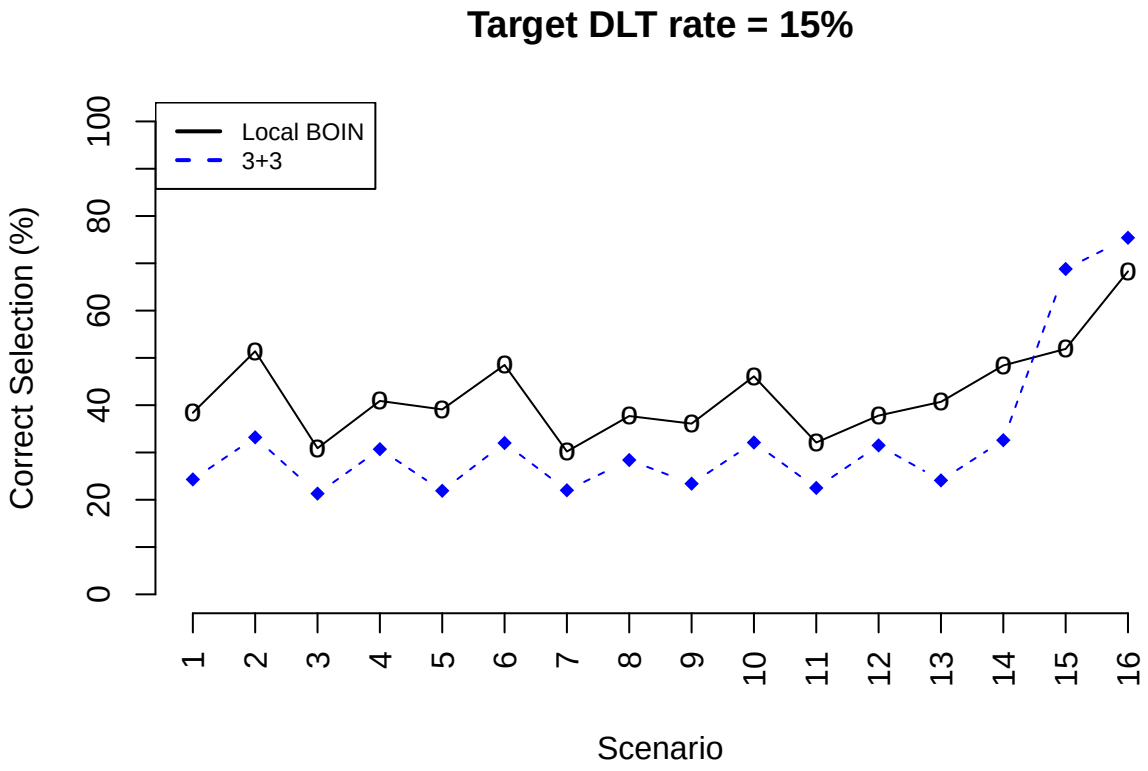
Replicate

Yanruyu Zhu (yaz4004)

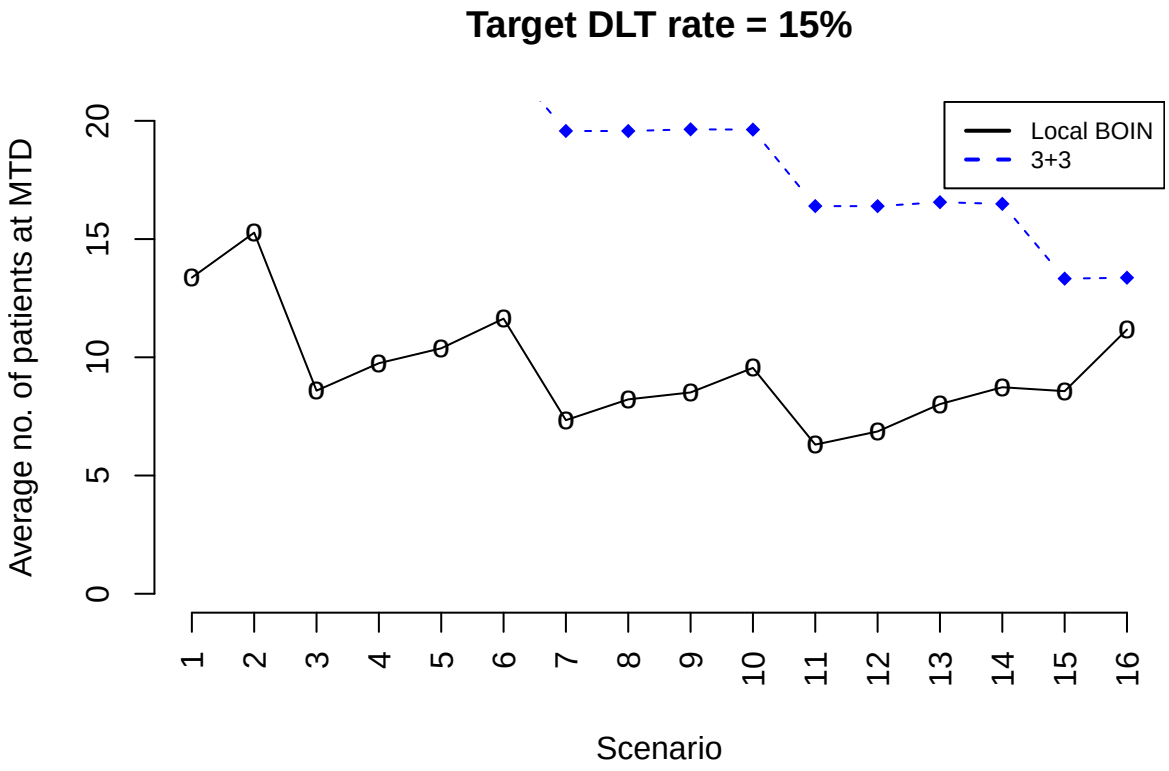
10/31/2021

DLT = 15%

i. PCS

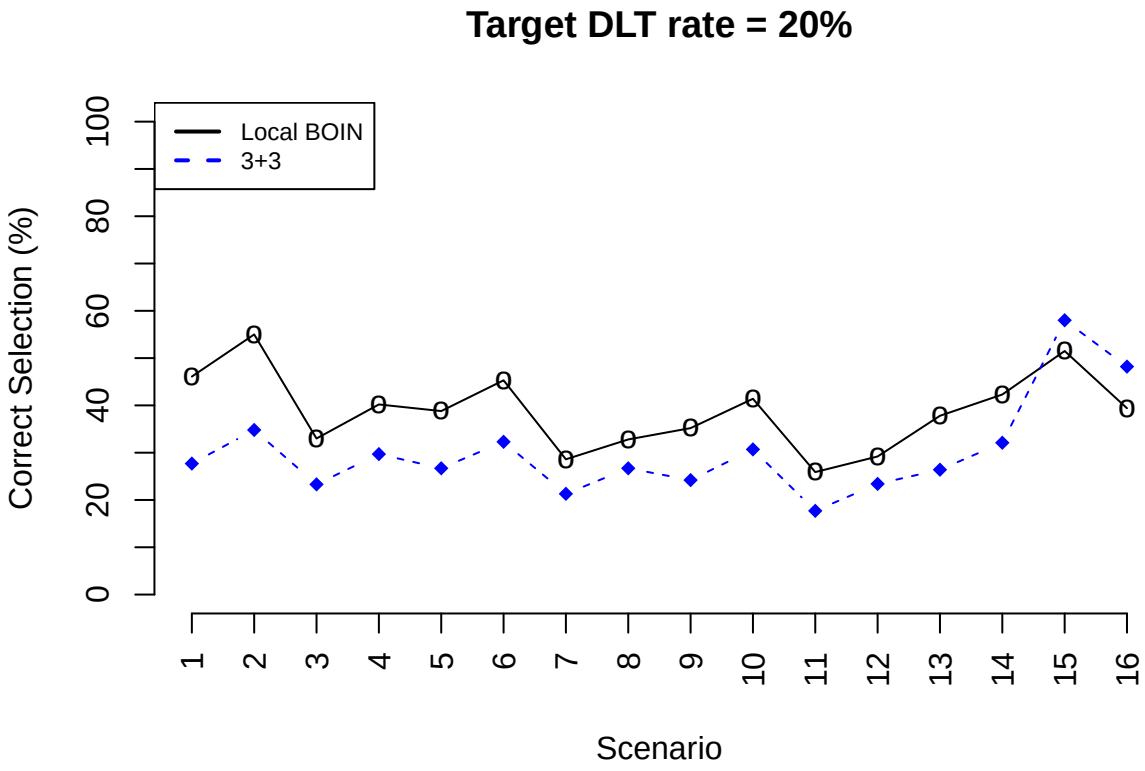


ii. Avg # of patients at MTD

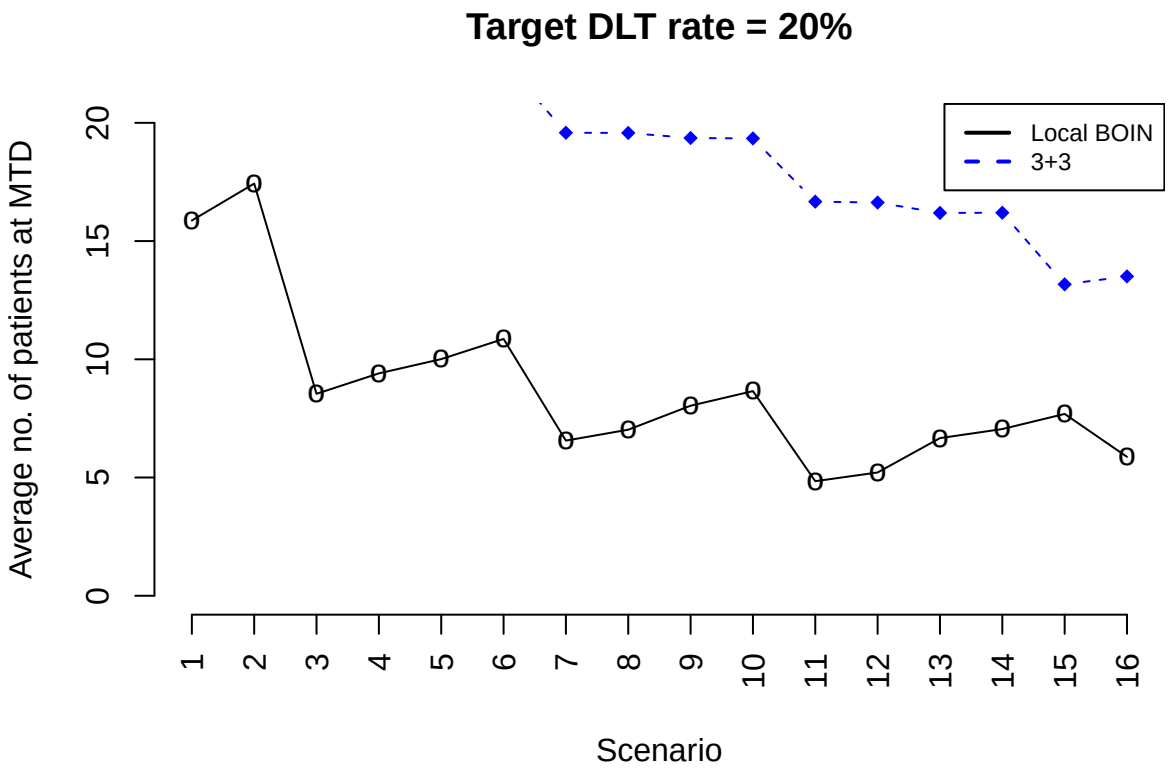


DLT = 20%

i. PCS

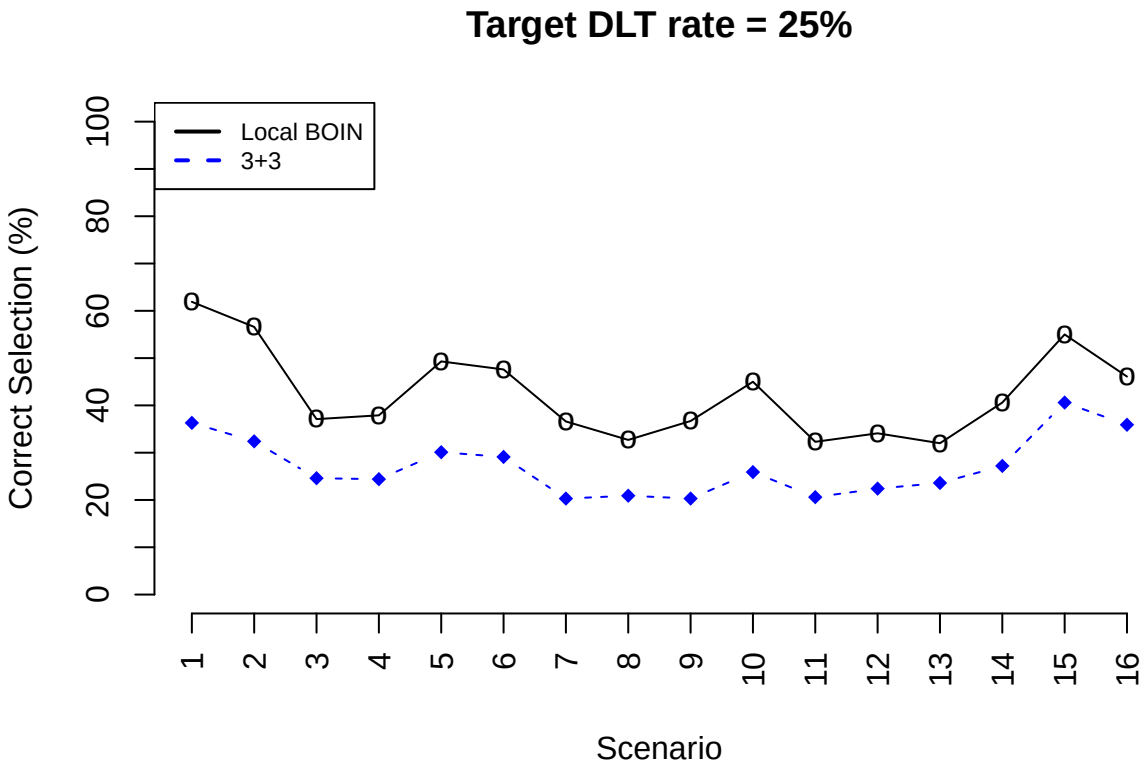

Target DLT rate = 20%
Local BOIN
3+3
Correct Selection (%)
0
20
40
60
80
100
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Scenario

ii. Avg # of patients at MTD

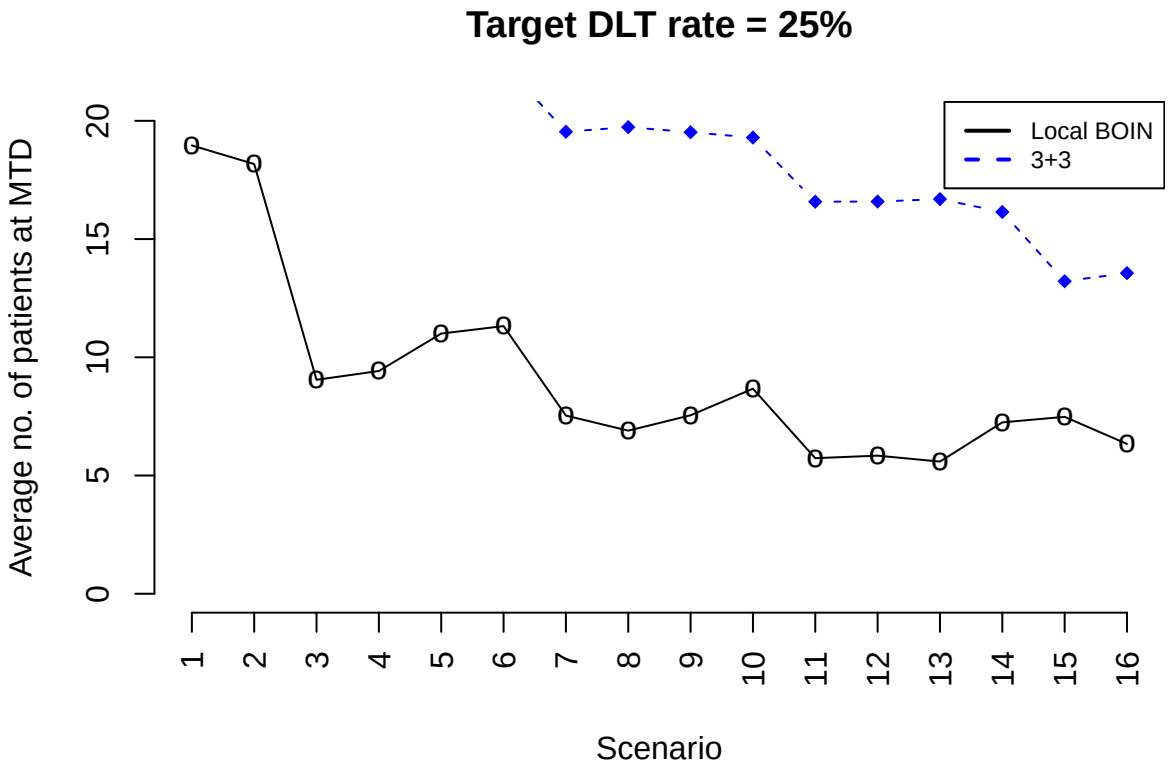


DLT = 25%

i. PCS

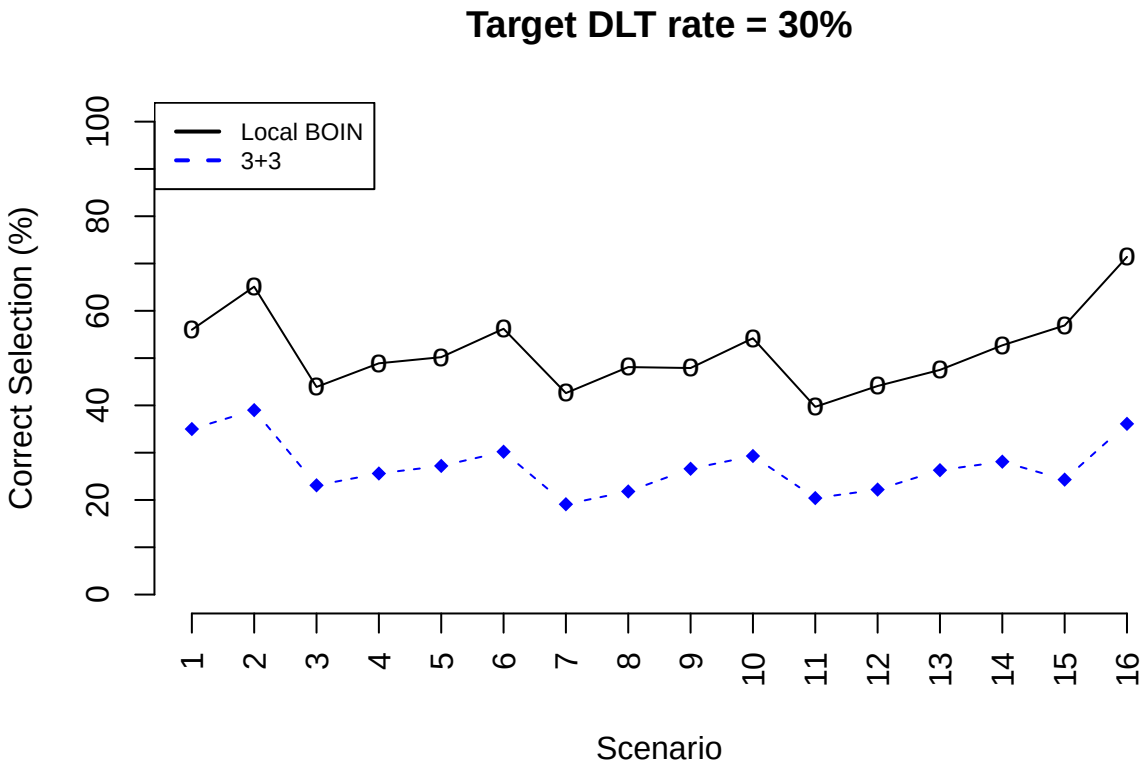

Target DLT rate = 25%
Local BOIN
3+3
Correct Selection (%)
0
20
40
60
80
100
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Scenario

ii. Avg # of patients at MTD

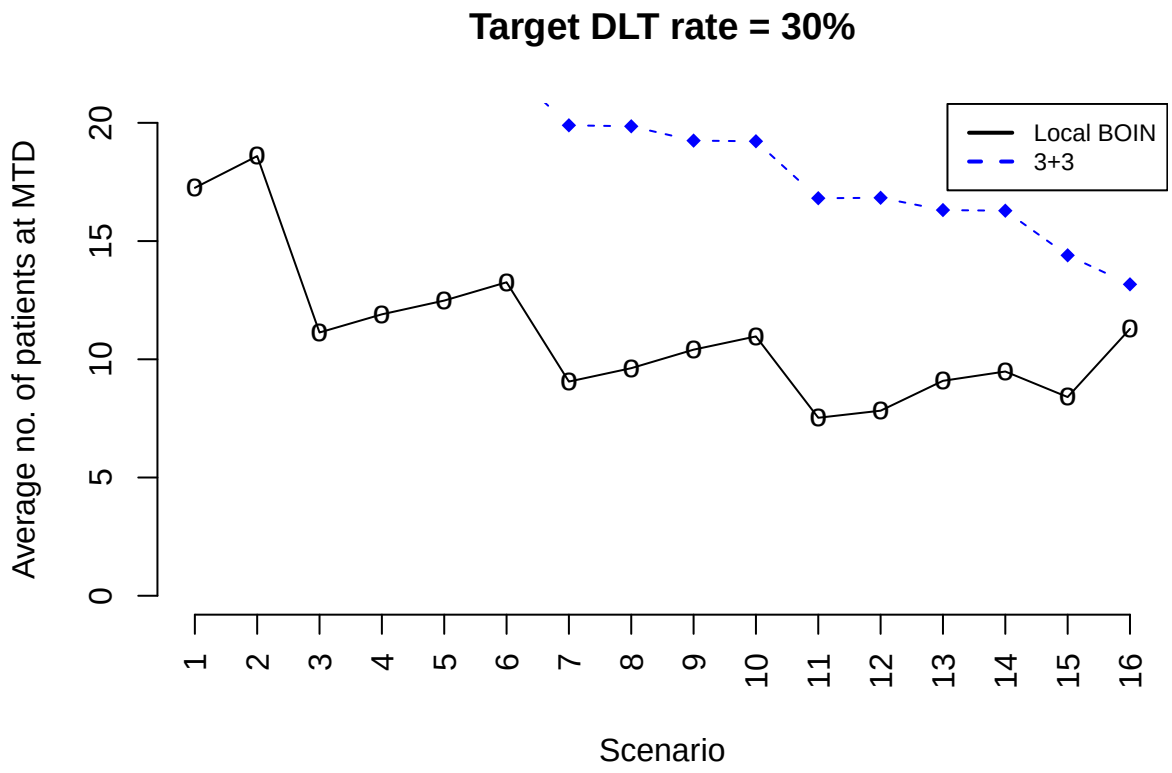


DLT = 30%

i. PCS


Target DLT rate = 30%
Local BOIN
3+3
Correct Selection (%)
0
20
40
60
80
100
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Scenario

ii. Avg # of patients at MTD




```
library(tibble)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
DLT_true = 0.2
ntrial = 100
i = 7

  S = as.list(DLT_20[DLT_20$Scenario==i,][2:6])
  S = as.double(S)
  idx = which(S == DLT_true)[1]
  sims <- get_three_plus_three(num_doses = 5, allow_deescalate = FALSE) %>%
  simulate_trials(num_sims = ntrial, true_prob_tox = S)

  # vec = n_at_dose(sims)[1:idx]
  # vec_sum = sum(n_at_dose(sims)[1:idx])
  #
  # AvgMTD_3p3 = (30*ntrial-vec_sum)/ntrial
  tab = as_tibble(sims)
```

```
  tab = as.data.frame(tab)
  avg = rep(0, ntrial)
  for (i in 1:ntrial) {
    num = 0
    tab_i = tab %>% filter(tab$.iteration == i)
    j = 1
    while (tab_i[j,]$recommended == FALSE) {
      num = num + tab_i[j,]$n
      j = j + 1
    }
    avg[i] = 30-num
  }
  avg
```

```
##   [1] 30 24 18 30 15 27 21 21 27 15 24 27 24 30 21 24 24 18 15 12 27 21 21 24 18
##  [26] 24 24 24 30 15 30 21 27 27 30 24 21 27 21 24 24 24 21 18 30 30 24 15 18 24
##  [51] 30 15 30 27 21 30 21 21 15 30 27 24 30 18 27 18 21 18 21 15 24 21 27 27 21
##  [76] 15 27 21 24 21 30 24 18 30 24 24 30 30 21 27 30 24 24 30 27 30 18 24 21 27
```

```
  mean(avg)
```

```
## [1] 23.55
```

```
  # tab[".iteration"]
```