

gen_data

2022-10-28

```
source("../function/gen_syn_data.R")
```

```
##  
## Attaching package: 'zoo'  
  
## The following objects are masked from 'package:base':  
##  
##      as.Date, as.Date.numeric
```

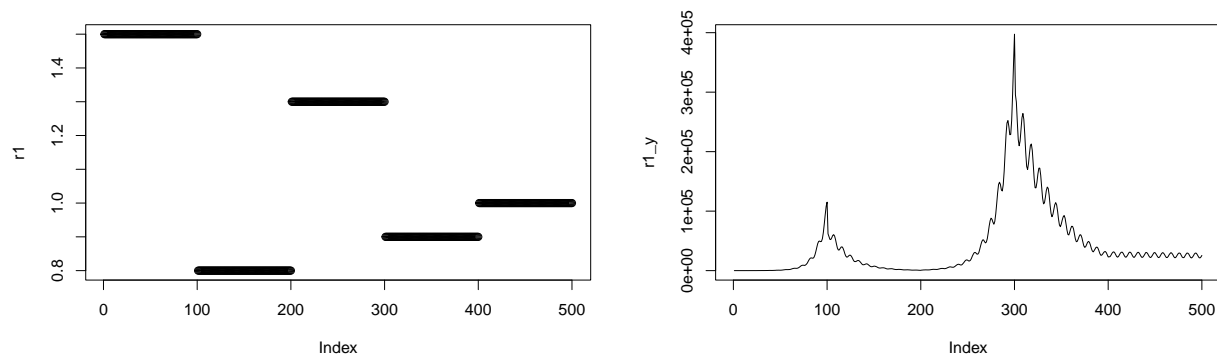
```
source("../function/disc_gamma.R")  
source("../constant/constant.R")  
source("../function/get_iwt.R")  
source("../function/disc_gamma.R")
```

Creating & Visualizing synthetic dataset

D1

With cyclic effect

```
r1 <- c(rep(1.5, 100), rep(0.8, 100), rep(1.3, 100), rep(0.9, 100), rep(1, 100))  
r1_y <- gen_with_rt(r1, init_i = 2, g_shape= sid_covid_shape, g_scale = sid_covid_scale, cyc_amp = 5)  
r1_iwt <- get_iwt(r1_y, disc_gamma(1:length(r1_y), shape=sid_covid_shape, scale=sid_covid_scale))  
  
d1 = data.frame(idx = 1:length(r1), r = r1, y = r1_y, iwt = r1_iwt)  
  
plot(r1)  
plot(r1_y, type = "l")  
  
write.csv(d1, "../data/processed/d1.csv", row.names = FALSE)
```

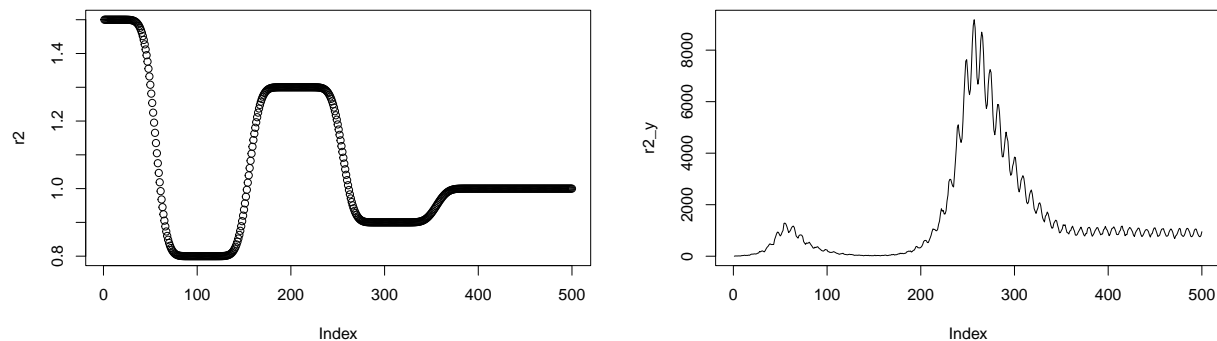


D2

With cyclic effect, smoothed 10 times

```
r2 <- c(rep(1.5, 100), rep(0.8, 100), rep(1.3, 100), rep(0.9, 100), rep(1, 100))
r2 <- smooth_rt(r2, 10)
r2_y <- gen_with_rt(r2, init_i = 2, g_shape= sid_covid_shape, g_scale = sid_covid_scale, cyc_amp = 5)
r2_iwt <- get_iwt(r2_y, disc_gamma(1:length(r2_y), shape=sid_covid_shape, scale=sid_covid_scale))

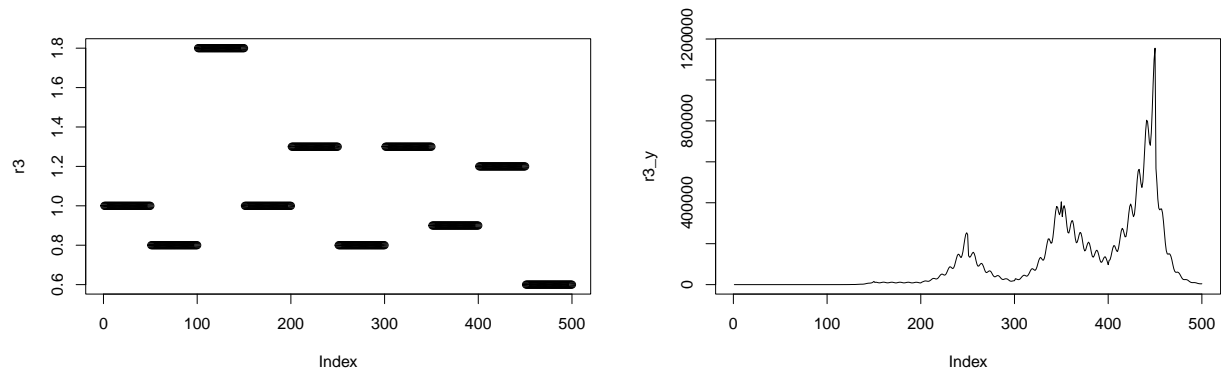
plot(r2)
plot(r2_y, type = "l")
```



D3

```
r3 <- c(rep(1, 50), rep(0.8, 50), rep(1.8, 50), rep(1, 50), rep(1.3, 50), rep(0.8, 50),
        rep(1.3, 50), rep(0.9, 50), rep(1.2, 50), rep(0.6, 50))
r3_y <- gen_with_rt(r3, init_i = 2, g_shape= sid_covid_shape, g_scale = sid_covid_scale, cyc_amp = 5)
r3_iwt <- get_iwt(r3_y, disc_gamma(1:length(r3_y), shape=sid_covid_shape, scale=sid_covid_scale))

plot(r3)
plot(r3_y, type = "l")
```



D4

```
r4 <- c(rep(1, 50), rep(0.8, 50), rep(1.8, 50), rep(1, 50), rep(1.3, 50), rep(0.8, 50),
        rep(1.3, 50), rep(0.9, 50), rep(1.2, 50), rep(0.6, 50))
r4 <- smooth_rt(r4, 10)
r4_y <- gen_with_rt(r4, init_i = 2, g_shape= sid_covid_shape, g_scale = sid_covid_scale, cyc_amp = 5)
r4_iwt <- get_iwt(r4_y, disc_gamma(1:length(r4_y), shape=sid_covid_shape, scale=sid_covid_scale))

plot(r4)
plot(log(r4_y), type = "l")
```

