Dansby Swanson

Notebook Contents

- Imports
- Data
  - Index DataFrame for Del Pitch Types
- Spray Chart
  - Batted Ball Profiles
    - Batted Ball Profile - LA
    - Batted Ball Profile - EV
    - Quality Contact by Launch Angle & Exit Velocity
    - ISO Value by Launch Angle & Exit Velocity
    - SLWSP Value by Launch Angle & Exit Velocity
    - wOBA Value by Launch Angle & Exit Velocity
    - xwOBA Value by Launch Angle & Exit Velocity
    - xBA Value by Launch Angle & Exit Velocity
    - Home Runs by Launch Angle and Exit Velocity
    - xwOBA Against EV
    - xwOBA Value at a Hit Against by Exit Velocity
  - Pitch Usage / Counts
    - Pitch Usage by Pitcher Handedness
  - Pitch Type by Count
  - Heatmaps
    - In-Zone Take Heatmaps - All Pitches
    - In-Zone Take Heatmaps vs RHP - All Pitches
    - In-Zone Take Heatmaps vs LHP - All Pitches
    - Out-of-Zone Chase Heatmaps - All Pitches
    - Out-of-Zone Chase Heatmaps vs RHP - All Pitches
    - Out-of-Zone Chase Heatmaps vs LHP - All Pitches
    - 2-Seam Heatmap
    - Slider Heatmap
    - Changeup Heatmap
    - Sinker Heatmap
    - Curve Heatmap
    - Cutter Heatmap
    - Four-Seam Heatmap
    - Split-Finger Heatmap
    - Knuckle Heatmap
    - Slow Curve Heatmap

Imports

```
%matplotlib inline
import pandas as pd, numpy as np
from pandas import DataFrame, Series, read_csv
from matplotlib import pyplot, pyplot as plt
from sklearn.cluster import KMeans, DBSCAN, AgglomerativeClustering
from sklearn.preprocessing import StandardScaler
from sklearn.decomposition import PCA

import matplotlib
matplotlib.rcParams['figure.dpi'] = 150
```

Data

```
DANSBY = pd.read_csv('./data/dansby-swanson.csv')
DANSBY.drop(DANSBY[DANSBY['game_type'] == 'S'], inplace = True)
DANSBY.shape

# fix the dates
from dateutil.parser import parse
DANSBY['date'] = DANSBY['game_date'].apply(lambda x: parse(x))

# add the season feature
DANSBY['season'] = DANSBY['date'].apply(lambda x: x.year)
DANSBY.shape
DANSBY.head(1)
DANSBY.tail(1)
```

```
(9, 92)
```

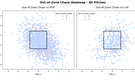
	pitch_type	game_date	release_speed	release_pos_x	release_pos_z	pitcher	events	description	spin_dir	spin_rate	pfx_x	pfx_z	plate_x	plate_z	hom...
0	FF	2021-04-09	94.1	-2.1579	6.0486	592836	NaN	ball	NaN	NaN	-0.0193	0.9917	0.886	3.5	NaN
8	SL	2021-05-09	85.4	-2.3421	5.9486	621244	field_out	hit_into_play	19	2214	0.667	0.281	-0.151	2.1	hom...

```
DANSBY.shape[0] - DANSBY.dropna(axis = 1).shape[0]
```

```
9
```

| | game_type | home_team | away_team | type | bat_score | fld_score | on_1b | on_2b | on_3b | hit_location | sv_id | vx0 | vy0 | vz0 | ax | ay | az | sz_top | sz_bot | hit_distance_sc | launch_speed | launch_angle | estimated_ba_using_speedangle | estimated_woba_using_speedangle | estimated_slg_using_speedangle | delta_home_win_exp | delta_run_exp | hyperlink | pitcher_name | batter_name | batter | pitcher | stand | p_throws | on_1b_1 | on_2b_1 | on_3b_1 | inning | outs_when_up | balls | strikes | pitch_number | pitch_name | at_bat_number | inning_topbot | home_score | away_score | bat_score_diff | home_score_diff | on_1b_0 | on_2b_0 | on_3b_0 | pitcher_days_since_prev_game | batter_days_since_prev_game | pitcher_days_until_next_game | batter_days_until_next_game | pitcher_at_bat_number | pitcher_pitch_number | pitcher_1 | fielder_2 | fielder_3 | fielder_4 | fielder_5 | fielder_6 | fielder_7 | fielder_8 | fielder_9 | release_speed_for_next_pitch | release_pos_x_for_next_pitch | release_pos_z_for_next_pitch | pfx_x_for_next_pitch | pfx_z_for_next_pitch | plate_x_for_next_pitch | plate_z_for_next_pitch | pitcher_1_for_next_pitch | fielder_2_for_next_pitch | fielder_3_for_next_pitch | fielder_4_for_next_pitch | fielder_5_for_next_pitch | fielder_6_for_next_pitch | fielder_7_for_next_pitch | fielder_8_for_next_pitch | fielder_9_for_next_pitch | pitch_type_for_next_pitch | at_bat_number_for_next_pitch | pitch_number_for_next_pitch | pitcher_at_bat_number_for_next_pitch | pitcher_pitch_number_for_next_pitch | season |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

Out-of-Zone Chase Heatmaps - All Pitches



In-Zone Take Heatmaps vs. RHP - by Pitch Type

```
Freq: 100,000 ZONE=TRUE, B: Standard (-17, 17), strikes: 3 Temp. (Strike) 3 Power
[0]0.0[1]0.0[2]0.0[3]0.0[4]0.0[5]0.0[6]0.0[7]0.0[8]0.0[9]0.0[10]0.0[11]0.0[12]0.0[13]0.0[14]0.0[15]0.0[16]0.0[17]0.0[18]0.0[19]0.0[20]0.0[21]0.0[22]0.0[23]0.0[24]0.0[25]0.0[26]0.0[27]0.0[28]0.0[29]0.0[30]0.0[31]0.0[32]0.0[33]0.0[34]0.0[35]0.0[36]0.0[37]0.0[38]0.0[39]0.0[40]0.0[41]0.0[42]0.0[43]0.0[44]0.0[45]0.0[46]0.0[47]0.0[48]0.0[49]0.0[50]0.0[51]0.0[52]0.0[53]0.0[54]0.0[55]0.0[56]0.0[57]0.0[58]0.0[59]0.0[60]0.0[61]0.0[62]0.0[63]0.0[64]0.0[65]0.0[66]0.0[67]0.0[68]0.0[69]0.0[70]0.0[71]0.0[72]0.0[73]0.0[74]0.0[75]0.0[76]0.0[77]0.0[78]0.0[79]0.0[80]0.0[81]0.0[82]0.0[83]0.0[84]0.0[85]0.0[86]0.0[87]0.0[88]0.0[89]0.0[90]0.0[91]0.0[92]0.0[93]0.0[94]0.0[95]0.0[96]0.0[97]0.0[98]0.0[99]0.0[100]0.0[101]0.0[102]0.0[103]0.0[104]0.0[105]0.0[106]0.0[107]0.0[108]0.0[109]0.0[110]0.0[111]0.0[112]0.0[113]0.0[114]0.0[115]0.0[116]0.0[117]0.0[118]0.0[119]0.0[120]0.0[121]0.0[122]0.0[123]0.0[124]0.0[125]0.0[126]0.0[127]0.0[128]0.0[129]0.0[130]0.0[131]0.0[132]0.0[133]0.0[134]0.0[135]0.0[136]0.0[137]0.0[138]0.0[139]0.0[140]0.0[141]0.0[142]0.0[143]0.0[144]0.0[145]0.0[146]0.0[147]0.0[148]0.0[149]0.0[150]0.0[151]0.0[152]0.0[153]0.0[154]0.0[155]0.0[156]0.0[157]0.0[158]0.0[159]0.0[160]0.0[161]0.0[162]0.0[163]0.0[164]0.0[165]0.0[166]0.0[167]0.0[168]0.0[169]0.0[170]0.0[171]0.0[172]0.0[173]0.0[174]0.0[175]0.0[176]0.0[177]0.0[178]0.0[179]0.0[180]0.0[181]0.0[182]0.0[183]0.0[184]0.0[185]0.0[186]0.0[187]0.0[188]0.0[189]0.0[190]0.0[191]0.0[192]0.0[193]0.0[194]0.0[195]0.0[196]0.0[197]0.0[198]0.0[199]0.0[200]0.0[201]0.0[202]0.0[203]0.0[204]0.0[205]0.0[206]0.0[207]0.0[208]0.0[209]0.0[210]0.0[211]0.0[212]0.0[213]0.0[214]0.0[215]0.0[216]0.0[217]0.0[218]0.0[219]0.0[220]0.0[221]0.0[222]0.0[223]0.0[224]0.0[225]0.0[226]0.0[227]0.0[228]0.0[229]0.0[230]0.0[231]0.0[232]0.0[233]0.0[234]0.0[235]0.0[236]0.0[237]0.0[238]0.0[239]0.0[240]0.0[241]0.0[242]0.0[243]0.0[244]0.0[245]0.0[246]0.0[247]0.0[248]0.0[249]0.0[250]0.0[251]0.0[252]0.0[253]0.0[254]0.0[255]0.0[256]0.0[257]0.0[258]0.0[259]0.0[260]0.0[261]0.0[262]0.0[263]0.0[264]0.0[265]0.0[266]0.0[267]0.0[268]0.0[269]0.0[270]0.0[271]0.0[272]0.0[273]0.0[274]0.0[275]0.0[276]0.0[277]0.0[278]0.0[279]0.0[280]0.0[281]0.0[282]0.0[283]0.0[284]0.0[285]0.0[286]0.0[287]0.0[288]0.0[289]0.0[290]0.0[291]0.0[292]0.0[293]0.0[294]0.0[295]0.0[296]0.0[297]0.0[298]0.0[299]0.0[300]0.0[301]0.0[302]0.0[303]0.0[304]0.0[305]0.0[306]0.0[307]0.0[308]0.0[309]0.0[310]0.0[311]0.0[312]0.0[313]0.0[314]0.0[315]0.0[316]0.0[317]0.0[318]0.0[319]0.0[320]0.0[321]0.0[322]0.0[323]0.0[324]0.0[325]0.0[326]0.0[327]0.0[328]0.0[329]0.0[330]0.0[331]0.0[332]0.0[333]0.0[334]0.0[335]0.0[336]0.0[337]0.0[338]0.0[339]0.0[340]0.0[341]0.0[342]0.0[343]0.0[344]0.0[345]0.0[346]0.0[347]0.0[348]0.0[349]0.0[350]0.0[351]0.0[352]0.0[353]0.0[354]0.0[355]0.0[356]0.0[357]0.0[358]0.0[359]0.0[360]0.0[361]0.0[362]0.0[363]0.0[364]0.0[365]0.0[366]0.0[367]0.0[368]0.0[369]0.0[370]0.0[371]0.0[372]0.0[373]0.0[374]0.0[375]0.0[376]0.0[377]0.0[378]0.0[379]0.0[380]0.0[381]0.0[382]0.0[383]0.0[384]0.0[385]0.0[386]0.0[387]0.0[388]0.0[389]0.0[390]0.0[391]0.0[392]0.0[393]0.0[394]0.0[395]0.0[396]0.0[397]0.0[398]0.0[399]0.0[400]0.0[401]0.0[402]0.0[403]0.0[404]0.0[405]0.0[406]0.0[407]0.0[408]0.0[409]0.0[410]0.0[411]0.0[412]0.0[413]0.0[414]0.0[415]0.0[416]0.0[417]0.0[418]0.0[419]0.0[420]0.0[421]0.0[422]0.0[423]0.0[424]0.0[425]0.0[426]0.0[427]0.0[428]0.0[429]0.0[430]0.0[431]0.0[432]0.0[433]0.0[434]0.0[435]0.0[436]0.0[437]0.0[438]0.0[439]0.0[440]0.0[441]0.0[442]0.0[443]0.0[444]0.0[445]0.0[446]0.0[447]0.0[448]0.0[449]0.0[450]0.0[451]0.0[452]0.0[453]0.0[454]0.0[455]0.0[456]0.0[457]0.0[458]0.0[459]0.0[460]0.0[461]0.0[462]0.0[463]0.0[464]0.0[465]0.0[466]0.0[467]0.0[468]0.0[469]0.0[470]0.0[471]0.0[472]0.0[473]0.0[474]0.0[475]0.0[476]0.0[477]0.0[478]0.0[479]0.0[480]0.0[481]0.0[482]0.0[483]0.0[484]0.0[485]0.0[486]0.0[487]0.0[488]0.0[489]0.0[490]0.0[491]0.0[492]0.0[493]0.0[494]0.0[495]0.0[496]0.0[497]0.0[498]0.0[499]0.0[500]0.0[501]0.0[502]0.0[503]0.0[504]0.0[505]0.0[506]0.0[507]0.0[508]0.0[509]0.0[510]0.0[511]0.0[512]0.0[513]0.0[514]0.0[515]0.0[516]0.0[517]0.0[518]0.0[519]0.0[520]0.0[521]0.0[522]0.0[523]0.0[524]0.0[525]0.0[526]0.0[527]0.0[528]0.0[529]0.0[530]0.0[531]0.0[532]0.0[533]0.0[534]0.0[535]0.0[536]0.0[537]0.0[538]0.0[539]0.0[540]0.0[541]0.0[542]0.0[543]0.0[544]0.0[545]0.0[546]0.0[547]0.0[548]0.0[549]0.0[550]0.0[551]0.0[552]0.0[553]0.0[554]0.0[555]0.0[556]0.0[557]0.0[558]0.0[559]0.0[560]0.0[561]0.0[562]0.0[563]0.0[564]0.0[565]0.0[566]0.0[567]0.0[568]0.0[569]0.0[570]0.0[571]0.0[572]0.0[573]0.0[574]0.0[575]0.0[576]0.0[577]0.0[578]0.0[579]0.0[580]0.0[581]0.0[582]0.0[583]0.0[584]0.0[585]0.0[586]0.0[587]0.0[588]0.0[589]0.0[590]0.0[591]0.0[592]0.0[593]0.0[594]0.0[595]0.0[596]0.0[597]0.0[598]0.0[599]0.0[600]0.0[601]0.0[602]0.0[603]0.0[604]0.0[605]0.0[606]0.0[607]0.0[608]0.0[609]0.0[610]0.0[611]0.0[612]0.0[613]0.0[614]0.0[615]0.0[616]0.0[617]0.0[618]0.0[619]0.0[620]0.0[621]0.0[622]0.0[623]0.0[624]0.0[625]0.0[626]0.0[627]0.0[628]0.0[629]0.0[630]0.0[631]0.0[632]0.0[633]0.0[634]0.0[635]0.0[636]0.0[637]0.0[638]0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```
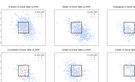
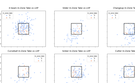



In-Zone Take Heatmaps vs. LHP - by Pitch Type

```
Freq: 100,000 ZONE=TRUE, B: Standard (-17, 17), strikes: 3 Temp. (Strike) 3 Power
[0]0.0[1]0.0[2]0.0[3]0.0[4]0.0[5]0.0[6]0.0[7]0.0[8]0.0[9]0.0[10]0.0[11]0.0[12]0.0[13]0.0[14]0.0[15]0.0[16]0.0[17]0.0[18]0.0[19]0.0[20]0.0[21]0.0[22]0.0[23]0.0[24]0.0[25]0.0[26]0.0[27]0.0[28]0.0[29]0.0[30]0.0[31]0.0[32]0.0[33]0.0[34]0.0[35]0.0[36]0.0[37]0.0[38]0.0[39]0.0[40]0.0[41]0.0[42]0.0[43]0.0[44]0.0[45]0.0[46]0.0[47]0.0[48]0.0[49]0.0[50]0.0[51]0.0[52]0.0[53]0.0[54]0.0[55]0.0[56]0.0[57]0.0[58]0.0[59]0.0[60]0.0[61]0.0[62]0.0[63]0.0[64]0.0[65]0.0[66]0.0[67]0.0[68]0.0[69]0.0[70]0.0[71]0.0[72]0.0[73]0.0[74]0.0[75]0.0[76]0.0[77]0.0[78]0.0[79]0.0[80]0.0[81]0.0[82]0.0[83]0.0[84]0.0[85]0.0[86]0.0[87]0.0[88]0.0[89]0.0[90]0.0[91]0.0[92]0.0[93]0.0[94]0.0[95]0.0[96]0.0[97]0.0[98]0.0[99]0.0[100]0.0[101]0.0[102]0.0[103]0.0[104]0.0[105]0.0[106]0.0[107]0.0[108]0.0[109]0.0[110]0.0[111]0.0[112]0.0[113]0.0[114]0.0[115]0.0[116]0.0[117]0.0[118]0.0[119]0.0[120]0.0[121]0.0[122]0.0[123]0.0[124]0.0[125]0.0[126]0.0[127]0.0[128]0.0[129]0.0[130]0.0[131]0.0[132]0.0[133]0.0[134]0.0[135]0.0[136]0.0[137]0.0[138]0.0[139]0.0[140]0.0[141]0.0[142]0.0[143]0.0[144]0.0[145]0.0[146]0.0[147]0.0[148]0.0[149]0.0[150]0.0[151]0.0[152]0.0[153]0.0[154]0.0[155]0.0[156]0.0[157]0.0[158]0.0[159]0.0[160]0.0[161]0.0[162]0.0[163]0.0[164]0.0[165]0.0[166]0.0[167]0.0[168]0.0[169]0.0[170]0.0[171]0.0[172]0.0[173]0.0[174]0.0[175]0.0[176]0.0[177]0.0[178]0.0[179]0.0[180]0.0[181]0.0[182]0.0[183]0.0[184]0.0[185]0.0[186]0.0[187]0.0[188]0.0[189]0.0[190]0.0[191]0.0[192]0.0[193]0.0[194]0.0[195]0.0[196]0.0[197]0.0[198]0.0[199]0.0[200]0.0[201]0.0[202]0.0[203]0.0[204]0.0[205]0.0[206]0.0[207]0.0[208]0.0[209]0.0[210]0.0[211]0.0[212]0.0[213]0.0[214]0.0[215]0.0[216]0.0[217]0.0[218]0.0[219]0.0[220]0.0[221]0.0[222]0.0[223]0.0[224]0.0[225]0.0[226]0.0[227]0.0[228]0.0[229]0.0[230]0.0[231]0.0[232]0.0[233]0.0[234]0.0[235]0.0[236]0.0[237]0.0[238]0.0[239]0.0[240]0.0[241]0.0[242]0.0[243]0.0[244]0.0[245]0.0[246]0.0[247]0.0[248]0.0[249]0.0[250]0.0[251]0.0[252]0.0[253]0.0[254]0.0[255]0.0[256]0.0[257]0.0[258]0.0[259]0.0[260]0.0[261]0.0[262]0.0[263]0.0[264]0.0[265]0.0[266]0.0[267]0.0[268]0.0[269]0.0[270]0.0[271]0.0[272]0.0[273]0.0[274]0.0[275]0.0[276]0.0[277]0.0[278]0.0[279]0.0[280]0.0[281]0.0[282]0.0[283]0.0[284]0.0[285]0.0[286]0.0[287]0.0[288]0.0[289]0.0[290]0.0[291]0.0[292]0.0[293]0.0[294]0.0[295]0.0[296]0.0[297]0.0[298]0.0[299]0.0[300]0.0[301]0.0[302]0.0[303]0.0[304]0.0[305]0.0[306]0.0[307]0.0[308]0.0[309]0.0[310]0.0[311]0.0[312]0.0[313]0.0[314]0.0[315]0.0[316]0.0[317]0.0[318]0.0[319]0.0[320]0.0[321]0.0[322]0.0[323]0.0[324]0.0[325]0.0[326]0.0[327]0.0[328]0.0[329]0.0[330]0.0[331]0.0[332]0.0[333]0.0[334]0.0[335]0.0[336]0.0[337]0.0[338]0.0[339]0.0[340]0.0[341]0.0[342]0.0[343]0.0[344]0.0[345]0.0[346]0.0[347]0.0[348]0.0[349]0.0[350]0.0[351]0.0[352]0.0[353]0.0[354]0.0[355]0.0[356]0.0[357]0.0[358]0.0[359]0.0[360]0.0[361]0.0[362]0.0[363]0.0[364]0.0[365]0.0[366]0.0[367]0.0[368]0.0[369]0.0[370]0.0[371]0.0[372]0.0[373]0.0[374]0.0[375]0.0[376]0.0[377]0.0[378]0.0[379]0.0[380]0.0[381]0.0[382]0.0[383]0.0[384]0.0[385]0.0[386]0.0[387]0.0[388]0.0[389]0.0[390]0.0[391]0.0[392]0.0[393]0.0[394]0.0[395]0.0[396]0.0[397]0.0[398]0.0[399]0.0[400]0.0[401]0.0[402]0.0[403]0.0[404]0.0[405]0.0[406]0.0[407]0.0[408]0.0[409]0.0[410]0.0[411]0.0[412]0.0[413]0.0[414]0.0[415]0.0[416]0.0[417]0.0[418]0.0[419]0.0[420]0.0[421]0.0[422]0.0[423]0.0[424]0.0[425]0.0[426]0.0[427]0.0[428]0.0[429]0.0[430]0.0[431]0.0[432]0.0[433]0.0[434]0.0[435]0.0[436]0.0[437]0.0[438]0.0[439]0.0[440]0.0[441]0.0[442]0.0[443]0.0[444]0.0[445]0.0[446]0.0[447]0.0[448]0.0[449]0.0[450]0.0[451]0.0[452]0.0[453]0.0[454]0.0[455]0.0[456]0.0[457]0.0[458]0.0[459]0.0[460]0.0[461]0.0[462]0.0[463]0.0[464]0.0[465]0.0[466]0.0[467]0.0[468]0.0[469]0.0[470]0.0[471]0.0[472]0.0[473]0.0[474]0.0[475]0.0[476]0.0[477]0.0[478]0.0[479]0.0[480]0.0[481]0.0[482]0.0[483]0.0[484]0.0[485]0.0[486]0.0[487]0.0[488]0.0[489]0.0[490]0.0[491]0.0[492]0.0[493]0.0[494]0.0[495]0.0[496]0.0[497]0.0[498]0.0[499]0.0[500]0.0[501]0.0[502]0.0[503]0.0[504]0.0[505]0.0[506]0.0[507]0.0[508]0.0[509]0.0[510]0.0[511]0.0[512]0.0[513]0.0[514]0.0[515]0.0[516]0.0[517]0.0[518]0.0[519]0.0[520]0.0[521]0.0[522]0.0[523]0.0[524]0.0[525]0.0[526]0.0[527]0.0[528]0.0[529]0.0[530]0.0[531]0.0[532]0.0[533]0.0[534]0.0[535]0.0[536]0.0[537]0.0[538]0.0[539]0.0[540]0.0[541]0.0[542]0.0[543]0.0[544]0.0[545]0.0[546]0.0[547]0.0[548]0.0[549]0.0[550]0.0[551]0.0[552]0.0[553]0.0[554]0.0[555]0.0[556]0.0[557]0.0[558]0.0[559]0.0[560]0.0[561]0.0[562]0.0[563]0.0[564]0.0[565]0.0[566]0.0[567]0.0[568]0.0[569]0.0[570]0.0[571]0.0[572]0.0[573]0.0[574]0.0[575]0.0[576]0.0[577]0.0[578]0.0[579]0.0[580]0.0[581]0.0[582]0.0[583]0.0[584]0.0[585]0.0[586]0.0[587]0.0[588]0.0[589]0.0[590]0.0[591]0.0[592]0.0[593]0.0[594]0.0[595]0.0[596]0.0[597]0.0[598]0.0[599]0.0[600]0.0[601]0.0[602]0.0[603]0.0[604]0.0[605]0.0[606]0.0[607]0.0[608]0.0[609]0.0[610]0.0[611]0.0[612]0.0[613]0.0[614]0.0[615]0.0[616]0.0[617]0.0[618]0.0[619]0.0[620]0.0[621]0.0[622]0.0[623]0.0[624]0.0[625]0.0[626]0.0[627]0.0[628]0.0[629]0.0[630]0.0[631]0.0[632]0.0[633]0.0[634]0.0[635]0.0[636]0.0[637]0.0[638]0.0[639]0.0[640]0.0[641]0.0[642]0.0[643]0.0[644]0.0[645]0.0[646]0.0[647]0.0[648]0.0[649]0.0[650]0.0[651]0.0[652]0.0[653]0.0[654]0.0[655]0.0[656]0.0[657]0.0[658]0.0[659]0.0[660]0.0[661]0.0[662]0.0[663]0.0[664]0.0[665]0.0[666]0.0[667]0.0[668]0.0[669]0.0[670]0.0[671]0.0[672]0.0[673]0.0[674]0.0[675]0.0[676]0.0[677]0.0[678]0.0[679]0.0[680]0.0[681]0.0[682]0.0[683]0.0[684]0.0[685]0.0[686]0.0[687]0.0[688]0.0[689]0.0[690]0.0[691]0.0[692]0.0[693]0.0[694]0.0[695]0.0[696]0.0[697]0.0[698]0.0[699]0.0[700]0.0[701]0.0[702]0.0[703]0.0[704]0.0[705]0.0[706]0.0[707]0.0[708]0.0[709]0.0[710]0.0[711]0.0[712]0.0[713]0.0[714]0.0[715]0.0[716]0.0[717]0.0[718]0.0[719]0.0[720]0.0[721]0.0[722]0.0[723]0.0[724]0.0[725]0.0[726]0.0[727]0.0[728]0.0[729]0.0[730]0.0[731]0.0[732]0.0[733]0.0[734]0.0[735]0.0[736]0.0[737]0.0[738]0.0[739]0.0[740]0.0[741]0.0[742]0.0[743]0.0[744]0.0[745]0.0[746]0.0[747]0.0[748]0.0[749]0.0[750]0.0[751]0.0[752]0.0[753]0.0[754]0.0[755]0.0[756]0.0[757]0.0[758]0.0[759]0.0[760]0.0[761]0.0[762]0.0[763]0.0[764]0.0[765]0.0[766]0.0[767]0.0[768]0.0[769]0.0[770]0.0[771]0.0[772]0.0[773]0.0[774]0.0[775]0.0[776]0.0[777]0.0[778]0.0[779]0.0[780]0.0[781]0.0[782]0.0[783]0.0[784]0.0[785]0.0[786]0.0[787]0.0[788]0.0[789]0.0[790]0.0[791]0.0[792]0.0[793]0.0[794]0.0[795]0.0[796]0.0[797]0.0[798]0.0[799]0.0[800]0.0[801]0.0[802]0.0[803]0.0[804]0.0[805]0.0[806]0.0[807]0.0[808]0.0[809]0.0[810]0.0[811]0.0[812]0.0[813]0.0[814]0.0[815]0.0[816]0.0[817]0.0[818]0.0[819]0.0[820]0.0[821]0.0[822]0.0[823]0.0[824]0.0[825]0.0[826]0.0[827]0.0[828]0.0[829]0.0[830]0.0[831]0.0[832]0.0[833]0.0[834]0.0[835]0.0[836]0.0[837]0.0[838]0.0[839]0.0[840]0.0[841]0.0[842]0.0[843]0.0[844]0.0[845]0.0[846]0.0[847]0.0[848]0.0[849]0.0[850]0.0[851]0.0[852]0.0[853]0.0[854]0.0[855]0.0[856]0.0[857]0.0[858]0.0[859]0.0[860]0.0[861]0.0[862]0.0[863]0.0[864]0.0[865]0.0[866]0.0[867]0.0[868]0.0[869]0.0[870]0.0[871]0.0[872]0.0[873]0.0[874]0.0[875]0.0[876]0.0[877]0.0[878]0.0[879]0.0[880]0.0[881]0.0[882]0.0[883]0.0[884]0.0[885]0.0[886]0.0[887]0.0[888]0.0[889]0.0[890]0.0[891]0.0[892]0.0[893]0.0[894]0.0[895]0.0[896]0.0[897]0.0[898]0.0[899]0.0[900]0.0[901]0.0[902]0.0[903]0.0[904]0.0[905]0.0[906]0.0[907]0.0[908]0.0[909]0.0[910]0.0[911]0.0[912]0.0[913]0.0[914]0.0[915]0.0[916]0.0[917]0.0[918]0.0[919]0.0[920]0.0[921]0.0[922]0.0[923]0.0[924]0.0[925]0.0[926]0.0[927]0.0[928]0.0[929]0.0[930]0.0[931]0.0[932]0.0[933]0.0[934]0.0[935]0.0[936]0.0[937]0.0[938]0.0[939]0.0[940]0.0[941]0.0[942]0.0[943]0.0[944]0.0[945]0.0[946]0.0[947]0.0[948]0.0[949]0.0[950]0.0[951]0.0[952]0.0[953]0.0[954]0.0[955]0.0[956]0.0[957]0.0[958]0.0[959]0.0[960]0.0[961]0.0[962]0.0[963]0.0[964]0.0[965]0.0[966]0.0[967]0.0[968]0.0[969]0.0[970]0.0[971]0.0[972]0.0[973]0.0[974]0.0[975]0.0[976]0.0[977]0.0[978]0.0[979]0.0[980]0.0[981]0.0[982]0.0[983]0.0[984]0.0[985]0.0[986]0.0[987]0.0[988]0.0[989]0.0[990]0.0[991]0.0[992]0.0[993]0.0[994]0.0[995]0.0[996]0.0[997]0.0[998]0.0[999]0.0[1000]0.0
```



Out-of-Zone Chase Heatmaps vs. RHP - by Pitch Type

```
Freq: 100,000 ZONE=FALSE, B: Standard (-17, 17), strikes: 3 Temp. (Strike) 3 Power
[0]0.0[1]0.0[2]0.0[3]0.0[4]0.0[5]0.0[6]0.0[7]0.0[8]0.0[9]0.0[10]0.0[11]0.0[12]0.0[13]0.0[14]0.0[15]0.0[16]0.0[17]0.0[18]0.0[19]0.0[20]0.0[21]0.0[22]0.0[23]0.0[24]0.0[25]0.0[26]0.0[27]0.0[28]0.0[29]0.0[30]0.0[31]0.0[32]0.0[33]0.0[34]0.0[35]0.0[36]0.0[37]0.0[38]0.0[39]0.0[40]0.0[41]0.0[42]0.0[43]0.0[44]0.0[45]0.0[46]0.0[47]0.0[48]0.0[49]0.0[50]0.0[51]0.0[52]0.0[53]0.0[54]0.0[55]0.0[56]0.0[57]0.0[58]0.0[59]0.0[60]0.0[61]0.0[62]0.0[63]0.0[64]0.0[65]0.0[66]0.0[67]0.0[68]0.0[69]0.0[70]0.0[71]0.0[72]0.0[73]0.0[74]0.0[75]0.0[76]0.0[77]0.0[78]0.0[79]0.0[80]0.0[81]0.0[82]0.0[83]0.0[84]0.0[85]0.0[86]0.0[87]0.0[88]0.0[89]0.0[90]0.0[91]0.0[92]0.0[93]0.0[94]0.0[95]0.0[96]0.0[97]0.0[98]0.0[99]0.0[100]0.0[101]0.0[102]0.0[103]0.0[104]0.0[105]0.0[106]0.0[107]0.0[108]0.0[109]0.0[110]0.0[111]0.0[112]0.0[113]0.0[114]0.0[115]0.0[116]0.0[117]0.0[118]0.0[119]0.0[120]0.0[121]0.0[122]0.0[123]0.0[124]0.0[125]0.0[126]0.0[127]0.0[128]0.0[129]0.0[130]0.0[131]0.0[132]0.0[133]0.0[134]0.0[135]0.0[136]0.0[137]0.0[138]0.0[139]0.0[140]0.0[141]0.0[142]0.0[143]0.0[144]0.0[145]0.0[146]0.0[147]0.0[148]0.0[149]0.0[150]0.0[151]0.0[152]0.0[153]0.0[154]0.0[155]0.0[156]0.0[157]0.0[158]0.0[159]0.0[160]0.0[161]0.0[162]0.0[163]0.0[164]0.0[165]0.0[166]0.0[167]0.0[168]0.0[169]0.0[170]0.0[171]0.0[172]0.0[173]0.0[174]0.0[175]0.0[176]0.0[177]0.0[178]0.0[179]0.0[180]0.0[181]0.0[182]0.0[183]0.0[184]0.0[185]0.0[186]0.0[187]0.0[188]0.0[189]0.0[190]0.0[191]0.0[192]0.0[193]0.0[194]0.0[195]0.0[196]0.0[197]0.0[198]0.0[199]0.0[200]0.0[201]0.0[202]0.0[203]0.0[204]0.0[205]0.0[206]0.0[207]0.0[208]0.0[209]0.0[210]0.0[211]0.0[212]0.0[213]0.0[214]0.0[215]0.0[216]0.0[217]0.0[218]0.0[219]0.0[220]0.0[221]0.0[222]0.0[223]0.0[224]0.0[225]0.0[226]0.0[227]0.0[228]0.0[229]0.0[230]0.0[231]0.0[232]0.0[233]0.0[234]0.0[235]0.0[236]0.0[237]0.0[238]0.0[239]0.0[240]0.0[241]0.0[242]0.0[243]0.0[244]0.0[245]0.0[246]0.0[247]0.0[248]0.0[249]0.0[250]0.0[251]0.0[252]0.0[253]0.0[254]0.0[255]0.0[256]0.0[257]0.0[258]0.0[259]0.0[260]0.0[261]0.0[262]0.0[263]0.0[264]0.0[265]0.0[266]0.0[267]0.0[268]0.0[269]0.0[270]0.0[271]0.0[272]0.0[273]0.0[274]0.0[275]0.0[276]0.0[277]0.0[278]0.0[279]0.0[280]0.0[281]0.0[282]0.0[283]0.0[284]0.0[285]0.0[286]0.0[287]0.0[288]0.0[289]0.0[290]0.0[291]0.0[292]0.0[293]0.0[294]0.0[295]0.0[296]0.0[297]0.0[298]0.0[299]0.0[300]0.0[301]0.0[302]0.0[303]0.0[304]0.0[305]0.0[306]0.0[307]0.0[308]0.0[309]0.0[310]0.0[311]0.0[312]0.0[313]0.0[314]0.0[315]0.0[316]0.0[317]0.0[318]0.0[319]0.0[320]0.0[321]0.0[322]0.0[323]0.0[324]0.0[325]0.0[326]0.0[327]0.0[328]0.0[329]0.0[330]0.0[331]0.0[332]0.0[333]0.0[334]0.0[335]0.0[336]0.0[337]0.0[338]0.0[339]0.0[340]0.0[341]0.0[342]0.0[343]0.0[344]0.0[345]0.0[346]0.0[347]0.0[348]0.0[349]0.0[350]0.0[351]0.0[352]0.0[353]0.0[354]0.0[355]0.0[356]0.0[357]0.0[358]0.0[359]0.0[360]0.0[361]0.0[362]0.0[363]0.0[364]0.0[365]0.0[366]0.0[367]0.0[368]0.0[369]0.0[370]0.0[371]0.0[372]0.0[373]0.0[374]0.0[375]0.0[376]0.0[377]0.0[378]0.0[379]0.0[380]0.0[381]0.0[382]0.0[383]0.0[384]0.0[385]0.0[386]0.0[387]0.0[388]0.0[389]0.0[390]0.0[391]0.0[392]0.0[393]0.0[394]0.0[395]0.0[396]0.0[397]0.0[398]0.0[399]0.0[400]0.0[401]0.0[402]0.0[403]0.0[404]0.0[405]0.0[406]0.0[407]0.0[408]0.0[409]0.0[410]0.0[411]0.0[412]0.0[413]0.0[414]0.0[415]0.0[416]0.0[417]0.0[418]0.0[419]0.0[420]0.0[421]0.0[422]0.0[423]0.0[424]0.0[425]0.0[426]0.0[427]0.0[428]0.0[429]0.0[430]0.0[431]0.0[432]0.0[433]0.0[434]0.0[435]0.0[436]0.0[437]0.0[438]0.0[439]0.0[440]0.0[441]0.0[442]0.0[443]0.0[444]0.0[445]0.0[446]0.0[447]0.0[448]0.0[449]0.0[450]0.0[451]0.0[452]0.0[453]0.0[454]0.0[455]0.0[456]0.0[457]0.0[458]0.0[459]0.0[460]0.0[461]0.0[462]0.0[463]0.0[464]0.0[465]0.0[466]0.0[467]0.0[468]0.0[469]0.0[470]0.0[471]0.0[472]0.0[473]0.0[474]0.0[475]0.0[476]0.0[477]0.0[478]0.0[479]0.0[480]0.0[481]0.0[482]0.0[483]0.0[484]0.0[485]0.0[486]0.0[487]0.0[488]0.0[489]0.0[490]0.0[491]0.0[492]0.0[493]0.0[494]0.0[495]0.0[496]0.0[497]0.0[498]0.0[499]0.0[500]0.0[501]0.0[502]0.0[503]0.0[504]0.0[505]0.0[506]0.0[507]0.0[508]0.0[509]0.0[510]0.0[511]0.0[512]0.0[513]0.0[514]0.0[515]0.0[516]0.0[517]0.0[518]0.0[519]0.0[520]0.
```

```
[Log] [0.0] [0.0,0.0,0.0,
```