fit_betadisp
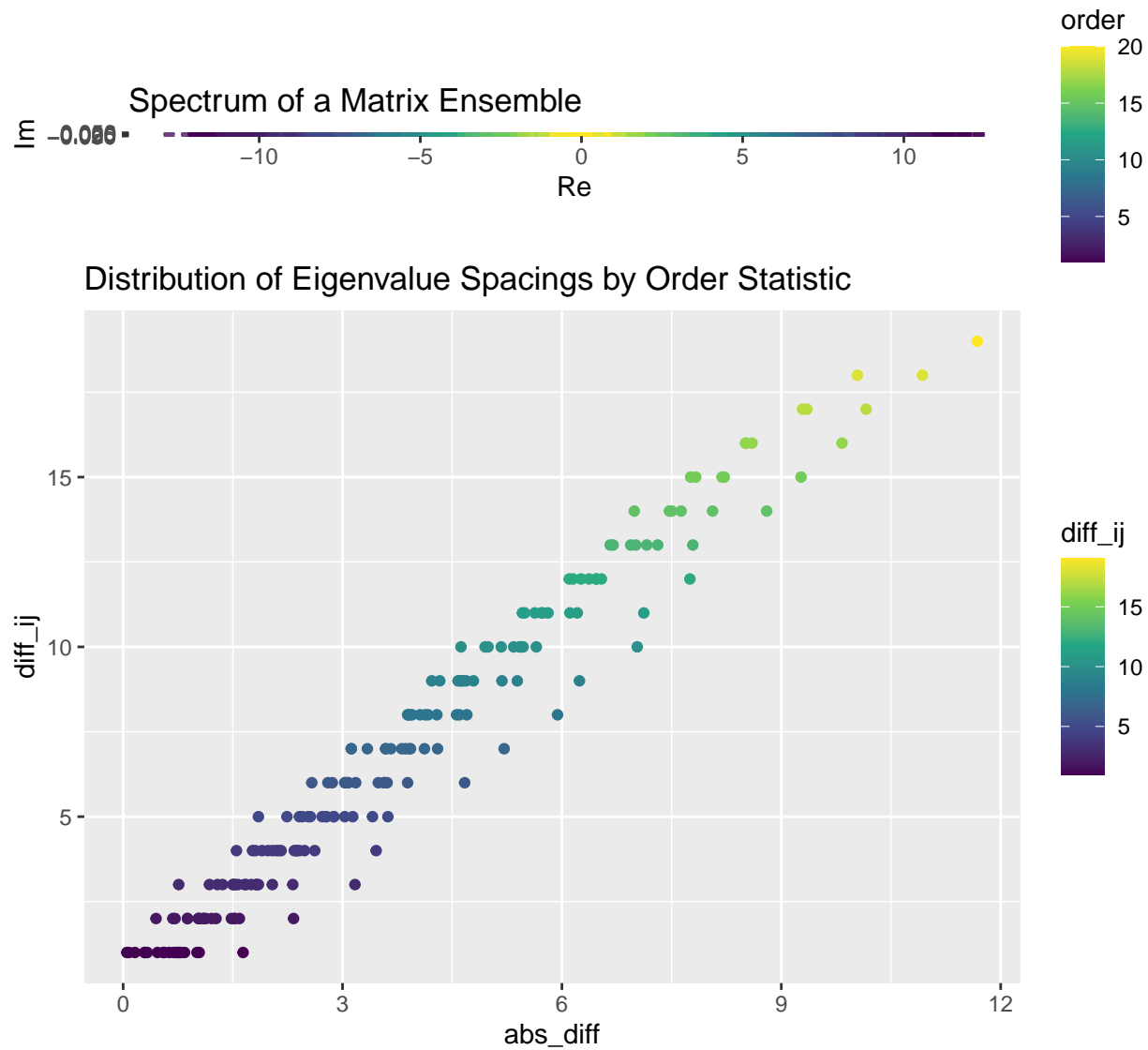
Ali Taqi

3/7/2021

Linear Model: Beta Absolute Difference Dispersions

Spectrum of a Matrix Ensemble

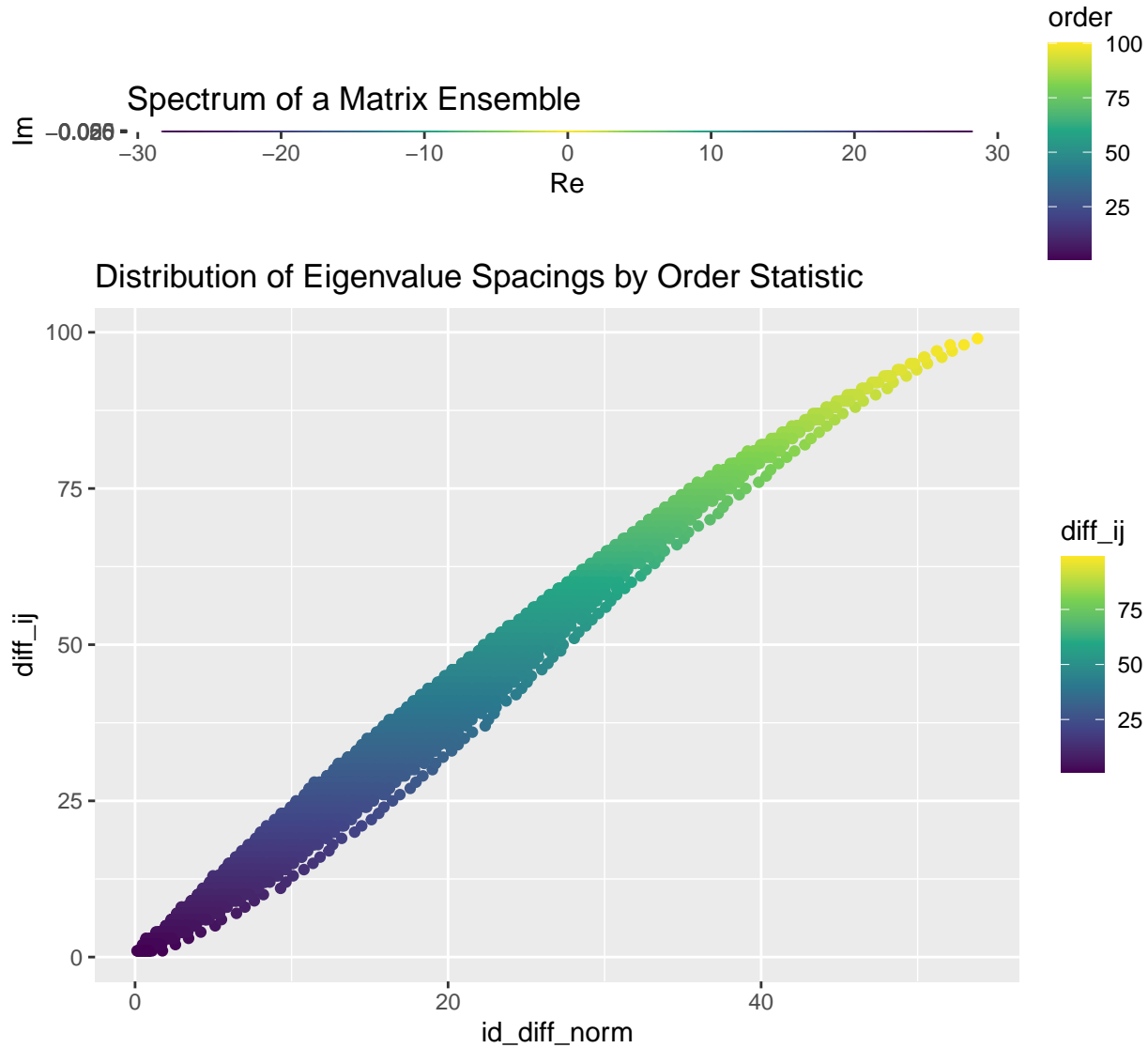Distribution of Eigenvalue Spacings by Order Statistic

```
##
## Call:
## lm(formula = I(abs_diff - intercept) ~ 0 + diff_ij, data = disp_ens)
##
## Residuals:
```

```
##      Min       1Q  Median       3Q      Max
## -0.90672 -0.32161 -0.08075  0.19429  1.52925
##
## Coefficients:
##          Estimate Std. Error t value Pr(>|t|)
## diff_ij 0.551344   0.004339   127.1   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5004 on 189 degrees of freedom
## Multiple R-squared:  0.9884, Adjusted R-squared:  0.9884
## F-statistic: 1.615e+04 on 1 and 189 DF,  p-value: < 2.2e-16
```

Spectrum of a Matrix Ensemble

Distribution of Eigenvalue Spacings by Order Statistic
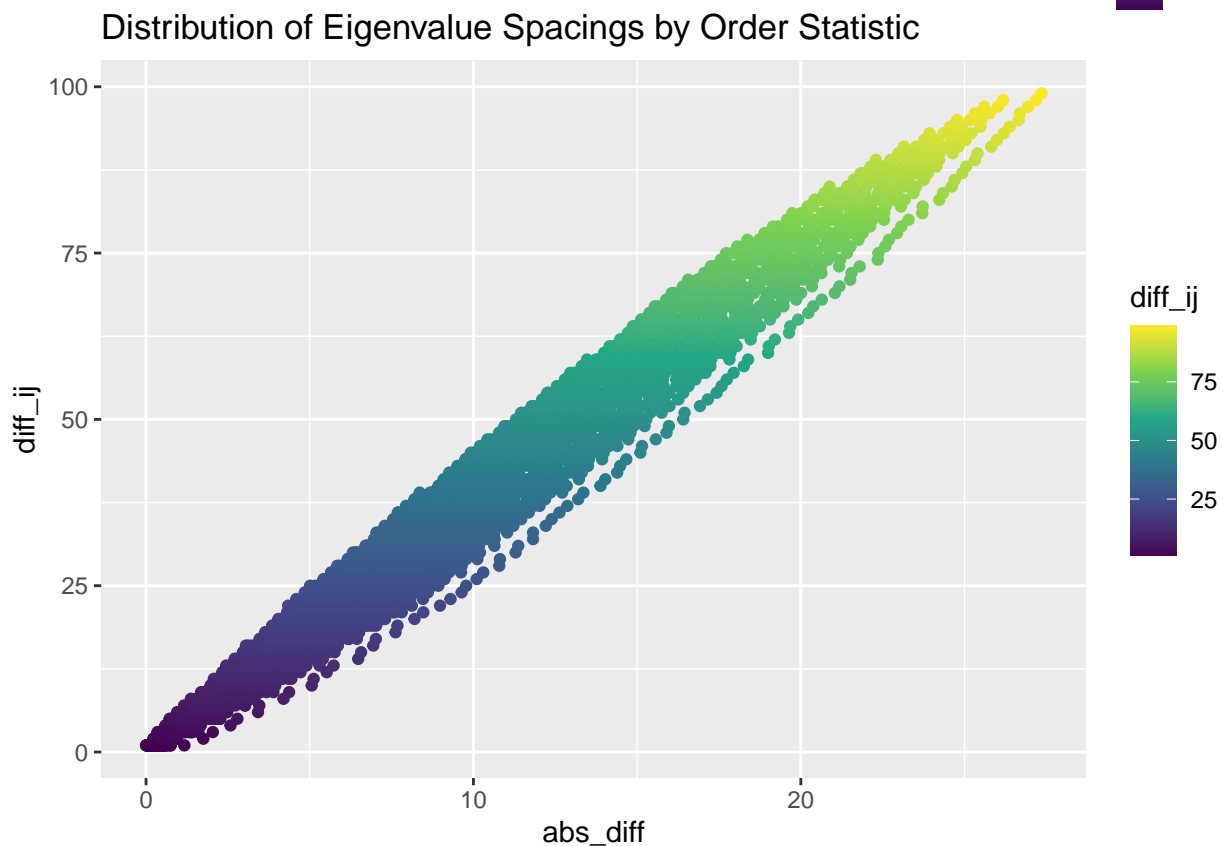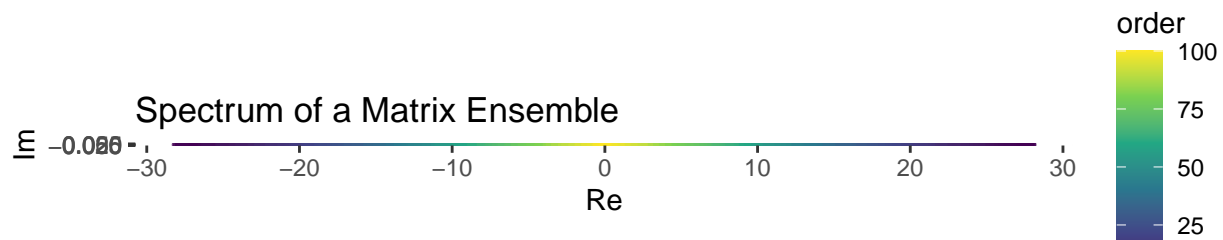

```
##
## Call:
## lm(formula = I(abs_diff - intercept) ~ 0 + diff_ij, data = disp_ens)
##
## Residuals:
##     Min       1Q  Median       3Q      Max
```

```
## -1.9086 -0.6247 -0.1333  0.4775  3.5066
##
## Coefficients:
##           Estimate Std. Error t value Pr(>|t|)
## diff_ij 0.2601208  0.0003326    782.2   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.96 on 4949 degrees of freedom
## Multiple R-squared:  0.992,  Adjusted R-squared:  0.992
## F-statistic: 6.118e+05 on 1 and 4949 DF,  p-value: < 2.2e-16
```


Spectrum of a Matrix Ensemble

Distribution of Eigenvalue Spacings by Order Statistic

```
##
## Call:
## lm(formula = I(id_diff_norm - intercept) ~ 0 + diff_ij, data = disp_ens)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -2.2518 -0.9756 -0.1299  0.6730  5.6541
```

```
## 
## Coefficients:
##          Estimate Std. Error t value Pr(>|t|)
## diff_ij 0.4866251  0.0004355    1117   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 1.257 on 4949 degrees of freedom
## Multiple R-squared:  0.9961, Adjusted R-squared:  0.9961
## F-statistic: 1.248e+06 on 1 and 4949 DF,  p-value: < 2.2e-16
```