```
#Test script for workshop
```

Initialize

```
library(knitr)
#knitr::spin("test.r")
library(dae)
```

```
## Loading required package: ggplot2
```

```
packageVersion("dae")
```

```
## [1] '3.1.12'
```

```
library(od)
packageVersion("od")
```

```
## [1] '2.0.0'
```

```
b <- 5
t <- 5
```

Construct a systematic layoout and obtain the randomized layout for an RCBD

```
RCBD.sys <- cbind(fac.gen(list(Rows=b, Columns=t)),
                  fac.gen(generate = list(Lines = LETTERS[1:t]), times = b))
RCBD.lay <- designRandomize(allocated         = RCBD.sys["Lines"],
                            recipient         = RCBD.sys[c("Rows", "Columns")],
                            nested.recipients = list(Columns = "Rows"),
                            seed = 1134)
```

Plot the layout

```
designGGPlot(RCBD.lay, labels = "Lines", cellalpha = 0.75,
             axis.text.size = 20, size = 8,
             blockdefinition = cbind(1,t))
```

Get the anatomy of the layout

```
RCBD.canon <- designAnatomy(formulae = list(plots = ~ Rows/Columns,
                                            lines = ~ Lines),
                            data = RCBD.lay)
summary(RCBD.canon)
```

```
##
##
## Summary table of the decomposition for plots & lines
##
##  Source.plots  df1 Source.lines df2 aefficiency eefficiency order
##  Rows            4
```

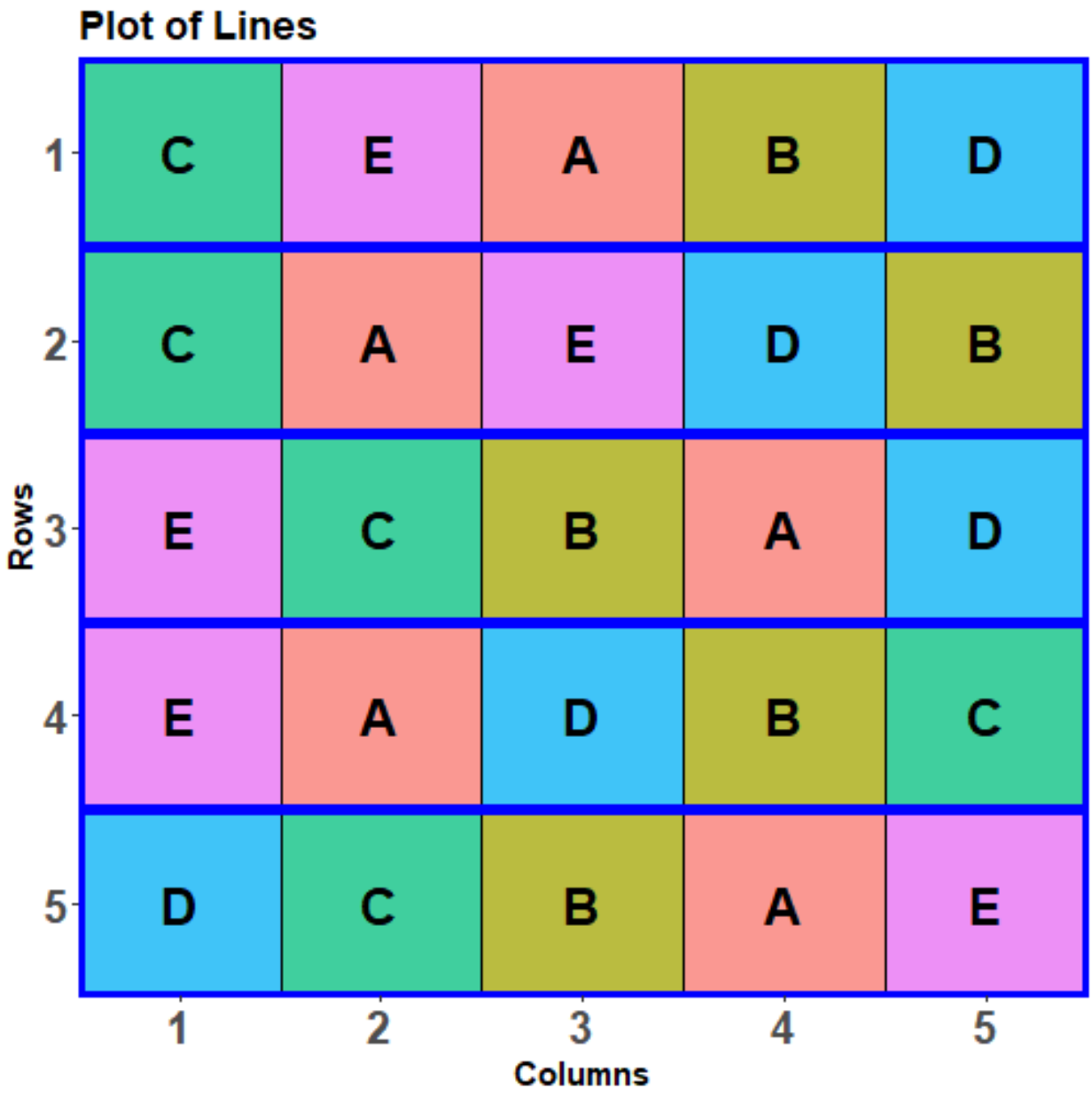

Figure 1: plot of chunk unnamed-chunk-4

```
##  Columns[Rows]  20 Lines          4      1.0000      1.0000     1
##                    Residual      16
```

Use od to get an optimal row-column design

```
RC.od <- od (fixed = ~ Rows + Columns,
             residual = ~ Rows:Columns,
             permute = ~ Lines, maxit = 500,
             data = RCBD.lay)
```

```
## Wed Oct 23 16:55:16 2019
## Initial A-value = 0.496091 (5 A-equations; rank C 4)
## Final A-value after 500 iterations: 0.419048
```

```
RC.lay <- RC.od$design
```

Plot the layout

```
designGGPlot(RC.lay, labels = "Lines", cellalpha = 0.75,
             axis.text.size = 20, size = 8)
```

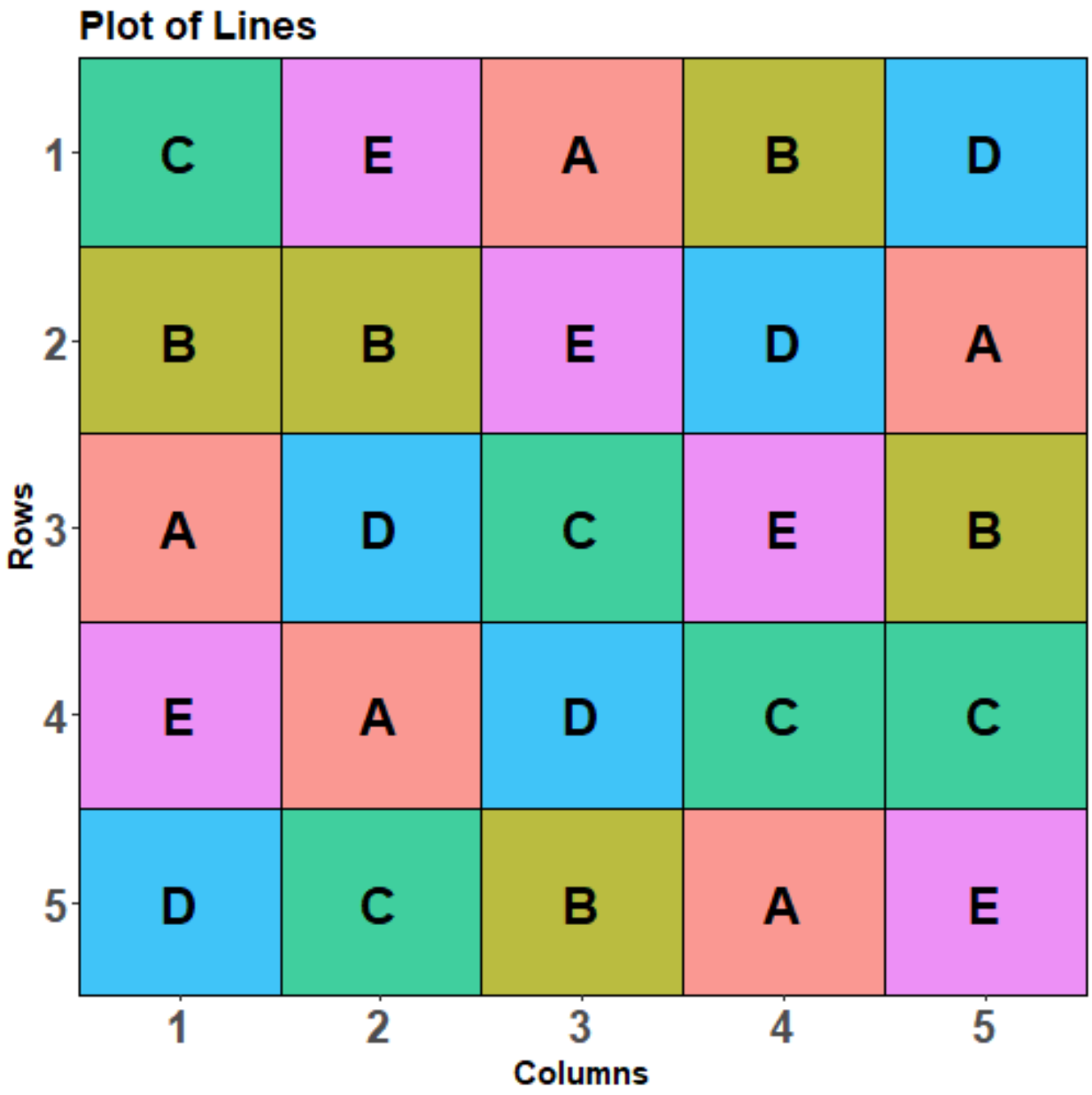

Figure 2: plot of chunk unnamed-chunk-7