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 0.1285 5 0.3342 0.3369 0.3487 0.6503 0.6526 0.6531
#> PCTGRT  0.3915 0.1264 5 0.2205 0.2210 0.2234 0.5245 0.5387 0.5419
#> PCTSUPP 0.2632 0.0370 5 0.1775 0.1779 0.1797 0.2696 0.2720 0.2726
#> 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 0.1285 5 0.3340 0.3345 0.3380 0.6448 0.6510 0.6528
#> PCTGRT  0.3915 0.1264 5 0.2268 0.2425 0.2988 0.5422 0.5423 0.5423
#> PCTSUPP 0.2632 0.0370 5 0.1824 0.1945 0.2088 0.2726 0.2726 0.2726
#> 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 0.1285 5 0.3340 0.3346 0.3382 0.6450 0.6511 0.6529
#> PCTGRT  0.3915 0.1264 5 0.2284 0.2444 0.3020 0.5422 0.5423 0.5423
#> PCTSUPP 0.2632 0.0370 5 0.1811 0.1928 0.2082 0.2726 0.2726 0.2726
#> 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 0.025 5 0.7612 0.7616 0.763 0.8195 0.8198 0.8199
#> 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 0.025 5 0.7612 0.7612 0.7612 0.8088 0.8165 0.8189
#> 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 0.025 5 0.7612 0.7612 0.7612 0.808 0.8161 0.8185
```

```
#> 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 0.0257 5 0.1650 0.1650 0.1651 0.2198 0.2207 0.2209
#> PCTGRT  0.1177 0.0183 5 0.0689 0.0693 0.0712 0.1169 0.1180 0.1182
#> PCTSUPP 0.0569 0.0375 5 0.0142 0.0147 0.0165 0.1038 0.1049 0.1052
#> 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 0.1650 5 -0.1911 -0.1861 -0.1635 0.2169 0.2186 0.2189
#> NARTIC-PCTSUPP 0.2319 0.1368 5  0.0118  0.0141  0.0247 0.3709 0.3828 0.3855
#> PCTGRT-PCTSUPP 0.1282 0.2646 5 -0.0792 -0.0775 -0.0698 0.5217 0.5664 0.5764
#> 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,] 0.9312354  0.44505028  0.43517602
#> [2,] 0.4450503  0.97622324 -0.03035822
#> [3,] 0.4351760 -0.03035822  1.03688254
#>
#> [[2]]
#>           [,1]         [,2]         [,3]
#> [1,] 0.9654469  0.469787085  0.468881606
#> [2,] 0.4697871  1.006763667 -0.003279902
#> [3,] 0.4688816 -0.003279902  1.005901527
#>
#> [[3]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0147746 0.48752366 0.48505123
#> [2,] 0.4875237 0.96486714 0.02828161
#> [3,] 0.4850512 0.02828161 0.94132744
#>
#> [[4]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9806497  0.46307488  0.49620674
#> [2,] 0.4630749  1.00263283 -0.01680626
#> [3,] 0.4962067 -0.01680626  0.96599319
#>
#> [[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0705346 0.54270646 0.55035458
#> [2,] 0.5427065 1.05908566 0.04884134
#> [3,] 0.5503546 0.04884134 1.04027830
#>
#> [[6]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9983660 0.526418928 0.520551006
#> [2,] 0.5264189 1.033151040 0.007342127
#> [3,] 0.5205510 0.007342127 1.049083806
```

#> 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 0.1657 5 0.2938 0.2942 0.2960 0.6635 0.6756 0.6783
#> PCTGRT  0.3757 0.1093 5 0.2843 0.2846 0.2857 0.5214 0.5253 0.5261
#> PCTSUPP 0.2254 0.1404 5 0.1260 0.1275 0.1340 0.4639 0.4693 0.4706
#> 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 0.0610 5 0.7164 0.7178 0.7238 0.8731 0.8754 0.8760
#> adj 0.7906 0.0653 5 0.6962 0.6976 0.7041 0.8640 0.8665 0.8671
#> 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 0.0618 5 0.5427 0.5435 0.5472 0.7018 0.7076 0.7088
#> adj 0.5714 0.0633 5 0.5323 0.5331 0.5369 0.6951 0.7009 0.7022
#> 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 0.0579 5 0.2948 0.2949 0.2950 0.4194 0.4213 0.4218
#> PCTGRT  0.3430 0.0505 5 0.2852 0.2855 0.2868 0.4025 0.4058 0.4065
```

```
#> PCTSUPP 0.2385 0.0700 5 0.2147 0.2149 0.2157 0.3617 0.3621 0.3622
#> 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 0.025 5 0.7612 0.7612 0.7612 0.808 0.8161 0.8185
#>
#>
#> [[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,] 0.9312354  0.44505028  0.43517602
```

```
#> [2,] 0.4450503  0.97622324 -0.03035822
#> [3,] 0.4351760 -0.03035822  1.03688254
#>
#> [[1]][[4]]$value[[1]][[2]]
#>           [,1]          [,2]          [,3]
#> [1,] 0.9654469  0.469787085  0.468881606
#> [2,] 0.4697871  1.006763667 -0.003279902
#> [3,] 0.4688816 -0.003279902  1.005901527
#>
#> [[1]][[4]]$value[[1]][[3]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0147746 0.48752366 0.48505123
#> [2,] 0.4875237 0.96486714 0.02828161
#> [3,] 0.4850512 0.02828161 0.94132744
#>
#> [[1]][[4]]$value[[1]][[4]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9806497  0.46307488  0.49620674
#> [2,] 0.4630749  1.00263283 -0.01680626
#> [3,] 0.4962067 -0.01680626  0.96599319
#>
#> [[1]][[4]]$value[[1]][[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0705346 0.54270646 0.55035458
#> [2,] 0.5427065 1.05908566 0.04884134
#> [3,] 0.5503546 0.04884134 1.04027830
#>
#> [[1]][[4]]$value[[1]][[6]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9983660 0.526418928 0.520551006
#> [2,] 0.5264189 1.033151040 0.007342127
#> [3,] 0.5205510 0.007342127 1.049083806
#>
#>
#>
#> [[1]][[4]]$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

```
ls()

#> [1] "nas1982"  "root"     "tex_file"
```

Class

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

References

R Core Team. (2022). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. Vienna, Austria. https://www.R-project.org/