R Notebook

```
printTibble <- ARL %>% ungroup() %>%
    mutate(t2 = paste(format(t2ARLmean, digits = 7), "±", format(as.numeric(format(t2ARLmean - t2ARLlwr
           mewma = paste(format(meARLmean, digits = 7), "±", format(as.numeric(format(meARLmean - meARL
           mcusum = paste(format(mcARLmean, digits = 7), "±", format(as.numeric(format(mcARLmean - mcAR
    select(rho, copula, shift, t2, mewma, mcusum)
    print(printTibble, n = 144)
```

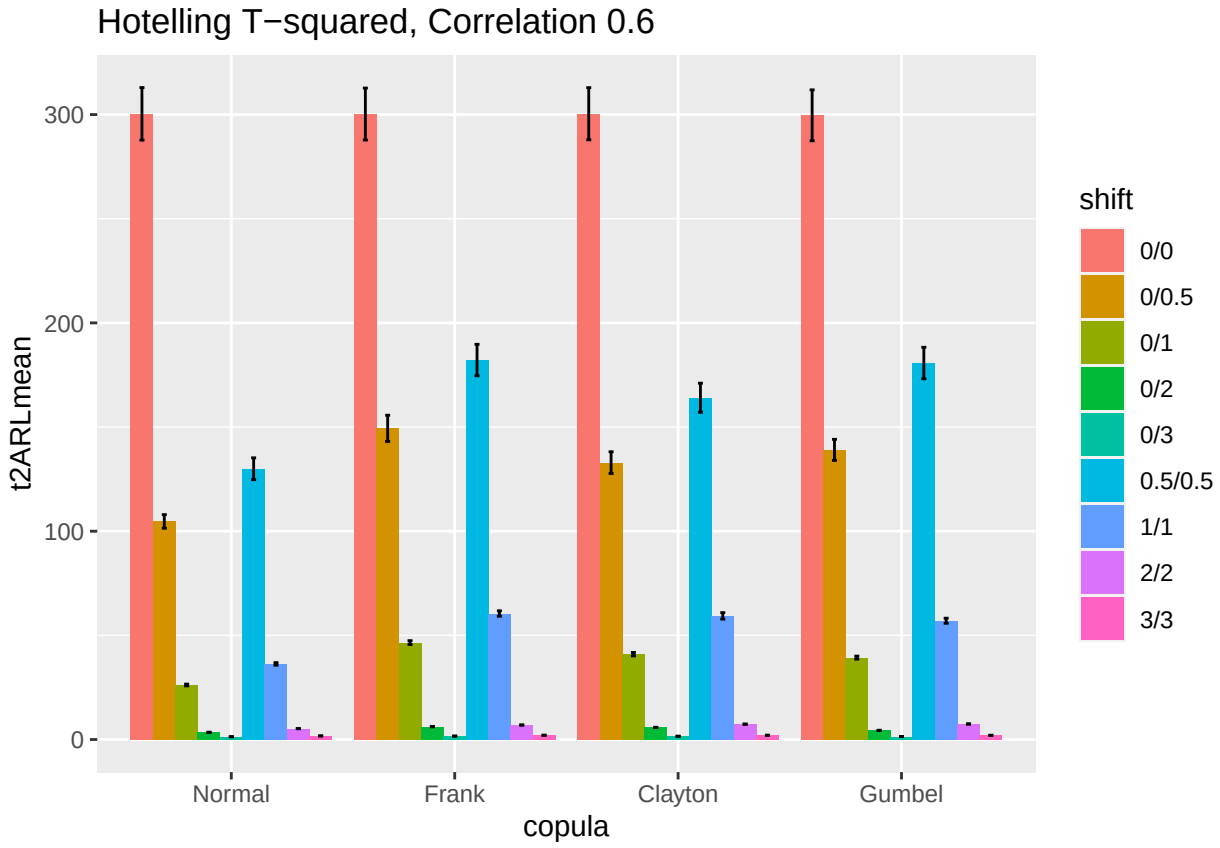
```
## # A tibble: 144 x 6
##     rho   copula  shift   t2                mewma               mcusum
##     <fct> <fct>   <fct>   <chr>             <chr>               <chr>
##   1 0.6   Normal  0/0     "300.347222 ± 12~ "298.764857 ± 18.~ "299.387147 ± 20~
##   2 0.6   Normal  0/0.5   "104.699835 ±  3~ "  2.433377 ±  0.~ "  1.040252 ±  0~
##   3 0.6   Normal  0/1     " 26.173685 ±  0~ "  1.011943 ±  0.~ "  1.007327 ±  0~
##   4 0.6   Normal  0/2     "  3.465635 ±  0~ "  1.001021 ±  0.~ "  1.002577 ±  0~
##   5 0.6   Normal  0/3     "  1.327446 ±  0~ "  1.000212 ±  0.~ "  1.001388 ±  0~
##   6 0.6   Normal  0.5/0.5 "129.983944 ±  5~ "  3.483435 ±  0.~ "  1.091599 ±  0~
##   7 0.6   Normal  1/1     " 36.292447 ±  0~ "  1.042887 ±  0.~ "  1.009546 ±  0~
##   8 0.6   Normal  2/2     "  5.211555 ±  0~ "  1.001474 ±  0.~ "  1.003035 ±  0~
##   9 0.6   Normal  3/3     "  1.715517 ±  0~ "  1.000403 ±  0.~ "  1.001701 ±  0~
##  10 0.2   Normal  0/0     "299.878114 ± 12~ "300.154081 ± 18.~ "299.496828 ± 21~
##  11 0.2   Normal  0/0.5   "144.159205 ±  5~ "  4.465539 ±  0.~ "  1.234239 ±  0~
##  12 0.2   Normal  0/1     " 45.263568 ±  0~ "  1.091219 ±  0.~ "  1.010741 ±  0~
##  13 0.2   Normal  0/2     "  6.870526 ±  0~ "  1.001936 ±  0.~ "  1.003621 ±  0~
##  14 0.2   Normal  0/3     "  2.109827 ±  0~ "  1.000530 ±  0.~ "  1.001928 ±  0~
##  15 0.2   Normal  0.5/0.5 "107.917053 ±  3~ "  2.346271 ±  0.~ "  1.037775 ±  0~
##  16 0.2   Normal  1/1     " 25.913006 ±  0~ "  1.010756 ±  0.~ "  1.007047 ±  0~
##  17 0.2   Normal  2/2     "  3.403819 ±  0~ "  1.000963 ±  0.~ "  1.002547 ±  0~
##  18 0.2   Normal  3/3     "  1.313192 ±  0~ "  1.000190 ±  0.~ "  1.001342 ±  0~
##  19 -0.2  Normal  0/0     "300.034199 ± 12~ "299.995930 ± 18.~ "299.161275 ± 20~
##  20 -0.2  Normal  0/0.5   "144.995632 ±  5~ "  4.389707 ±  0.~ "  1.236306 ±  0~
##  21 -0.2  Normal  0/1     " 44.438596 ±  0~ "  1.088678 ±  0.~ "  1.010991 ±  0~
##  22 -0.2  Normal  0/2     "  6.760048 ±  0~ "  1.001873 ±  0.~ "  1.003565 ±  0~
##  23 -0.2  Normal  0/3     "  2.091456 ±  0~ "  1.000573 ±  0.~ "  1.001969 ±  0~
##  24 -0.2  Normal  0.5/0.5 " 74.543223 ±  1~ "  1.469322 ±  0.~ "  1.018949 ±  0~
##  25 -0.2  Normal  1/1     " 14.354783 ±  0~ "  1.003609 ±  0.~ "  1.005225 ±  0~
##  26 -0.2  Normal  2/2     "  1.917406 ±  0~ "  1.000439 ±  0.~ "  1.001812 ±  0~
##  27 -0.2  Normal  3/3     "  1.056362 ±  0~ "  1.000044 ±  0.~ "  1.001015 ±  0~
##  28 -0.6  Normal  0/0     "299.840992 ± 12~ "298.962793 ± 18.~ "300.664447 ± 21~
##  29 -0.6  Normal  0/0.5   "111.450619 ±  4~ "  2.398246 ±  0.~ "  1.036735 ±  0~
##  30 -0.6  Normal  0/1     " 27.046563 ±  0~ "  1.011800 ±  0.~ "  1.007342 ±  0~
##  31 -0.6  Normal  0/2     "  3.528507 ±  0~ "  1.001003 ±  0.~ "  1.002522 ±  0~
##  32 -0.6  Normal  0/3     "  1.335426 ±  0~ "  1.000179 ±  0.~ "  1.001326 ±  0~
##  33 -0.6  Normal  0.5/0.5 " 34.721704 ±  0~ "  1.032854 ±  0.~ "  1.008857 ±  0~
##  34 -0.6  Normal  1/1     "  4.797069 ±  0~ "  1.001381 ±  0.~ "  1.002971 ±  0~
##  35 -0.6  Normal  2/2     "  1.084991 ±  0~ "  1.000063 ±  0.~ "  1.001051 ±  0~
##  36 -0.6  Normal  3/3     "  1.000121 ±  0~ "  1.000000 ±  0.~ "  1.000406 ±  0~
##  37 0.6   Frank   0/0     "300.257984 ± 12~ "299.127095 ± 18.~ "300.430916 ± 20~
```

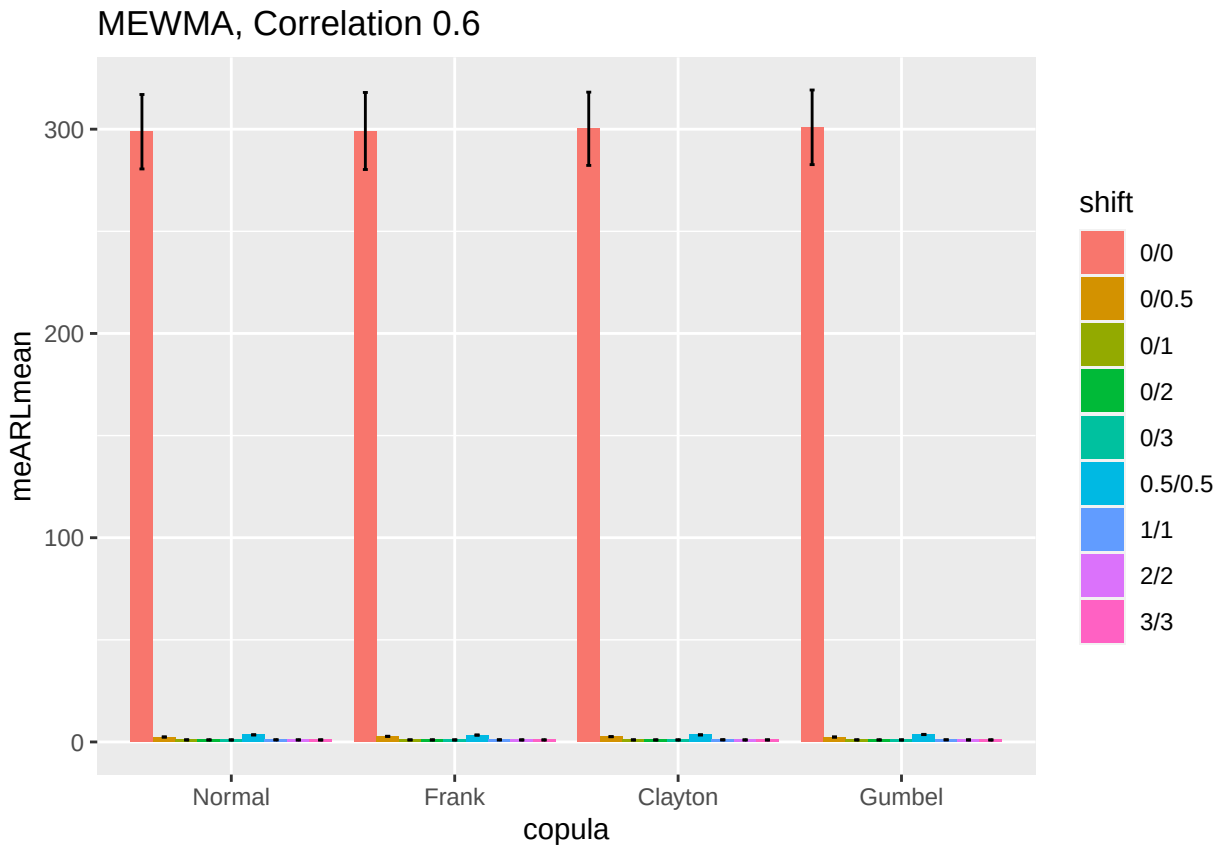
```
##  38 0.6   Frank   0/0.5   "149.381237 ±  6~ "  2.763912 ±  0.~ "  1.047704 ±  0~
##  39 0.6   Frank   0/1     " 46.534412 ±  0~ "  1.018431 ±  0.~ "  1.007971 ±  0~
##  40 0.6   Frank   0/2     "  6.143819 ±  0~ "  1.001182 ±  0.~ "  1.002771 ±  0~
##  41 0.6   Frank   0/3     "  1.635886 ±  0~ "  1.000243 ±  0.~ "  1.001508 ±  0~
##  42 0.6   Frank   0.5/0.5 "182.162019 ±  7~ "  3.377918 ±  0.~ "  1.084148 ±  0~
##  43 0.6   Frank   1/1     " 60.487465 ±  1~ "  1.038617 ±  0.~ "  1.009383 ±  0~
##  44 0.6   Frank   2/2     "  6.942180 ±  0~ "  1.001456 ±  0.~ "  1.003062 ±  0~
##  45 0.6   Frank   3/3     "  2.037463 ±  0~ "  1.000390 ±  0.~ "  1.001710 ±  0~
##  46 0.2   Frank   0/0     "299.577814 ± 12~ "299.000417 ± 18.~ "299.859085 ± 20~
##  47 0.2   Frank   0/0.5   "146.879970 ±  5~ "  4.568323 ±  0.~ "  1.249158 ±  0~
##  48 0.2   Frank   0/1     " 47.994859 ±  0~ "  1.095327 ±  0.~ "  1.011161 ±  0~
##  49 0.2   Frank   0/2     "  7.181810 ±  0~ "  1.001899 ±  0.~ "  1.003529 ±  0~
##  50 0.2   Frank   0/3     "  2.164226 ±  0~ "  1.000598 ±  0.~ "  1.001980 ±  0~
##  51 0.2   Frank   0.5/0.5 "109.679665 ±  3~ "  2.325382 ±  0.~ "  1.034697 ±  0~
##  52 0.2   Frank   1/1     " 26.155850 ±  0~ "  1.010913 ±  0.~ "  1.007489 ±  0~
##  53 0.2   Frank   2/2     "  3.342183 ±  0~ "  1.001005 ±  0.~ "  1.002528 ±  0~
##  54 0.2   Frank   3/3     "  1.314629 ±  0~ "  1.000190 ±  0.~ "  1.001324 ±  0~
##  55 -0.2  Frank   0/0     "300.287734 ± 12~ "299.629299 ± 18.~ "297.644616 ± 20~
##  56 -0.2  Frank   0/0.5   "145.572795 ±  5~ "  4.367710 ±  0.~ "  1.217868 ±  0~
##  57 -0.2  Frank   0/1     " 47.146895 ±  0~ "  1.088765 ±  0.~ "  1.010686 ±  0~
##  58 -0.2  Frank   0/2     "  7.165227 ±  0~ "  1.001877 ±  0.~ "  1.003514 ±  0~
##  59 -0.2  Frank   0/3     "  2.159665 ±  0~ "  1.000514 ±  0.~ "  1.001917 ±  0~
##  60 -0.2  Frank   0.5/0.5 " 75.486533 ±  1~ "  1.506763 ±  0.~ "  1.019522 ±  0~
##  61 -0.2  Frank   1/1     " 15.771653 ±  0~ "  1.003625 ±  0.~ "  1.005156 ±  0~
##  62 -0.2  Frank   2/2     "  2.012572 ±  0~ "  1.000459 ±  0.~ "  1.001829 ±  0~
##  63 -0.2  Frank   3/3     "  1.064987 ±  0~ "  1.000056 ±  0.~ "  1.001014 ±  0~
##  64 -0.6  Frank   0/0     "299.146501 ± 12~ "299.171026 ± 18.~ "301.048605 ± 20~
##  65 -0.6  Frank   0/0.5   "147.680580 ±  6~ "  2.773082 ±  0.~ "  1.051122 ±  0~
##  66 -0.6  Frank   0/1     " 45.959072 ±  0~ "  1.019217 ±  0.~ "  1.007984 ±  0~
##  67 -0.6  Frank   0/2     "  6.086804 ±  0~ "  1.001199 ±  0.~ "  1.002806 ±  0~
##  68 -0.6  Frank   0/3     "  1.630720 ±  0~ "  1.000265 ±  0.~ "  1.001491 ±  0~
##  69 -0.6  Frank   0.5/0.5 " 57.803567 ±  1~ "  1.057652 ±  0.~ "  1.009960 ±  0~
##  70 -0.6  Frank   1/1     "  9.248483 ±  0~ "  1.001681 ±  0.~ "  1.003377 ±  0~
##  71 -0.6  Frank   2/2     "  1.193509 ±  0~ "  1.000072 ±  0.~ "  1.001138 ±  0~
##  72 -0.6  Frank   3/3     "  1.002716 ±  0~ "  1.000000 ±  0.~ "  1.000639 ±  0~
##  73 0.6   Clayton 0/0     "300.399242 ± 12~ "300.204832 ± 17.~ "300.421821 ± 20~
##  74 0.6   Clayton 0/0.5   "132.919898 ±  5~ "  2.595306 ±  0.~ "  1.040509 ±  0~
##  75 0.6   Clayton 0/1     " 40.980556 ±  0~ "  1.011084 ±  0.~ "  1.007560 ±  0~
##  76 0.6   Clayton 0/2     "  5.808143 ±  0~ "  1.001068 ±  0.~ "  1.002614 ±  0~
##  77 0.6   Clayton 0/3     "  1.573744 ±  0~ "  1.000198 ±  0.~ "  1.001428 ±  0~
##  78 0.6   Clayton 0.5/0.5 "164.076613 ±  6~ "  3.482281 ±  0.~ "  1.086189 ±  0~
##  79 0.6   Clayton 1/1     " 59.352965 ±  1~ "  1.050300 ±  0.~ "  1.009454 ±  0~
##  80 0.6   Clayton 2/2     "  7.380326 ±  0~ "  1.001572 ±  0.~ "  1.003195 ±  0~
##  81 0.6   Clayton 3/3     "  2.031727 ±  0~ "  1.000441 ±  0.~ "  1.001750 ±  0~
##  82 0.2   Clayton 0/0     "299.604870 ± 13~ "298.827176 ± 18.~ "298.870717 ± 20~
##  83 0.2   Clayton 0/0.5   "167.782164 ±  7~ "  4.426291 ±  0.~ "  1.221352 ±  0~
##  84 0.2   Clayton 0/1     " 53.261486 ±  1~ "  1.085998 ±  0.~ "  1.011133 ±  0~
##  85 0.2   Clayton 0/2     "  7.599629 ±  0~ "  1.001813 ±  0.~ "  1.003519 ±  0~
##  86 0.2   Clayton 0/3     "  2.209908 ±  0~ "  1.000545 ±  0.~ "  1.001907 ±  0~
##  87 0.2   Clayton 0.5/0.5 "137.759662 ±  5~ "  2.341766 ±  0.~ "  1.036150 ±  0~
##  88 0.2   Clayton 1/1     " 31.881115 ±  0~ "  1.012275 ±  0.~ "  1.007241 ±  0~
##  89 0.2   Clayton 2/2     "  3.558212 ±  0~ "  1.001019 ±  0.~ "  1.002576 ±  0~
##  90 0.2   Clayton 3/3     "  1.336681 ±  0~ "  1.000183 ±  0.~ "  1.001338 ±  0~
##  91 -0.2  Clayton 0/0     "298.751227 ± 12~ "300.166550 ± 18.~ "299.329737 ± 20~
```

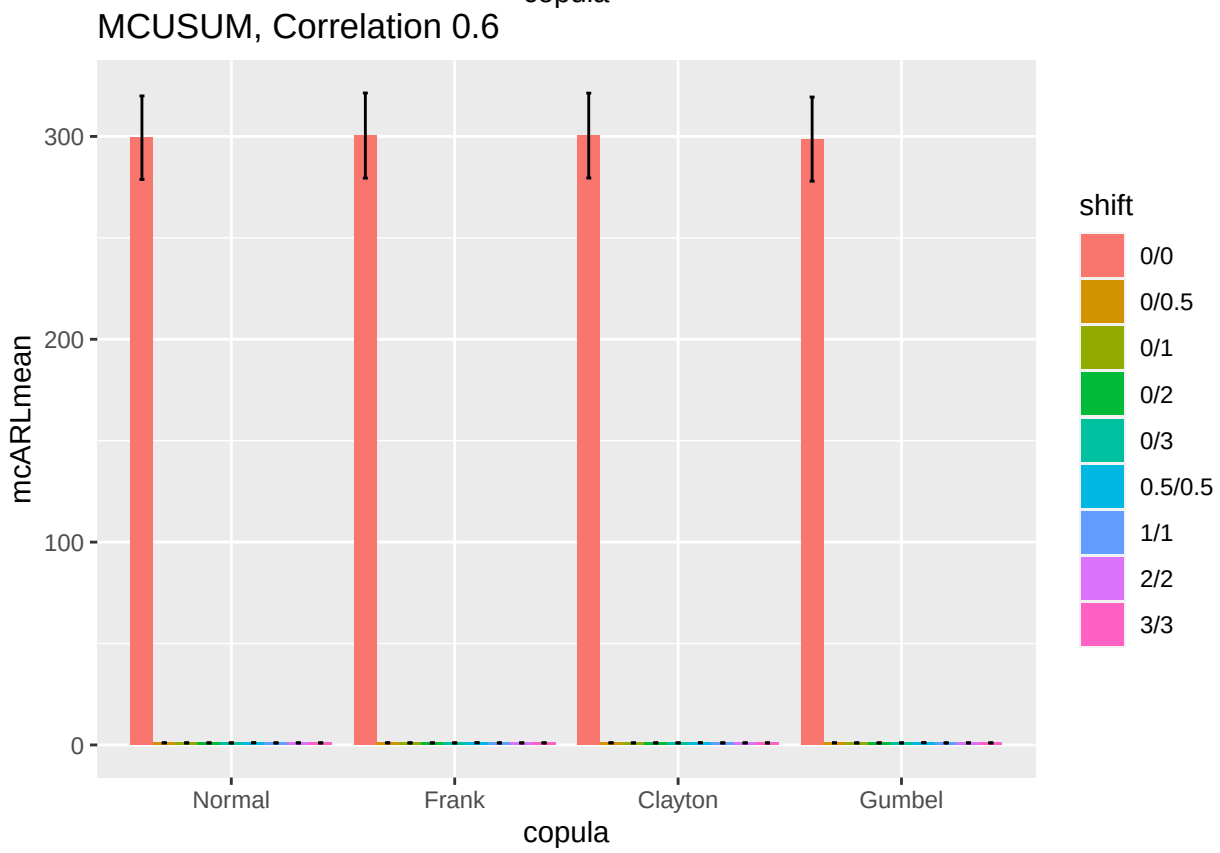
```
##  92 -0.2  Clayton 0/0.5   "119.348538 ±  4~ "  4.527603 ±  0.~ "  1.247461 ±  0~
##  93 -0.2  Clayton 0/1     " 39.471415 ±  0~ "  1.093726 ±  0.~ "  1.011422 ±  0~
##  94 -0.2  Clayton 0/2     "  6.702284 ±  0~ "  1.001846 ±  0.~ "  1.003632 ±  0~
##  95 -0.2  Clayton 0/3     "  2.147602 ±  0~ "  1.000564 ±  0.~ "  1.001993 ±  0~
##  96 -0.2  Clayton 0.5/0.5 " 59.572833 ±  1~ "  1.505400 ±  0.~ "  1.019494 ±  0~
##  97 -0.2  Clayton 1/1     " 13.506629 ±  0~ "  1.003575 ±  0.~ "  1.005279 ±  0~
##  98 -0.2  Clayton 2/2     "  2.016787 ±  0~ "  1.000497 ±  0.~ "  1.001878 ±  0~
##  99 -0.2  Clayton 3/3     "  1.041943 ±  0~ "  1.000023 ±  0.~ "  1.001015 ±  0~
## 100 -0.6  Clayton 0/0     "299.305628 ± 12~ "299.947501 ± 18.~ "299.362882 ± 20~
## 101 -0.6  Clayton 0/0.5   " 99.759281 ±  3~ "  2.813770 ±  0.~ "  1.045808 ±  0~
## 102 -0.6  Clayton 0/1     " 37.892424 ±  0~ "  1.011537 ±  0.~ "  1.008062 ±  0~
## 103 -0.6  Clayton 0/2     "  7.376746 ±  0~ "  1.001165 ±  0.~ "  1.002812 ±  0~
## 104 -0.6  Clayton 0/3     "  2.152268 ±  0~ "  1.000266 ±  0.~ "  1.001543 ±  0~
## 105 -0.6  Clayton 0.5/0.5 " 42.489778 ±  0~ "  1.032370 ±  0.~ "  1.009888 ±  0~
## 106 -0.6  Clayton 1/1     "  9.949000 ±  0~ "  1.001476 ±  0.~ "  1.003192 ±  0~
## 107 -0.6  Clayton 2/2     "  1.298807 ±  0~ "  1.000000 ±  0.~ "  1.001107 ±  0~
## 108 -0.6  Clayton 3/3     "  1.000000 ±  0~ "  1.000000 ±  0.~ "  1.000675 ±  0~
## 109 0.6   Gumbel  0/0     "299.640476 ± 12~ "300.919213 ± 18.~ "298.675208 ± 20~
## 110 0.6   Gumbel  0/0.5   "139.048731 ±  5~ "  2.413139 ±  0.~ "  1.037604 ±  0~
## 111 0.6   Gumbel  0/1     " 39.322662 ±  0~ "  1.013220 ±  0.~ "  1.007459 ±  0~
## 112 0.6   Gumbel  0/2     "  4.400302 ±  0~ "  1.001052 ±  0.~ "  1.002615 ±  0~
## 113 0.6   Gumbel  0/3     "  1.429164 ±  0~ "  1.000153 ±  0.~ "  1.001348 ±  0~
## 114 0.6   Gumbel  0.5/0.5 "180.727144 ±  7~ "  3.660749 ±  0.~ "  1.104748 ±  0~
## 115 0.6   Gumbel  1/1     " 57.025477 ±  1~ "  1.043623 ±  0.~ "  1.009203 ±  0~
## 116 0.6   Gumbel  2/2     "  7.445416 ±  0~ "  1.001537 ±  0.~ "  1.003206 ±  0~
## 117 0.6   Gumbel  3/3     "  2.029755 ±  0~ "  1.000418 ±  0.~ "  1.001770 ±  0~
## 118 0.2   Gumbel  0/0     "299.908874 ± 12~ "299.403224 ± 17.~ "299.579319 ± 20~
## 119 0.2   Gumbel  0/0.5   "143.310599 ±  5~ "  4.412530 ±  0.~ "  1.217104 ±  0~
## 120 0.2   Gumbel  0/1     " 49.171943 ±  0~ "  1.090098 ±  0.~ "  1.011050 ±  0~
## 121 0.2   Gumbel  0/2     "  7.621021 ±  0~ "  1.001928 ±  0.~ "  1.003617 ±  0~
## 122 0.2   Gumbel  0/3     "  2.241693 ±  0~ "  1.000564 ±  0.~ "  1.001962 ±  0~
## 123 0.2   Gumbel  0.5/0.5 "108.570028 ±  3~ "  2.427671 ±  0.~ "  1.038699 ±  0~
## 124 0.2   Gumbel  1/1     " 29.561511 ±  0~ "  1.010952 ±  0.~ "  1.007396 ±  0~
## 125 0.2   Gumbel  2/2     "  3.903135 ±  0~ "  1.000974 ±  0.~ "  1.002529 ±  0~
## 126 0.2   Gumbel  3/3     "  1.363149 ±  0~ "  1.000203 ±  0.~ "  1.001365 ±  0~
## 127 -0.2  Gumbel  0/0     "298.673846 ± 12~ "298.761634 ± 18.~ "300.729111 ± 20~
## 128 -0.2  Gumbel  0/0.5   "140.584189 ±  5~ "  4.686835 ±  0.~ "  1.276347 ±  0~
## 129 -0.2  Gumbel  0/1     " 46.335986 ±  0~ "  1.107954 ±  0.~ "  1.011162 ±  0~
## 130 -0.2  Gumbel  0/2     "  7.158074 ±  0~ "  1.001925 ±  0.~ "  1.003591 ±  0~
## 131 -0.2  Gumbel  0/3     "  2.203777 ±  0~ "  1.000582 ±  0.~ "  1.001999 ±  0~
## 132 -0.2  Gumbel  0.5/0.5 " 89.096503 ±  2~ "  1.877834 ±  0.~ "  1.025286 ±  0~
## 133 -0.2  Gumbel  1/1     " 19.675986 ±  0~ "  1.005594 ±  0.~ "  1.006191 ±  0~
## 134 -0.2  Gumbel  2/2     "  2.583338 ±  0~ "  1.000749 ±  0.~ "  1.002229 ±  0~
## 135 -0.2  Gumbel  3/3     "  1.157949 ±  0~ "  1.000112 ±  0.~ "  1.001186 ±  0~
## 136 -0.6  Gumbel  0/0     "298.644877 ± 12~ "300.386102 ± 18.~ "299.146799 ± 20~
## 137 -0.6  Gumbel  0/0.5   "147.983769 ±  5~ "  4.721787 ±  0.~ "  1.294738 ±  0~
## 138 -0.6  Gumbel  0/1     " 46.824570 ±  0~ "  1.108033 ±  0.~ "  1.011409 ±  0~
## 139 -0.6  Gumbel  0/2     "  7.224251 ±  0~ "  1.001968 ±  0.~ "  1.003694 ±  0~
## 140 -0.6  Gumbel  0/3     "  2.216310 ±  0~ "  1.000601 ±  0.~ "  1.002008 ±  0~
## 141 -0.6  Gumbel  0.5/0.5 " 91.235535 ±  2~ "  1.891946 ±  0.~ "  1.026349 ±  0~
## 142 -0.6  Gumbel  1/1     " 20.162489 ±  0~ "  1.005854 ±  0.~ "  1.006383 ±  0~
## 143 -0.6  Gumbel  2/2     "  2.599165 ±  0~ "  1.000748 ±  0.~ "  1.002223 ±  0~
## 144 -0.6  Gumbel  3/3     "  1.160601 ±  0~ "  1.000093 ±  0.~ "  1.001173 ±  0~
```

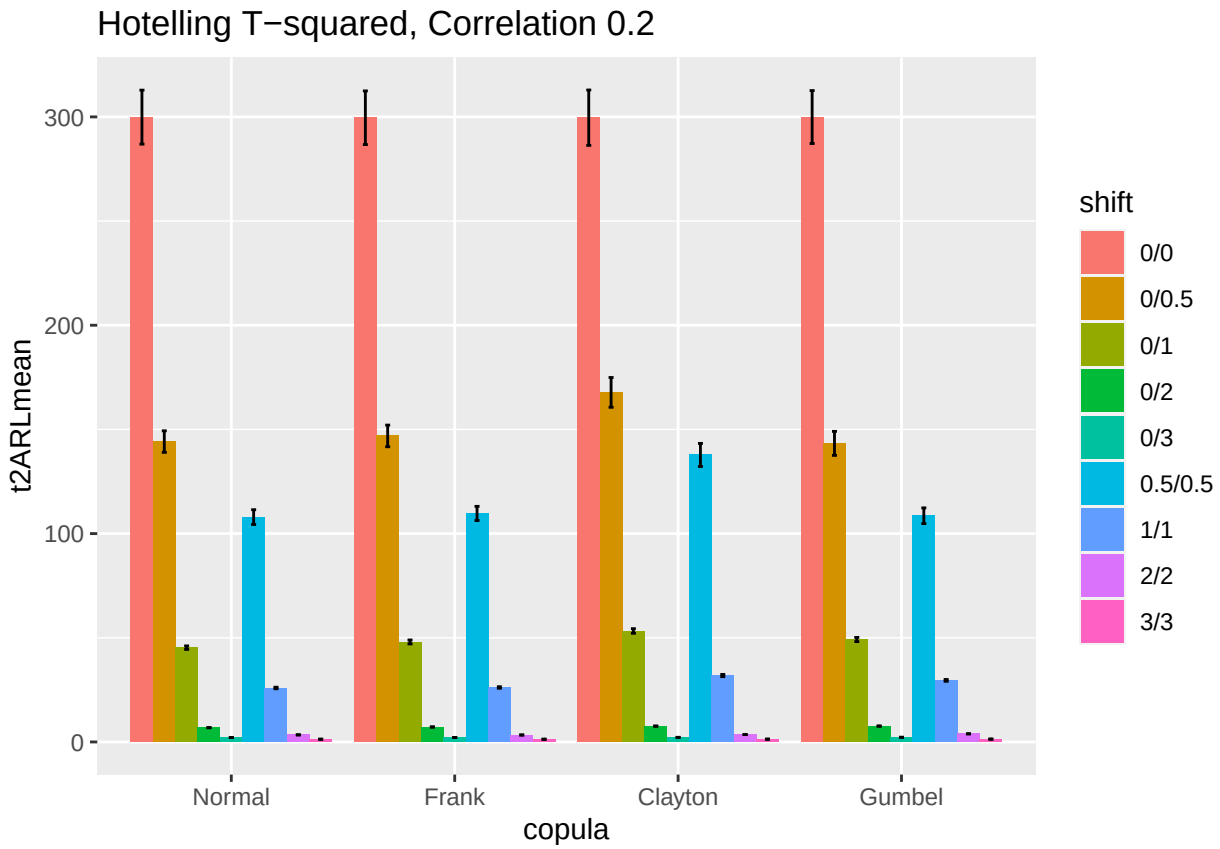
```
    #print(printTibble %>% arrange(rho))
```

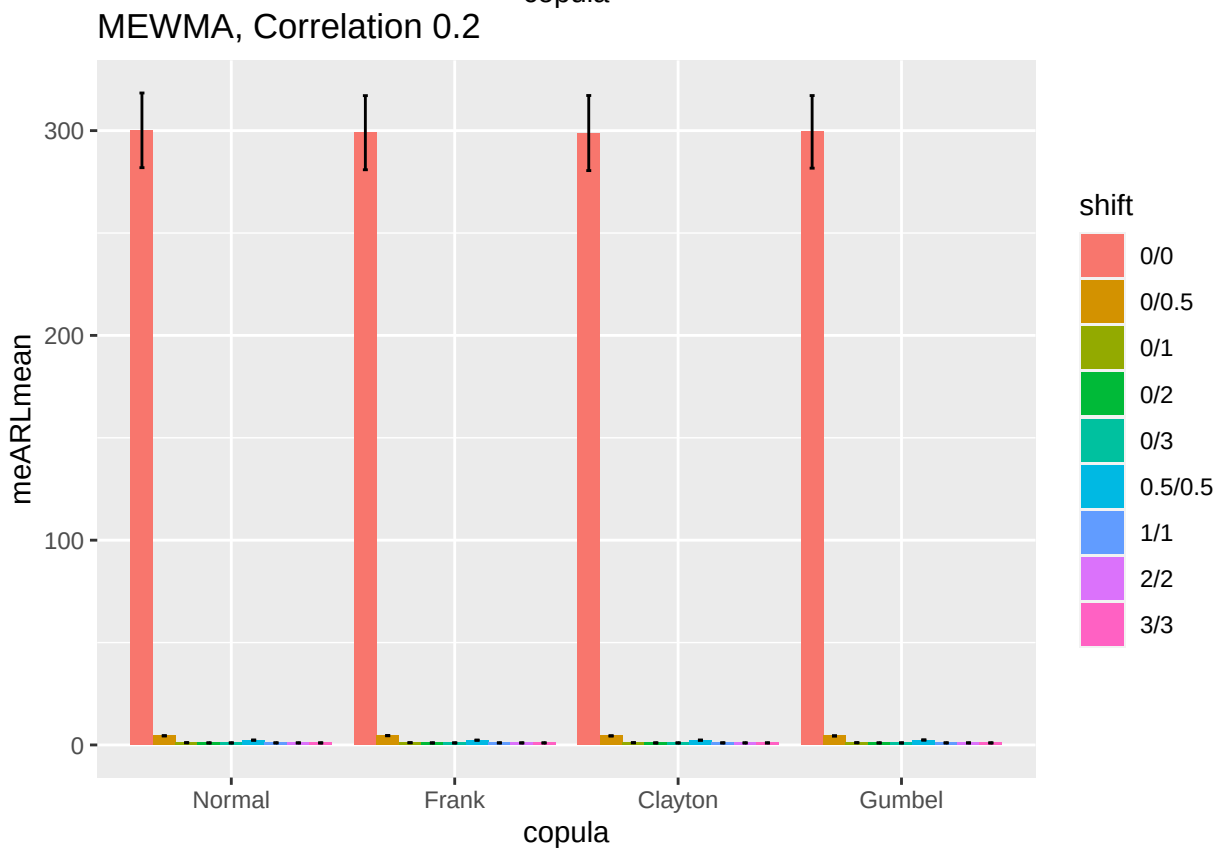
```
for(i in rhoList) {
    tmptibble <- ARL %>%
        filter(rho == i)
    t2plot <- tmptibble %>%
      ggplot(aes(x = copula, y = t2ARLmean, fill = shift)) +
      geom_bar(position = "dodge", stat = "identity") +
      geom_errorbar(aes(ymin = t2ARLlwr, ymax = t2ARLupr), width = .2, position = position_dodge(.9)) +
      ggtitle(paste("Hotelling T-squared, Correlation", i))
    meplot <- tmptibble %>%
      ggplot(aes(x = copula, y = meARLmean, fill = shift)) +
      geom_bar(position = "dodge", stat = "identity") +
      geom_errorbar(aes(ymin = meARLlwr, ymax = meARLupr), width = .2, position = position_dodge(.9)) +
      ggtitle(paste("MEWMA, Correlation", i))
    mcplot <- tmptibble %>%
      ggplot(aes(x = copula, y = mcARLmean, fill = shift)) +
      geom_bar(position = "dodge", stat = "identity") +
      geom_errorbar(aes(ymin = mcARLlwr, ymax = mcARLupr), width = .2, position = position_dodge(.9)) +
      ggtitle(paste("MCUSUM, Correlation", i))
    print(t2plot)
    print(meplot)
    print(mcplot)
}
```

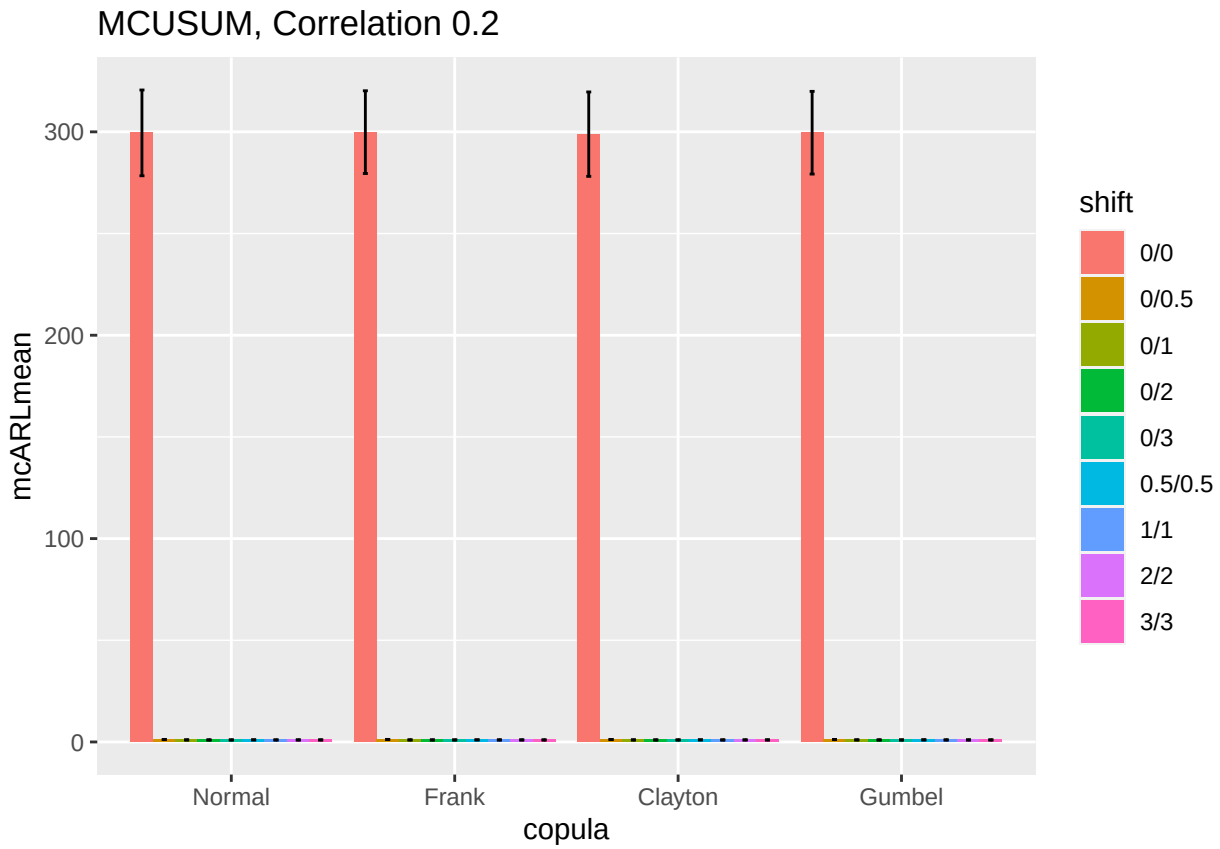


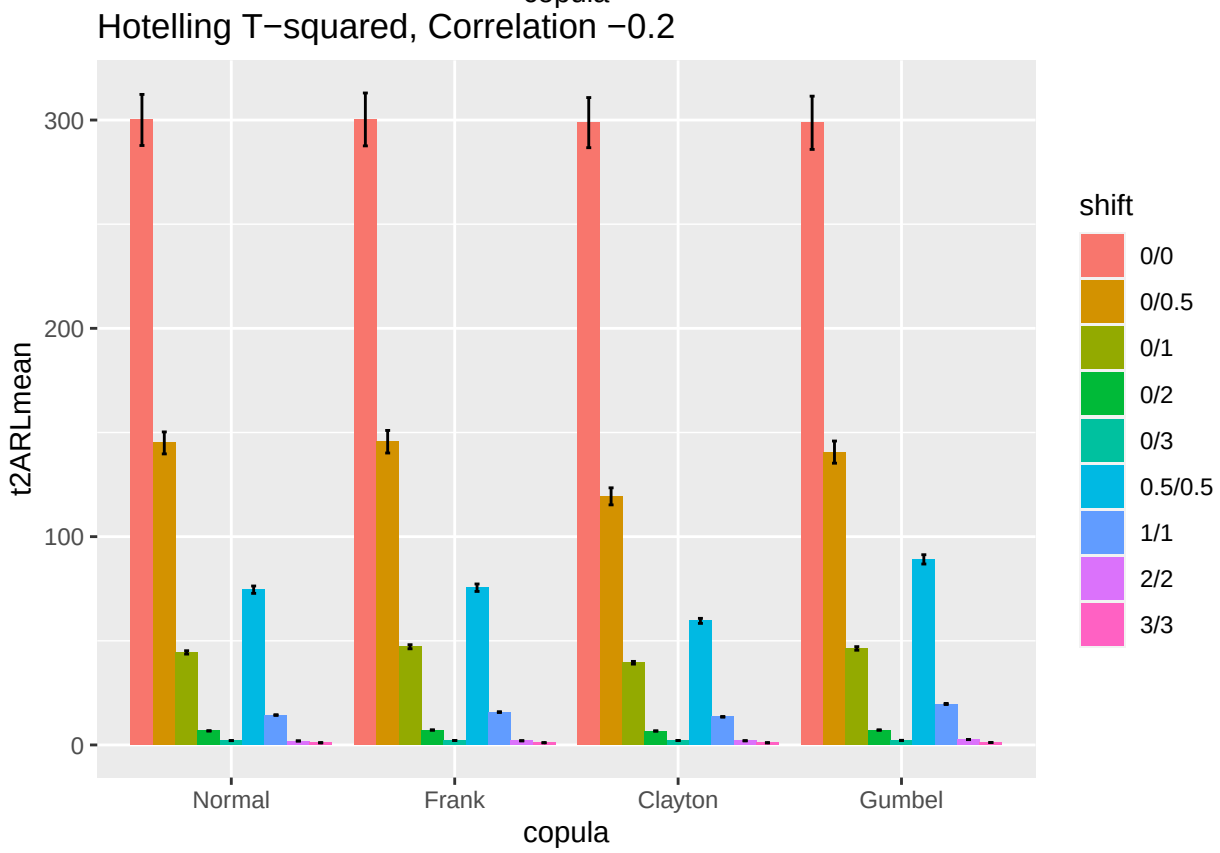

MEWMA, Correlation 0.6
meARLmean
300
200
100
0
Normal
Frank
Clayton
Gumbel
copula
shift
0/0
0/0.5
0/1
0/2
0/3
0.5/0.5
1/1
2/2
3/3

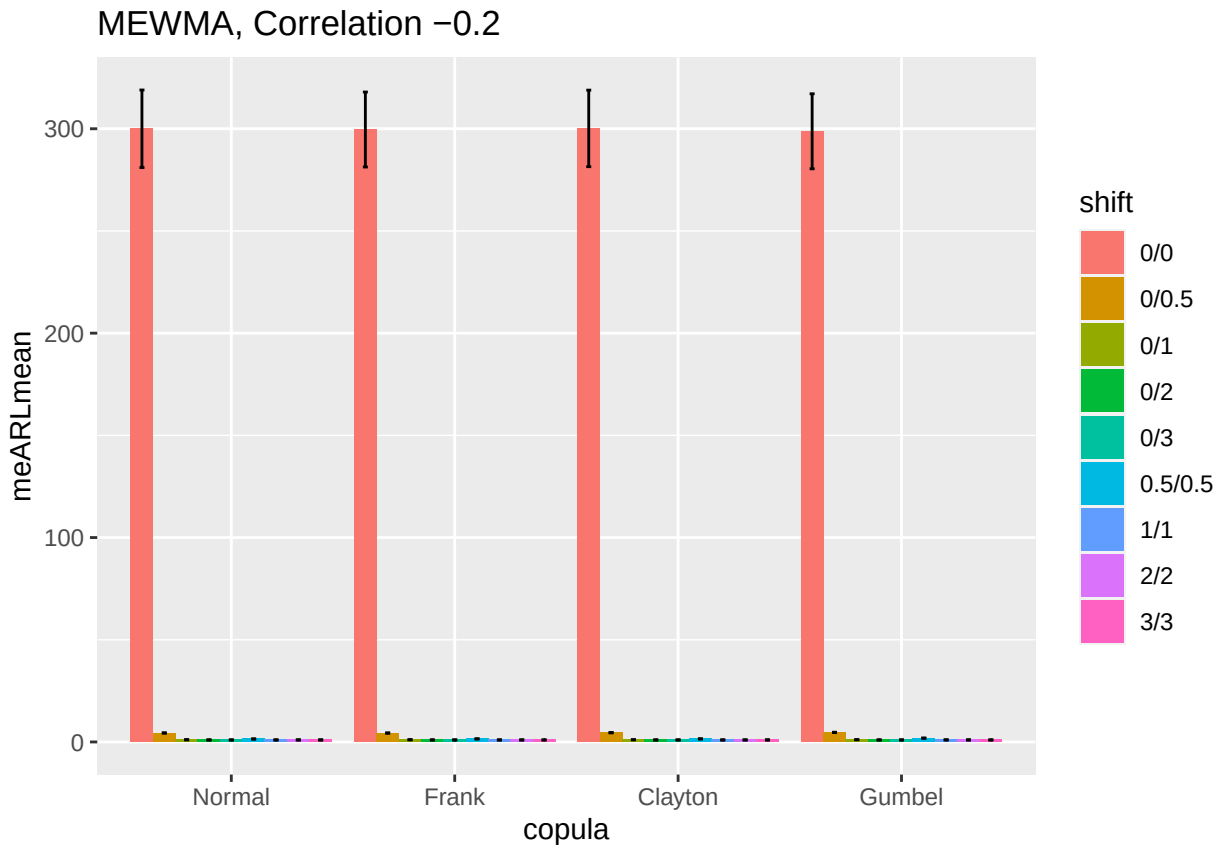

MCUSUM, Correlation 0.6
mcARLmean
300
200
100
0
Normal
Frank
Clayton
Gumbel
copula
shift
0/0
0/0.5
0/1
0/2
0/3
0.5/0.5
1/1
2/2
3/3

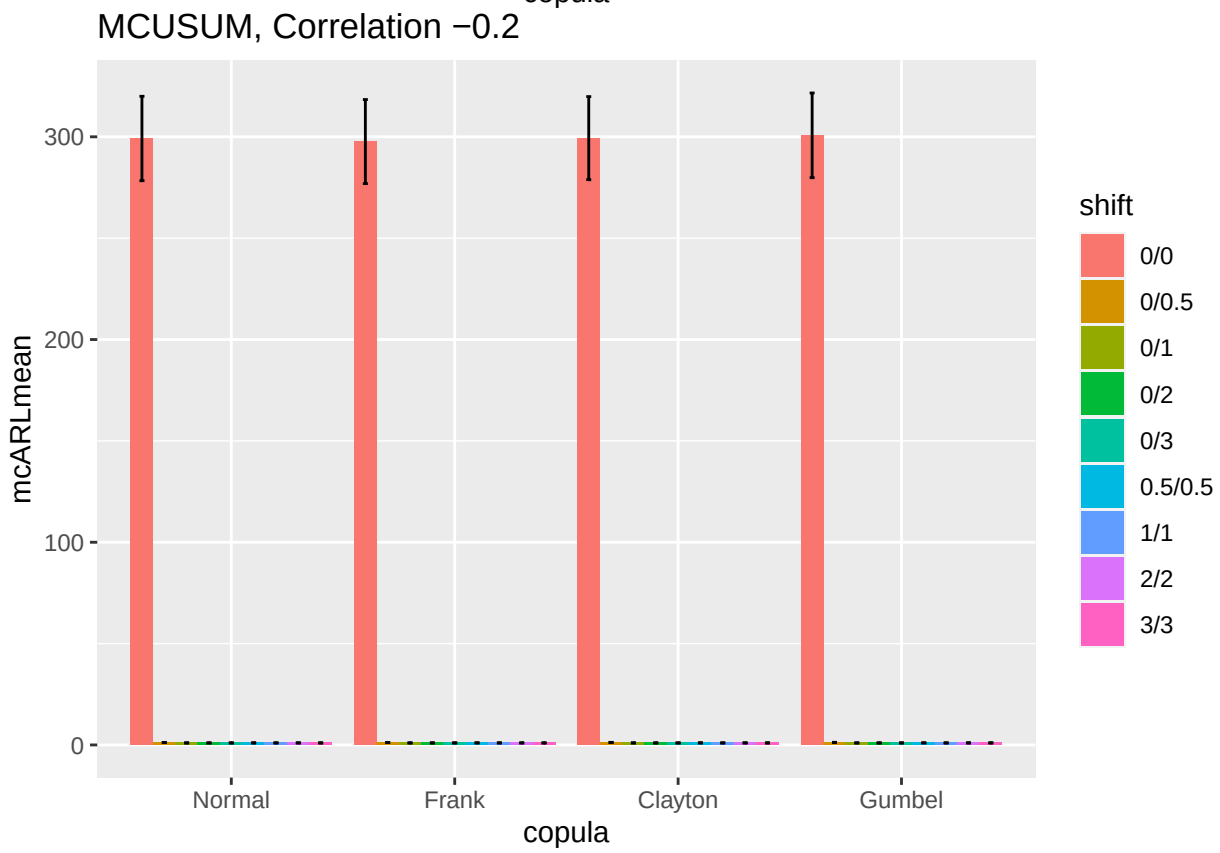

Hotelling T−squared, Correlation 0.2
t2ARLmean
300
200
100
0
Normal
Frank
Clayton
Gumbel
copula
shift
0/0
0/0.5
0/1
0/2
0/3
0.5/0.5
1/1
2/2
3/3

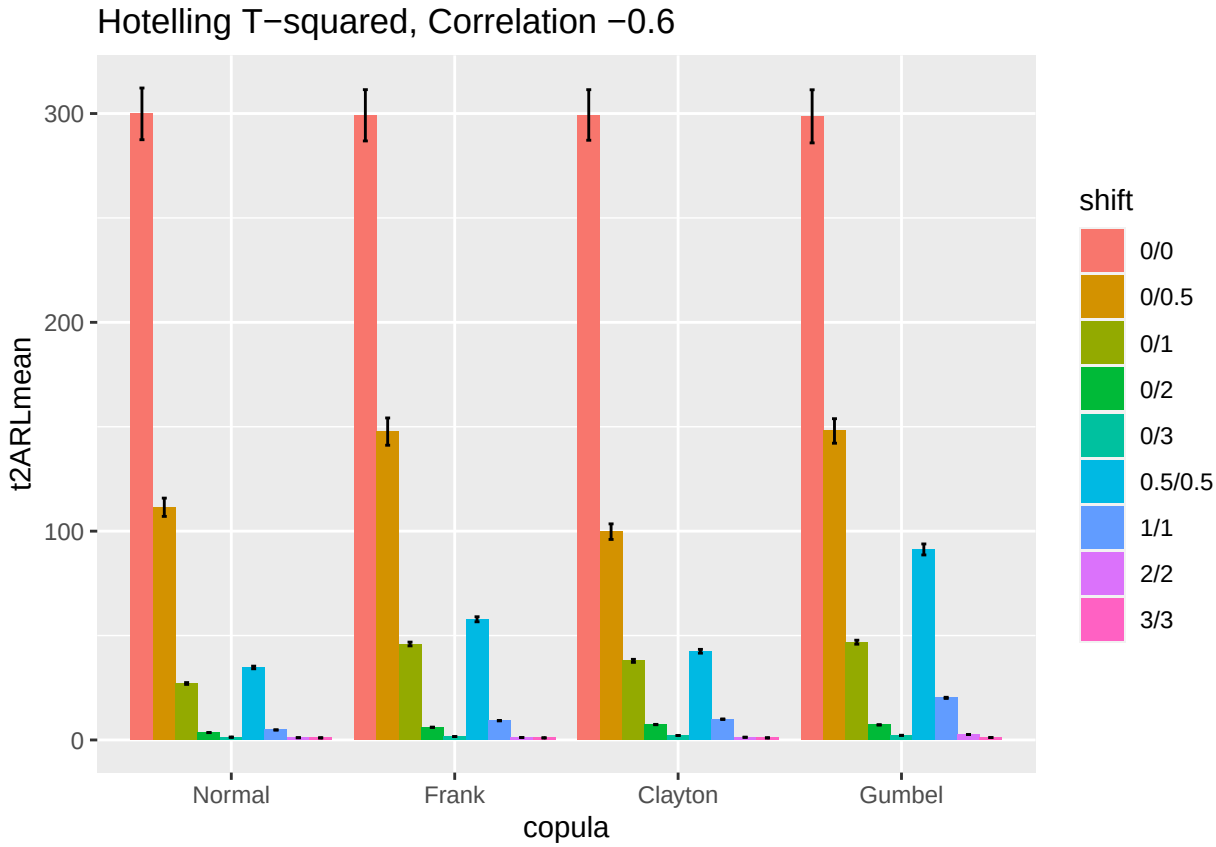

MEWMA, Correlation 0.2
meARLmean
300
200
100
0
Normal
Frank
Clayton
Gumbel
copula
shift
0/0
0/0.5
0/1
0/2
0/3
0.5/0.5
1/1
2/2
3/3

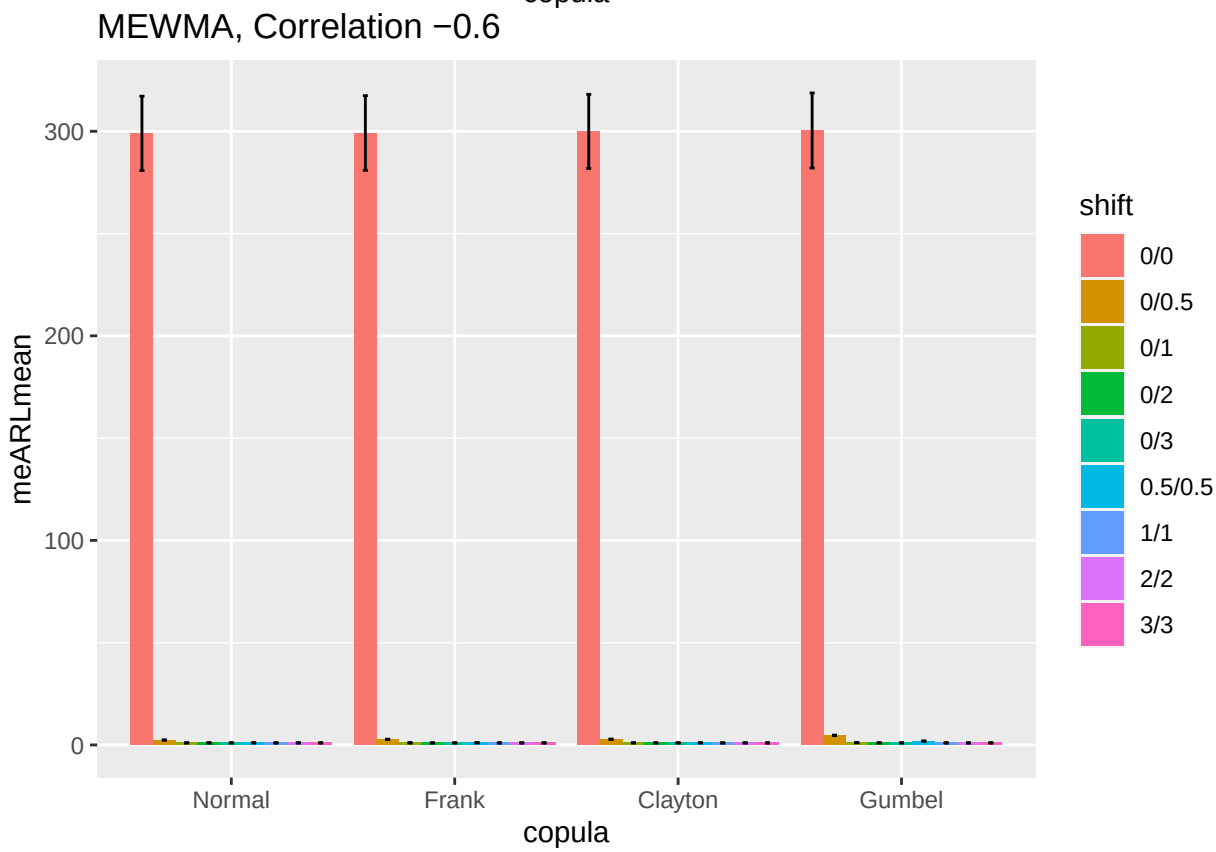

MCUSUM, Correlation 0.2
mcARLmean
300
200
100
0
Normal
Frank
Clayton
Gumbel
copula
shift
0/0
0/0.5
0/1
0/2
0/3
0.5/0.5
1/1
2/2
3/3

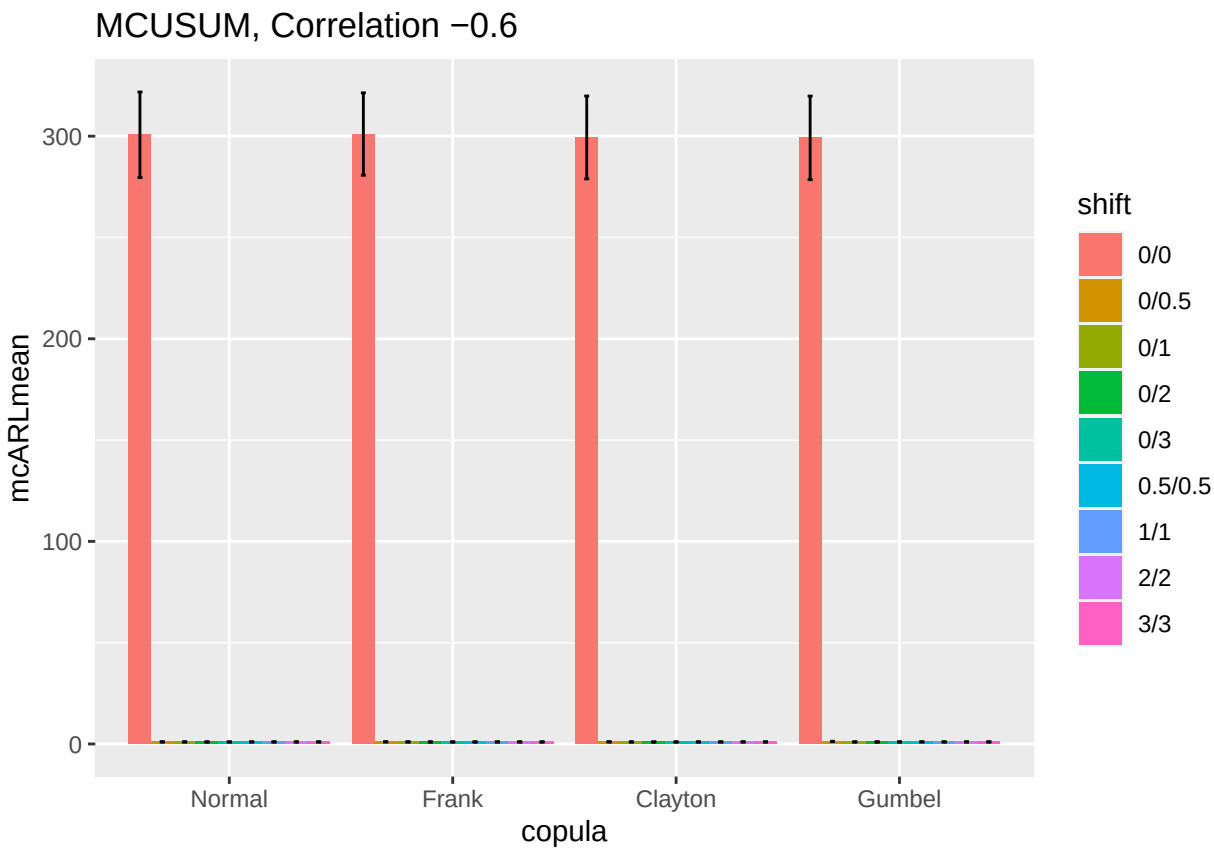

Hotelling T−squared, Correlation −0.2
t2ARLmean
300
200
100
0
Normal
Frank
Clayton
Gumbel
copula
shift
0/0
0/0.5
0/1
0/2
0/3
0.5/0.5
1/1
2/2
3/3


MEWMA, Correlation −0.2
meARLmean
300
200
100
0
Normal
Frank
Clayton
Gumbel
copula
shift
0/0
0/0.5
0/1
0/2
0/3
0.5/0.5
1/1
2/2
3/3


MCUSUM, Correlation −0.2
mcARLmean
300
200
100
0
Normal
Frank
Clayton
Gumbel
copula
shift
0/0
0/0.5
0/1
0/2
0/3
0.5/0.5
1/1
2/2
3/3


Hotelling T−squared, Correlation −0.6
t2ARLmean
300
200
100
0
Normal
Frank
Clayton
Gumbel
copula
shift
0/0
0/0.5
0/1
0/2
0/3
0.5/0.5
1/1
2/2
3/3


MEWMA, Correlation −0.6
meARLmean
300
200
100
0
Normal
Frank
Clayton
Gumbel
copula
shift
0/0
0/0.5
0/1
0/2
0/3
0.5/0.5
1/1
2/2
3/3


MCUSUM, Correlation −0.6
mcARLmean
300
200
100
0
Normal
Frank
Clayton
Gumbel
copula
shift
0/0
0/0.5
0/1
0/2
0/3
0.5/0.5
1/1
2/2
3/3