

R Generate and Combine Fixed and Random Matrix

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1 Generate Matrixes

Go to the [RMD](#), [R](#), [PDF](#), or [HTML](#) version of this file. Go back to [fan's REconTools](#) Package, [R Code Examples](#) Repository ([bookdown site](#)), or [Intro Stats with R](#) Repository ([bookdown site](#)).

1.1 Create a N by 2 Matrix from 3 arrays

Names of each array become row names automatically.

```
ar_row_one <- c(-1,+1)
ar_row_two <- c(-3,-2)
ar_row_three <- c(0.35,0.75)

mt_n_by_2 <- rbind(ar_row_one, ar_row_two, ar_row_three)
kable(mt_n_by_2) %>%
  kable_styling_fc()
```

ar_row_one	-1.00	1.00
ar_row_two	-3.00	-2.00
ar_row_three	0.35	0.75

1.2 Name Matrix Columns and Rows

```
# An empty matrix with Logical NA
mt_named <- matrix(data=NA, nrow=2, ncol=2)
colnames(mt_named) <- paste0('c', seq(1,2))
rownames(mt_named) <- paste0('r', seq(1,2))
mt_named

##      c1 c2
## r1 NA NA
## r2 NA NA
```

1.3 Generate NA Matrix

- Best way to allocate matrix in R, NULL vs NA?

Allocate with NA or NA_real_ or NA_int_. Clarity in type definition is preferred.

```
# An empty matrix with Logical NA
mt_na <- matrix(data=NA, nrow=2, ncol=2)
str(mt_na)
```

```
## logi [1:2, 1:2] NA NA NA NA
```

```
# An empty matrix with numerica NA
mt_fl_na <- matrix(data=NA_real_, nrow=2, ncol=2)
mt_it_na <- matrix(data=NA_integer_, nrow=2, ncol=2)

str(mt_fl_na)
```

```
## num [1:2, 1:2] NA NA NA NA
```

```
str(mt_fl_na)
```

```
## num [1:2, 1:2] NA NA NA NA
```

1.4 Generate Random Matrixes

Random draw from the normal distribution, random draw from the uniform distribution, and combine resulting matrixes.

```
# Generate 15 random normal, put in 5 rows, and 3 columns
mt_rnorm <- matrix(rnorm(15,mean=0,sd=1), nrow=5, ncol=3)

# Generate 15 random normal, put in 5 rows, and 3 columns
mt_runif <- matrix(runif(15,min=0,max=1), nrow=5, ncol=5)

# Combine
mt_rnorm_runif <- cbind(mt_rnorm, mt_runif)

# Display
kable(mt_rnorm_runif) %>%
  kable_styling_fc_wide()
```

0.1292877	-0.4456620	-0.5558411	0.3181810	0.3688455	0.2659726	0.3181810	0.3688455
1.7150650	1.2240818	1.7869131	0.2316258	0.1524447	0.8578277	0.2316258	0.1524447
0.4609162	0.3598138	0.4978505	0.1428000	0.1388061	0.0458312	0.1428000	0.1388061
-1.2650612	0.4007715	-1.9666172	0.4145463	0.2330341	0.4422001	0.4145463	0.2330341
-0.6868529	0.1106827	0.7013559	0.4137243	0.4659625	0.7989248	0.4137243	0.4659625