

Code Examples

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Chapter 3

Section 1.3

```
set.seed(23)
P <- RM_norm(N = 5, mean = 0, sd = 1)
disp_P <- dispersion(P, pairs = "consecutive")

## Warning in if (class(array) == "list") {: the condition has length > 1 and only
## the first element will be used

## Warning in if (class(array) == "matrix") {: the condition has length > 1 and
## only the first element will be used

## Warning in if (class(array) == "matrix") {: the condition has length > 1 and
## only the first element will be used

# Outputs the following
disp_P

##   i j      eig_i      eig_j      id_diff id_diff_norm abs_diff diff_ij
## 1 2 1 -0.54-1.35i -0.54+1.35i  0.00+2.71i          2.71    0.00      1
## 2 3 2  0.23+1.43i -0.54-1.35i -0.77-2.78i          2.88    0.02      1
## 3 4 3  0.23-1.43i  0.23+1.43i  0.00+2.85i          2.85    0.00      1
## 4 5 4 -0.87+0.00i  0.23-1.43i  1.09-1.43i          1.80    0.57      1

\begin{lstlisting}[language=R]
library(RMAT)
P <- RM_norm(N = 5, mean = 0, sd = 1)
disp_P <- dispersion(P, pairs = "consecutive")
# Outputs the following
disp_P
...
  i j eig_i      eig_j      id_diff      id_diff_norm abs_diff diff_ij
1 2 1 -0.5434-1.3539i -0.5434+1.3539i 0.0000+2.7078i 2.7078    0.0000    1
2 3 2 0.2255+1.4250i -0.5434-1.3539i -0.7689-2.7789i 2.8833    0.0161    1
3 4 3 0.2255-1.4250i 0.2255+1.4250i  0.0000+2.8500i 2.8500    0.0000    1
4 5 4 -0.8678+0.0000i 0.2255-1.4250i  1.0933-1.4250i 1.7961    0.5749    1
\end{lstlisting}
```

Beta Ensemble Dispersion

```
set.seed(23)
ens <- RME_beta(N = 4, beta = 4, size = 3)
```

```
disp_ens <- dispersion(ens, pairs = "consecutive")
```

```
## Warning in if (class(array) == "matrix") {: the condition has length > 1 and
## only the first element will be used
```

```
## Warning in if (class(array) == "matrix") {: the condition has length > 1 and
## only the first element will be used
```

```
## Warning in if (class(array) == "matrix") {: the condition has length > 1 and
## only the first element will be used
```

```
# Outputs the following
```

```
disp_ens
```

```
##   i j   eig_i   eig_j id_diff id_diff_norm abs_diff diff_ij
## 1 2 1 -3.78+0i  4.00+0i  7.78+0i          7.78    0.22     1
## 2 3 2  2.06+0i -3.78+0i -5.84+0i          5.84    1.72     1
## 3 4 3  0.19+0i  2.06+0i  1.88+0i          1.88    1.88     1
## 4 2 1  3.80+0i -4.00+0i -7.80+0i          7.80    0.20     1
## 5 3 2 -1.80+0i  3.80+0i  5.60+0i          5.60    2.00     1
## 6 4 3  0.89+0i -1.80+0i -2.69+0i          2.69    0.92     1
## 7 2 1  3.51+0i -3.53+0i -7.04+0i          7.04    0.03     1
## 8 3 2  1.35+0i  3.51+0i  2.16+0i          2.16    2.16     1
## 9 4 3 -0.67+0i  1.35+0i  2.02+0i          2.02    0.68     1
```

```
\begin{lstlisting}[language=R]
```

```
library(RMAT)
```

```
P <- RM_norm(N = 5, mean = 0, sd = 1)
```

```
disp_P <- dispersion(P, pairs = "consecutive")
```

```
# Outputs the following
```

```
disp_P
```

```
...
```

```
   i j eig_i           eig_j           id_diff           id_diff_norm abs_diff diff_ij
1  2 1 -0.5434-1.3539i -0.5434+1.3539i 0.0000+2.7078i 2.7078          0.0000  1
2  3 2 0.2255+1.4250i -0.5434-1.3539i -0.7689-2.7789i 2.8833          0.0161  1
3  4 3 0.2255-1.4250i  0.2255+1.4250i  0.0000+2.8500i 2.8500          0.0000  1
4  5 4 -0.8678+0.0000i 0.2255-1.4250i  1.0933-1.4250i 1.7961          0.5749  1
```

```
\end{lstlisting}
```