betaNB: Internal Tests

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Tests

```
#> test-betaNB-beta-nb-est
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "pc"
#>            est     se R  0.05%    0.5%    2.5%   97.5%   99.5% 99.95%
#> NARTIC  0.4951 0.0572 5 0.4690 0.4690 0.4693 0.5918 0.5936 0.5939
#> PCTGRT  0.3915 0.0656 5 0.3005 0.3009 0.3027 0.4591 0.4654 0.4668
#> PCTSUPP 0.2632 0.0385 5 0.1824 0.1837 0.1894 0.2764 0.2767 0.2768
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "pc"
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bc"
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bc"
#>            est     se R  0.05%    0.5%    2.5%   97.5%   99.5% 99.95%
#> NARTIC  0.4951 0.0572 5 0.4690 0.4690 0.4691 0.5877 0.5923 0.5938
#> PCTGRT  0.3915 0.0656 5 0.3054 0.3175 0.3358 0.4669 0.4670 0.4670
#> PCTSUPP 0.2632 0.0385 5 0.1830 0.1878 0.2032 0.2767 0.2768 0.2768
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bca"
```

```
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bca"
#>            est     se R   0.05%    0.5%    2.5%   97.5%   99.5%  99.95%
#> NARTIC   0.4951 0.0572 5 0.4690  0.4690  0.4691  0.5879  0.5924  0.5938
#> PCTGRT   0.3915 0.0656 5 0.3066  0.3189  0.3367  0.4670  0.4670  0.4670
#> PCTSUPP  0.2632 0.0385 5 0.1826  0.1862  0.2006  0.2766  0.2768  0.2768
#> Test passed
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "pc"
#>           est     se R   0.05%    0.5%    2.5%   97.5%   99.5%  99.95%
#> NARTIC  0.7622 0.0408 5 0.6717  0.6723  0.6749  0.7683  0.7691  0.7693
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "pc"
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bc"
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bc"
#>            est     se R   0.05%    0.5%    2.5%   97.5%   99.5%  99.95%
#> NARTIC  0.7622 0.0408 5 0.6788  0.6964  0.7069  0.7693  0.7693  0.7693
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bca"
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bca"
#>            est     se R 0.05%    0.5%    2.5%   97.5%   99.5%  99.95%
#> NARTIC 0.7622 0.0408 5 0.676  0.6926  0.7067  0.7693  0.7693  0.7693
```

```
#> test-betaNB-delta-r-sq-nb-est

#> Call:
#> DeltaRSqNB(object = nb)
#>
#> Improvement in R-squared
#> type = "pc"
#>            est     se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.1859 0.0364 5 0.1698 0.1706 0.1743 0.2673 0.2708 0.2716
#> PCTGRT  0.1177 0.0199 5 0.0954 0.0955 0.0959 0.1360 0.1361 0.1361
#> PCTSUPP 0.0569 0.0262 5 0.0210 0.0210 0.0211 0.0816 0.0845 0.0851
#> Call:
#> DeltaRSqNB(object = nb)
#>
#> Improvement in R-squared
#> type = "pc"
#> Test passed
#> Test passed

#> test-betaNB-diff-beta-nb-est

#> Call:
#> DiffBetaNB(object = nb)
#>
#> Differences of standardized regression slopes
#> type = "pc"
#>                   est     se R   0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> NARTIC-PCTGRT  0.1037 0.1111 5  0.0450  0.0472  0.0570 0.3179 0.3214 0.3221
#> NARTIC-PCTSUPP 0.2319 0.0545 5  0.2132  0.2137  0.2161 0.3428 0.3449 0.3454
#> PCTGRT-PCTSUPP 0.1282 0.0808 5 -0.0240 -0.0228 -0.0172 0.1849 0.1954 0.1978
#> Call:
#> DiffBetaNB(object = nb)
#>
#> Differences of standardized regression slopes
#> type = "pc"
#> Test passed
#> Test passed

#> test-betaNB-nb

#> Test passed
#> Call:
#> NB(object = object, R = 6)
#>
#> The first six bootstrap covariance matrices.
#>
#> [[1]]
#>           [,1]         [,2]         [,3]
```

```
#> [1,] 0.9764954  0.44428387  0.47739657
#> [2,] 0.4442839  0.91179737 -0.01956986
#> [3,] 0.4773966 -0.01956986  0.98073293
#>
#> [[2]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0416399 0.55258863 0.46881616
#> [2,] 0.5525886 1.05224092 0.01885816
#> [3,] 0.4688162 0.01885816 0.94101605
#>
#> [[3]]
#>           [,1]         [,2]         [,3]
#> [1,] 0.9983997  0.458001234  0.481787694
#> [2,] 0.4580012  0.966013484 -0.009205141
#> [3,] 0.4817877 -0.009205141  0.998107349
#>
#> [[4]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9803714  0.44069288  0.46362506
#> [2,] 0.4406929  0.92182512 -0.01028435
#> [3,] 0.4636251 -0.01028435  0.96237222
#>
#> [[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9881732 0.4964593 0.4875513
#> [2,] 0.4964593 1.0229865 0.0211833
#> [3,] 0.4875513 0.0211833 0.9497242
#>
#> [[6]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0412224 0.51333152 0.53196586
#> [2,] 0.5133315 0.98449787 0.03686224
#> [3,] 0.5319659 0.03686224 0.99701589
#> test-betaNB-p-cor-nb-est
#> Call:
#> PCorNB(object = nb)
#>
#> Squared partial correlations
#> type = "pc"
#>           est     se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC   0.4874 0.1446 5 0.2715 0.2736 0.2830 0.6179 0.6205 0.6211
#> PCTGRT   0.3757 0.0949 5 0.3351 0.3360 0.3398 0.5672 0.5736 0.5750
#> PCTSUPP  0.2254 0.1207 5 0.0811 0.0822 0.0871 0.3770 0.3852 0.3871
#> Call:
#> PCorNB(object = nb)
```

```
#>
#> Squared partial correlations
#> type = "pc"
#> Test passed
#> Test passed

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

#> Call:
#> RSqNB(object = nb)
#>
#> R-squared and adjusted R-squared
#> type = "pc"
#>        est     se R  0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> rsq 0.8045 0.0378 5 0.7549 0.7556 0.7584 0.8474 0.8481 0.8483
#> adj 0.7906 0.0405 5 0.7374 0.7381 0.7412 0.8365 0.8373 0.8375
#> Call:
#> RSqNB(object = nb)
#>
#> R-squared and adjusted R-squared
#> type = "pc"
#> Test passed
#> Call:
#> RSqNB(object = nb)
#>
#> R-squared and adjusted R-squared
#> type = "pc"
#>        est     se R  0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> rsq 0.5809 0.0650 5 0.5225 0.5229 0.5248 0.6567 0.6568 0.6568
#> adj 0.5714 0.0665 5 0.5116 0.5121 0.5140 0.6489 0.6490 0.6490
#> Call:
#> RSqNB(object = nb)
#>
#> R-squared and adjusted R-squared
#> type = "pc"
#> Test passed

#> test-betaNB-s-cor-nb-est

#> Call:
#> SCorNB(object = nb)
#>
#> Semipartial correlations
#> type = "pc"
#>             est     se R  0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> NARTIC   0.4312 0.0974 5 0.2889 0.2902 0.2959 0.5390 0.5477 0.5496
#> PCTGRT   0.3430 0.1198 5 0.1832 0.1837 0.1863 0.4644 0.4716 0.4732
```

```
#> PCTSUPP 0.2385 0.0605 5 0.1502 0.1508 0.1537 0.2912 0.2934 0.2939
#> Call:
#> SCorNB(object = nb)
#>
#> Semipartial correlations
#> type = "pc"
#> Test passed
#> Test passed
#> [[1]]
#> [[1]][[1]]
#> [[1]][[1]]$value
#> [[1]][[1]]$value[[1]]
#>            est     se R 0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC 0.7622 0.0408 5 0.676 0.6926 0.7067 0.7693 0.7693 0.7693
#>
#>
#> [[1]][[1]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[2]]
#> [[1]][[2]]$value
#> [[1]][[2]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[2]]$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]]$value[[1]]
#> [[1]][[4]]$value[[1]][[1]]
#>            [,1]        [,2]        [,3]
#> [1,] 0.9764954  0.44428387  0.47739657
```

```
#> [2,] 0.4442839  0.91179737 -0.01956986
#> [3,] 0.4773966 -0.01956986  0.98073293
#>
#> [[1]][[4]]$value[[1]][[2]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0416399 0.55258863 0.46881616
#> [2,] 0.5525886 1.05224092 0.01885816
#> [3,] 0.4688162 0.01885816 0.94101605
#>
#> [[1]][[4]]$value[[1]][[3]]
#>           [,1]         [,2]         [,3]
#> [1,] 0.9983997  0.458001234  0.481787694
#> [2,] 0.4580012  0.966013484 -0.009205141
#> [3,] 0.4817877 -0.009205141  0.998107349
#>
#> [[1]][[4]]$value[[1]][[4]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9803714  0.44069288  0.46362506
#> [2,] 0.4406929  0.92182512 -0.01028435
#> [3,] 0.4636251 -0.01028435  0.96237222
#>
#> [[1]][[4]]$value[[1]][[5]]
#>           [,1]      [,2]      [,3]
#> [1,] 0.9881732 0.4964593 0.4875513
#> [2,] 0.4964593 1.0229865 0.0211833
#> [3,] 0.4875513 0.0211833 0.9497242
#>
#> [[1]][[4]]$value[[1]][[6]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0412224 0.51333152 0.53196586
#> [2,] 0.5133315 0.98449787 0.03686224
#> [3,] 0.5319659 0.03686224 0.99701589
#>
#>
#>
#> [[1]][[4]]$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
```

Environment

```r
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/