356.724	2391.276	34.5520525
## 348	26	1030	39.6	2118.574	2214.342	95.7683790
## 349	20	1709	85.4	2297.303	2200.643	-96.6605850
## 350	32	400	12.5	2279.225	2138.324	-140.9013028
## 351	17	313	18.4	2498.116	2435.463	-62.6528672
## 352	23	420	18.3	2195.673	2320.333	124.6607670
## 353	21	1584	75.4	2102.235	1999.324	-102.9106240
## 354	15	1122	74.8	2099.745	2065.219	-34.5261594
## 355	53	762	14.4	2046.673	2054.249	7.5759018
## 356	15	1185	79.0	1946.783	1867.638	-79.1445108
## 357	21	1985	94.5	2398.973	2354.572	-44.4005884
## 358	15	1293	86.2	1949.849	1919.658	-30.1912682
## 359	36	933	25.9	2444.464	2288.028	-156.4363012
## 360	25	403	16.1	2483.987	2384.945	-99.0423257
## 361	17	477	28.1	2306.012	2191.213	-114.7991045
## 362	6	365	60.8	2500.230	2200.209	-300.0212520
## 363	36	686	19.1	2282.112	2240.960	-41.1515585
## 364	6	154	25.7	2119.673	2093.491	-26.1827013
## 365	7	549	78.4	2463.250	2581.433	118.1831210
## 366	42	667	15.9	2762.540	2735.557	-26.9825891
## 367	28	734	26.2	1943.238	1902.663	-40.5750216
## 368	30	1380	46.0	2046.035	2050.081	4.0466187
## 369	5	111	22.2	2318.377	2167.810	-150.5670137
## 370	19	959	50.5	1999.941	1999.150	-0.7903123
## 371	31	535	17.3	2365.225	2376.347	11.1220041
## 372	39	596	15.3	2616.034	2602.967	-13.0665893
## 373	13	313	24.1	1876.731	1841.438	-35.2933415
## 374	18	283	15.7	2332.277	2289.025	-43.2511720
## 375	7	157	22.4	2323.390	2292.531	-30.8592183
## 376	26	664	25.5	2553.244	2467.563	-85.6809617
## 377	21	2037	97.0	2211.745	2218.023	6.2778010
## 378	12	371	30.9	2111.032	1988.404	-122.6278447
## 379	46	830	18.0	2521.668	2260.867	-260.8012232
## 380	21	1809	86.1	2783.719	2423.646	-360.0732331
## 381	28	693	24.8	2225.343	2245.636	20.2937063
## 382	20	405	20.2	2200.500	1877.934	-322.5661578
## 383	46	781	17.0	2011.271	2099.235	87.9632331
## 384	18	1760	97.8	2220.300	2300.320	80.0195402
## 385	14	434	31.0	2266.862	2055.946	-210.9161572
## 386	21	1834	87.3	2115.007	2076.725	-38.2824556
## 387	33	537	16.3	1689.736	1715.360	25.6244451
## 388	4	114	28.5	1984.789	1859.744	-125.0445463
## 389	40	588	14.7	2576.552	2357.657	-218.8954603
## 390	40	642	16.0	2308.306	2342.929	34.6237380
## 391	20	1729	86.4	2103.184	1982.171	-121.0123911
## 392	50	697	13.9	2022.452	2022.060	-0.3916201
## 393	39	654	16.8	2429.997	2279.635	-150.3622744
## 394	16	364	22.8	2149.057	2133.909	-15.1483109

## 395	44	631	14.3	2485.048	2574.454	89.4066182
## 396	2	29	14.5	1985.636	2027.714	42.0779221
## 397	18	1524	84.7	2036.793	2000.589	-36.2035405
## 398	39	700	17.9	2326.903	2324.059	-2.8441433
## 399	9	166	18.4	1871.288	1891.439	20.1511167
## 400	21	1885	89.8	1880.029	1928.535	48.5059026
## 401	17	283	16.6	2675.758	2520.165	-155.5928699
## 402	8	545	68.1	2062.398	2009.789	-52.6083041
## 403	5	144	28.8	2010.227	2000.221	-10.0059613
## 404	31	561	18.1	2561.290	2366.962	-194.3281133
## 405	15	1257	83.8	2025.086	2087.856	62.7696174
## 406	29	533	18.4	2552.611	2418.733	-133.8783510
## 407	30	453	15.1	2338.369	2167.490	-170.8789959
## 408	22	668	30.4	2268.273	2225.104	-43.1689461
## 409	13	491	37.8	2074.092	1995.148	-78.9442540
## 410	7	176	25.1	2018.688	2109.477	90.7890625
## 411	41	717	17.5	1937.871	1784.948	-152.9225803
## 412	41	698	17.0	2337.458	2157.921	-179.5370869
## 413	5	198	39.6	2340.323	2278.371	-61.9511521
## 414	20	1895	94.8	2339.667	2217.613	-122.0539906
## 415	48	775	16.1	2619.102	2630.101	10.9987771
## 416	18	354	19.7	2531.319	2502.854	-28.4643562
## 417	9	223	24.8	2494.172	2299.469	-194.7030260
## 418	17	1487	87.5	2098.484	2093.718	-4.7655782
## 419	34	578	17.0	2324.861	2307.042	-17.8187330
## 420	49	868	17.7	2364.483	2390.641	26.1572917
## 421	15	1319	87.9	2156.980	2151.059	-5.9211578
## 422	11	168	15.3	2211.364	2264.694	53.3299120
## 423	16	1061	66.3	1860.843	1710.400	-150.4427095
## 424	35	528	15.1	1958.207	1788.214	-169.9927973
## 425	28	519	18.5	2897.065	2725.456	-171.6085932
## 426	19	1602	84.3	2313.270	2317.956	4.6861600
## 427	21	1853	88.2	2096.975	1961.157	-135.8170828
## 428	27	425	15.7	1998.025	1921.667	-76.3586142
## 429	22	461	21.0	2431.469	2166.864	-264.6051440
## 430	30	1562	52.1	2408.717	2339.874	-68.8426812
## 431	27	551	20.4	2646.265	2469.868	-176.3979068
## 432	29	434	15.0	2086.449	1921.129	-165.3196481
## 433	24	1071	44.6	2216.815	2144.188	-72.6277012
## 434	46	681	14.8	2271.590	2207.230	-64.3598807
## 435	19	1659	87.3	2162.669	2028.953	-133.7152361
## 436	20	1703	85.2	2306.953	2282.552	-24.4009646
## 437	3	57	19.0	2205.667	2276.714	71.0476190
## 438	32	475	14.8	2285.652	2398.299	112.6467952
## 439	46	815	17.7	2395.246	2373.579	-21.6662268
## 440	43	750	17.4	2093.072	2027.107	-65.9652553
## 441	47	899	19.1	2242.196	2269.847	27.6510548
## 442	49	803	16.4	1925.900	1963.312	37.4116147
## 443	39	726	18.6	2429.887	2361.928	-67.9585745
## 444	37	631	17.1	2256.388	2148.725	-107.6632797
## 445	26	727	28.0	2428.072	2303.196	-124.8759739
## 446	27	424	15.7	2773.546	2737.810	-35.7361826
## 447	4	231	57.8	2193.095	2212.596	19.5008542
## 448	44	944	21.5	2741.950	2716.310	-25.6391930

## 449	36	630	17.5	2506.398	2523.026	16.6283058
## 450	18	1406	78.1	2211.364	2176.544	-34.8199848
## 451	23	1810	78.7	2399.660	2223.341	-176.3192207
## 452	14	847	60.5	2126.774	2146.822	20.0475578
## 453	28	630	22.5	1766.876	1784.510	17.6340326
## 454	38	605	15.9	2499.004	2431.778	-67.2255077
## 455	39	727	18.6	2137.701	1989.926	-147.7755568
## 456	42	891	21.2	2156.906	2138.041	-18.8651620
## 457	17	324	19.1	2189.834	2078.392	-111.4421709
## 458	13	199	15.3	2385.697	2320.180	-65.5165186
## 459	21	1764	84.0	2495.654	2438.204	-57.4500991
## 460	7	119	17.0	2220.156	2235.989	15.8322557
## 461	39	712	18.3	2049.073	2022.979	-26.0937612
## 462	31	480	15.5	2247.246	2317.049	69.8024176
## 463	44	615	14.0	2284.527	2216.541	-67.9860208
## 464	46	678	14.7	2206.447	2164.158	-42.2889528
## 465	37	709	19.2	2426.671	2281.245	-145.4256631
## 466	27	680	25.2	2506.031	2431.550	-74.4805556
## 467	36	481	13.4	2052.392	2124.623	72.2306415
## 468	28	719	25.7	2552.037	2505.173	-46.8637251
## 469	5	142	28.4	2360.101	2249.077	-111.0238521
## 470	33	716	21.7	2555.621	2473.662	-81.9587679
## 471	46	665	14.5	2386.057	2367.410	-18.6473766
## 472	47	777	16.5	2133.748	2036.690	-97.0571619
## 473	5	120	24.0	2065.253	1842.757	-222.4962553
## 474	12	314	26.2	2238.554	2200.160	-38.3941823
## 475	34	933	27.4	2085.894	2035.420	-50.4742780
## 476	17	1360	80.0	2141.075	1994.706	-146.3692195
## 477	22	1931	87.8	2548.623	2500.144	-48.4788572
## 478	14	1155	82.5	2208.856	2252.290	43.4337702
## 479	33	650	19.7	1850.794	1877.307	26.5134999
## 480	12	1133	94.4	2314.782	2293.448	-21.3332255
## 481	22	521	23.7	2086.127	2104.057	17.9299752
## 482	21	1516	72.2	2270.612	2233.168	-37.4436078
## 483	19	334	17.6	2377.485	2285.860	-91.6245544
## 484	32	603	18.8	2009.940	1944.734	-65.2054308
## 485	33	701	21.2	2491.203	2497.762	6.5580431
## 486	19	1198	63.1	1954.192	1905.059	-49.1328182
## 487	9	213	23.7	2482.087	2219.495	-262.5911256
## 488	21	1989	94.7	2449.184	2465.640	16.4555207
## 489	21	1768	84.2	2155.130	2065.905	-89.2248688
## 490	18	244	13.6	2548.854	2425.099	-123.7551364
## 491	38	552	14.5	2316.546	2336.667	20.1209150
## 492	19	1125	59.2	2062.457	2106.583	44.1258435
## 493	18	342	19.0	2322.318	2512.239	189.9215629
## 494	15	1116	74.4	2095.079	2000.477	-94.6012613
## 495	7	133	19.0	2216.524	1953.765	-262.7596844
## 496	29	675	23.3	2408.345	2400.469	-7.8753475
## 497	25	408	16.3	2381.587	2308.405	-73.1815385
## 498	22	2221	101.0	2342.460	2356.027	13.5663510
## 499	15	442	29.5	2491.968	2320.214	-171.7548321
## 500	31	802	25.9	2038.541	2032.171	-6.3696384
## 501	9	714	79.3	2109.518	2104.476	-5.0425250
## 502	15	292	19.5	2331.508	2275.659	-55.8492759



## 503	41	710	17.3	2648.542	2558.762	-89.7804440
## 504	13	1037	79.8	2168.675	2152.733	-15.9427919
## 505	9	607	67.4	1986.653	1955.028	-31.6248744
## 506	24	382	15.9	2314.082	2285.843	-28.2398333
## 507	42	666	15.9	2564.786	2524.516	-40.2697760
## 508	42	730	17.4	2550.893	2441.893	-108.9994922
## 509	38	604	15.9	2041.651	2000.259	-41.3922065
## 510	18	1560	86.7	2081.273	1968.212	-113.0613163
## 511	20	710	35.5	2238.413	2162.248	-76.1645971
## 512	21	2000	95.2	2378.997	2308.113	-70.8841905
## 513	29	515	17.8	2353.223	2235.799	-117.4234067
## 514	2	133	66.5	2319.282	2402.345	83.0634033
## 515	8	491	61.4	2096.991	2070.406	-26.5850354
## 516	21	1801	85.8	2147.626	2025.363	-122.2629003
## 517	17	312	18.4	2215.912	2053.958	-161.9541667
## 518	30	726	24.2	2163.464	2145.773	-17.6914287
## 519	5	285	57.0	2077.652	2178.594	100.9421663
## 520	41	717	17.5	2195.861	2125.984	-69.8763236
## 521	12	999	83.2	2312.903	2275.076	-37.8272727
## 522	21	350	16.7	2322.493	2296.667	-25.8260020
##	Pre_xwOBA	Post_xwOBA	xwOBA_diff	Pre_b_units	Post_b_units	bu_diff
## 1	0.1901667	0.4239744	0.2338076923	26.17766	25.80636	-0.37130591
## 2	0.3298824	0.4854615	0.1555791855	23.91939	22.69770	-1.22169255
## 3	0.3566857	0.3678571	0.0111714286	26.80922	26.58625	-0.22296699
## 4	0.2872564	0.3234545	0.0361981352	32.61611	31.96578	-0.65033681
## 5	0.3535574	0.4382315	0.0846741044	26.13866	25.52136	-0.61729623
## 6	0.3963585	0.4047049	0.0083464275	25.22535	25.56480	0.33945766
## 7	0.3142523	0.3243082	0.0100558825	24.44300	23.45151	-0.99149232
## 8	0.2494737	0.4188750	0.1694013158	24.05888	24.58727	0.52838776
## 9	0.3953514	0.3832857	-0.0120656371	25.22101	24.25055	-0.97045927
## 10	0.4086026	0.3803693	-0.0282332459	25.11576	22.70676	-2.40900109
## 11	0.4702778	0.4474231	-0.0228547009	24.57695	24.83971	0.26276051
## 12	0.3781111	0.3769355	-0.0011756272	24.31391	24.41436	0.10044407
## 13	0.3205581	0.3938723	0.0733142009	21.97207	21.33085	-0.64122133
## 14	0.3334262	0.3051935	-0.0282326811	24.43290	21.63999	-2.79291091
## 15	0.3882624	0.4316818	0.0434194068	27.36748	25.91036	-1.45712492
## 16	0.4619478	0.3367812	-0.1251665761	21.62922	20.99866	-0.63056638
## 17	0.3956320	0.3362333	-0.0593986667	25.03370	25.79587	0.76217199
## 18	0.3839936	0.3483178	-0.0356758736	21.14057	20.78256	-0.35800700
## 19	0.3363030	0.3915714	0.0552683983	30.39697	29.31496	-1.08200924
## 20	0.3896067	0.3552866	-0.0343201174	27.24587	24.92668	-2.31918464
## 21	0.3937381	0.5104634	0.1167253194	26.94463	26.20242	-0.74221142
## 22	0.3338548	0.6592500	0.3253951613	33.49177	30.22391	-3.26786063
## 23	0.4250888	0.4427326	0.0176438007	25.88594	23.89551	-1.99043285
## 24	0.2751064	0.6630000	0.3878936170	27.02751	25.56496	-1.46254634
## 25	0.4004754	0.3516545	-0.0488208644	29.97708	30.83534	0.85825540
## 26	0.3406667	0.3474912	0.0068245614	27.04306	27.73238	0.68931929
## 27	0.3534286	0.4231333	0.0697047619	25.37759	23.72075	-1.65683950
## 28	0.3159756	0.3176829	0.0017073171	24.93493	23.88797	-1.04696512
## 29	0.3600000	0.3662143	0.0062142857	24.41818	24.08011	-0.33806688
## 30	0.3551967	0.3985517	0.0433550028	23.45659	22.88414	-0.57244706
## 31	0.3314192	0.3716215	0.0402022770	24.92275	24.42805	-0.49470509
## 32	0.3704286	0.4109545	0.0405259740	33.13192	30.09535	-3.03657112
## 33	0.4368125	0.3630000	-0.0738125000	24.58912	24.69037	0.10124973

## 34	0.3769423	0.3048627	-0.0720795626	23.91573	23.48334	-0.43239161
## 35	0.4923437	0.4172857	-0.0750580357	25.49940	26.13303	0.63363258
## 36	0.2466552	0.3498364	0.1031811912	28.41714	24.99379	-3.42335758
## 37	0.3247750	0.1180000	-0.2067750000	27.01997	26.63262	-0.38735717
## 38	0.4086398	0.3455894	-0.0630503810	24.61666	23.42703	-1.18962283
## 39	0.3728108	0.4440000	0.0711891892	24.50074	24.59411	0.09336902
## 40	0.4290000	0.3401636	-0.0888363636	25.30763	26.31506	1.00742573
## 41	0.4163408	0.3713611	-0.0449796710	28.13562	26.18612	-1.94950438
## 42	0.3173611	0.3957872	0.0784261229	26.70253	25.78894	-0.91358891
## 43	0.3742615	0.2928983	-0.0813632334	22.75572	22.58510	-0.17061774
## 44	0.2650000	0.2258889	-0.0391111111	26.72992	26.49820	-0.23172439
## 45	0.3053750	0.5319333	0.2265583333	27.41314	24.68658	-2.72655729
## 46	0.4224348	0.3510000	-0.0714347826	26.48461	25.70396	-0.78064883
## 47	0.3371111	0.3568372	0.0197260982	23.83282	24.18205	0.34923894
## 48	0.3438763	0.3234000	-0.0204763441	26.59396	26.23802	-0.35593971
## 49	0.4355625	0.3210156	-0.1145468750	23.83132	23.68563	-0.14569171
## 50	0.3831379	0.3207324	-0.0624055367	22.29361	21.93127	-0.36234673
## 51	0.3627761	0.3798478	0.0170717067	23.88990	23.07059	-0.81930486
## 52	0.3546286	0.3032000	-0.0514285714	27.74888	25.05288	-2.69600371
## 53	0.3403788	0.2752909	-0.0650878788	23.73086	23.86523	0.13436607
## 54	0.4148286	0.4700000	0.0551714286	23.39436	22.98391	-0.41044791
## 55	0.3802609	0.4035185	0.0232576490	27.07108	27.34292	0.27184067
## 56	0.3425895	0.4349143	0.0923248120	23.06723	23.82716	0.75992354
## 57	0.3533333	0.4414211	0.0880877193	26.61633	24.80779	-1.80853474
## 58	0.3820745	0.2843352	-0.0977392408	30.17441	27.71656	-2.45785035
## 59	0.4027097	0.3905862	-0.0121234705	25.16455	25.36013	0.19558101
## 60	0.3796353	0.3756104	-0.0040249045	29.46920	25.32444	-4.14476029
## 61	0.3406226	0.2338485	-0.1067741567	22.74391	24.43184	1.68793195
## 62	0.3799934	0.4144267	0.0344332456	28.68536	26.55298	-2.13238623
## 63	0.4317778	0.4142917	-0.0174861111	27.35720	26.59219	-0.76501668
## 64	0.2843898	0.3040079	0.0196181060	29.79768	28.67275	-1.12492578
## 65	0.1175000	0.3088627	0.1913627451	26.00853	24.01022	-1.99831380
## 66	0.3360141	0.3281778	-0.0078363067	24.24982	24.19224	-0.05757798
## 67	0.3755556	0.1290000	-0.2465555556	26.37061	24.87631	-1.49429806
## 68	0.4199915	0.3259385	-0.0940529915	25.81545	24.83633	-0.97912625
## 69	0.3380000	0.3230488	-0.0149512195	24.21685	24.13537	-0.08148244
## 70	0.3639365	0.3316047	-0.0323318568	23.91559	23.85415	-0.06144150
## 71	0.2997931	0.4600435	0.1602503748	29.99015	28.04328	-1.94687415
## 72	0.3483226	0.3972241	0.0489015573	26.46550	26.99333	0.52783696
## 73	0.3604129	0.4003433	0.0399303804	29.86526	28.44527	-1.41998645
## 74	0.3750952	0.2799661	-0.0951291364	27.66538	26.10503	-1.56035341
## 75	0.3565873	0.3386200	-0.0179673016	25.93722	26.22071	0.28349003
## 76	0.2497910	0.3354286	0.0856375267	24.81905	24.21695	-0.60209361
## 77	0.3800323	0.5331053	0.1530730051	24.40580	23.28490	-1.12089283
## 78	0.3459118	0.3207400	-0.0251717647	26.37229	24.19793	-2.17435979
## 79	0.3634694	0.2405500	-0.1229193878	28.23661	26.46989	-1.76671844
## 80	0.3157375	0.2462857	-0.0694517857	27.16133	26.46218	-0.69914929
## 81	0.2924444	0.3151803	0.0227358834	28.10165	27.87215	-0.22949353
## 82	0.4683968	0.2757037	-0.1926931217	25.96393	24.72426	-1.23966663
## 83	0.3797866	0.3134651	-0.0663214946	27.68594	27.98076	0.29482737
## 84	0.3360217	0.4652222	0.1292004831	23.02273	22.87982	-0.14290241
## 85	0.2859167	0.3049636	0.0190469697	26.20234	26.59152	0.38917751
## 86	0.3495507	0.4321471	0.0825963342	24.94412	24.26173	-0.68239299
## 87	0.3210167	0.3907656	0.0697489583	23.79444	22.41808	-1.37635941

## 88	0.4240588	0.3315161	-0.0925426945	28.05653	27.88021	-0.17631970
## 89	0.3618750	0.3737364	0.0118613636	23.33059	21.31819	-2.01240198
## 90	0.3543869	0.4064058	0.0520188923	27.55750	25.65595	-1.90155293
## 91	0.4579500	0.3441231	-0.1138269231	23.62471	23.46975	-0.15495451
## 92	0.3297246	0.4901818	0.1604571805	23.83223	22.95769	-0.87454147
## 93	0.4276906	0.3937358	-0.0339548564	24.97004	24.32876	-0.64127979
## 94	0.2940000	0.3121935	0.0181935484	25.20318	25.74091	0.53772285
## 95	0.3375263	0.3994231	0.0618967611	23.71553	24.36953	0.65400424
## 96	0.2446111	0.3897692	0.1451581197	35.11927	35.19784	0.07856983
## 97	0.3177083	0.3458041	0.0280957904	24.46995	23.09144	-1.37850772
## 98	0.3100000	0.3300278	0.0200277778	24.52295	24.48262	-0.04032531
## 99	0.4252857	0.3533478	-0.0719378882	27.03968	26.42781	-0.61187196
## 100	0.3996200	0.3992222	-0.0003977778	23.37362	22.89397	-0.47965353
## 101	0.3592958	0.3717800	0.0124842254	26.89434	26.72987	-0.16447320
## 102	0.3374659	0.3699699	0.0325040157	31.34522	29.28729	-2.05793250
## 103	0.3758333	0.5050370	0.1292037037	25.10040	23.42294	-1.67746750
## 104	0.3880802	0.3724970	-0.0155831725	23.37767	23.34428	-0.03338409
## 105	0.1126667	0.4283600	0.3156933333	27.50355	24.85492	-2.64863041
## 106	0.4418333	0.4203000	-0.0215333333	28.11023	28.31248	0.20225639
## 107	0.3415882	0.3876122	0.0460240096	25.69821	22.62794	-3.07026502
## 108	0.4408333	0.4463832	0.0055498442	29.51886	28.03380	-1.48506083
## 109	0.2987143	0.4780476	0.1793333333	22.85129	23.11025	0.25896675
## 110	0.3009038	0.3436613	0.0427574442	24.79536	25.70288	0.90751715
## 111	0.3471158	0.3800125	0.0328967105	23.38981	23.14005	-0.24976379
## 112	0.2775490	0.4627778	0.1852287582	23.75460	23.37608	-0.37852547
## 113	0.3344340	0.3432105	0.0087765641	24.33354	23.17918	-1.15436315
## 114	0.3467442	0.4451351	0.0983909491	22.31384	21.48659	-0.82724697
## 115	0.1555000	0.3714884	0.2159883721	20.80337	20.37287	-0.43049618
## 116	0.3957377	0.4540667	0.0583289617	26.13232	26.72474	0.59241969
## 117	0.4238716	0.4838235	0.0599519698	23.83407	23.29055	-0.54351878
## 118	0.2788444	0.4139630	0.1351185185	23.95480	23.62391	-0.33089245
## 119	0.4636122	0.2718704	-0.1917418745	25.14916	24.55495	-0.59420942
## 120	0.3606207	0.3003571	-0.0602635468	27.92479	27.08402	-0.84076456
## 121	0.3903909	0.3804000	-0.0099909091	26.54764	26.33973	-0.20791243
## 122	0.3788667	0.4021818	0.0233151515	26.23855	26.17473	-0.06381739
## 123	0.3672051	0.4163158	0.0491106613	27.91626	26.32304	-1.59322539
## 124	0.3803742	0.3622072	-0.0181670259	23.86218	23.61359	-0.24858366
## 125	0.4349524	0.3562222	-0.0787301587	24.91060	24.74378	-0.16681783
## 126	0.4017143	0.3948750	-0.0068392857	28.20555	27.71351	-0.49203928
## 127	0.3859055	0.3460984	-0.0398071120	23.34568	23.00199	-0.34368452
## 128	0.3329600	0.5360000	0.2030400000	25.80849	24.82759	-0.98090245
## 129	0.3419133	0.3592331	0.0173198635	23.39030	22.81352	-0.57678060
## 130	0.4365000	0.3581742	-0.0783258065	30.09516	30.36397	0.26880692
## 131	0.3958158	0.3398219	-0.0559938717	21.81013	21.94668	0.13654674
## 132	0.2150000	0.3814783	0.1664782609	27.74172	27.39228	-0.34943801
## 133	0.3042778	0.3044444	0.0001666667	26.42813	25.91175	-0.51637805
## 134	0.5317143	0.3899000	-0.1418142857	21.10409	19.98445	-1.11964465
## 135	0.2902778	0.4091778	0.1189000000	23.59726	23.53512	-0.06214456
## 136	0.4870811	0.4055161	-0.0815649520	26.47818	23.86530	-2.61288526
## 137	0.3785833	0.4765000	0.0979166667	29.50035	29.09049	-0.40986040
## 138	0.3726875	0.4014046	0.0287170802	21.70282	22.02433	0.32150405
## 139	0.2685714	0.4214375	0.1528660714	22.12056	22.51621	0.39564863
## 140	0.3223934	0.3335333	0.0111398907	27.77932	25.23436	-2.54496330
## 141	0.3117313	0.3295400	0.0178086567	21.76002	20.77468	-0.98533842

## 142	0.3369639	0.3490531	0.0120892419	20.31850	20.33143	0.01293071
## 143	0.3698516	0.3335842	-0.0362674378	24.21137	24.59151	0.38013480
## 144	0.3138701	0.3482542	0.0343841074	23.14807	22.65474	-0.49332919
## 145	0.2483333	0.3100000	0.0616666667	22.75372	23.27724	0.52351633
## 146	0.3774346	0.4412013	0.0637667628	24.86366	25.00995	0.14628659
## 147	0.4539487	0.4344200	-0.0195287179	23.69715	23.86601	0.16885599
## 148	0.3276957	0.3770303	0.0493346509	25.32343	25.52907	0.20564251
## 149	0.3675735	0.3816449	0.0140713981	27.18097	27.56352	0.38254487
## 150	0.3160851	0.3053404	-0.0107446809	28.75337	27.29749	-1.45588007
## 151	0.3493301	0.5192381	0.1699079982	24.00139	23.89959	-0.10180539
## 152	0.2378250	0.3787763	0.1409513158	22.92626	23.46211	0.53585583
## 153	0.3368333	0.3222708	-0.0145625000	26.68270	25.80170	-0.88100163
## 154	0.3208806	0.3818866	0.0610060009	25.10501	24.36299	-0.74202028
## 155	0.3792805	0.3671571	-0.0121233449	26.18256	25.28624	-0.89632787
## 156	0.3905424	0.5461087	0.1555663228	23.71436	22.98850	-0.72586103
## 157	0.4105111	0.2615532	-0.1489579196	26.15665	24.35981	-1.79683566
## 158	0.3524589	0.3952342	0.0427753301	26.32410	26.54232	0.21822068
## 159	0.4028485	0.4325610	0.0297124908	27.66974	26.72558	-0.94415847
## 160	0.4680889	0.3469444	-0.1211444444	22.52864	22.25075	-0.27789357
## 161	0.5493333	0.4227966	-0.1265367232	27.18133	25.00284	-2.17848976
## 162	0.4957500	0.4776667	-0.0180833333	25.77367	25.53050	-0.24317275
## 163	0.3608033	0.3625942	0.0017909242	22.47666	21.52544	-0.95122141
## 164	0.3628621	0.3918037	0.0289416694	28.09869	28.59000	0.49130744
## 165	0.3087283	0.3480387	0.0393104488	25.40705	25.00031	-0.40674122
## 166	0.4533710	0.3446667	-0.1087043011	24.89811	23.78144	-1.11666836
## 167	0.4239286	0.3092353	-0.1146932773	27.72798	27.09636	-0.63161542
## 168	0.3816290	0.4915294	0.1099003795	25.94165	26.25971	0.31805836
## 169	0.3762890	0.3323232	-0.0439658466	22.97344	22.42742	-0.54601755
## 170	0.3945577	0.3510645	-0.0434931762	27.57522	26.83462	-0.74060621
## 171	0.3606766	0.3588636	-0.0018130103	28.53265	27.93147	-0.60118576
## 172	0.2810000	0.8255000	0.5445000000	25.88785	24.89811	-0.98973332
## 173	0.3525089	0.3672805	0.0147716121	24.71142	23.82356	-0.88785661
## 174	0.4896989	0.4440672	-0.0456317606	26.72040	25.81394	-0.90646741
## 175	0.3916135	0.4681748	0.0765613282	27.20026	25.45708	-1.74318072
## 176	0.2582745	0.4623721	0.2040975832	27.36281	24.74183	-2.62098865
## 177	0.2680909	0.4026923	0.1346013986	23.92715	23.70029	-0.22685469
## 178	0.3656667	0.3436154	-0.0220512821	24.00461	23.21782	-0.78678583
## 179	0.3160270	0.3910000	0.0749729730	24.44865	23.10966	-1.33898158
## 180	0.3222147	0.3353680	0.0131533403	24.35098	24.80521	0.45423251
## 181	0.3737886	0.3598228	-0.0139658331	29.74808	27.41103	-2.33705666
## 182	0.3751528	0.3806545	0.0055017677	28.01719	27.41872	-0.59847001
## 183	0.3454798	0.3726821	0.0272022805	25.87598	24.53435	-1.34163148
## 184	0.3220580	0.5297647	0.2077067349	21.41829	22.67989	1.26159534
## 185	0.3191803	0.2629778	-0.0562025501	24.94816	22.60068	-2.34748021
## 186	0.2712727	0.2891944	0.0179217172	24.96108	23.95691	-1.00416886
## 187	0.2616897	0.3632732	0.1015835689	26.20367	26.45596	0.25229352
## 188	0.3096111	0.3839615	0.0743504274	23.18345	23.52912	0.34567409
## 189	0.3970448	0.5042353	0.1071905180	23.56410	23.96039	0.39629251
## 190	0.4131228	0.3582609	-0.0548619375	28.14672	25.83520	-2.31151427
## 191	0.3763455	0.4389189	0.0625734644	25.99630	23.83367	-2.16262933
## 192	0.2676667	0.3133571	0.0456904762	27.40879	27.54924	0.14045290
## 193	0.2658000	0.2953125	0.0295125000	27.35959	27.07574	-0.28384753
## 194	0.3348750	0.3217895	-0.0130855263	22.00118	22.36364	0.36245994
## 195	0.3994068	0.3894485	-0.0099582948	24.13434	24.72261	0.58827543

## 196	0.2985385	0.2070952	-0.0914432234	29.26863	26.94252	-2.32610790
## 197	0.4328788	0.4038647	-0.0290141262	27.93221	27.22734	-0.70487156
## 198	0.3979359	0.4015254	0.0035895263	23.45177	23.56988	0.11811479
## 199	0.4057887	0.3180000	-0.0877887324	26.83903	26.56759	-0.27144426
## 200	0.3354286	0.4658537	0.1304250871	29.93257	28.76235	-1.17021393
## 201	0.4155633	0.3268757	-0.0886876431	24.91460	24.66894	-0.24565827
## 202	0.3535200	0.4187500	0.0652300000	25.00922	24.34877	-0.66044195
## 203	0.4276098	0.4188980	-0.0087117969	26.47384	25.30936	-1.16447792
## 204	0.4783855	0.3622698	-0.1161157009	25.56117	25.40020	-0.16096631
## 205	0.2482381	0.3946974	0.1464592732	24.86159	24.23265	-0.62894196
## 206	0.3571622	0.3492564	-0.0079057519	25.91839	26.57194	0.65355741
## 207	0.4192192	0.3582885	-0.0609307165	24.73588	24.32890	-0.40697836
## 208	0.3805484	0.3690385	-0.0115099256	32.03869	30.16735	-1.87134180
## 209	0.3861385	0.3096591	-0.0764793706	24.12015	23.84371	-0.27643862
## 210	0.3921750	0.2644231	-0.1277519231	26.68805	25.52833	-1.15972110
## 211	0.3901875	0.3859600	-0.0042275000	26.76489	24.70007	-2.06481362
## 212	0.4112105	0.4852187	0.0740082237	25.29640	24.53026	-0.76614242
## 213	0.2516735	0.3935745	0.1419009987	25.93078	23.71058	-2.22019765
## 214	0.2908267	0.3246792	0.0338525786	26.85144	25.40086	-1.45057409
## 215	0.3762333	0.3592727	-0.0169606061	25.14740	25.01585	-0.13154519
## 216	0.3770000	0.2916013	-0.0853986928	22.79290	22.70204	-0.09085416
## 217	0.3444524	0.3414091	-0.0030432900	27.50997	25.17758	-2.33238912
## 218	0.3016875	0.3546818	0.0529943182	23.59030	22.13402	-1.45628135
## 219	0.3085000	0.2931429	-0.0153571429	27.87518	28.11747	0.24228906
## 220	0.3418958	0.4500741	0.1081782407	24.48890	24.94884	0.45994819
## 221	0.4107692	0.3076852	-0.1030840456	25.48094	25.42729	-0.05364532
## 222	0.3591195	0.3642711	0.0051516153	21.29241	21.13469	-0.15772284
## 223	0.3887069	0.3865098	-0.0021970926	26.93365	24.39637	-2.53728712
## 224	0.2832766	0.3890417	0.1057650709	29.08562	27.34449	-1.74112287
## 225	0.3956328	0.4297174	0.0340845788	27.46366	27.11255	-0.35111629
## 226	0.3167778	0.3306786	0.0139007937	27.20958	26.01732	-1.19225647
## 227	0.3808421	0.3932000	0.0123578947	31.95722	30.79702	-1.16019951
## 228	0.3306792	0.8801429	0.5494636119	25.45683	25.79197	0.33514194
## 229	0.3676286	0.3706218	0.0029932773	23.47652	21.11276	-2.36376477
## 230	0.4117727	0.3444906	-0.0672821612	26.54284	24.00967	-2.53316703
## 231	0.3554583	0.4560417	0.1005833333	25.86958	26.21988	0.35029483
## 232	0.4464890	0.4086685	-0.0378204717	25.47302	26.36519	0.89217002
## 233	0.4285000	0.3345172	-0.0939827586	27.83178	27.72055	-0.11123112
## 234	0.4063333	0.5025484	0.0962150538	26.67311	26.30996	-0.36314555
## 235	0.4276552	0.3064167	-0.1212385057	24.86838	27.53611	2.66772529
## 236	0.3918303	0.3457318	-0.0460984317	26.84240	25.33860	-1.50380128
## 237	0.3532885	0.4550769	0.1017884615	26.03899	26.07017	0.03118727
## 238	0.3557500	0.3757042	0.0199542254	30.34002	28.88079	-1.45922815
## 239	0.4015780	0.4096474	0.0080694542	23.02942	23.70136	0.67194192
## 240	0.4087429	0.3827014	-0.0260414683	25.77669	23.32329	-2.45339779
## 241	0.3795433	0.3143139	-0.0652294385	25.08313	24.21213	-0.87099645
## 242	0.3256905	0.2237273	-0.1019632035	26.25739	26.13328	-0.12411549
## 243	0.3100106	0.3078049	-0.0022057602	22.63921	22.42169	-0.21752173
## 244	0.3947778	0.3402833	-0.0544944444	25.36560	26.07445	0.70885106
## 245	0.3165000	0.3828226	0.0663225806	26.97667	26.06006	-0.91660586
## 246	0.4693529	0.3589024	-0.1104505022	22.85235	22.29070	-0.56164684
## 247	0.3356757	0.3638654	0.0281897089	28.61487	26.93845	-1.67642017
## 248	0.3272388	0.3997500	0.0725111940	27.17367	27.19618	0.02251302
## 249	0.4411240	0.3463235	-0.0948004375	26.76360	25.08018	-1.68342012

## 250	0.2622500	0.4141429	0.1518928571	19.32448	18.91507	-0.40940731
## 251	0.3156056	0.3522703	0.0366646365	25.87408	24.97895	-0.89512307
## 252	0.3660000	0.3766333	0.0106333333	26.69674	25.65897	-1.03777378
## 253	0.5290000	0.5413333	0.0123333333	23.93381	23.63068	-0.30313315
## 254	0.4071429	0.3653958	-0.0417470238	27.26629	27.03490	-0.23139092
## 255	0.5184651	0.5530909	0.0346257928	25.91999	23.07813	-2.84186452
## 256	0.5064737	0.2837795	-0.2226941567	25.20632	24.52531	-0.68101318
## 257	0.5448000	0.2598750	-0.2849250000	25.49115	25.39016	-0.10099786
## 258	0.3809444	0.3363333	-0.0446111111	28.20337	27.44738	-0.75598837
## 259	0.4392000	0.3740168	-0.0651831933	22.65172	22.87491	0.22319075
## 260	0.3869000	0.2850200	-0.1018800000	25.42083	26.06538	0.64454451
## 261	0.3532072	0.3896726	0.0364654118	25.73491	24.97569	-0.75922370
## 262	0.3183256	0.3785345	0.0602089014	21.63001	22.20506	0.57505049
## 263	0.2576071	0.2789831	0.0213759080	24.84189	24.62350	-0.21838448
## 264	0.4084375	0.3761677	-0.0322697581	22.47455	22.55310	0.07854568
## 265	0.3606393	0.3639634	0.0033240704	23.28968	23.19691	-0.09276168
## 266	0.3681000	0.2964118	-0.0716882353	26.78979	25.95998	-0.82980591
## 267	0.5187000	0.5957143	0.0770142857	25.44860	24.91214	-0.53646599
## 268	0.3596364	0.3496800	-0.0099563636	25.18591	24.75109	-0.43481824
## 269	0.3265976	0.4026610	0.0760634560	31.74485	30.64865	-1.09620403
## 270	0.4593750	0.4290678	-0.0303072034	29.89608	28.48831	-1.40777189
## 271	0.3522959	0.5288065	0.1765105332	25.46615	23.08653	-2.37962160
## 272	0.4170259	0.3811176	-0.0359082597	28.32823	27.56163	-0.76660073
## 273	0.5201176	0.3811739	-0.1389437340	24.35423	21.67806	-2.67616935
## 274	0.3063618	0.3377231	0.0313612348	26.53261	25.96034	-0.57227192
## 275	0.2830714	0.4243333	0.1412619048	28.31433	28.98446	0.67012848
## 276	0.4010882	0.3375537	-0.0635345163	25.33160	24.91667	-0.41492852
## 277	0.3450063	0.3746224	0.0296160485	27.14746	24.80733	-2.34012901
## 278	0.3793869	0.3682318	-0.0111551466	20.88385	20.56436	-0.31948783
## 279	0.3941818	0.3090106	-0.0851711799	26.11979	24.97523	-1.14455583
## 280	0.3582000	0.3386458	-0.0195541667	26.18744	24.19852	-1.98892507
## 281	0.3471190	0.2828667	-0.0642523810	31.82698	28.51346	-3.31352799
## 282	0.3556198	0.3385686	-0.0170511642	25.44043	25.73941	0.29898421
## 283	0.3422615	0.3273077	-0.0149538462	25.26595	25.50715	0.24119861
## 284	0.3580143	0.2951127	-0.0629016097	24.49440	24.37288	-0.12151787
## 285	0.3369063	0.3911250	0.0542187500	24.62636	21.89286	-2.73350220
## 286	0.4790357	0.4830000	0.0039642857	26.31774	24.55093	-1.76680315
## 287	0.3843488	0.3964588	0.0121099863	23.30288	22.47608	-0.82679444
## 288	0.4410465	0.3447333	-0.0963131783	30.25079	31.77975	1.52896197
## 289	1.1000000	0.2250000	-0.8750000000	23.46118	23.75716	0.29598173
## 290	0.3631011	0.4023069	0.0392058669	24.88193	24.96142	0.07949886
## 291	0.3259600	0.2581556	-0.0678044444	29.30594	26.96352	-2.34241717
## 292	0.4168793	0.2911250	-0.1257543103	25.07671	25.13706	0.06035577
## 293	0.4017971	0.3802857	-0.0215113872	26.12112	24.41531	-1.70581229
## 294	0.3452245	0.2902045	-0.0550199443	22.86239	22.29656	-0.56583625
## 295	0.3437381	0.3414667	-0.0022714286	25.50641	25.01922	-0.48718566
## 296	0.3902338	0.3918504	0.0016166275	24.79802	25.69027	0.89225151
## 297	0.3360960	0.2922313	-0.0438646567	27.12892	27.76363	0.63471174
## 298	0.3561905	0.3199608	-0.0362296919	23.89454	22.08661	-1.80792779
## 299	0.2779512	0.4058148	0.1278635953	32.52264	29.75967	-2.76297002
## 300	0.4098837	0.2255208	-0.1843628876	31.57710	31.86123	0.28413149
## 301	0.4183596	0.3844921	-0.0338674871	24.67154	25.04915	0.37761432
## 302	0.3733243	0.3588475	-0.0144768667	27.15025	26.14229	-1.00796253
## 303	0.1788333	0.5489474	0.3701140351	28.81242	27.01905	-1.79336346

## 304	0.2007500	0.4363409	0.2355909091	23.99584	24.99301	0.99717080
## 305	0.3050000	0.4113934	0.1063934426	27.52203	26.52455	-0.99748399
## 306	0.2165833	0.4187812	0.2021979167	26.00511	24.46746	-1.53764876
## 307	0.3372000	0.3741316	0.0369315789	26.10184	24.16321	-1.93863232
## 308	0.3426832	0.3274439	-0.0152393795	25.56389	25.48513	-0.07876697
## 309	0.4251176	0.2897750	-0.1353426471	29.19822	28.11036	-1.08786275
## 310	0.3471842	0.3529392	0.0057549787	26.61906	25.81023	-0.80883163
## 311	0.6805000	0.4848621	-0.1956379310	23.09742	22.49778	-0.59963600
## 312	0.2968947	0.2981250	0.0012302632	21.52845	21.68349	0.15503770
## 313	0.3870884	0.3674835	-0.0196048813	29.34316	28.59974	-0.74341786
## 314	0.2959167	0.3739714	0.0780547619	25.98707	25.56737	-0.41970459
## 315	0.3934032	0.3179608	-0.0754424415	29.82443	27.20601	-2.61842663
## 316	0.3622265	0.4219045	0.0596779393	23.28654	21.51076	-1.77578002
## 317	0.3915450	0.3986974	0.0071523684	25.04239	22.86023	-2.18215532
## 318	0.2964444	0.3346986	0.0382541857	23.78426	23.82053	0.03627112
## 319	0.3692289	0.3586405	-0.0105883928	24.89028	24.25006	-0.64021942
## 320	0.4297049	0.3468218	-0.0828831359	25.34147	24.23474	-1.10672937
## 321	0.4733846	0.4480515	-0.0253330690	25.28034	26.09355	0.81320600
## 322	0.4348333	0.2453846	-0.1894487179	25.36161	26.94837	1.58675673
## 323	0.3906098	0.3062740	-0.0843357835	28.97460	29.34394	0.36934705
## 324	0.4018121	0.3303025	-0.0715096114	30.10526	30.81821	0.71294546
## 325	0.2300000	0.3738857	0.1438857143	28.39868	26.52796	-1.87072217
## 326	0.4094000	0.2961463	-0.1132536585	23.95516	22.68841	-1.26675642
## 327	0.2271111	0.3111053	0.0839941520	32.41313	31.84625	-0.56688543
## 328	0.3128947	0.2896667	-0.0232280702	29.23432	28.10954	-1.12478574
## 329	0.4223103	0.2540000	-0.1683103448	22.58146	21.45101	-1.13045588
## 330	0.3306140	0.3473860	0.0167719298	19.60270	19.15772	-0.44497816
## 331	0.3572121	0.3706129	0.0134007820	27.85325	27.05493	-0.79831692
## 332	0.3715825	0.4053008	0.0337182777	24.16141	25.03347	0.87206115
## 333	0.4364906	0.3219608	-0.1145297817	24.35932	25.28704	0.92772436
## 334	0.3415385	0.6380000	0.2964615385	28.72563	26.88940	-1.83623053
## 335	0.4854800	0.3913925	-0.0940874766	26.00908	24.68753	-1.32155561
## 336	0.3687174	0.3988849	0.0301675008	22.72845	21.01988	-1.70856515
## 337	0.3629425	0.3102203	-0.0527221898	24.61790	23.59606	-1.02184060
## 338	0.2938000	0.3338824	0.0400823529	30.01096	27.14059	-2.87036367
## 339	0.3078571	0.2880179	-0.0198392857	31.12935	28.81957	-2.30977418
## 340	0.3758451	0.3883902	0.0125451735	26.52116	25.38785	-1.13330508
## 341	0.4219286	0.6301250	0.2081964286	25.15576	26.45458	1.29882240
## 342	0.3827834	0.4264122	0.0436287743	23.21241	23.18381	-0.02859500
## 343	0.4087091	0.3415574	-0.0671517139	26.68734	26.61216	-0.07518560
## 344	0.3968421	NaN	NaN	28.21041	30.19856	1.98814728
## 345	0.3916667	0.3123966	-0.0792701149	14.66050	17.92012	3.25962090
## 346	0.3554054	0.3641940	0.0087886244	26.69300	26.64456	-0.04843759
## 347	0.2862083	0.1392500	-0.1469583333	26.42003	26.70970	0.28967223
## 348	0.3363034	0.3366954	0.0003919935	23.26533	24.35249	1.08715761
## 349	0.3113274	0.2808073	-0.0305200942	26.23445	25.17610	-1.05834985
## 350	0.3315741	0.3862222	0.0546481481	25.03731	23.84899	-1.18831949
## 351	0.4542800	0.6654000	0.2111200000	27.50417	26.96882	-0.53535410
## 352	0.3297170	0.4166000	0.0868830189	24.29228	25.52027	1.22798195
## 353	0.3716647	0.4457676	0.0741028998	23.84399	22.58833	-1.25565102
## 354	0.4579915	0.3904615	-0.0675299870	23.80080	23.51130	-0.28949904
## 355	0.2860505	0.3799176	0.0938671420	24.45456	24.40157	-0.05298683
## 356	0.4025758	0.3819307	-0.0206450645	22.40344	21.54790	-0.85553552
## 357	0.3555533	0.3788933	0.0233400000	27.18680	26.86801	-0.31878862

## 358	0.3422350	0.3884536	0.0462186356	21.97342	21.57833	-0.39508692
## 359	0.4105385	0.4157750	0.0052365385	27.87122	25.93639	-1.93483115
## 360	0.3593793	0.3129259	-0.0464533844	26.96534	26.20901	-0.75632483
## 361	0.3506667	0.3287857	-0.0218809524	25.30794	24.37213	-0.93580627
## 362	0.2869000	0.4176977	0.1307976744	28.74922	25.20260	-3.54661638
## 363	0.4203878	0.3005441	-0.1198436375	25.13023	24.50845	-0.62178236
## 364	0.5564211	0.4773333	-0.0790877193	23.87261	23.57677	-0.29583746
## 365	0.3154697	0.7203333	0.4048636364	27.88721	29.37300	1.48578101
## 366	0.3248529	0.3674359	0.0425829563	30.75291	30.41783	-0.33508242
## 367	0.3463455	0.3248315	-0.0215139939	21.59589	21.09720	-0.49868937
## 368	0.3682474	0.3559821	-0.0122652798	22.41358	22.53679	0.12321586
## 369	0.2596667	0.7651429	0.5054761905	25.52867	24.18585	-1.34282557
## 370	0.4506067	0.3900857	-0.0605210273	23.14897	22.63685	-0.51212134
## 371	0.4657442	0.2945217	-0.1712224469	25.71900	25.14418	-0.57482412
## 372	0.3869032	0.4736923	0.0867890819	30.52325	30.95585	0.43259811
## 373	0.3453889	0.3206765	-0.0247124183	22.19957	21.60909	-0.59047616
## 374	0.4251429	0.2150789	-0.2100639098	27.65208	27.42352	-0.22855899
## 375	0.4873333	0.1745385	-0.3127948718	25.68280	24.67700	-1.00580314
## 376	0.3951000	0.3614510	-0.0336490196	27.29530	26.48962	-0.80568389
## 377	0.4260265	0.3776748	-0.0483516434	24.14805	23.96952	-0.17852926
## 378	0.3952333	0.4280000	0.0327666667	23.44867	21.88576	-1.56291458
## 379	0.3639016	0.2533750	-0.1105266393	27.88068	24.72962	-3.15106181
## 380	0.3776455	0.4691169	0.0914713805	31.20356	27.11579	-4.08776764
## 381	0.4547660	0.4020682	-0.0526977756	25.33250	25.14822	-0.18427419
## 382	0.1675000	0.3220175	0.1545175439	23.58122	20.08953	-3.49168471
## 383	0.3642187	0.4506786	0.0864598214	21.57956	22.23413	0.65457293
## 384	0.3420696	0.3457295	0.0036599430	24.48013	25.06417	0.58403183
## 385	0.2331111	0.3559706	0.1228594771	24.41009	22.90577	-1.50431852
## 386	0.3704734	0.3807167	0.0102432939	23.71299	23.20598	-0.50700880
## 387	0.3894583	0.2813409	-0.1081174242	18.31844	18.63297	0.31452323
## 388	0.5662000	0.4120000	-0.1542000000	22.38654	21.20785	-1.17869534
## 389	0.2624478	0.3971224	0.1346746878	28.16830	25.74012	-2.42818398
## 390	0.3849492	0.3264500	-0.0584991525	26.11699	26.53099	0.41399989
## 391	0.3399152	0.3755676	0.0356524161	23.13783	21.98213	-1.15569541
## 392	0.2216180	0.3730980	0.1514800617	26.19818	26.38823	0.19004970
## 393	0.2649545	0.3510000	0.0860454545	26.18084	24.07579	-2.10505104
## 394	0.3967681	0.2381429	-0.1586252588	23.64119	23.77409	0.13289959
## 395	0.3171587	0.3012143	-0.0159444444	31.37695	32.60901	1.23206832
## 396	0.2973333	0.2350000	-0.0623333333	23.05046	22.78678	-0.26367764
## 397	0.3908269	0.3698621	-0.0209648541	22.55365	22.04316	-0.51048922
## 398	0.3931212	0.3937193	0.0005980861	25.43793	24.95465	-0.48327240
## 399	0.4405455	0.3465000	-0.0940454545	21.23888	21.83929	0.60040522
## 400	0.3627074	0.3624121	-0.0002953589	22.79545	22.85395	0.05849323
## 401	0.2970690	0.3950000	0.0979310345	31.40388	29.55208	-1.85179983
## 402	0.3160602	0.2847059	-0.0313543586	25.15729	23.90390	-1.25338915
## 403	0.2460000	0.3343333	0.0883333333	22.58661	22.17810	-0.40851012
## 404	0.2437692	0.3245789	0.0808097166	29.95332	27.49713	-2.45619545
## 405	0.3915395	0.2954483	-0.0960911978	23.10858	23.96005	0.85146715
## 406	0.3376538	0.3291951	-0.0084587242	28.09150	27.05913	-1.03237049
## 407	0.4002353	0.3541311	-0.0461041466	25.59972	23.78839	-1.81132519
## 408	0.4191905	0.4534000	0.0342095238	25.69870	25.53638	-0.16232348
## 409	0.2868000	0.2993607	0.0125606557	23.70597	22.75506	-0.95090859
## 410	0.3150000	0.3172857	0.0022857143	22.72249	23.14350	0.42101777
## 411	0.4803793	0.3555682	-0.1248111285	21.08994	19.18785	-1.90209694



## 412	0.3719194	0.3792632	0.0073438031	25.35919	23.59420	-1.76498839
## 413	0.6361818	0.4827222	-0.1534595960	26.94575	25.77669	-1.16905735
## 414	0.3717636	0.3999063	0.0281426136	26.25437	24.86083	-1.39354321
## 415	0.3775283	0.3517000	-0.0258283019	28.13497	28.58045	0.44547911
## 416	0.5183250	0.2420909	-0.2762340909	29.15244	28.75476	-0.39767303
## 417	0.3312000	0.3780000	0.0468000000	29.35230	26.39692	-2.95538519
## 418	0.3354826	0.3602564	0.0247738232	23.42435	23.11993	-0.30441894
## 419	0.4998333	0.2716098	-0.2282235772	26.68443	26.15871	-0.52571589
## 420	0.2826415	0.4203973	0.1377557508	26.04134	26.30522	0.26387854
## 421	0.4022800	0.5368082	0.1345282192	24.80056	24.96293	0.16237247
## 422	0.3132727	0.3063333	-0.0069393939	25.94802	26.27729	0.32927440
## 423	0.3897143	0.4577222	0.0680079365	21.38244	19.44844	-1.93400553
## 424	0.3428333	0.3014930	-0.0413403756	22.20840	20.58015	-1.62825250
## 425	0.3100638	0.5042500	0.1941861702	33.12762	30.69244	-2.43517972
## 426	0.3270287	0.3674348	0.0404060470	25.63256	25.88285	0.25028679
## 427	0.4449861	0.4720405	0.0270544294	23.54299	22.01977	-1.52322131
## 428	0.3316212	0.3925000	0.0608787879	22.29305	21.41510	-0.87794309
## 429	0.3804706	0.3036875	-0.0767830882	27.22987	24.42164	-2.80822531
## 430	0.4128571	0.3657304	-0.0471267081	27.75199	27.13421	-0.61778720
## 431	0.3554783	0.3871622	0.0316839013	28.68788	27.42375	-1.26412920
## 432	0.3515574	0.3378750	-0.0136823770	25.33586	23.10302	-2.23283664
## 433	0.3903631	0.3362955	-0.0540676028	24.93869	24.23364	-0.70504686
## 434	0.3453636	0.3599821	0.0146185065	26.14936	25.54109	-0.60827062
## 435	0.4449371	0.3435267	-0.1014103963	25.00427	23.76167	-1.24259980
## 436	0.4582656	0.4181019	-0.0401637731	25.68375	25.34476	-0.33899089
## 437	0.1228000	0.2266000	0.1038000000	25.12481	25.40912	0.28431902
## 438	0.3814000	0.3088723	-0.0725276596	26.89075	27.32280	0.43205548
## 439	0.3021270	0.3150851	0.0129581223	25.60034	25.09036	-0.50998665
## 440	0.4029853	0.3940000	-0.0089852941	23.97800	22.95097	-1.02702431
## 441	0.3871158	0.3281795	-0.0589363023	25.77662	25.83128	0.05465794
## 442	0.4258596	0.3362885	-0.0895711876	20.49756	20.85891	0.36134816
## 443	0.3300508	0.4335918	0.1035409893	26.64777	26.50623	-0.14154639
## 444	0.3095625	0.3520877	0.0425252193	25.52861	23.69410	-1.83450974
## 445	0.4542500	0.4820588	0.0278088235	27.06896	25.02760	-2.04136429
## 446	0.4248197	0.1911429	-0.2336768150	31.62916	31.52231	-0.10684547
## 447	0.3536923	0.4347222	0.0810299145	24.81886	25.21937	0.40050301
## 448	0.3537209	0.3509565	-0.0027644085	31.46302	31.16379	-0.29922779
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## 419	-0.0076644295
## 420	0.0110625824
## 421	-0.0027451150
## 422	0.0241163014
## 423	-0.0808465480
## 424	-0.0868104375
## 425	-0.0592353292
## 426	0.0020257732
## 427	-0.0647681126
## 428	-0.0382170411

## 429	-0.1088251972
## 430	-0.0285806461
## 431	-0.0666591873
## 432	-0.0792349458
## 433	-0.0327621811
## 434	-0.0283325299
## 435	-0.0618288119
## 436	-0.0105771402
## 437	0.0322114035
## 438	0.0492843121
## 439	-0.0090455136
## 440	-0.0315159931
## 441	0.0123321312
## 442	0.0194255230
## 443	-0.0279677956
## 444	-0.0477148745
## 445	-0.0514300927
## 446	-0.0128846561
## 447	0.0088919336
## 448	-0.0093507161
## 449	0.0066343437
## 450	-0.0157459278
## 451	-0.0734767518
## 452	0.0094262754
## 453	0.0099803449
## 454	-0.0269009245
## 455	-0.0691282610
## 456	-0.0087463989
## 457	-0.0508906895
## 458	-0.0274622131
## 459	-0.0230200591
## 460	0.0071311448
## 461	-0.0127344208
## 462	0.0310613136
## 463	-0.0297593429
## 464	-0.0191660857
## 465	-0.0599280537
## 466	-0.0297205297
## 467	0.0351933946
## 468	-0.0183632632
## 469	-0.0470419964
## 470	-0.0320700049
## 471	-0.0078151414
## 472	-0.0454867122
## 473	-0.1077331707
## 474	-0.0171513329
## 475	-0.0241979117
## 476	-0.0683624965
## 477	-0.0190215859
## 478	0.0196634672
## 479	0.0143254740
## 480	-0.0092160856
## 481	0.0085948621
## 482	-0.0164905364

```

## 483      -0.0385384388
## 484      -0.0324414888
## 485       0.0026324799
## 486      -0.0251422663
## 487      -0.1057945086
## 488       0.0067187763
## 489      -0.0414011588
## 490      -0.0485532529
## 491       0.0086857404
## 492       0.0213947893
## 493       0.0817810473
## 494      -0.0451540407
## 495      -0.1185458123
## 496      -0.0032700252
## 497      -0.0307280619
## 498       0.0057914963
## 499      -0.0689233569
## 500      -0.0031246066
## 501      -0.0023903681
## 502      -0.0239541449
## 503      -0.0338980606
## 504      -0.0073513962
## 505      -0.0159186741
## 506      -0.0122034694
## 507      -0.0157010261
## 508      -0.0427299374
## 509      -0.0202738848
## 510      -0.0543231438
## 511      -0.0340261638
## 512      -0.0297958259
## 513      -0.0498989765
## 514       0.0358142742
## 515      -0.0126777043
## 516      -0.0569293359
## 517      -0.0730868961
## 518      -0.0081773604
## 519       0.0485847421
## 520      -0.0318218405
## 521      -0.0163548898
## 522      -0.0111199498

```

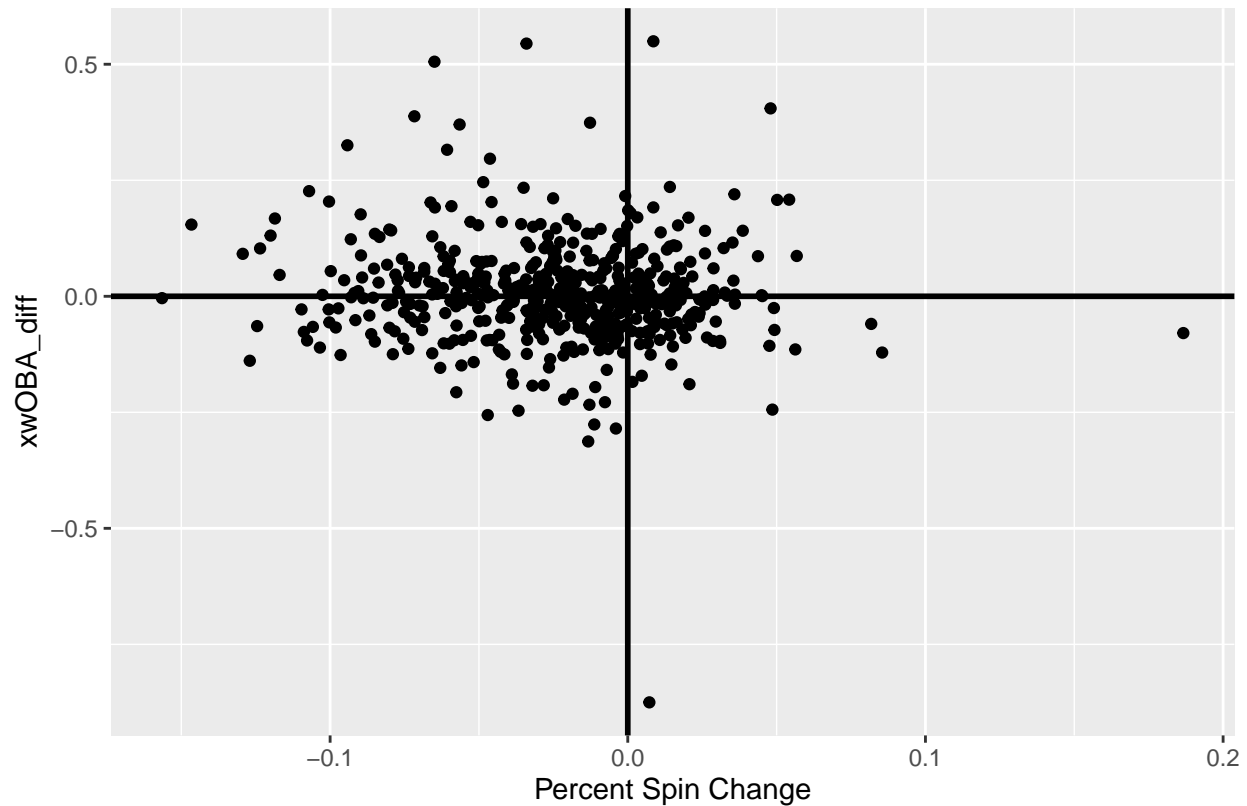
And I plot the data, with the x axis indicating the percent change in spin rate for a pitcher and the y-axis indicating the xWOPA difference.

```

ggplot(apps_spin_xwoba_bu, aes(x = percent_spin_change , y = xwOBA_diff))+
  geom_point()+
  labs(
    x = "Percent Spin Change",
    y = "xwOBA_diff",
    caption = "Source: Baseball Savant"
  )+
  geom_vline(xintercept = 0.0, linetype="solid", color = "black", size=1)+
  geom_hline(yintercept = 0.0, linetype="solid", color = "black", size=1)

```

```
## Warning: Removed 1 rows containing missing values (geom_point).
```



Source: Baseball Savant

It doesn't look like there is a correlation between spin change and xWBA based on the graph. But, I am going to incorporate the difference in spin rate along with the spin rates before and after June 7th, the change in Bauer Units, and the difference in xWBA into one graph to see if other variables cause an impact.

```
all_spin_xwoba_corr <- apps_spin_xwoba_bu[,c('xwoba_diff', 'pitches_per_app', 'pre_spin', 'spin_diff',

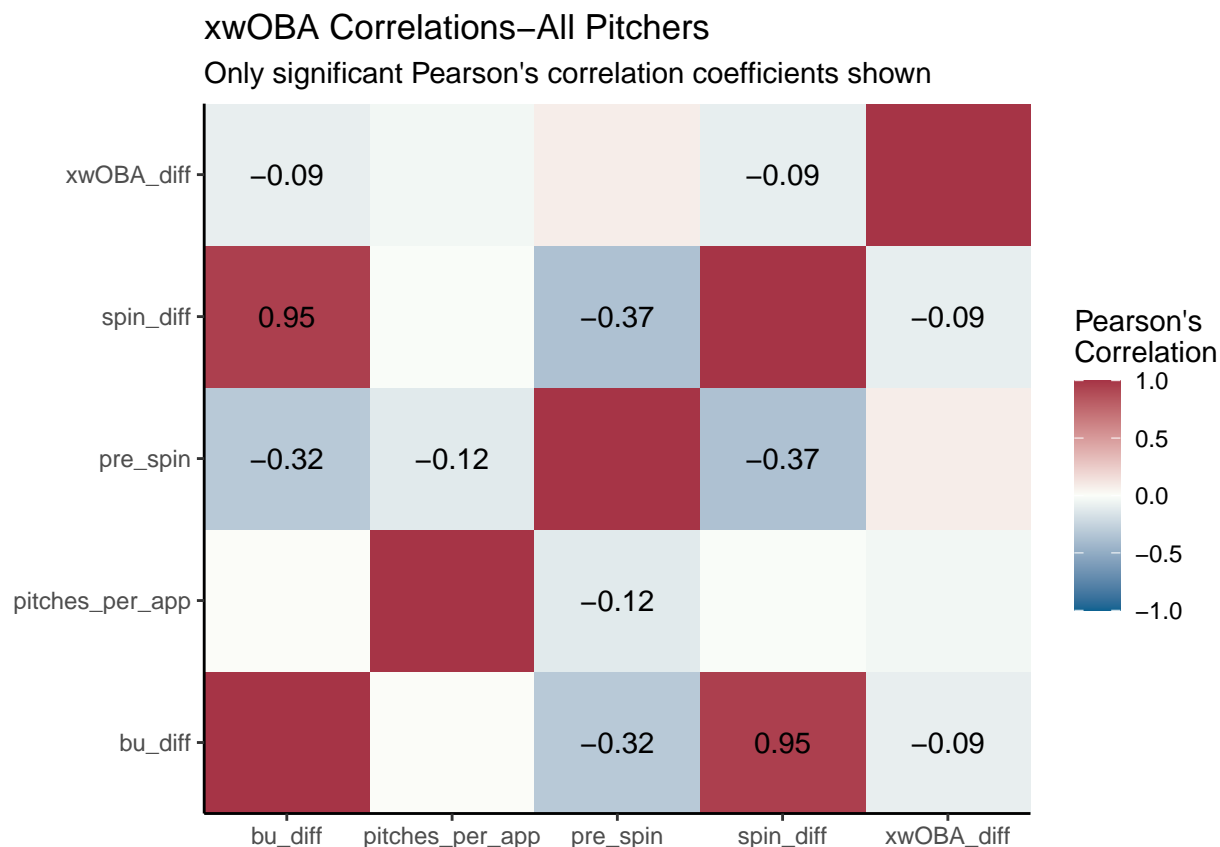
cors <- function(df) {
  # turn all three matrices (r, n, and P into a data frame)
  M <- Hmisc::rcorr(as.matrix(df))
  # return the three data frames in a list return(Mdf)
  Mdf <- map(M, ~data.frame(.x))
}

formatted_cors <- function(df){
  cors(df) %>%
  map(~rownames_to_column(.x, var="measure1")) %>%
  map(~pivot_longer(.x, ~measure1, "measure2")) %>%
  bind_rows(.id = "id") %>%
  pivot_wider(names_from = id, values_from = value) %>%
  mutate(sig_p = ifelse(P < .05, T, F), p_if_sig = ifelse(P < .05, P, NA), r_if_sig = ifelse(P < .05, r, NA))
}

formatted_cors(all_spin_xwoba_corr) %>%
  ggplot(aes(measure1, measure2, fill=r, label=round(r_if_sig,2))) +
```

```
geom_tile() +
labs(x = NULL, y = NULL, fill = "Pearson's\nCorrelation", title="xwOBA Correlations-All Pitchers", sub
geom_text() +
theme_classic() +
scale_x_discrete(expand=c(0,0)) +
scale_y_discrete(expand=c(0,0))
```

## Warning: Removed 13 rows containing missing values (geom\_text).



However, after looking at the heat map, there doesn't seem to be a strong correlation between xWOBAs and other variables as well, which means that spin rate did not have as much of an effect on a player's xWOBAs.

Conclusion: The threat of enforcement of the “sticky stuff” ball rule change had a significant effect on the spin rate and most likely the usage of these substances caused this drop in spin rate by June 7th. However, after its actual enforcement on June 21, the spin rate remained fairly stagnant, indicating that by the time enforcement started, most of the players stopped the use of sticky substances in order to get a better grip. When looking at the distribution of spin rate drops, certain players and teams seemed to have been impacted by this more than others, indicating that some teams were relying on sticky substances more than others. However, the ban of sticky substances did not seem to have an effect on a player's performance in the game, as seen by the lack of correlation between spin rate and xWOBAs. The pitchers' xWOBAs remain consistent even with the rule change amongst a variety of factors.

Potential Further Analysis: Since the data only covers up till the 2021 season, the lack of correlation may change in the upcoming seasons since the rule would then be implemented the entire season rather than just half of a season. As the sample size grows of spin rates and xWOBAs beyond June 21, this may change the results. Additionally, I would look at the strikeout rate for these pitchers over time. Maybe the reason their

xWOBAs are staying fairly constant is because their strikeouts are turning into weak contact outs or other types of non-hits.