

betaMC: Internal Tests

Ivan Jacob Agaloos Pesigan

Tests

```
#> test-betaMC-beta-mc-est-mi
#> Call:
#> BetaMC(object = mc)
#>
#> Standardized regression slopes
#> type = "mvn"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.4951 0.0978 5 0.3596 0.3610 0.3674 0.5992 0.6022 0.6029
#> PCTGRT  0.3915 0.0632 5 0.2902 0.2911 0.2948 0.4454 0.4488 0.4496
#> PCTSUPP 0.2632 0.0619 5 0.1701 0.1708 0.1741 0.3199 0.3230 0.3237
#> Call:
#> BetaMC(object = mc)
#>
#> Standardized regression slopes
#> type = "mvn"
#> Test passed
#> Call:
#> BetaMC(object = mc)
#>
#> Standardized regression slopes
#> type = "mvn"
#>      est      se R 0.05%  0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC 0.7622 0.053 5 0.676 0.677 0.6814 0.8012 0.8019 0.802
#> Call:
#> BetaMC(object = mc)
#>
#> Standardized regression slopes
#> type = "mvn"

#> test-betaMC-beta-mc-est
#> Call:
#> BetaMC(object = mc)
#>
#> Standardized regression slopes
```

```

#> type = "mvn"
#>           est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.4951 0.0650 5 0.4280 0.4290 0.4337 0.5788 0.5790 0.5791
#> PCTGRT  0.3915 0.0430 5 0.3472 0.3474 0.3484 0.4513 0.4557 0.4567
#> PCTSUPP 0.2632 0.1166 5 0.0892 0.0930 0.1096 0.3796 0.3830 0.3838
#> Call:
#> BetaMC(object = mc)
#>
#> Standardized regression slopes
#> type = "mvn"
#> Test passed
#> Call:
#> BetaMC(object = mc)
#>
#> Standardized regression slopes
#> type = "mvn"
#>           est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.7622 0.0533 5 0.6726 0.6741 0.6808 0.807  0.8089 0.8093
#> Call:
#> BetaMC(object = mc)
#>
#> Standardized regression slopes
#> type = "mvn"

#> test-betaMC-delta-r-sq-mc-est-mi

#> Call:
#> DeltaRSqMC(object = mc)
#>
#> Improvement in R-squared
#> type = "mvn"
#>           est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.1859 0.0440 5 0.1019 0.1020 0.1024 0.2040 0.2073 0.2080
#> PCTGRT  0.1177 0.0559 5 0.0672 0.0676 0.0693 0.2042 0.2116 0.2133
#> PCTSUPP 0.0569 0.0390 5 0.0526 0.0526 0.0527 0.1349 0.1414 0.1429
#> Call:
#> DeltaRSqMC(object = mc)
#>
#> Improvement in R-squared
#> type = "mvn"
#> Test passed
#> Test passed

#> test-betaMC-delta-r-sq-mc-est

#> Call:
#> DeltaRSqMC(object = mc)

```

```

#>
#> Improvement in R-squared
#> type = "mvn"
#>           est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.1859 0.0627 5 0.1110 0.1112 0.1123 0.2568 0.2647 0.2665
#> PCTGRT  0.1177 0.0334 5 0.0387 0.0389 0.0399 0.1170 0.1193 0.1198
#> PCTSUPP 0.0569 0.0210 5 0.0134 0.0138 0.0156 0.0683 0.0697 0.0700
#> Call:
#> DeltaRSqMC(object = mc)
#>
#> Improvement in R-squared
#> type = "mvn"
#> Test passed
#> Test passed

#> test-betaMC-diff-beta-mc-est-mi

#> Call:
#> DiffBetaMC(object = mc)
#>
#> Differences of standardized regression slopes
#> type = "mvn"
#>           est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC-PCTGRT  0.1037 0.0648 5 0.0554 0.0558 0.0574 0.2073 0.2106 0.2114
#> NARTIC-PCTSUPP 0.2319 0.1138 5 0.1110 0.1123 0.1179 0.3645 0.3650 0.3651
#> PCTGRT-PCTSUPP 0.1282 0.1071 5 0.0106 0.0114 0.0150 0.2709 0.2813 0.2837
#> Call:
#> DiffBetaMC(object = mc)
#>
#> Differences of standardized regression slopes
#> type = "mvn"
#> Test passed
#> Test passed

#> test-betaMC-diff-beta-mc-est

#> Call:
#> DiffBetaMC(object = mc)
#>
#> Differences of standardized regression slopes
#> type = "mvn"
#>           est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC-PCTGRT  0.1037 0.1646 5 -0.0822 -0.0817 -0.0792 0.3000 0.3106 0.3130
#> NARTIC-PCTSUPP 0.2319 0.0985 5  0.1856  0.1873  0.1949 0.4375 0.4428 0.4440
#> PCTGRT-PCTSUPP 0.1282 0.1330 5  0.0631  0.0643  0.0698 0.3617 0.3627 0.3629
#> Call:
#> DiffBetaMC(object = mc)

```

```

#>
#> Differences of standardized regression slopes
#> type = "mvn"
#> Test passed
#> Test passed

#> test-betaMC-mc-fixed-x-mi

#> MCMI(object = object, R = R, type = "mvn", fixed_x = TRUE, m = 100)
#> MCMI(object = object, R = R, type = "adf", fixed_x = TRUE, m = 100)
#> MCMI(object = object, R = R, type = "hc0", fixed_x = TRUE, m = 100)
#> MCMI(object = object, R = R, type = "hc1", fixed_x = TRUE, m = 100)
#> MCMI(object = object, R = R, type = "hc2", fixed_x = TRUE, m = 100)
#> MCMI(object = object, R = R, type = "hc3", fixed_x = TRUE, m = 100)
#> MCMI(object = object, R = R, type = "hc4", fixed_x = TRUE, m = 100)
#> MCMI(object = object, R = R, type = "hc4m", fixed_x = TRUE, m = 100)
#> MCMI(object = object, R = R, type = "hc5", fixed_x = TRUE, m = 100)
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed

#> test-betaMC-mc-fixed-x

#> MC(object = object, R = R, type = "mvn", fixed_x = TRUE)
#> MC(object = object, R = R, type = "adf", fixed_x = TRUE)
#> MC(object = object, R = R, type = "hc0", fixed_x = TRUE)
#> MC(object = object, R = R, type = "hc1", fixed_x = TRUE)
#> MC(object = object, R = R, type = "hc2", fixed_x = TRUE)
#> MC(object = object, R = R, type = "hc3", fixed_x = TRUE)
#> MC(object = object, R = R, type = "hc4", fixed_x = TRUE)
#> MC(object = object, R = R, type = "hc4m", fixed_x = TRUE)
#> MC(object = object, R = R, type = "hc5", fixed_x = TRUE)
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed

```

```

#> Test passed
#> Call:
#> MC(object = object, R = 5L, decomposition = "chol", fixed_x = TRUE)
#> The first set of simulated parameter estimates
#> and model-implied covariance matrix.
#>
#> $coef
#> [1] 0.4692293 0.5516943
#>
#> $sigmasq
#> [1] 0.5160521
#>
#> $vechsigmacapx
#> [1] 1.000000e+00 2.496804e-16 1.000000e+00
#>
#> $sigmacapx
#>      [,1]      [,2]
#> [1,] 1.000000e+00 2.496804e-16
#> [2,] 2.496804e-16 1.000000e+00
#>
#> $sigmaysq
#> [1] 1.040595
#>
#> $sigmayx
#> [1] 0.4692293 0.5516943
#>
#> $sigmacap
#>      [,1]      [,2]      [,3]
#> [1,] 1.0405949 4.692293e-01 5.516943e-01
#> [2,] 0.4692293 1.000000e+00 2.496804e-16
#> [3,] 0.5516943 2.496804e-16 1.000000e+00
#>
#> $pd
#> [1] TRUE
#>
#> Call:
#> MC(object = object, R = 5L, decomposition = "svd", fixed_x = TRUE)
#> The first set of simulated parameter estimates
#> and model-implied covariance matrix.
#>
#> $coef
#> [1] 0.5029125 0.5283038
#>
#> $sigmasq
#> [1] 0.4891024
#>

```

```

#> $vechsigmacapx
#> [1] 1.000000e+00 2.496804e-16 1.000000e+00
#>
#> $sigmacapx
#>           [,1]           [,2]
#> [1,] 1.000000e+00 2.496804e-16
#> [2,] 2.496804e-16 1.000000e+00
#>
#> $sigmaysq
#> [1] 1.021128
#>
#> $sigmayx
#> [1] 0.5029125 0.5283038
#>
#> $sigmacap
#>           [,1]           [,2]           [,3]
#> [1,] 1.0211283 5.029125e-01 5.283038e-01
#> [2,] 0.5029125 1.000000e+00 2.496804e-16
#> [3,] 0.5283038 2.496804e-16 1.000000e+00
#>
#> $pd
#> [1] TRUE

#> test-betaMC-mc-mi

#> MCMI(object = object, R = R, type = "mvn", m = 100)
#> MCMI(object = object, R = R, type = "adf", m = 100)
#> MCMI(object = object, R = R, type = "hc0", m = 100)
#> MCMI(object = object, R = R, type = "hc1", m = 100)
#> MCMI(object = object, R = R, type = "hc2", m = 100)
#> MCMI(object = object, R = R, type = "hc3", m = 100)
#> MCMI(object = object, R = R, type = "hc4", m = 100)
#> MCMI(object = object, R = R, type = "hc4m", m = 100)
#> MCMI(object = object, R = R, type = "hc5", m = 100)
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed

#> test-betaMC-mc

#> MC(object = object, R = R, type = "mvn")

```

```

#> MC(object = object, R = R, type = "adf")
#> MC(object = object, R = R, type = "hc0")
#> MC(object = object, R = R, type = "hc1")
#> MC(object = object, R = R, type = "hc2")
#> MC(object = object, R = R, type = "hc3")
#> MC(object = object, R = R, type = "hc4")
#> MC(object = object, R = R, type = "hc4m")
#> MC(object = object, R = R, type = "hc5")
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Call:
#> MC(object = object, R = 5L, decomposition = "chol")
#> The first set of simulated parameter estimates
#> and model-implied covariance matrix.
#>
#> $coef
#> [1] 0.4877120 0.4434534
#>
#> $sigmasq
#> [1] 0.5310729
#>
#> $vechsigmacapx
#> [1] 1.04219039 -0.02227116 1.03691378
#>
#> $sigmacapx
#>           [,1]      [,2]
#> [1,] 1.04219039 -0.02227116
#> [2,] -0.02227116 1.03691378
#>
#> $sigmaysq
#> [1] 0.973248
#>
#> $sigmayx
#> [1] 0.4984125 0.4489611
#>
#> $sigmacap
#>           [,1]      [,2]      [,3]
#> [1,] 0.9732480 0.49841255 0.44896105

```

```

#> [2,] 0.4984125 1.04219039 -0.02227116
#> [3,] 0.4489611 -0.02227116 1.03691378
#>
#> $pd
#> [1] TRUE
#>
#> Call:
#> MC(object = object, R = 5L, decomposition = "svd")
#> The first set of simulated parameter estimates
#> and model-implied covariance matrix.
#>
#> $coef
#> [1] 0.4772045 0.4937664
#>
#> $sigmasq
#> [1] 0.5486292
#>
#> $vechsigmacapx
#> [1] 0.97009101 -0.03800542 1.06816910
#>
#> $sigmacapx
#>      [,1]      [,2]
#> [1,] 0.97009101 -0.03800542
#> [2,] -0.03800542 1.06816910
#>
#> $sigmaysq
#> [1] 1.012057
#>
#> $sigmayx
#> [1] 0.4441660 0.5092896
#>
#> $sigmacap
#>      [,1]      [,2]      [,3]
#> [1,] 1.0120573 0.44416598 0.50928964
#> [2,] 0.4441660 0.97009101 -0.03800542
#> [3,] 0.5092896 -0.03800542 1.06816910
#>
#> $pd
#> [1] TRUE
#> test-betaMC-p-cor-mc-est-mi
#> Call:
#> PCorMC(object = mc)
#>
#> Squared partial correlations
#> type = "mvn"

```



```

#>      est      se R 0.05%  0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.4874 0.1447 5 0.3683 0.3686 0.3695 0.6702 0.6772 0.6788
#> PCTGRT  0.3757 0.0682 5 0.2854 0.2857 0.2869 0.4329 0.4349 0.4353
#> PCTSUPP 0.2254 0.0417 5 0.1483 0.1497 0.1559 0.2517 0.2526 0.2527
#> Call:
#> PCorMC(object = mc)
#>
#> Squared partial correlations
#> type = "mvn"
#> Test passed
#> Test passed

#> test-betaMC-p-cor-mc-est

#> Call:
#> PCorMC(object = mc)
#>
#> Squared partial correlations
#> type = "mvn"
#>      est      se R 0.05%  0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.4874 0.1086 5 0.3504 0.3522 0.3606 0.6257 0.6319 0.6333
#> PCTGRT  0.3757 0.0891 5 0.2947 0.2952 0.2976 0.4981 0.5009 0.5016
#> PCTSUPP 0.2254 0.1480 5 0.0805 0.0812 0.0842 0.4185 0.4418 0.4470
#> Call:
#> PCorMC(object = mc)
#>
#> Squared partial correlations
#> type = "mvn"
#> Test passed
#> Test passed

#> test-betaMC-r-sq-mc-est-mi

#> Call:
#> RSqMC(object = mc)
#>
#> R-squared and adjusted R-squared
#> type = "mvn"
#>      est      se R 0.05%  0.5%   2.5%  97.5%  99.5% 99.95%
#> rsq 0.8045 0.0638 5 0.6458 0.6467 0.6506 0.8065 0.8111 0.8121
#> adj 0.7906 0.0683 5 0.6205 0.6215 0.6257 0.7927 0.7976 0.7987
#> Call:
#> RSqMC(object = mc)
#>
#> R-squared and adjusted R-squared
#> type = "mvn"
#> Test passed

```

```

#> Call:
#> RSqMC(object = mc)
#>
#> R-squared and adjusted R-squared
#> type = "mvn"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> rsq 0.5809 0.0780 5 0.4660 0.4672 0.4724 0.6451 0.6465 0.6468
#> adj 0.5714 0.0798 5 0.4539 0.4551 0.4605 0.6371 0.6385 0.6388
#> Call:
#> RSqMC(object = mc)
#>
#> R-squared and adjusted R-squared
#> type = "mvn"
#> Test passed

#> test-betaMC-r-sq-mc-est

#> Call:
#> RSqMC(object = mc)
#>
#> R-squared and adjusted R-squared
#> type = "mvn"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> rsq 0.8045 0.0403 5 0.7314 0.7317 0.7331 0.8263 0.8288 0.8294
#> adj 0.7906 0.0431 5 0.7122 0.7125 0.7141 0.8139 0.8166 0.8172
#> Call:
#> RSqMC(object = mc)
#>
#> R-squared and adjusted R-squared
#> type = "mvn"
#> Test passed
#> Call:
#> RSqMC(object = mc)
#>
#> R-squared and adjusted R-squared
#> type = "mvn"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> rsq 0.5809 0.0748 5 0.5441 0.5443 0.5453 0.7189 0.7267 0.7285
#> adj 0.5714 0.0765 5 0.5337 0.5339 0.5349 0.7125 0.7205 0.7223
#> Call:
#> RSqMC(object = mc)
#>
#> R-squared and adjusted R-squared
#> type = "mvn"
#> Test passed

#> test-betaMC-s-cor-mc-est-mi

```

```

#> Call:
#> SCorMC(object = mc)
#>
#> Semipartial correlations
#> type = "mvn"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.4312 0.0598 5 0.3291 0.3303 0.3358 0.4743 0.4751 0.4753
#> PCTGRT  0.3430 0.0682 5 0.3096 0.3103 0.3135 0.4794 0.4878 0.4897
#> PCTSUPP 0.2385 0.0860 5 0.1894 0.1896 0.1903 0.3703 0.3717 0.3720
#> Call:
#> SCorMC(object = mc)
#>
#> Semipartial correlations
#> type = "mvn"
#> Test passed
#> Test passed

#> test-betaMC-s-cor-mc-est

#> Call:
#> SCorMC(object = mc)
#>
#> Semipartial correlations
#> type = "mvn"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.4312 0.0454 5 0.2962 0.2973 0.3024 0.4056 0.4061 0.4062
#> PCTGRT  0.3430 0.0634 5 0.3288 0.3294 0.3324 0.4646 0.4647 0.4647
#> PCTSUPP 0.2385 0.0601 5 0.1830 0.1830 0.1831 0.3208 0.3263 0.3276
#> Call:
#> SCorMC(object = mc)
#>
#> Semipartial correlations
#> type = "mvn"
#> Test passed
#> Test passed
#> [[1]]
#> [[1]][[1]]
#> [[1]][[1]]$value
#> [[1]][[1]]$value[[1]]
#>      2.5%      97.5%
#> 0.6814102 0.8011851
#>
#>
#> [[1]][[1]]$visible
#> [1] TRUE
#>
#>

```

```

#> [[1]][[2]]
#> [[1]][[2]]$value
#> [[1]][[2]]$value[[1]]
#>      2.5%      97.5%
#> 0.6807671 0.8069825
#>
#>
#> [[1]][[2]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[3]]
#> [[1]][[3]]$value
#> [[1]][[3]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[3]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[4]]
#> [[1]][[4]]$value
#> [[1]][[4]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[4]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[5]]
#> [[1]][[5]]$value
#> [[1]][[5]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[5]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[6]]
#> [[1]][[6]]$value
#> [[1]][[6]]$value[[1]]
#> [1] TRUE

```

```

#>
#>
#> [[1]][[6]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[7]]
#> [[1]][[7]]$value
#> [[1]][[7]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[7]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[8]]
#> [[1]][[8]]$value
#> [[1]][[8]]$value[[1]]
#> [[1]][[8]]$value[[1]]$coef
#> [1] 0.5029125 0.5283038
#>
#> [[1]][[8]]$value[[1]]$sigmasq
#> [1] 0.4891024
#>
#> [[1]][[8]]$value[[1]]$vechsigmacapx
#> [1] 1.000000e+00 2.496804e-16 1.000000e+00
#>
#> [[1]][[8]]$value[[1]]$sigmacapx
#>           [,1]           [,2]
#> [1,] 1.000000e+00 2.496804e-16
#> [2,] 2.496804e-16 1.000000e+00
#>
#> [[1]][[8]]$value[[1]]$sigmayx
#> [1] 1.021128
#>
#> [[1]][[8]]$value[[1]]$sigmayx
#> [1] 0.5029125 0.5283038
#>
#> [[1]][[8]]$value[[1]]$sigmacap
#>           [,1]           [,2]           [,3]
#> [1,] 1.0211283 5.029125e-01 5.283038e-01
#> [2,] 0.5029125 1.000000e+00 2.496804e-16
#> [3,] 0.5283038 2.496804e-16 1.000000e+00
#>
#> [[1]][[8]]$value[[1]]$pd

```

```

#> [1] TRUE
#>
#>
#>
#> [[1]][[8]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[9]]
#> [[1]][[9]]$value
#> [[1]][[9]]$value[[1]]
#> Call:
#> MCMl(object = object, R = R, type = "mvn", adj = TRUE)
#> The first set of simulated parameter estimates
#> and model-implied covariance matrix.
#>
#> $coef
#> [1] 0.4711575 0.5145556
#>
#> $sigmasq
#> [1] 0.5613241
#>
#> $vechsigmacapx
#> [1] 1.060816879 0.003983488 1.026316003
#>
#> $sigmacapx
#>      [,1]      [,2]
#> [1,] 1.060816879 0.003983488
#> [2,] 0.003983488 1.026316003
#>
#> $sigmaysq
#> [1] 1.070481
#>
#> $sigmayx
#> [1] 0.5018615 0.5299735
#>
#> $sigmacap
#>      [,1]      [,2]      [,3]
#> [1,] 1.0704807 0.501861544 0.529973479
#> [2,] 0.5018615 1.060816879 0.003983488
#> [3,] 0.5299735 0.003983488 1.026316003
#>
#> $pd
#> [1] TRUE
#>

```

```

#>
#>
#> [[1]][[9]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[10]]
#> [[1]][[10]]$value
#> [[1]][[10]]$value[[1]]
#>          beta1 beta2 rsq sigmax1x1 sigmax2x1 sigmax2x2
#> sigmaysq      1     1  -2      0.25      0.5      0.25
#> sigmayx1      1     0   0      0.50      0.5      0.00
#> sigmayx2      0     1   0      0.00      0.5      0.50
#> sigmax1x1      0     0   0      1.00      0.0      0.00
#> sigmax2x1      0     0   0      0.00      1.0      0.00
#> sigmax2x2      0     0   0      0.00      0.0      1.00
#>
#>
#> [[1]][[10]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[11]]
#> [[1]][[11]]$value
#> [[1]][[11]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[11]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[12]]
#> [[1]][[12]]$value
#> [[1]][[12]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[12]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[13]]
#> [[1]][[13]]$value
#> [[1]][[13]]$value[[1]]
#> [1] TRUE

```

```
#>
#>
#> [[1]][[13]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[14]]
#> [[1]][[14]]$value
#> [[1]][[14]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[14]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[15]]
#> [[1]][[15]]$value
#> [[1]][[15]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[15]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[16]]
#> [[1]][[16]]$value
#> [[1]][[16]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[16]]$visible
#> [1] TRUE
```


Environment

```
ls()  
#> [1] "nas1982" "root"    "tex_file"
```

Class

```
#> [[1]]  
#> [1] "data.frame"  
#>  
#> [[2]]  
#> [1] "root_criterion"  
#>  
#> [[3]]  
#> [1] "character"
```

References

R Core Team. (2023). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. Vienna, Austria. <https://www.R-project.org/>