Sparsity Analysis

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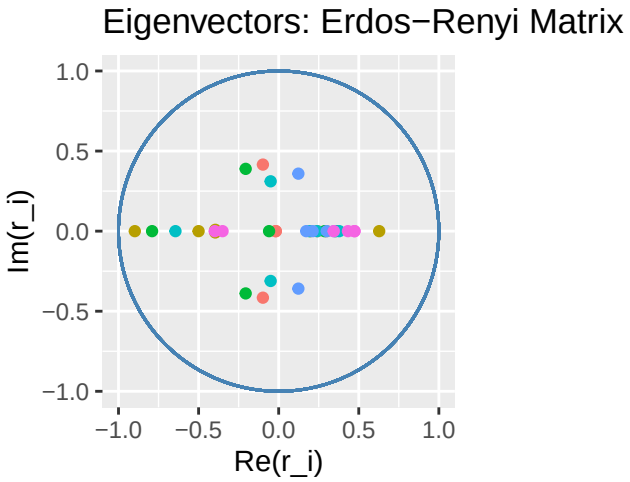
Demonstration

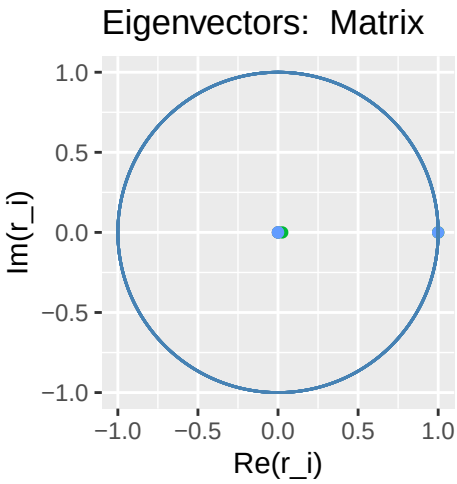
```
# Set parameters
M <- 6
p <- 0.5
# Generate matrix (Erdos-Renyi)
P <- RM_erdos(M, p)
# Get eigenvalues
eigen_df <- eigen_frame(P)
eigen_plot(P,mat_type = "Erdos-Renyi")
```



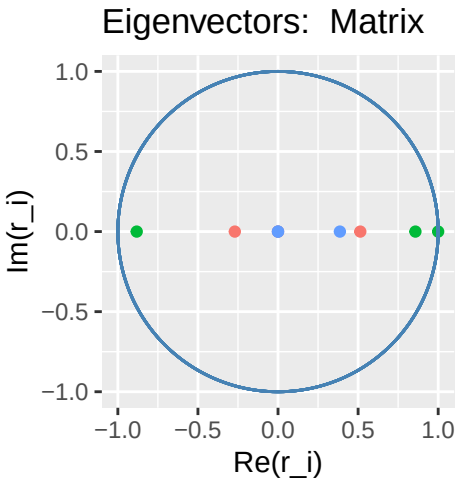
Various Parameter Values

```
M_vec <- c(3,5,10)
p_vec <- c(0.1,0.5,0.6)
c(M1,M2,M3) %<-% M_vec
c(p1,p2,p3) %<-% p_vec
P_vec1 <- matrix(c(RM_erdos(M1,p1),
                   RM_erdos(M1,p1),
                   RM_erdos(M1,p1)),
                 nrow = M_vec[1])
P_vec2 <- matrix(c(RM_erdos(M2,p2),
                   RM_erdos(M2,p2),
                   RM_erdos(M2,p2)),
                 nrow = M_vec[2])
P_vec3 <- matrix(c(RM_erdos(M3,p3),
                   RM_erdos(M3,p3),
                   RM_erdos(M3,p3)),
                 nrow = M_vec[3])
```

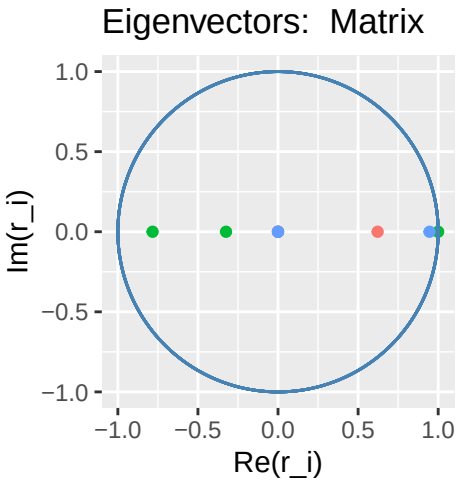
$(\mathbf{M = 3,\ P = 0.1})$



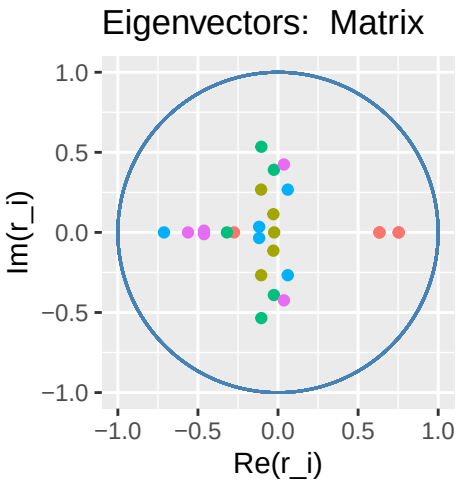
$(\mathbf{M = 3,\ P = 0.5})$



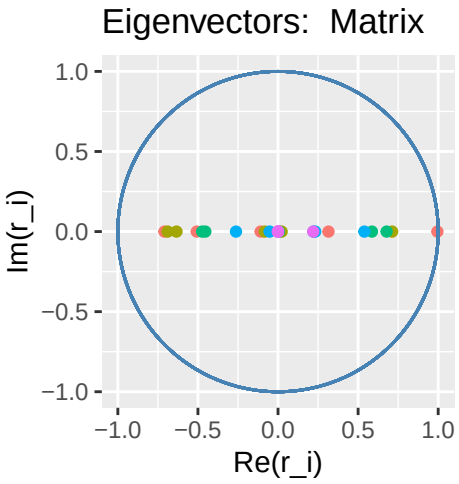
$(\mathbf{M = 3,\ P = 0.9})$



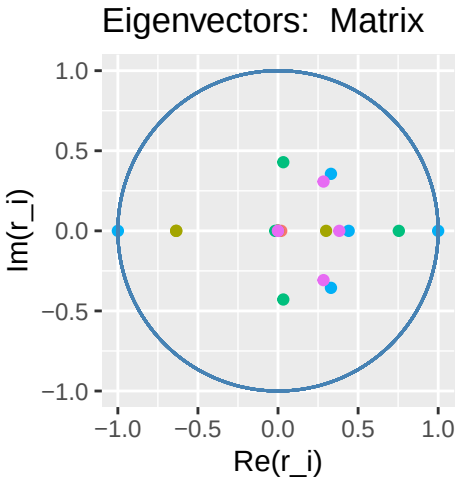
$(\mathbf{M = 5,\ P = 0.1})$



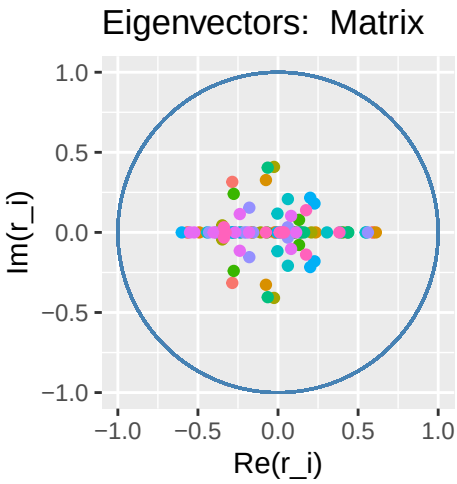
$(\mathbf{M = 5,\ P = 0.5})$



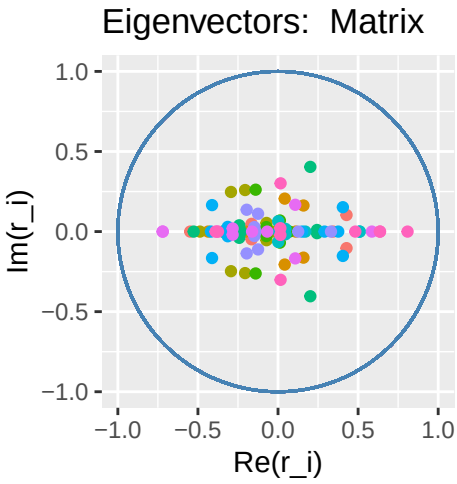
$\mathbf{M = 5,\ P = 0.9}$



$(\mathbf{M = 10,\ P = 0.1})$



$(\mathbf{M = 10,\ P = 0.5})$



$(\mathbf{M = 10,\ P = 0.9})$