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 0.0883 5 0.3964 0.3967 0.3978 0.6041 0.6114 0.6130
#> PCTGRT  0.3915 0.0830 5 0.2629 0.2654 0.2765 0.4840 0.4903 0.4918
#> PCTSUPP 0.2632 0.0799 5 0.1390 0.1418 0.1542 0.3373 0.3397 0.3402
#> 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 0.0883 5 0.3965 0.3975 0.4005 0.6107 0.6128 0.6132
#> PCTGRT  0.3915 0.0830 5 0.2627 0.2627 0.2627 0.4122 0.4332 0.4749
#> PCTSUPP 0.2632 0.0799 5 0.1387 0.1387 0.1388 0.3096 0.3179 0.3338
#> 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 0.0883 5 0.3965 0.3975 0.4006 0.6109 0.6129 0.6132
#> PCTGRT  0.3915 0.0830 5 0.2627 0.2627 0.2628 0.4122 0.4382 0.4788
#> PCTSUPP 0.2632 0.0799 5 0.1387 0.1387 0.1387 0.3096 0.3156 0.3319
#> 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 0.027 5 0.7246 0.7248 0.7256 0.7887 0.7908 0.7913
#> 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 0.027 5 0.7247 0.7253 0.7275 0.7906 0.7913 0.7914
#> 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 0.027 5 0.7246 0.725 0.7269 0.7903 0.7911 0.7913
```

```
#> 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 0.0299 5 0.1285 0.1289 0.1304 0.2046 0.2084 0.2093
#> PCTGRT  0.1177 0.0499 5 0.0609 0.0618 0.0661 0.1904 0.1936 0.1943
#> PCTSUPP 0.0569 0.0216 5 0.0304 0.0304 0.0306 0.0763 0.0766 0.0767
#> 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 0.1188 5  0.0112  0.0115  0.0126 0.2887 0.3034 0.3067
#> NARTIC-PCTSUPP 0.2319 0.1994 5 -0.1239 -0.1185 -0.0944 0.3943 0.4020 0.4037
#> PCTGRT-PCTSUPP 0.1282 0.1998 5 -0.2468 -0.2407 -0.2136 0.2824 0.2941 0.2967
#> 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,] 1.0718608 0.463988882 0.507230627
#> [2,] 0.4639889 0.972814758 0.002511966
#> [3,] 0.5072306 0.002511966 1.022534992
#>
#> [[2]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0029212  0.53203562  0.43417699
#> [2,] 0.5320356  1.01809185 -0.02352801
#> [3,] 0.4341770 -0.02352801  0.98410768
#>
#> [[3]]
#>           [,1]         [,2]         [,3]
#> [1,] 0.9465298  0.409629655  0.495399000
#> [2,] 0.4096297  0.944750573 -0.009934842
#> [3,] 0.4953990 -0.009934842  1.032937414
#>
#> [[4]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0539155  0.47550104  0.52904382
#> [2,] 0.4755010  1.05584719 -0.04241438
#> [3,] 0.5290438 -0.04241438  1.03373737
#>
#> [[5]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0425800 0.52632029 0.50007205
#> [2,] 0.5263203 1.02759918 0.01385153
#> [3,] 0.5000721 0.01385153 1.00638450
#>
#> [[6]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0579153 0.57935362 0.46694386
#> [2,] 0.5793536 1.05791979 0.04184194
#> [3,] 0.4669439 0.04184194 0.86479088
#> 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 0.0758 5 0.3403 0.3424 0.3519 0.5408 0.5449 0.5459
#> PCTGRT   0.3757 0.1495 5 0.2159 0.2161 0.2168 0.5148 0.5177 0.5184
#> PCTSUPP  0.2254 0.1021 5 0.1107 0.1140 0.1288 0.3752 0.3805 0.3817
#> 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 0.0396 5 0.7778 0.7789 0.7838 0.8815 0.8836 0.8841
#> adj 0.7906 0.0425 5 0.7620 0.7631 0.7684 0.8730 0.8753 0.8758
#> 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 0.1000 5 0.4748 0.4770 0.4865 0.7385 0.7462 0.7480
#> adj 0.5714 0.1023 5 0.4629 0.4651 0.4749 0.7325 0.7405 0.7423
#> 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 0.0756 5 0.3307 0.3310 0.3326 0.4886 0.4889 0.4890
#> PCTGRT  0.3430 0.0803 5 0.2696 0.2700 0.2716 0.4609 0.4699 0.4719
```

```
#> PCTSUPP 0.2385 0.0644 5 0.1600 0.1605 0.1628 0.3060 0.3073 0.3075
#> 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 0.027 5 0.7246 0.725 0.7269 0.7903 0.7911 0.7913
#>
#>
#> [[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,] 1.0718608 0.463988882 0.507230627
```

```
#> [2,] 0.4639889 0.972814758 0.002511966
#> [3,] 0.5072306 0.002511966 1.022534992
#>
#> [[1]][[4]]$value[[1]][[2]]
#>            [,1]         [,2]          [,3]
#> [1,] 1.0029212   0.53203562   0.43417699
#> [2,] 0.5320356   1.01809185  -0.02352801
#> [3,] 0.4341770  -0.02352801   0.98410768
#>
#> [[1]][[4]]$value[[1]][[3]]
#>             [,1]          [,2]          [,3]
#> [1,] 0.9465298   0.409629655   0.495399000
#> [2,] 0.4096297   0.944750573  -0.009934842
#> [3,] 0.4953990  -0.009934842   1.032937414
#>
#> [[1]][[4]]$value[[1]][[4]]
#>            [,1]         [,2]          [,3]
#> [1,] 1.0539155   0.47550104   0.52904382
#> [2,] 0.4755010   1.05584719  -0.04241438
#> [3,] 0.5290438  -0.04241438   1.03373737
#>
#> [[1]][[4]]$value[[1]][[5]]
#>            [,1]        [,2]         [,3]
#> [1,] 1.0425800 0.52632029 0.50007205
#> [2,] 0.5263203 1.02759918 0.01385153
#> [3,] 0.5000721 0.01385153 1.00638450
#>
#> [[1]][[4]]$value[[1]][[6]]
#>            [,1]        [,2]         [,3]
#> [1,] 1.0579153 0.57935362 0.46694386
#> [2,] 0.5793536 1.05791979 0.04184194
#> [3,] 0.4669439 0.04184194 0.86479088
#>
#>
#>
#> [[1]][[4]]$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/