Simulation 3

2025-06-03

Modèle de Cox

$\lambda_1 = 0.2$; $k_1 = 1.7$

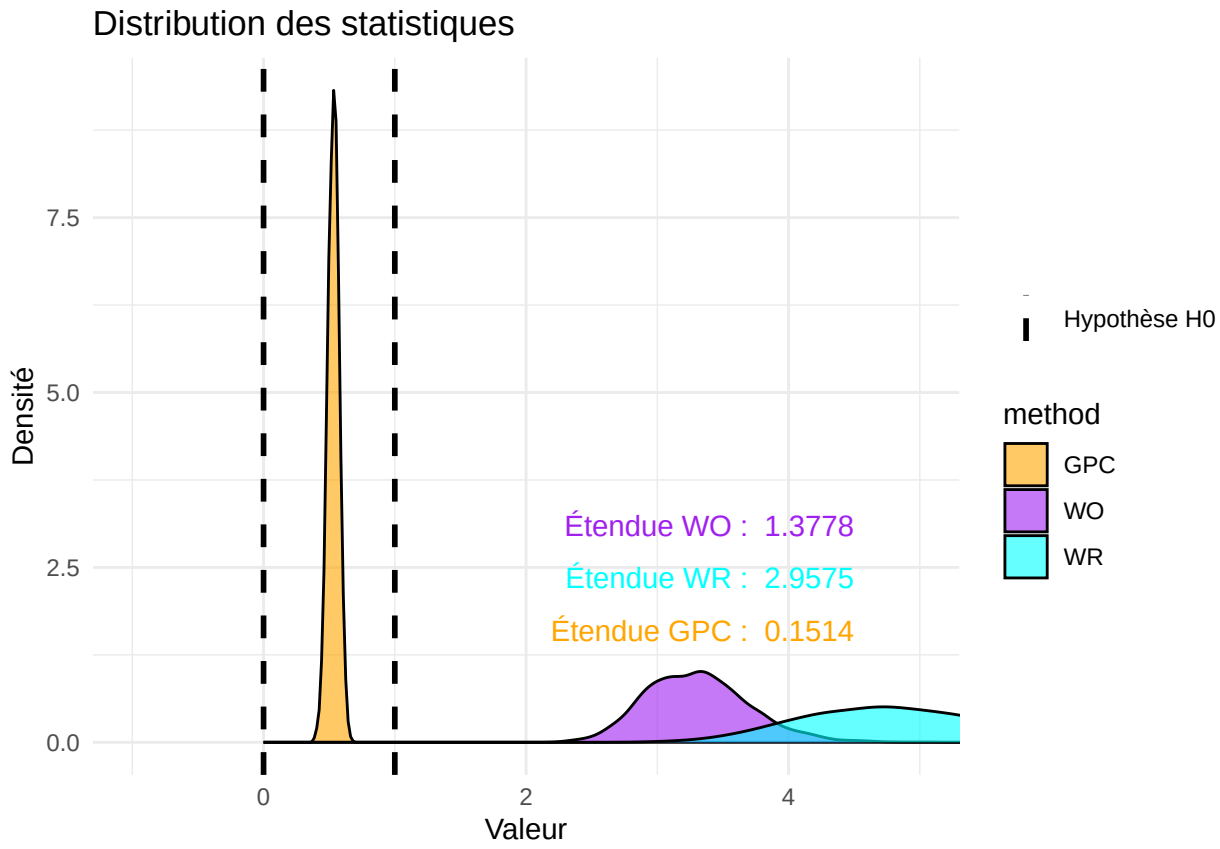
$\lambda_2 = 0.15$; $k_2 = 1.5$

β = -0.9

t_censure = c(1,3,6)

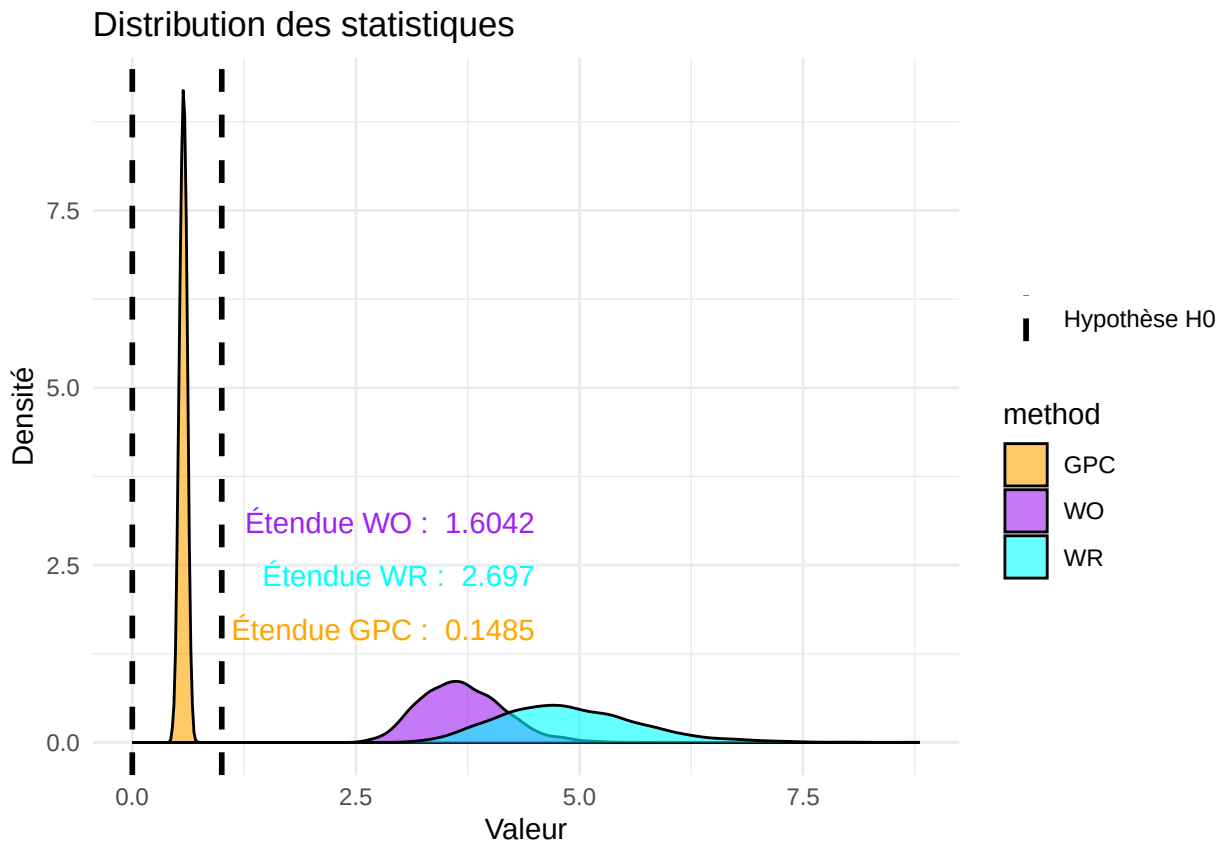
τ = c(0,0)

```
## $Count
##            Win Loose  Tie      WR      WO     GPC
## endpoint1 4414   993 4593 4.44512 2.03998 0.34210
## endpoint2 2294   396 1902 5.79293 2.40906 0.41333
## overall   6708  1390 1902 4.82590 3.27168 0.53180
##
## $value_tte_cont_C
##        Y_1_C (tte) Y_2_C (tte)
## min       4.642900   0.0326235
## median    5.361705   4.6429005
## max       9.000000   9.0000000
##
## $value_tte_cont_T
##        Y_1_T (tte) Y_2_T (tte)
## min       0.095685      4.6429
## median    9.000000      9.0000
## max       9.000000      9.0000
##
## $censure
##   endpoint 1 endpoint2
## T   0.838740 0.8508125
## C   0.470355 0.4074150
##
## $p_val_GPC
## [1] "probabilité d'avoir des p-valeur < 0.05 pour la GPC:  1"
##
## $p_val_WR
## [1] "probabilité d'avoir des p-valeur < 0.05 pour le WR:  1"
##
## $p_val_WO
## [1] "probabilité d'avoir des p-valeur < 0.05 pour le WO:  1"
```



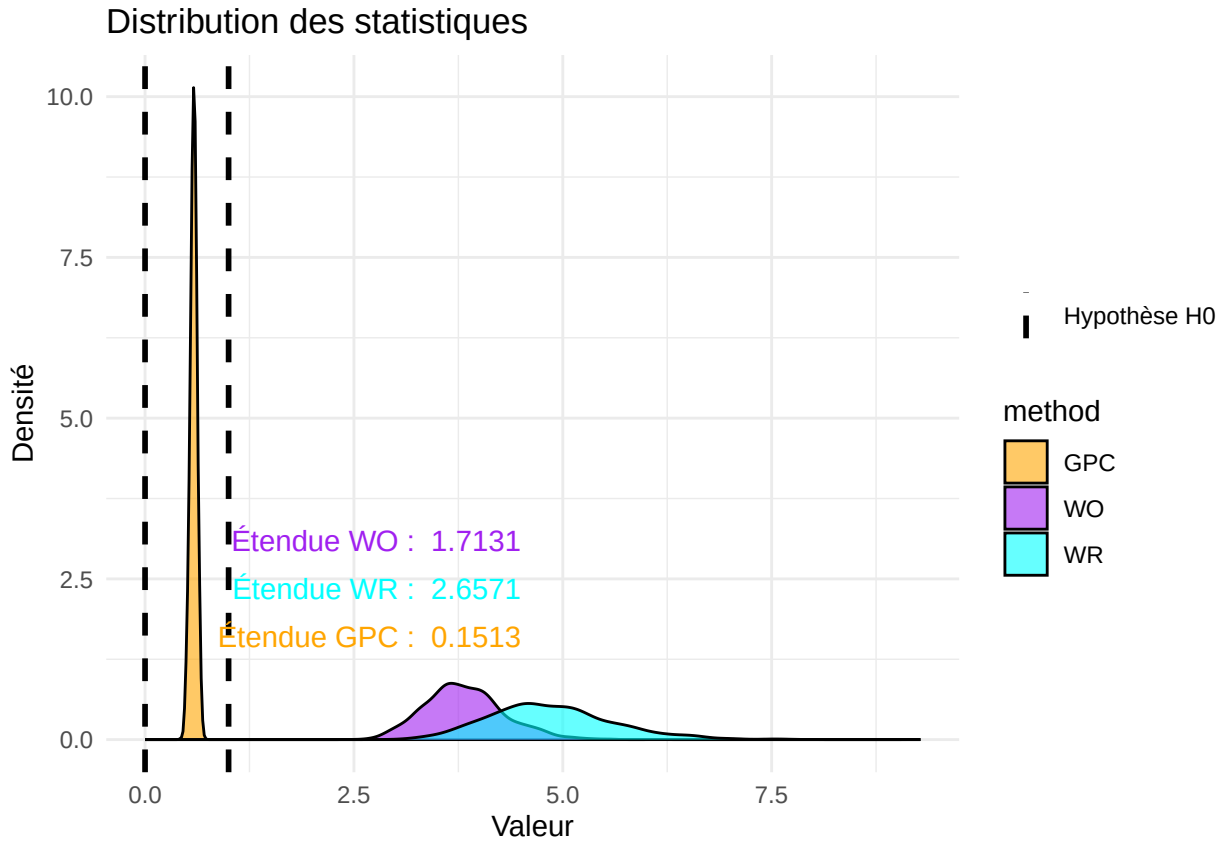

```
## $Count
##            Win Loose  Tie      WR      WO     GPC
## endpoint1 5060  1131 3809 4.47392 2.29435 0.39290
## endpoint2 2138   369 1302 5.79404 2.73431 0.46443
## overall   7198  1500 1302 4.79867 3.64900 0.56980
##
## $value_tte_cont_C
##        Y_1_C (tte) Y_2_C (tte)
## min       4.646518    0.032192
## median    5.366321    4.646518
## max      14.000000   14.000000
##
## $value_tte_cont_T
##        Y_1_T (tte) Y_2_T (tte)
## min       0.093803    4.646518
## median   13.034481   13.302117
## max      14.000000   14.000000
##
## $censure
##   endpoint 1 endpoint2
## T  0.7784150 0.7930125
## C  0.3549475 0.2981350
##
## $p_val_GPC
## [1] "probabilité d'avoir des p-valeur < 0.05 pour la GPC:  1"
##
```

```
## $p_val_WR
## [1] "probabilité d'avoir des p-valeur < 0.05 pour le WR:  1"
##
## $p_val_WO
## [1] "probabilité d'avoir des p-valeur < 0.05 pour le WO:  1"
```




```
## $Count
##            Win Loose  Tie      WR      WO      GPC
## endpoint1 5308  1190 3502 4.46050 2.40020 0.41180
## endpoint2 2138   369 1103 5.79404 2.92178 0.49003
## overall   7355  1542 1103 4.76978 3.77669 0.58130
##
## $value_tte_cont_C
##        Y_1_C (tte) Y_2_C (tte)
## min       4.640848    0.032152
## median    5.366321    4.640848
## max      19.000000   19.000000
##
## $value_tte_cont_T
##        Y_1_T (tte) Y_2_T (tte)
## min       0.092429    4.646518
## median   13.282062   13.748615
## max      19.000000   19.000000
##
## $censure
```

```
##   endpoint 1 endpoint2
## T   0.778415 0.7491025
## C   0.296105 0.2981350
##
## $p_val_GPC
## [1] "probabilité d'avoir des p-valeur < 0.05 pour la GPC:  1"
##
## $p_val_WR
## [1] "probabilité d'avoir des p-valeur < 0.05 pour le WR:  1"
##
## $p_val_WO
## [1] "probabilité d'avoir des p-valeur < 0.05 pour le WO:  1"
```



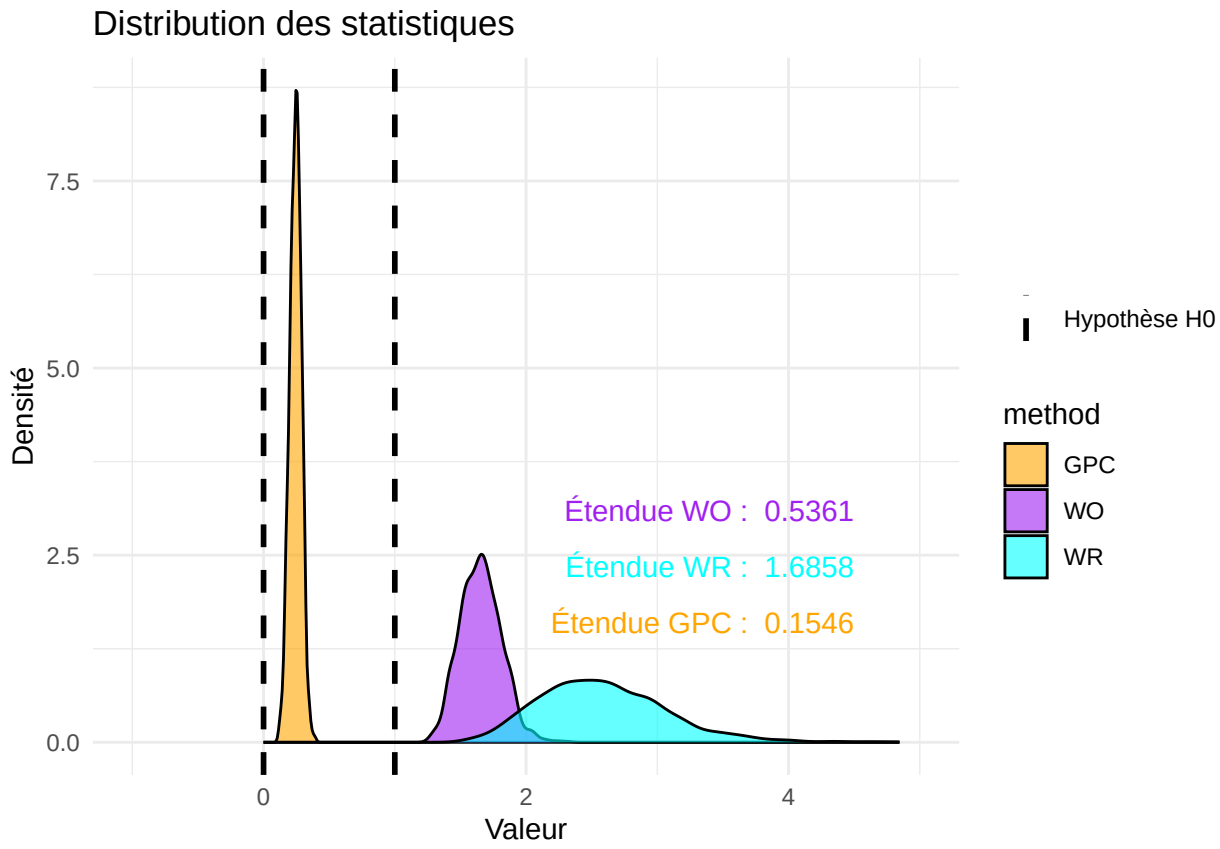
Modèle AFT

$\lambda_1 = 0.09$; $k_1 = 1.5$ $\lambda_2 = 0.1$; $k_2 = 1.5$ $\beta = 0.9$ t_censure = c(2,6,11)

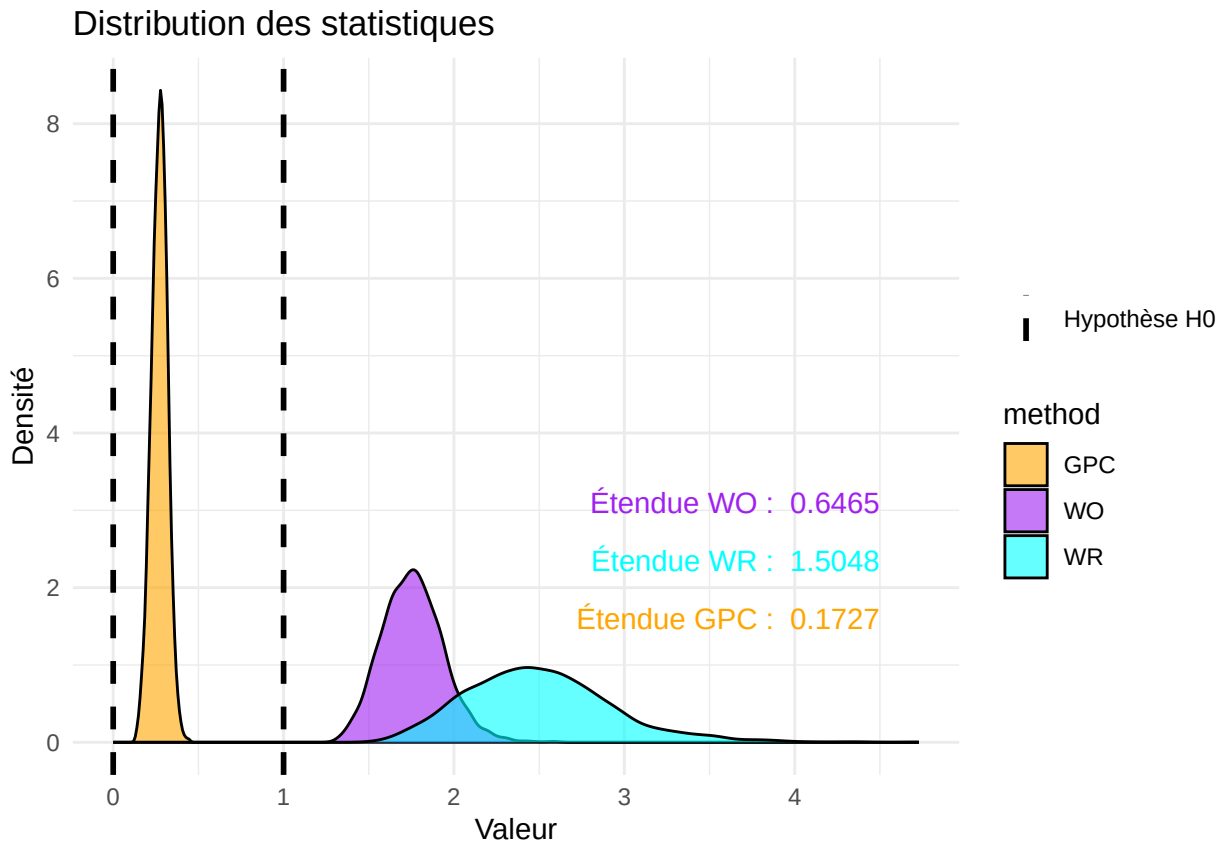
τ = c(0.5,0.7)

```
## $Count
##            Win Loose  Tie      WR      WO     GPC
## endpoint1 3842  1541 4617 2.49319 1.59774 0.23010
## endpoint2  202    60 4355 3.36667 1.06346 0.03076
## overall   4044  1601 4355 2.52592 1.64655 0.24430
```

```
##
## $value_tte_cont_C
##        Y_1_C (tte) Y_2_C (tte)
## min       6.566696   0.0455555
## median    5.780954   6.5666965
## max       9.000000   9.0000000
##
## $value_tte_cont_T
##        Y_1_T (tte) Y_2_T (tte)
## min       0.087588    6.566696
## median    8.979170    8.996070
## max       9.000000    9.000000
##
## $censure
##   endpoint 1 endpoint2
## T  0.2407500 0.2129725
## C  0.4746675 0.4261625
##
## $p_val_GPC
## [1] "probabilité d'avoir des p-valeur < 0.05 pour la GPC:  1"
##
## $p_val_WR
## [1] "probabilité d'avoir des p-valeur < 0.05 pour le WR:  1"
##
## $p_val_WO
## [1] "probabilité d'avoir des p-valeur < 0.05 pour le WO:  1"
```

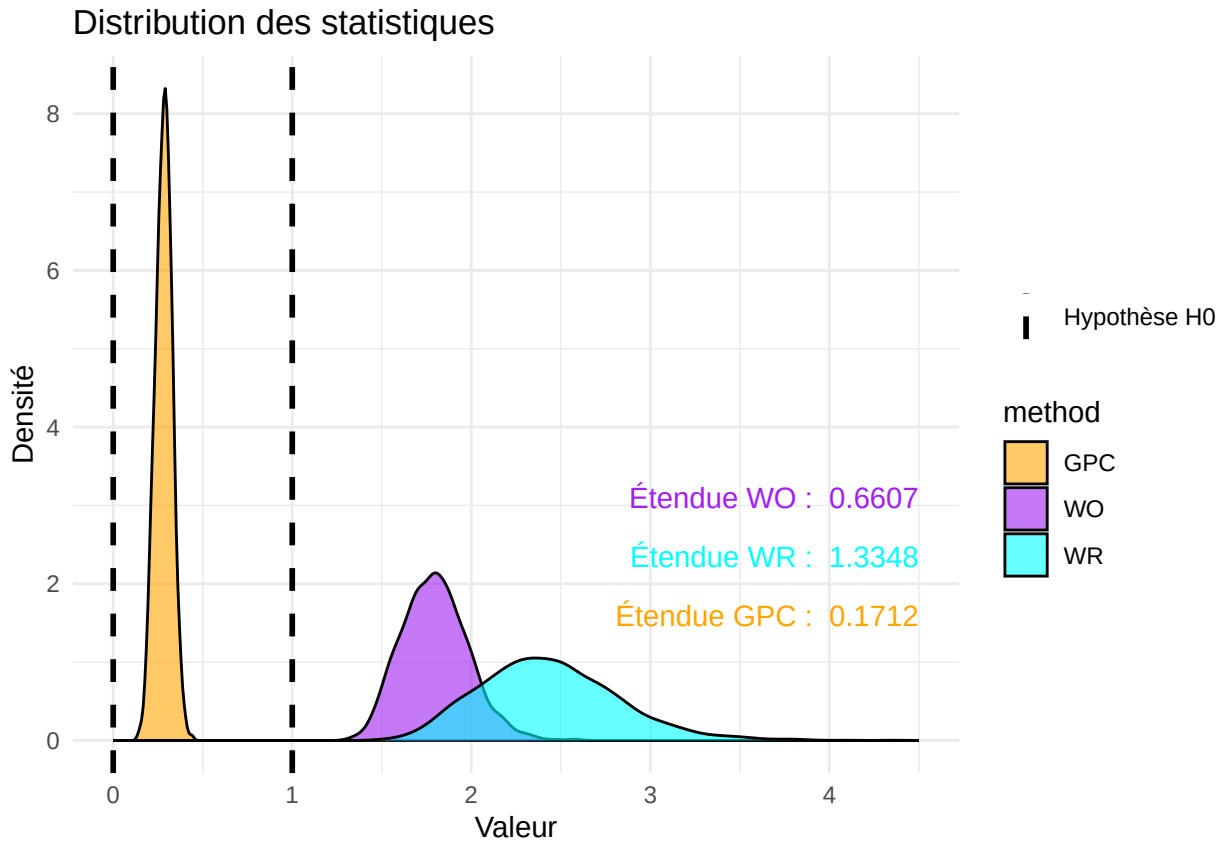


```
## $Count
##            Win Loose  Tie      WR      WO     GPC
## endpoint1 4255  1759 4617 2.41899 1.61364 0.23479
## endpoint2  341   115 3531 2.96522 1.12018 0.05668
## overall   4595  1873 3531 2.45328 1.74811 0.27223
##
## $value_tte_cont_C
##        Y_1_C (tte) Y_2_C (tte)
## min       6.577350    0.044853
## median    5.791952    6.577350
## max      14.000000   14.000000
##
## $value_tte_cont_T
##        Y_1_T (tte) Y_2_T (tte)
## min      0.0860845     6.57735
## median  10.7503605    11.62625
## max     14.0000000    14.00000
##
## $censure
##   endpoint 1 endpoint2
## T  0.3150125  0.280065
## C  0.5591775  0.507715
##
## $p_val_GPC
## [1] "probabilité d'avoir des p-valeur < 0.05 pour la GPC:  1"
##
## $p_val_WR
## [1] "probabilité d'avoir des p-valeur < 0.05 pour le WR:  1"
##
## $p_val_WO
## [1] "probabilité d'avoir des p-valeur < 0.05 pour le WO:  1"
```




```
## $Count
##            Win Loose  Tie      WR      WO      GPC
## endpoint1 4408  1859 3733 2.37117 1.68420 0.25490
## endpoint2  436   164 3132 2.65854 1.15723 0.07288
## overall   4844  2024 3132 2.39328 1.78552 0.28200
##
## $value_tte_cont_C
##        Y_1_C (tte) Y_2_C (tte)
## min      0.0498665    0.044649
## median   5.7683105    6.580818
## max     19.0000000   19.000000
##
## $value_tte_cont_T
##        Y_1_T (tte) Y_2_T (tte)
## min       0.084957    6.580818
## median   10.718506   11.633585
## max      19.000000   19.000000
##
## $censure
##   endpoint 1 endpoint2
## T  0.3659825  0.326105
## C  0.6027775  0.554715
##
## $p_val_GPC
## [1] "probabilité d'avoir des p-valeur < 0.05 pour la GPC:  1"
##
```

```
## $p_val_WR
## [1] "probabilité d'avoir des p-valeur < 0.05 pour le WR:  1"
##
## $p_val_WO
## [1] "probabilité d'avoir des p-valeur < 0.05 pour le WO:  1"
```

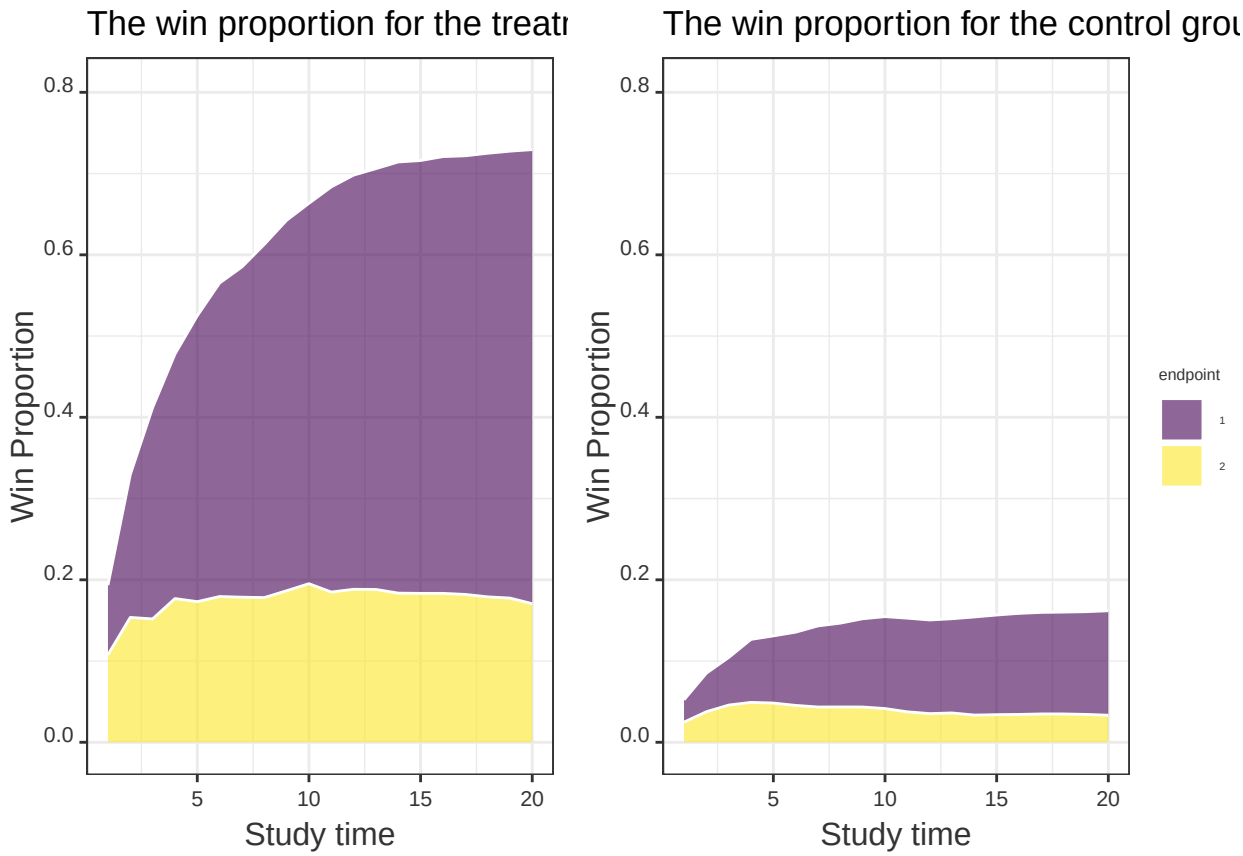


Plots packages

Cox

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.027  10.204  24.158  33.509  47.211 217.839
```

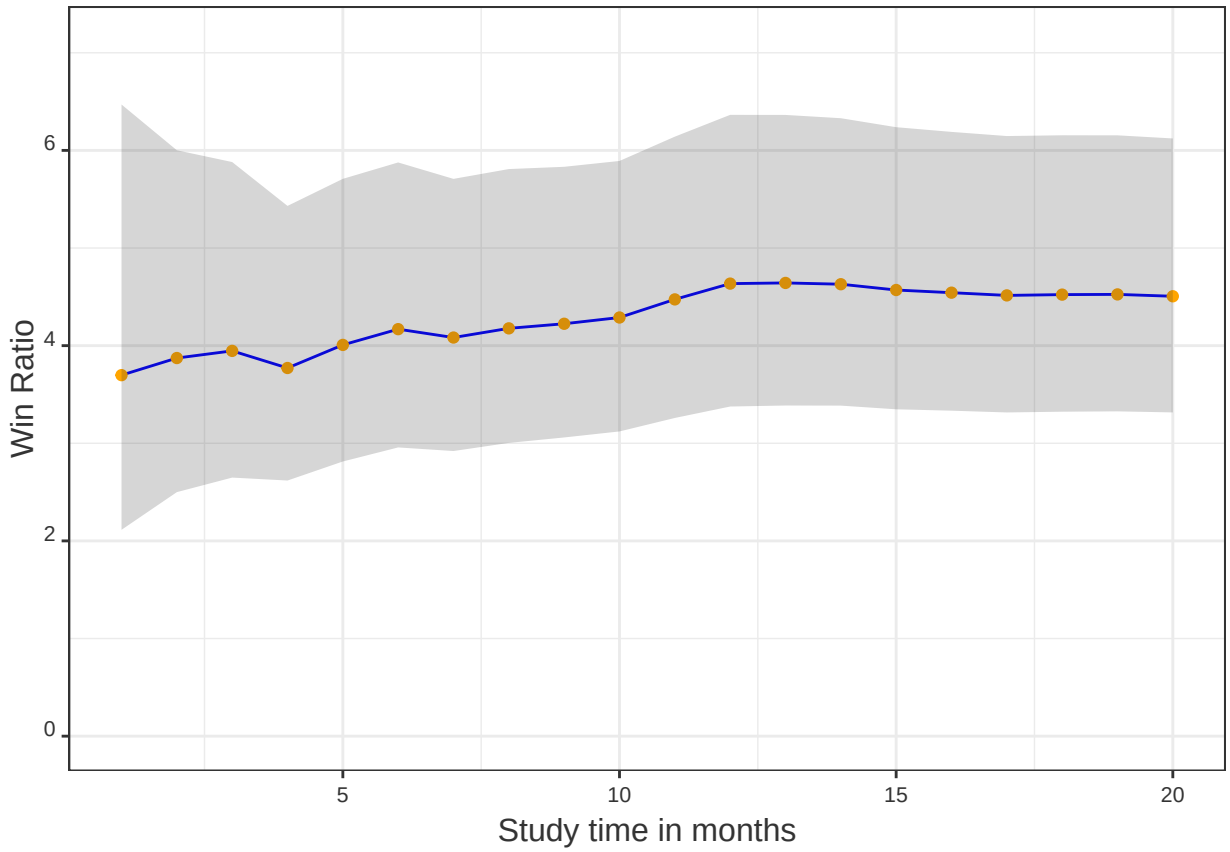
```
## Warning in partition_t.plot(data = data, Ctime = 1:20, arm.name = c("T", : The
## study entry time is missing, by default zero will be assigned to all subjects.
```




```
## $win_trt_t
##    time endpoint1 endpoint2
## 1     1    0.0857    0.1077
## 2     2    0.1759    0.1537
## 3     3    0.2602    0.1518
## 4     4    0.3009    0.1769
## 5     5    0.3519    0.1731
## 6     6    0.3859    0.1794
## 7     7    0.4065    0.1786
## 8     8    0.4347    0.1781
## 9     9    0.4560    0.1865
## 10   10    0.4682    0.1952
## 11   11    0.4987    0.1849
## 12   12    0.5098    0.1883
## 13   13    0.5180    0.1881
## 14   14    0.5307    0.1836
## 15   15    0.5328    0.1833
## 16   16    0.5376    0.1833
## 17   17    0.5399    0.1820
## 18   18    0.5460    0.1790
## 19   19    0.5501    0.1775
## 20   20    0.5589    0.1706
##
## $win_con_t
##    time endpoint1 endpoint2
## 1     1    0.0275    0.0248
```

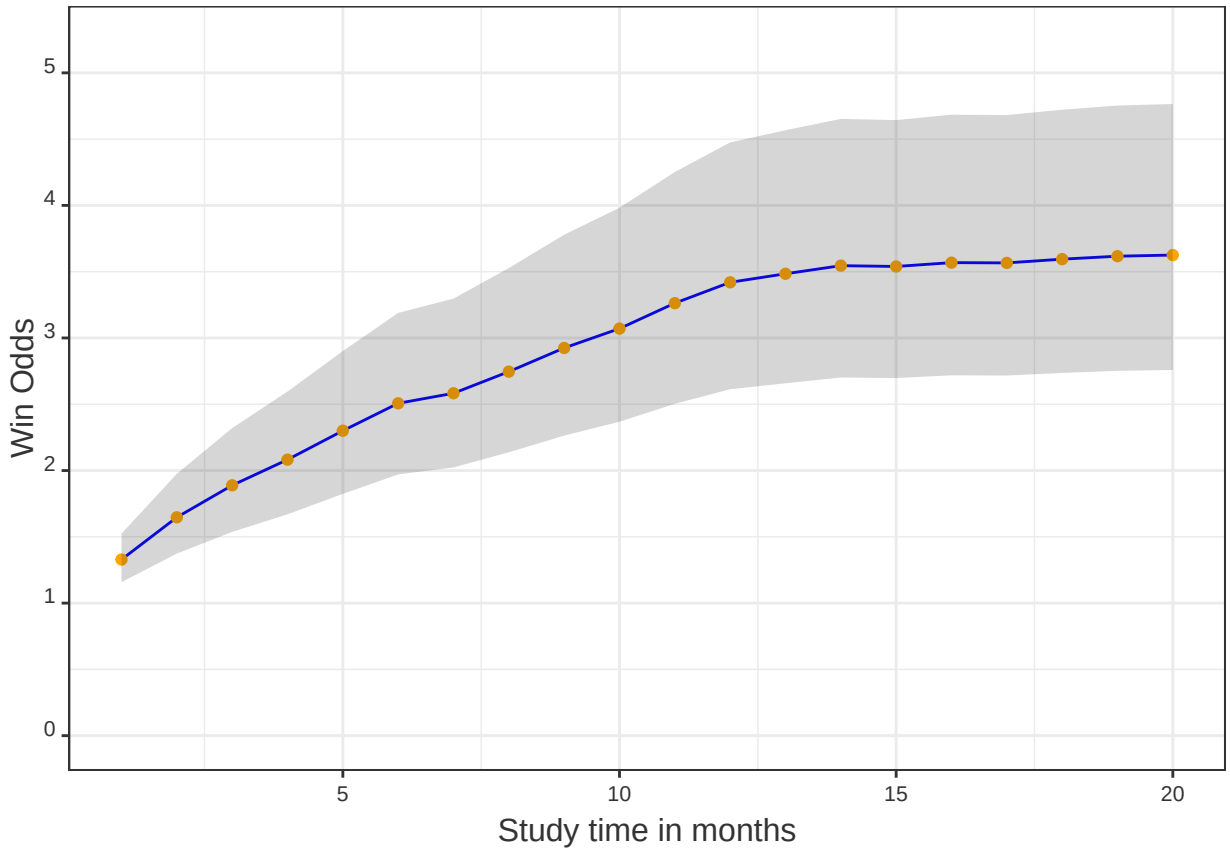
```
## 2     2    0.0475    0.0376
## 3     3    0.0586    0.0458
## 4     4    0.0776    0.0491
## 5     5    0.0827    0.0483
## 6     6    0.0902    0.0454
## 7     7    0.0999    0.0434
## 8     8    0.1032    0.0435
## 9     9    0.1087    0.0434
## 10   10    0.1132    0.0415
## 11   11    0.1153    0.0375
## 12   12    0.1153    0.0353
## 13   13    0.1160    0.0361
## 14   14    0.1208    0.0335
## 15   15    0.1227    0.0340
## 16   16    0.1244    0.0343
## 17   17    0.1250    0.0349
## 18   18    0.1254    0.0349
## 19   19    0.1265    0.0343
## 20   20    0.1286    0.0333
##
## $win_tie_t
##    time proportion of ties
## 1     1             0.7543
## 2     2             0.5853
## 3     3             0.4836
## 4     4             0.3955
## 5     5             0.3440
## 6     6             0.2991
## 7     7             0.2716
## 8     8             0.2405
## 9     9             0.2054
## 10   10             0.1819
## 11   11             0.1636
## 12   12             0.1513
## 13   13             0.1418
## 14   14             0.1314
## 15   15             0.1272
## 16   16             0.1204
## 17   17             0.1182
## 18   18             0.1147
## 19   19             0.1116
## 20   20             0.1086
##
## $max_study_time
## [1] 127.701

## Warning in stat_t.plot(data = data, Ctime = 1:20, arm.name = c("T", "C"), : The
## study entry time is missing, by default zero will be assigned to all subjects.
```




```
## $statistic
## [1] "WR"
##
## $values
##    time win_stat lower_ci upper_ci
## 1     1 3.697897 2.113524 6.469971
## 2     2 3.873090 2.499602 6.001288
## 3     3 3.946360 2.648358 5.880534
## 4     4 3.771113 2.618363 5.431369
## 5     5 4.007634 2.813494 5.708606
## 6     6 4.168879 2.957503 5.876428
## 7     7 4.083043 2.920474 5.708400
## 8     8 4.177232 3.003883 5.808906
## 9     9 4.224195 3.059619 5.832039
## 10   10 4.288300 3.121206 5.891798
## 11   11 4.473822 3.259369 6.140785
## 12   12 4.635458 3.376340 6.364131
## 13   13 4.642341 3.386897 6.363148
## 14   14 4.629294 3.385644 6.329773
## 15   15 4.569879 3.348026 6.237644
## 16   16 4.542533 3.333786 6.189542
## 17   17 4.514697 3.315909 6.146878
## 18   18 4.522770 3.323488 6.154813
## 19   19 4.524876 3.326842 6.154336
## 20   20 4.505868 3.316142 6.122430
```

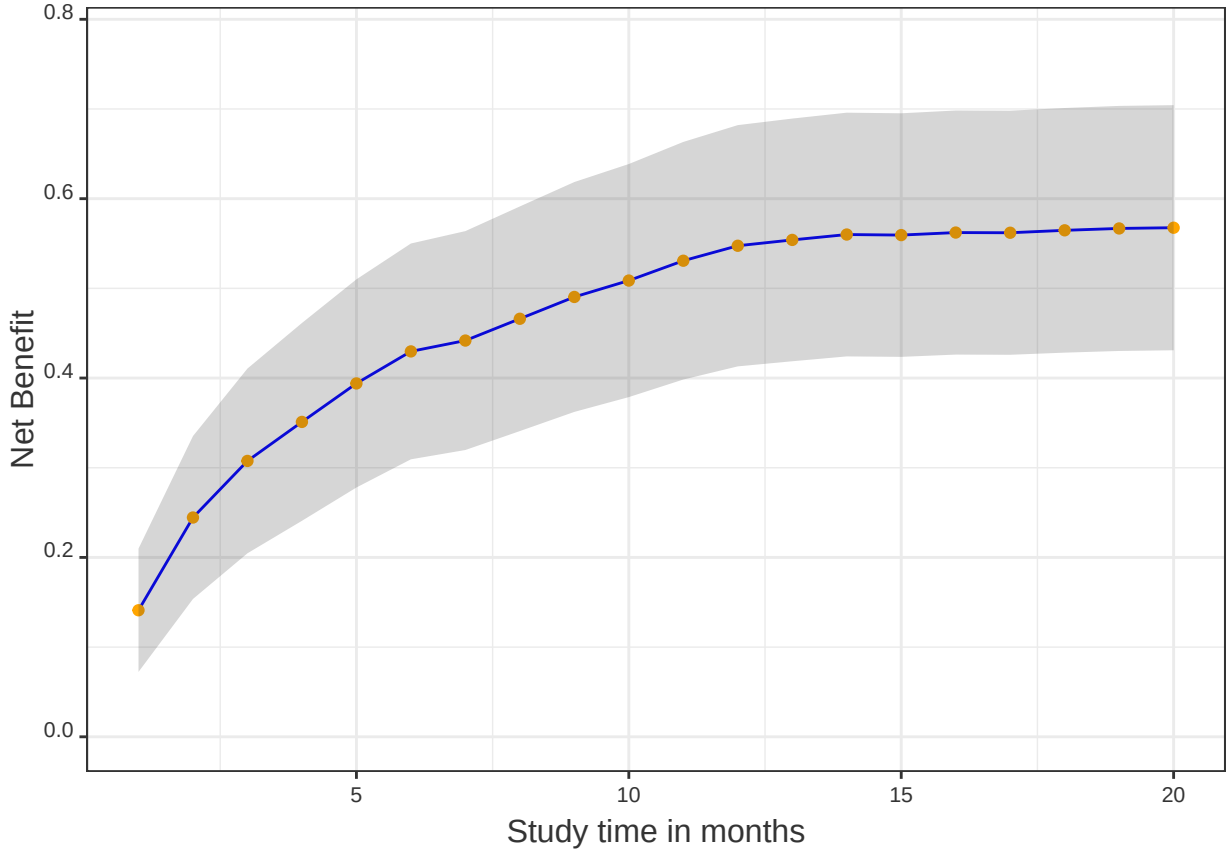
```
## Warning in stat_t.plot(data = data, Ctime = 1:20, arm.name = c("T", "C"), : The
## study entry time is missing, by default zero will be assigned to all subjects.
```




```
## $statistic
## [1] "WO"
##
## $values
##    time win_stat lower_ci upper_ci
## 1     1 1.328560 1.157948 1.524310
## 2     2 1.647253 1.373694 1.975290
## 3     3 1.888504 1.536976 2.320431
## 4     4 2.082139 1.670063 2.595892
## 5     5 2.300330 1.823900 2.901211
## 6     6 2.506926 1.970795 3.188905
## 7     7 2.582945 2.023535 3.297005
## 8     8 2.746020 2.137662 3.527511
## 9     9 2.924647 2.263438 3.779012
## 10   10 3.070832 2.368039 3.982203
## 11   11 3.262575 2.503327 4.252098
## 12   12 3.419890 2.613314 4.475408
## 13   13 3.484305 2.658266 4.567030
## 14   14 3.545455 2.701794 4.652555
## 15   15 3.539265 2.697639 4.643465
## 16   16 3.568296 2.718175 4.684295
## 17   17 3.566210 2.716582 4.681565
```

```
## 18   18 3.594533 2.736403 4.721769
## 19   19 3.616805 2.752058 4.753273
## 20   20 3.625347 2.758441 4.764698
```

```
## Warning in stat_t.plot(data = data, Ctime = 1:20, arm.name = c("T", "C"), : The
## study entry time is missing, by default zero will be assigned to all subjects.
```



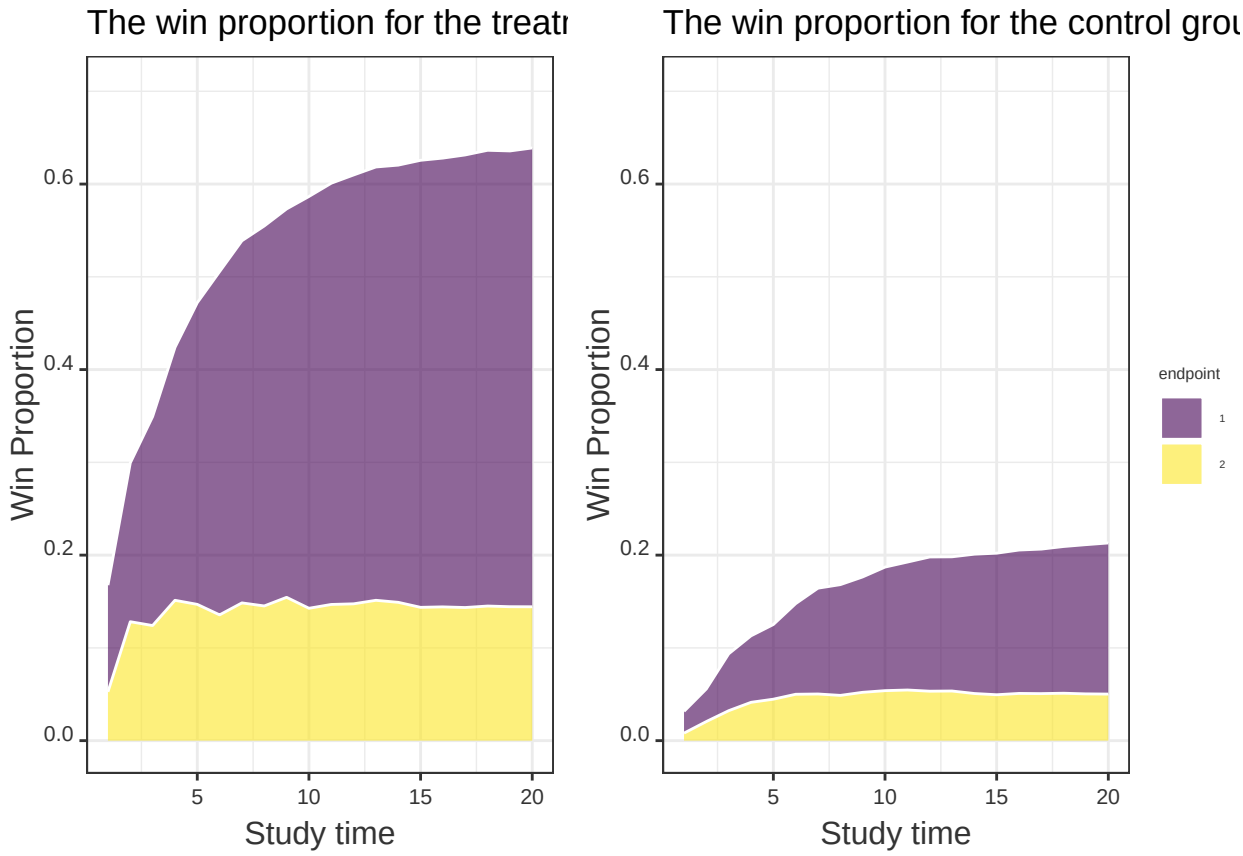

```
## $statistic
## [1] "NB"
##
## $values
##    time win_stat  lower_ci  upper_ci
## 1     1   0.1411 0.0723768 0.2098232
## 2     2   0.2445 0.1536970 0.3353030
## 3     3   0.3076 0.2046159 0.4105841
## 4     4   0.3511 0.2408329 0.4613671
## 5     5   0.3940 0.2779621 0.5100379
## 6     6   0.4297 0.3093898 0.5500102
## 7     7   0.4418 0.3197579 0.5638421
## 8     8   0.4661 0.3408800 0.5913200
## 9     9   0.4904 0.3622556 0.6185444
## 10   10   0.5087 0.3787567 0.6386433
## 11   11   0.5308 0.3983521 0.6632479
## 12   12   0.5475 0.4130054 0.6819946
## 13   13   0.5540 0.4187028 0.6892972
```

```
## 14   14   0.5600 0.4241249 0.6958751
## 15   15   0.5594 0.4236291 0.6951709
## 16   16   0.5622 0.4261363 0.6982637
## 17   17   0.5620 0.4259355 0.6980645
## 18   18   0.5647 0.4283152 0.7010848
## 19   19   0.5668 0.4301789 0.7034211
## 20   20   0.5676 0.4309579 0.7042421
```

AFT

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.049   9.906  24.601  36.175  49.038 195.906
```

```
## Warning in partition_t.plot(data = data, Ctime = 1:20, arm.name = c("T", : The
## study entry time is missing, by default zero will be assigned to all subjects.
```

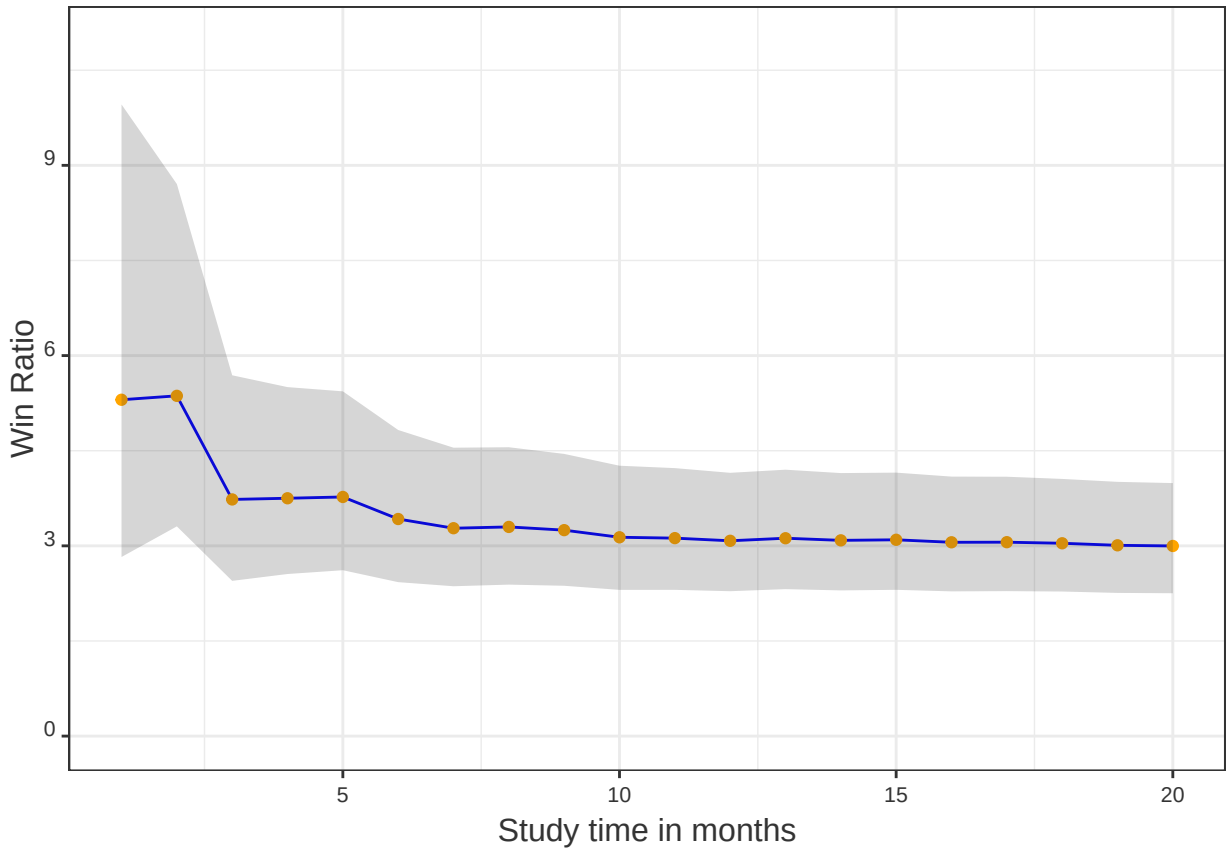



```
## $win_trt_t
##    time endpoint1 endpoint2
## 1     1    0.1150    0.0526
## 2     2    0.1712    0.1282
## 3     3    0.2252    0.1241
## 4     4    0.2725    0.1513
## 5     5    0.3252    0.1469
## 6     6    0.3700    0.1356
```

```
## 7     7    0.3904    0.1485
## 8     8    0.4096    0.1452
## 9     9    0.4187    0.1545
## 10   10    0.4439    0.1427
## 11   11    0.4541    0.1468
## 12   12    0.4623    0.1475
## 13   13    0.4671    0.1513
## 14   14    0.4713    0.1491
## 15   15    0.4819    0.1437
## 16   16    0.4838    0.1442
## 17   17    0.4879    0.1435
## 18   18    0.4913    0.1451
## 19   19    0.4913    0.1444
## 20   20    0.4946    0.1443
##
## $win_con_t
##    time endpoint1 endpoint2
## 1     1    0.0235    0.0081
## 2     2    0.0352    0.0206
## 3     3    0.0613    0.0323
## 4     4    0.0717    0.0413
## 5     5    0.0805    0.0447
## 6     6    0.0977    0.0500
## 7     7    0.1141    0.0503
## 8     8    0.1194    0.0488
## 9     9    0.1244    0.0521
## 10   10    0.1332    0.0539
## 11   11    0.1379    0.0546
## 12   12    0.1447    0.0533
## 13   13    0.1447    0.0535
## 14   14    0.1502    0.0508
## 15   15    0.1526    0.0495
## 16   16    0.1546    0.0509
## 17   17    0.1558    0.0507
## 18   18    0.1582    0.0511
## 19   19    0.1609    0.0504
## 20   20    0.1629    0.0502
##
## $win_tie_t
##    time proportion of ties
## 1     1             0.8008
## 2     2             0.6448
## 3     3             0.5571
## 4     4             0.4632
## 5     5             0.4027
## 6     6             0.3467
## 7     7             0.2967
## 8     8             0.2770
## 9     9             0.2503
## 10   10             0.2263
## 11   11             0.2066
## 12   12             0.1922
## 13   13             0.1834
## 14   14             0.1786
```

```
## 15   15             0.1723
## 16   16             0.1665
## 17   17             0.1621
## 18   18             0.1543
## 19   19             0.1530
## 20   20             0.1480
##
## $max_study_time
## [1] 134.179
```

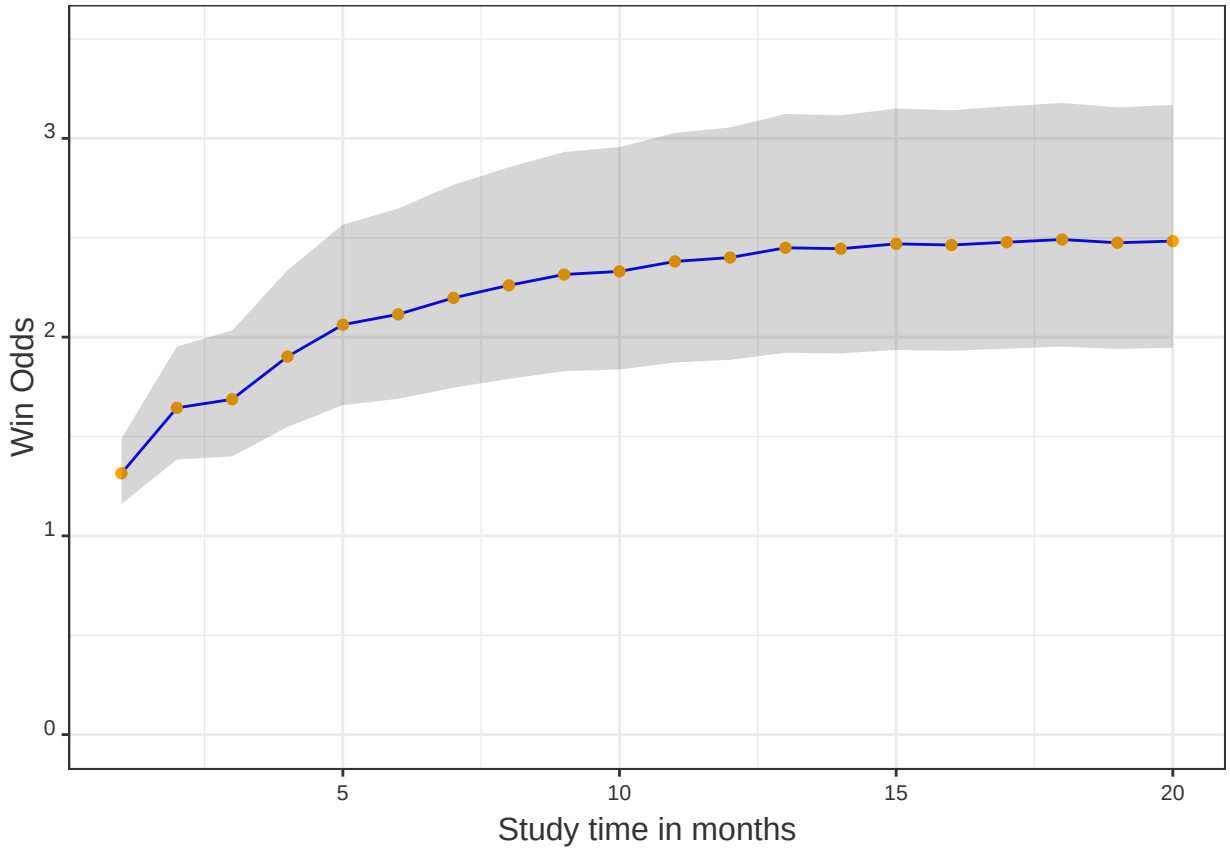
```
## Warning in stat_t.plot(data = data, Ctime = 1:20, arm.name = c("T", "C"), : The
## study entry time is missing, by default zero will be assigned to all subjects.
```




```
## $statistic
## [1] "WR"
##
## $values
##    time win_stat lower_ci upper_ci
## 1     1 5.303797 2.824239 9.960299
## 2     2 5.365591 3.306910 8.705883
## 3     3 3.731838 2.447806 5.689427
## 4     4 3.750442 2.555900 5.503274
## 5     5 3.770767 2.615545 5.436221
## 6     6 3.423155 2.427668 4.826850
## 7     7 3.277981 2.362723 4.547786
```

```
## 8     8 3.298454 2.388573 4.554937
## 9     9 3.247592 2.370234 4.449709
## 10   10 3.135222 2.305540 4.263476
## 11   11 3.121558 2.305998 4.225558
## 12   12 3.079798 2.284726 4.151551
## 13   13 3.120081 2.317434 4.200725
## 14   14 3.086567 2.297061 4.147430
## 15   15 3.095497 2.306373 4.154619
## 16   16 3.055961 2.282319 4.091847
## 17   17 3.057627 2.285871 4.089943
## 18   18 3.040612 2.279682 4.055530
## 19   19 3.008519 2.257689 4.009048
## 20   20 2.998123 2.252871 3.989905
```

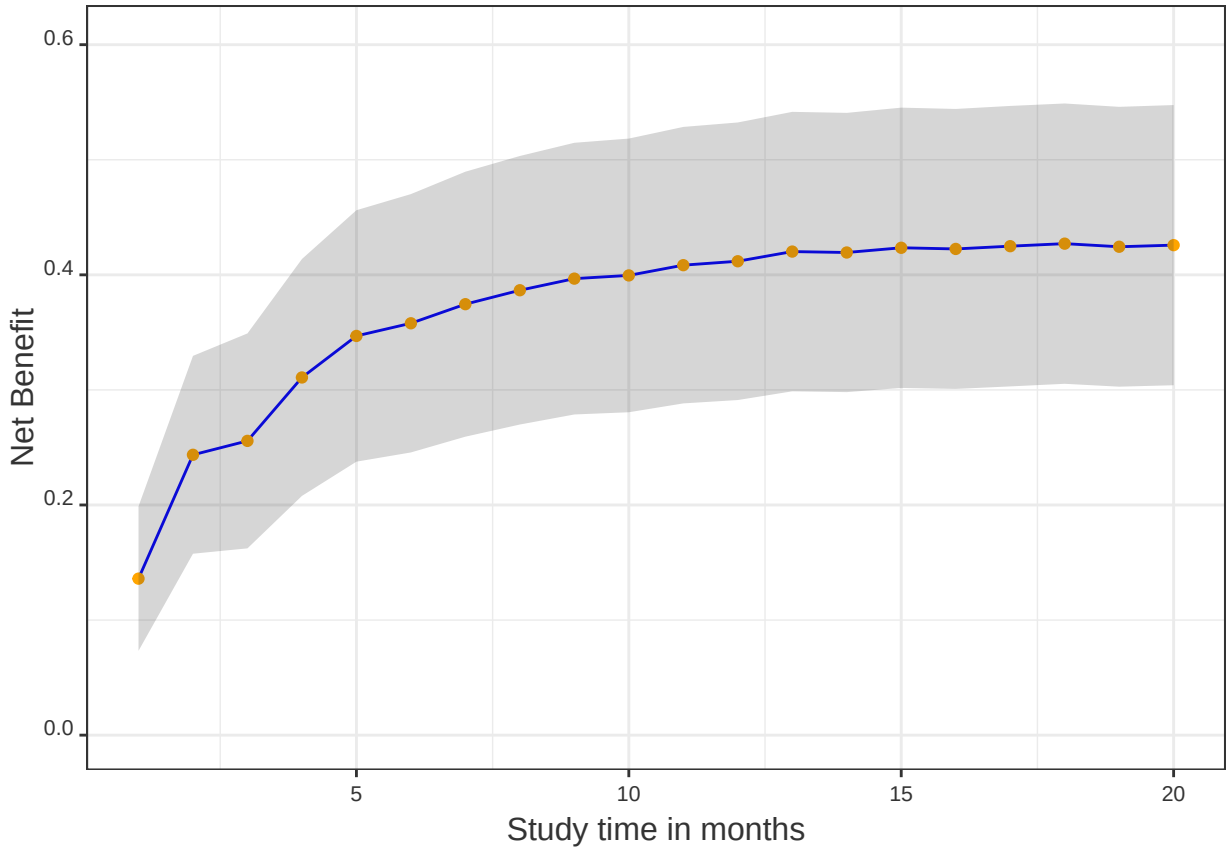
```
## Warning in stat_t.plot(data = data, Ctime = 1:20, arm.name = c("T", "C"), : The
## study entry time is missing, by default zero will be assigned to all subjects.
```




```
## $statistic
## [1] "WO"
##
## $values
##    time win_stat lower_ci upper_ci
## 1     1 1.314815 1.159702 1.490674
## 2     2 1.644104 1.384420 1.952498
## 3     3 1.687089 1.399660 2.033542
```

```
## 4     4 1.901915 1.548079 2.336625
## 5     5 2.062318 1.657541 2.565944
## 6     6 2.114780 1.689540 2.647048
## 7     7 2.197442 1.745471 2.766446
## 8     8 2.260515 1.790042 2.854642
## 9     9 2.315100 1.828240 2.931611
## 10   10 2.330558 1.837276 2.956279
## 11   11 2.380663 1.872215 3.027192
## 12   12 2.400204 1.885758 3.054993
## 13   13 2.449465 1.921324 3.122785
## 14   14 2.444712 1.917960 3.116134
## 15   15 2.469211 1.935430 3.150206
## 16   16 2.463203 1.931240 3.141698
## 17   17 2.477656 1.941721 3.161515
## 18   18 2.491011 1.952495 3.178055
## 19   19 2.474635 1.940439 3.155894
## 20   20 2.483107 1.946485 3.167669
```

```
## Warning in stat_t.plot(data = data, Ctime = 1:20, arm.name = c("T", "C"), : The
## study entry time is missing, by default zero will be assigned to all subjects.
```




```
## $statistic
## [1] "NB"
##
## $values
```

```
##    time win_stat   lower_ci  upper_ci
## 1     1   0.1360 0.07323367 0.1987663
## 2     2   0.2436 0.15764295 0.3295571
## 3     3   0.2557 0.16231259 0.3490874
## 4     4   0.3108 0.20787685 0.4137232
## 5     5   0.3469 0.23765212 0.4561479
## 6     6   0.3579 0.24565279 0.4701472
## 7     7   0.3745 0.25936524 0.4896348
## 8     8   0.3866 0.26992308 0.5032769
## 9     9   0.3967 0.27865037 0.5147496
## 10   10   0.3995 0.28058819 0.5184118
## 11   11   0.4084 0.28827176 0.5285282
## 12   12   0.4118 0.29118817 0.5324118
## 13   13   0.4202 0.29877226 0.5416277
## 14   14   0.4194 0.29806721 0.5407328
## 15   15   0.4235 0.30171543 0.5452846
## 16   16   0.4225 0.30084973 0.5441503
## 17   17   0.4249 0.30303081 0.5467692
## 18   18   0.4271 0.30530964 0.5488904
## 19   19   0.4244 0.30281064 0.5459894
## 20   20   0.4258 0.30405728 0.5475427
```