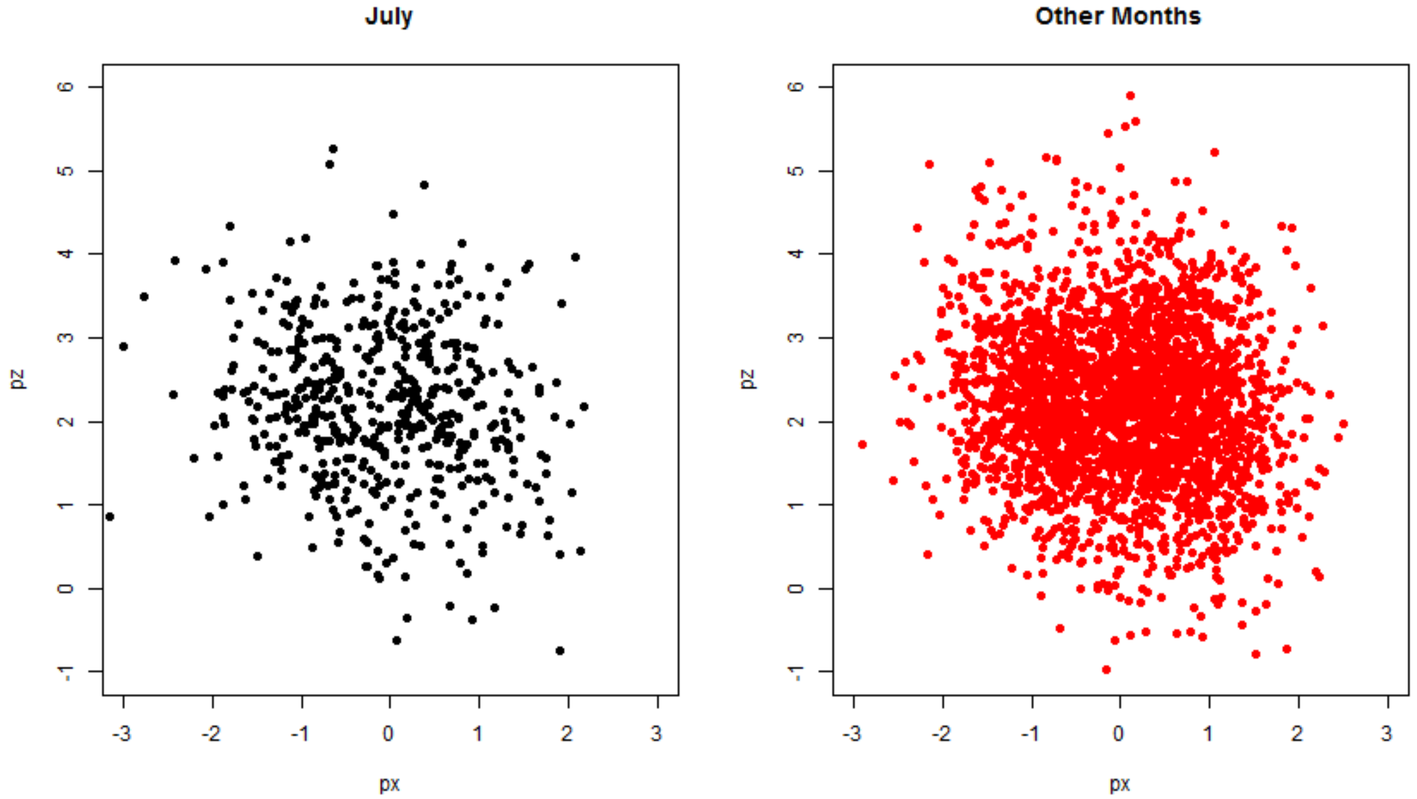
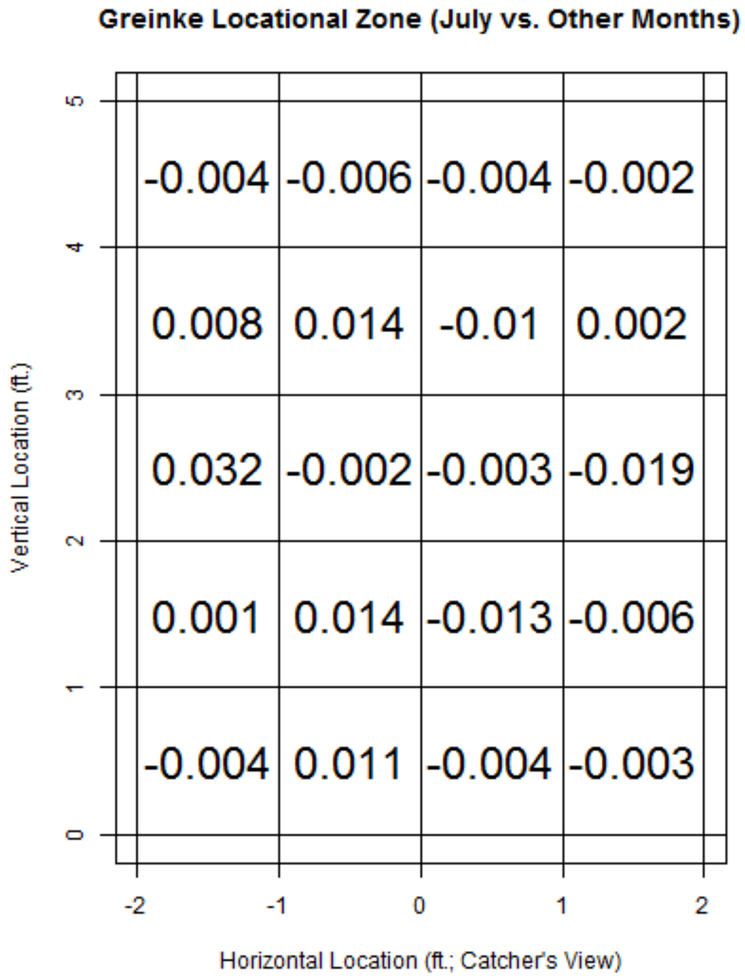
EXPLORING PITCH DATA IN R

Pitch location and Greinke's July

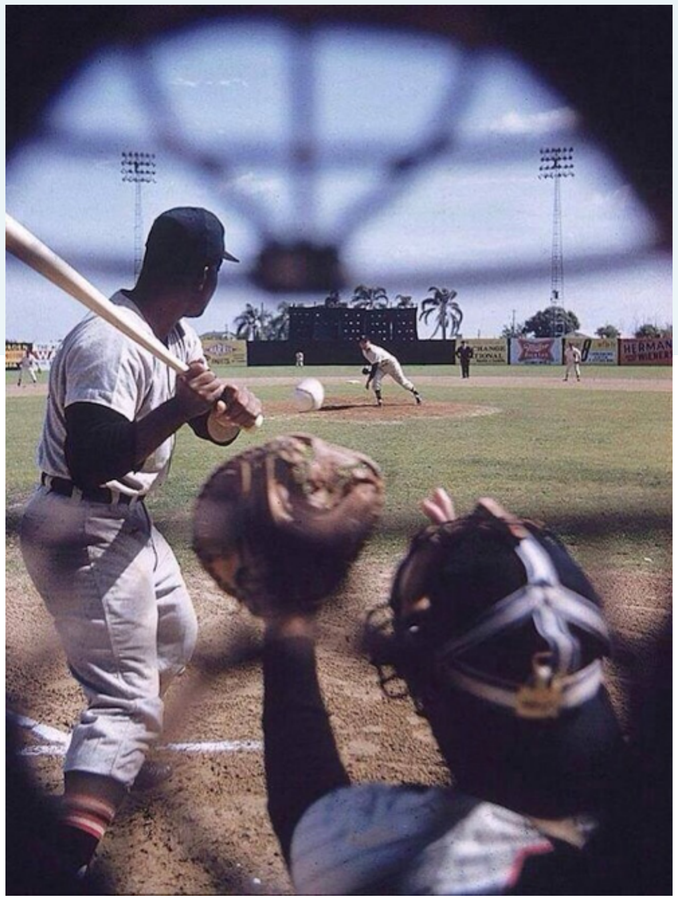
Strike zone success





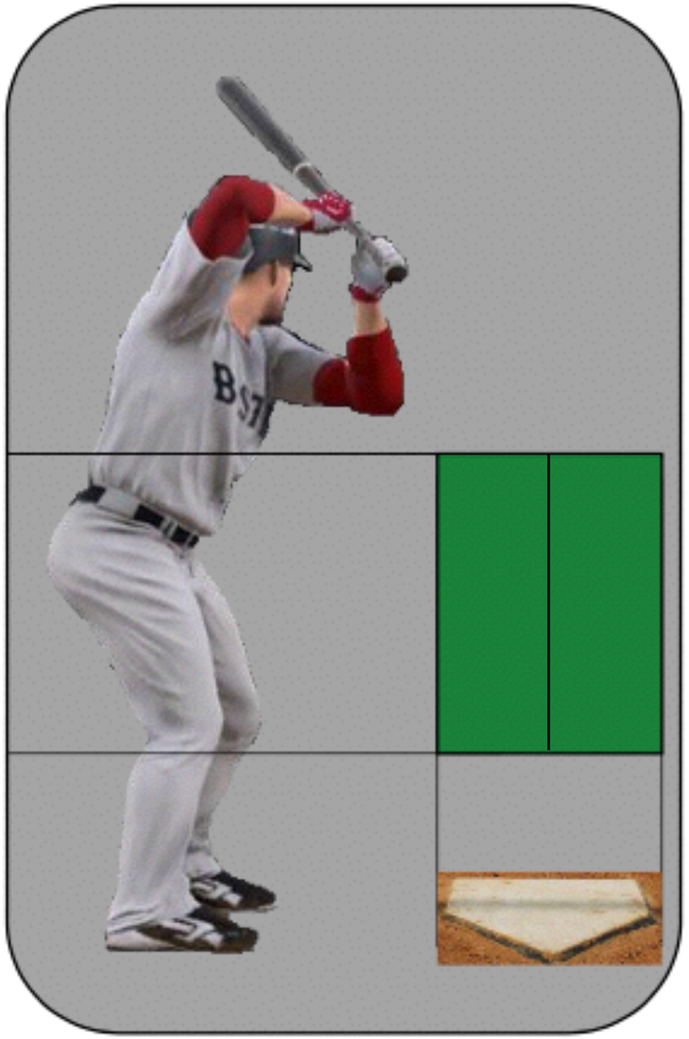
Locational variables

```
> head(greinke[, c("px", "pz")])
      px    pz
1 1.714 1.925
2 0.589 3.271
3 0.399 2.918
4 0.764 1.306
5 1.517 2.193
6 0.695 3.431
```



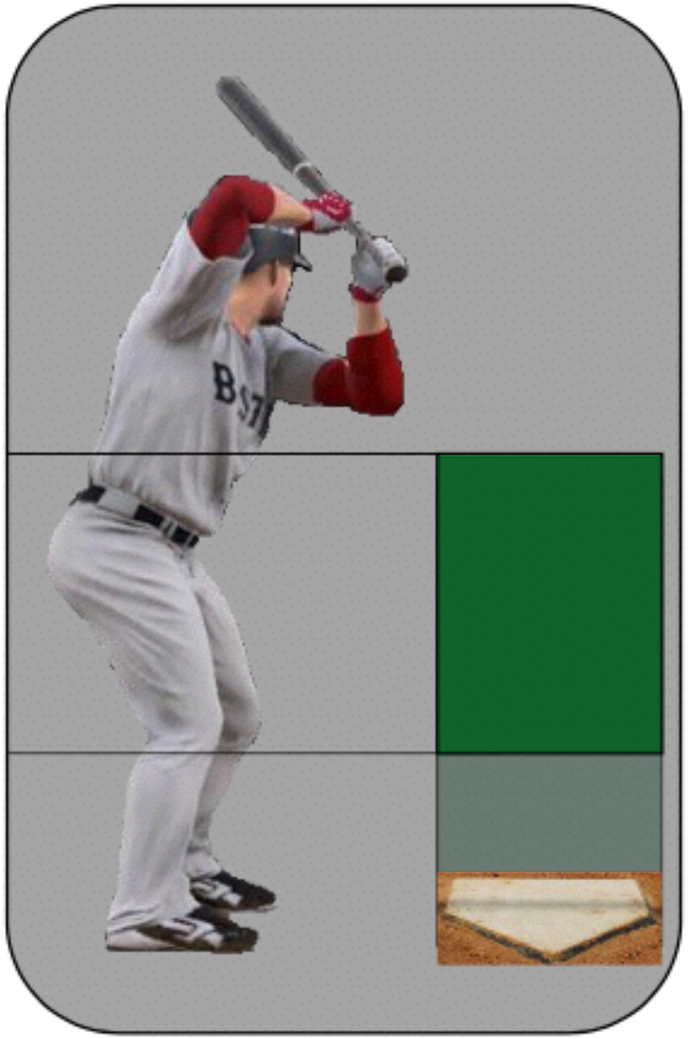
The px variable

- Horizontal pitch location (feet)
  - `px = 0`: Center of plate
  - `px < 0`: Inside to RHB (outside to LHB)
  - `px > 0`: Outside to RHB (inside to LHB)
- `|px| > 0.83`: Outside of strike zone



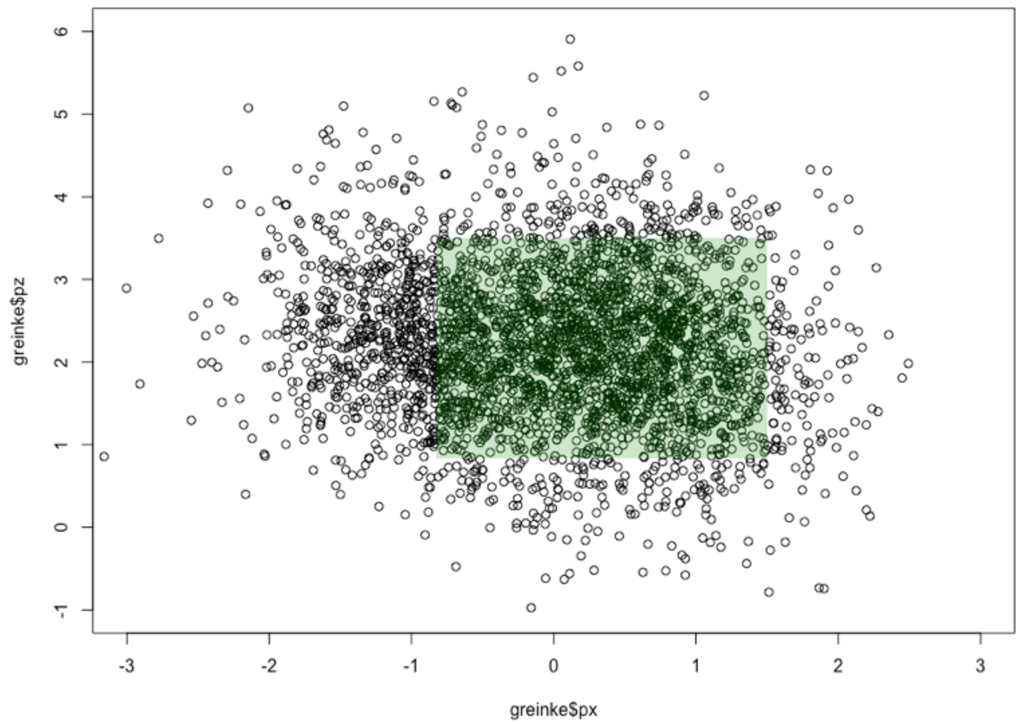
The `pz` variable

- Vertical pitch location (feet)
  - `pz = 0`: Landed on front of plate
  - `pz < 0`: Landed before reaching plate
  - `pz > 0`: Above the plate (of interest)
- `1.5 < pz < 3.4`: Average strike zone



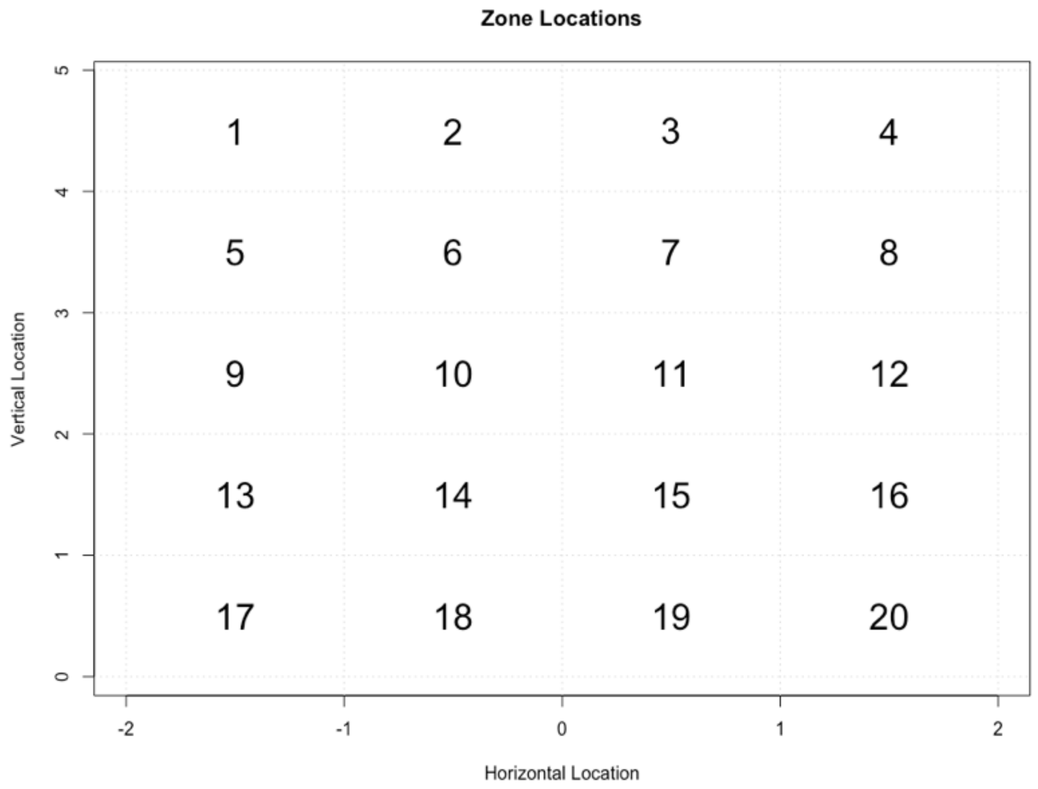
Plotting pitch data

```
> plot(greinke$pz ~ greinke$px, xlim = c(-3, 3), ylim = c(-1, 6))
> rect(-0.83, 0.83, 1.5, 3.5, col = "#00990040", border = NA)
```



Grids and binning data

```
> head(greinke_sub$zone)
[1] 16  7 11 15 12  7
```



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Let's practice!

EXPLORING PITCH DATA IN R

`for` loops for plots

Using a `for` loop

```
> unique(greinke_sub$zone)
[1] 16  7 11 15 12 18  6 10 19  8 14  5 20  2 13  9  3
[18] 4  1 17

> for(zone in unique(greinke_sub$zone)) {
    print(zone)
  }
[1] 16
[1] 7
[1] 11
[1] 15
[1] 12
[1] 18
[1] 6
[1] 10
[1] 19
...
```

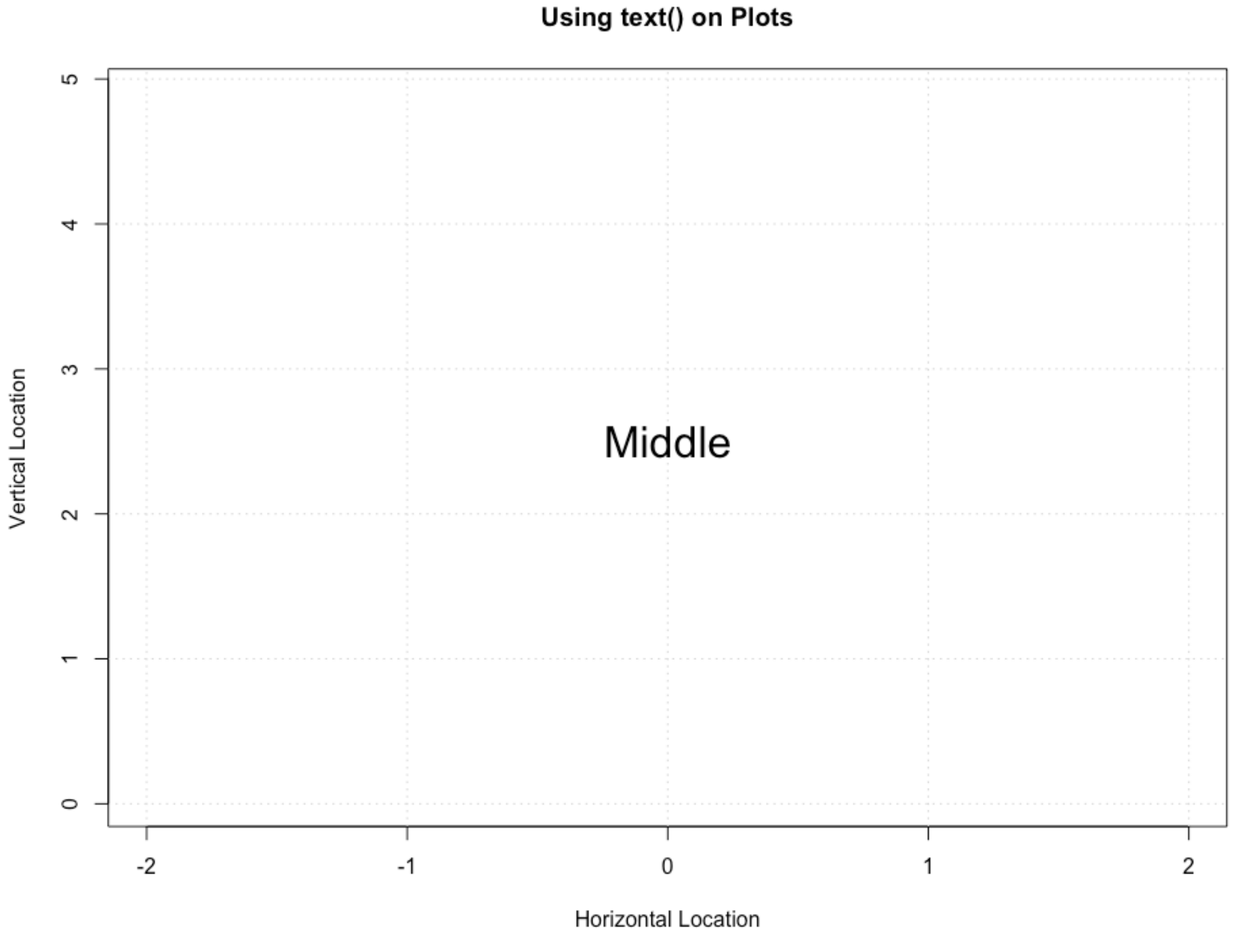
Using a `for` loop

```
> for(zone in min(greinke_sub$zone):max(greinke_sub$zone)) {
    print(zone)
  }
[1] 1
[1] 2
[1] 3
[1] 4
[1] 5
[1] 6
[1] 7
[1] 8
[1] 9
[1] 10
[1] 11
...
```

for loops and plotting

```
> plot(greinke_sub$px, greinke_sub$pz, type = "n",
    xlab = "Horizontal Location",
    ylab = "Vertical Location",
    main = "Using text() on Plots")
> grid()
> text(0, 2.5, "Middle", cex = 2)
```

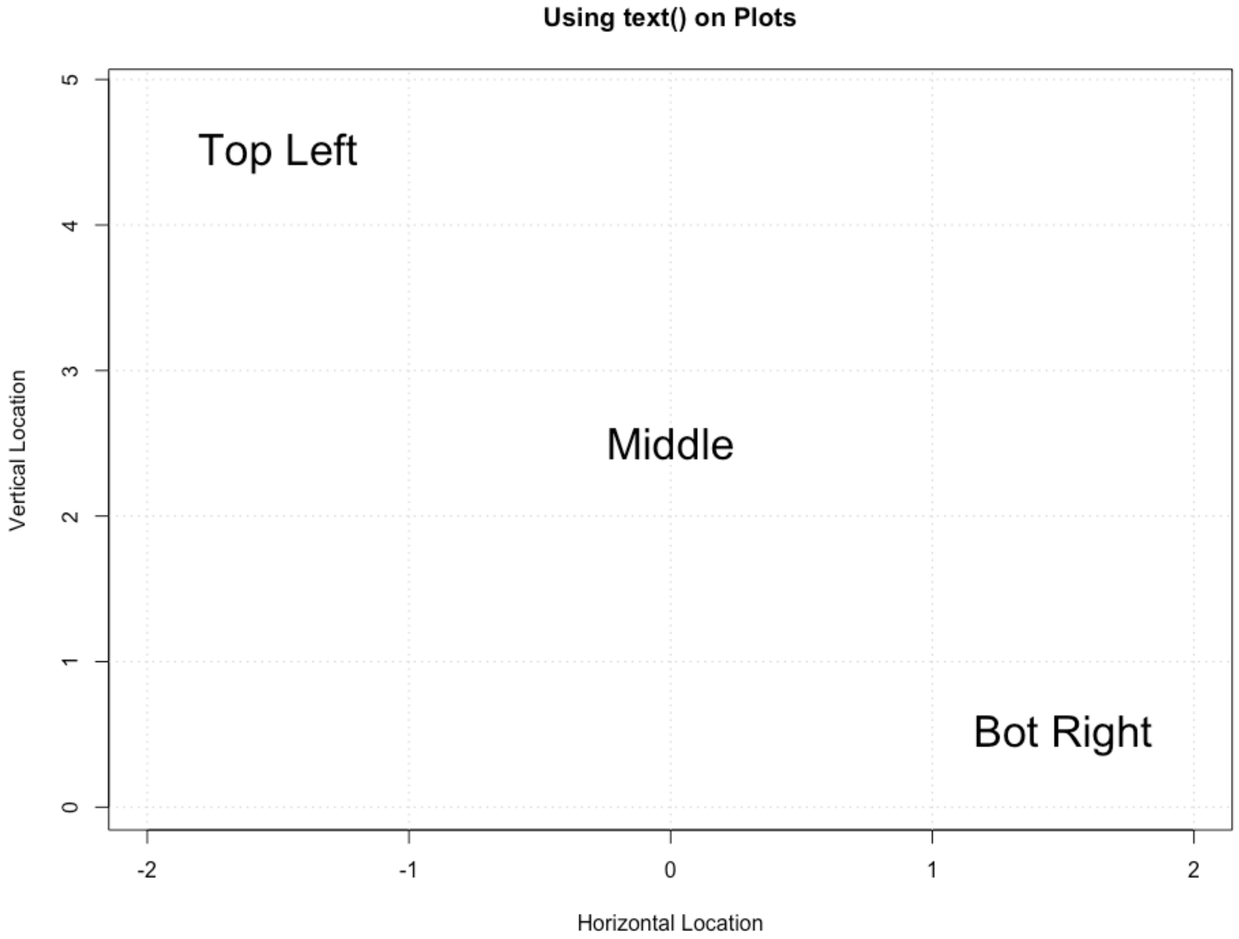
for loops and plotting



for loops and plotting

```
> plot(greinke_sub$px, greinke_sub$pz, type = "n",
    xlab = "Horizontal Location",
    ylab = "Vertical Location",
    main = "Using text() on Plots")
> grid()
> text(0, 2.5, "Middle", cex = 2)
> text(-1.5, 4.5, "Top Left", cex = 2)
> text(1.5, 0.5, "Bot Right", cex = 2)
```

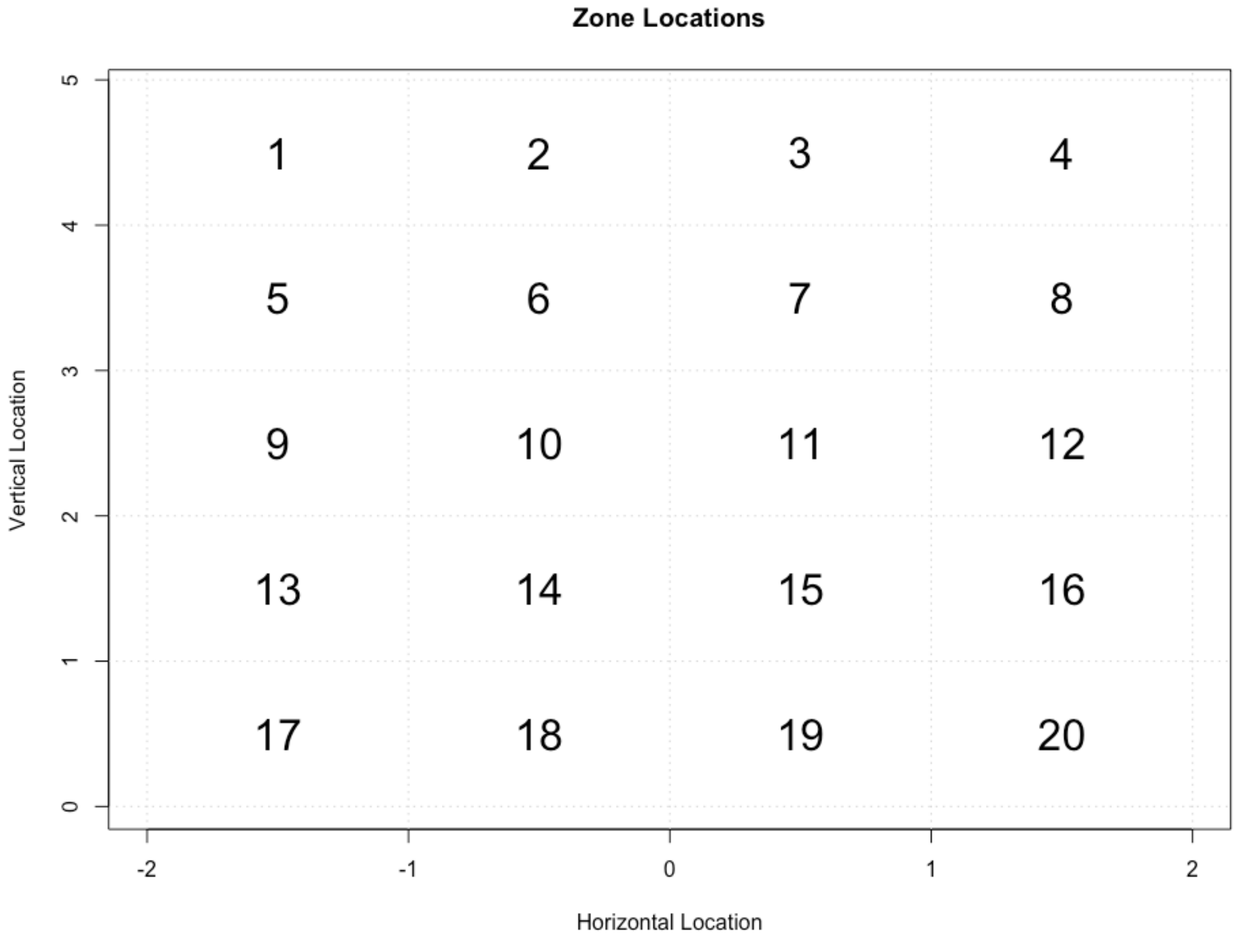
for loops and plotting



for loops and plotting

```
> plot(greinke_sub$px, greinke_sub$pz, type = "n",
    xlab = "Horizontal Location",
    ylab = "Vertical Location",
    main = "Zone Locations")
> grid()
> for(i in 1:20) {
    text(mean(greinke_sub$zone_px[greinke_sub$zone == i]),
    mean(greinke_sub$zone_pz[greinke_sub$zone == i]),
    mean(greinke_sub$zone[greinke_sub$zone == i]), cex = 2)
  }
```

for loops and plotting



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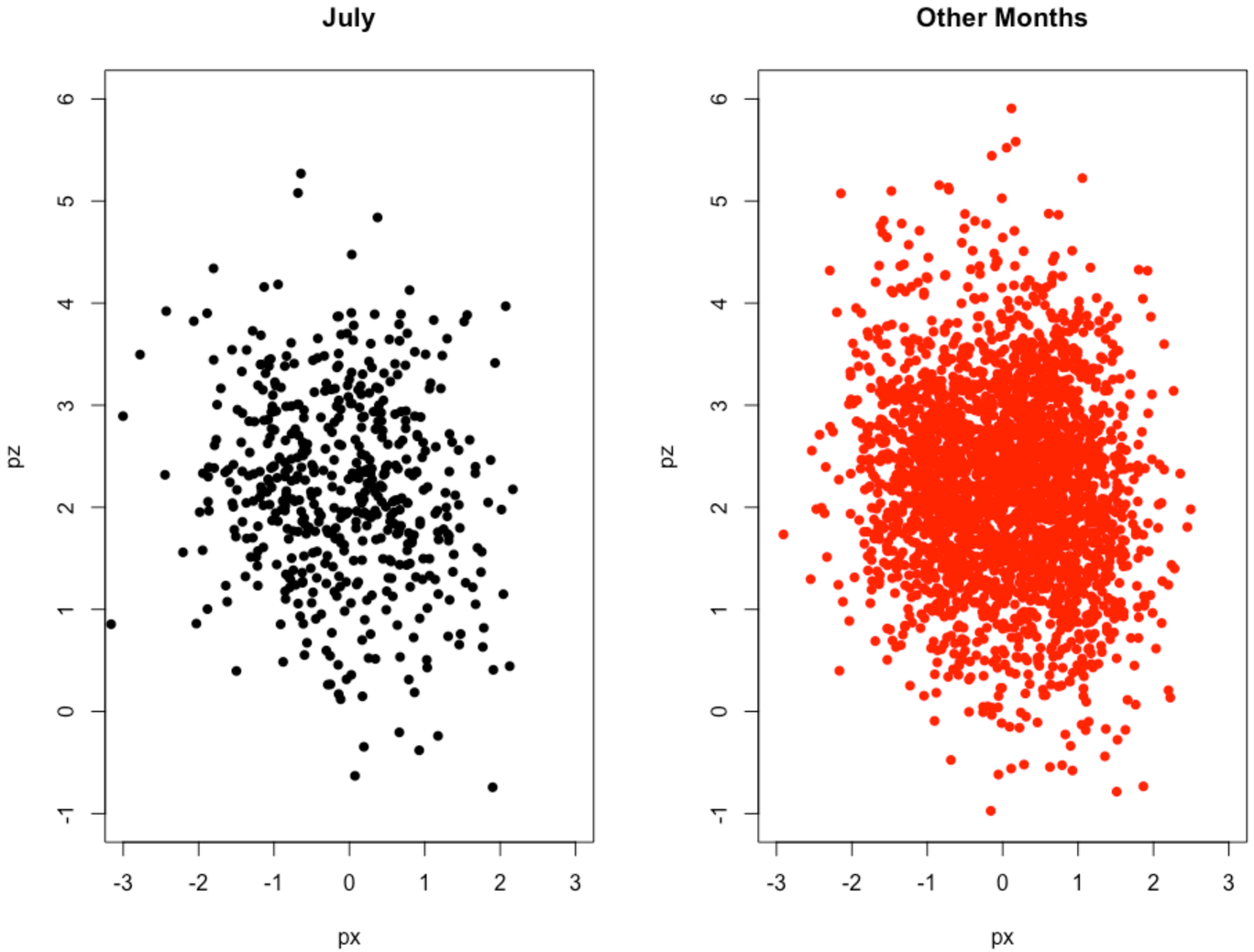
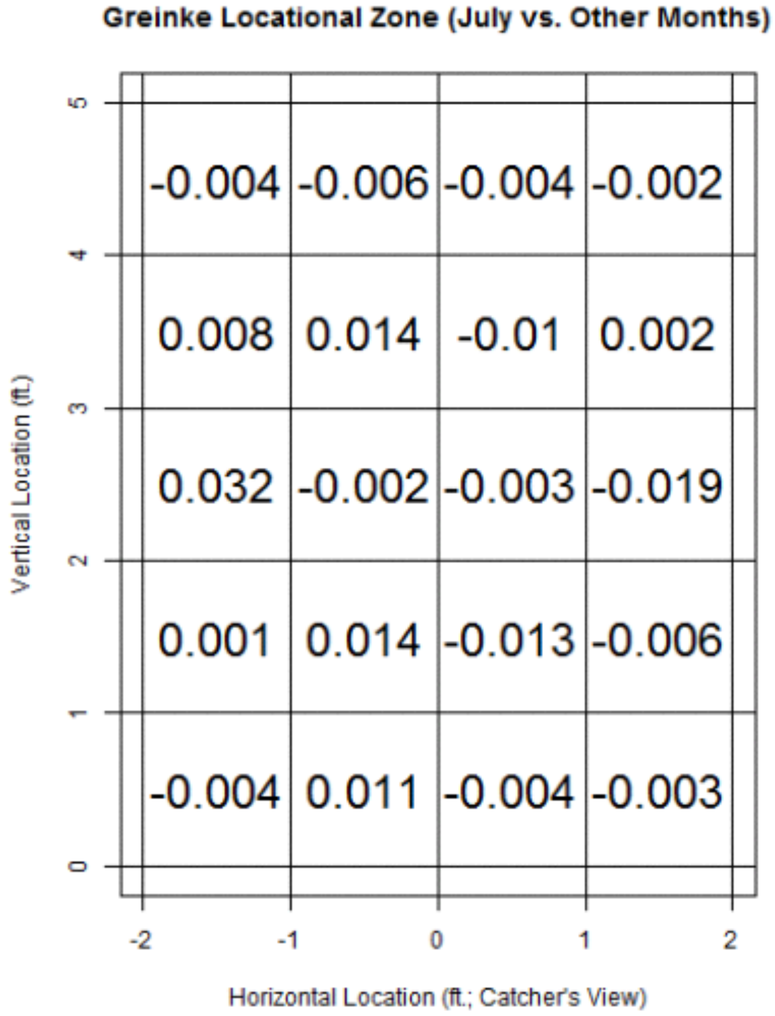
Wrap-up

Difficult visual interpretation

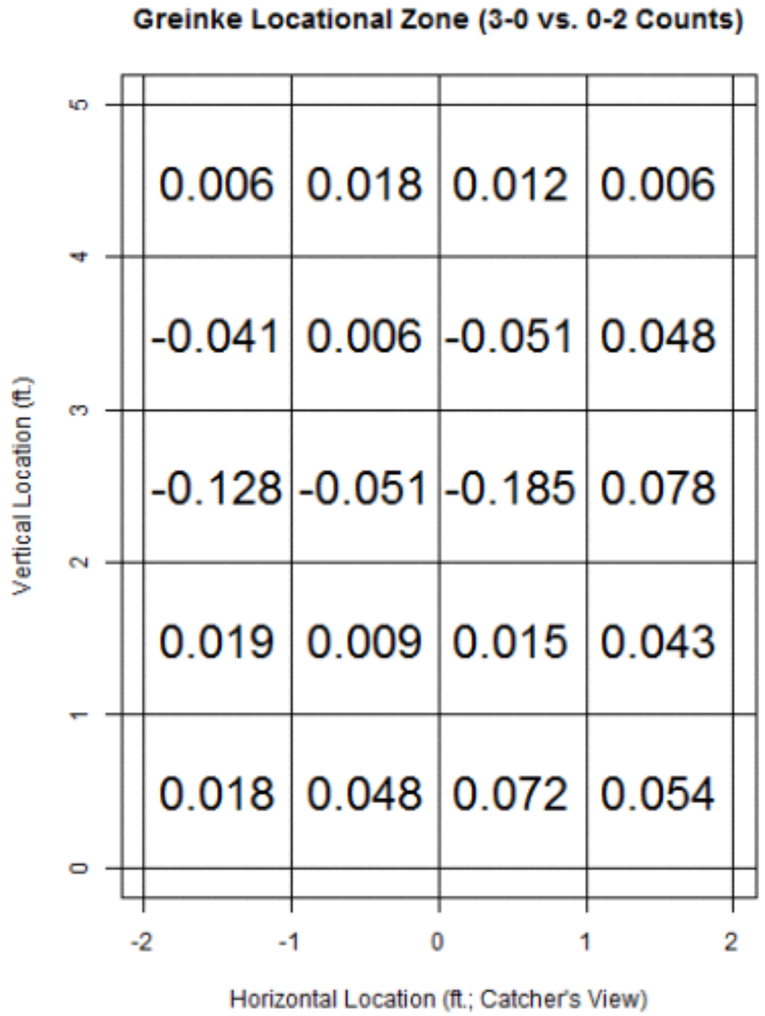


Summarizing through binning data



Negative numbers show Greinke pitched in these bins less frequently in July

Count-based locational differences



Negative numbers show 0-2 pitches in these bins were less frequent than 3-0 pitches

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Let's practice!