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 0.0892 5 0.3890 0.3896 0.3920 0.6046 0.6129 0.6147
#> PCTGRT  0.3915 0.0469 5 0.3725 0.3727 0.3733 0.4702 0.4706 0.4707
#> PCTSUPP 0.2632 0.1183 5 0.0885 0.0899 0.0958 0.3599 0.3619 0.3623
#> 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 0.0892 5 0.3893 0.3913 0.3979 0.6121 0.6145 0.6149
#> PCTGRT  0.3915 0.0469 5 0.3725 0.3725 0.3727 0.4691 0.4703 0.4706
#> PCTSUPP 0.2632 0.1183 5 0.0892 0.0941 0.1102 0.3617 0.3623 0.3623
#> 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 0.0892 5 0.3894 0.3915 0.3981 0.6123 0.6145 0.6149
#> PCTGRT   0.3915 0.0469 5 0.3725 0.3726 0.3728 0.4693 0.4704 0.4707
#> PCTSUPP 0.2632 0.1183 5 0.0888 0.0925 0.1074 0.3615 0.3622 0.3623
#> 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 0.0807 5 0.7045 0.7045 0.7046 0.8665 0.8678   0.868
#> 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 0.0807 5 0.7045 0.7046 0.7048 0.8677 0.868 0.8681
#> 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 0.0807 5 0.7045 0.7045 0.7047 0.8674 0.8679 0.8681
```

```
#> 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 0.1829 5 0.0705 0.0706 0.0710 0.4927 0.5129 0.5174
#> PCTGRT  0.1177 0.0537 5 0.0454 0.0459 0.0484 0.1800 0.1843 0.1853
#> PCTSUPP 0.0569 0.0412 5 0.0061 0.0063 0.0075 0.0952 0.0961 0.0963
#> 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 0.1707 5 -0.1844 -0.1817 -0.1698 0.2430 0.2502 0.2518
#> NARTIC-PCTSUPP  0.2319 0.1585 5 -0.0654 -0.0627 -0.0505 0.3338 0.3399 0.3413
#> PCTGRT-PCTSUPP  0.1282 0.1226 5 -0.0292 -0.0284 -0.0250 0.2619 0.2693 0.2709
#> 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,] 1.0238637  0.527099747  0.466016952
#> [2,] 0.5270997  1.045858802 -0.009218691
#> [3,] 0.4660170 -0.009218691  1.003775301
#>
#> [[2]]
#>           [,1]         [,2]         [,3]
#> [1,] 0.9866362  0.453549507  0.471154920
#> [2,] 0.4535495  0.971052711 -0.002837038
#> [3,] 0.4711549 -0.002837038  0.974897633
#>
#> [[3]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0636865 0.50463968 0.55276505
#> [2,] 0.5046397 1.00790946 0.05422819
#> [3,] 0.5527650 0.05422819 1.01842976
#>
#> [[4]]
#>           [,1]      [,2]      [,3]
#> [1,] 1.0117138 0.5460247 0.4839604
#> [2,] 0.5460247 1.0683670 0.0551071
#> [3,] 0.4839604 0.0551071 0.9780819
#>
#> [[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9493611 0.45382131 0.46876287
#> [2,] 0.4538213 0.90490165 0.04550983
#> [3,] 0.4687629 0.04550983 0.97178510
#>
#> [[6]]
#>           [,1]      [,2]      [,3]
#> [1,] 1.0632011 0.5246548 0.5205927
#> [2,] 0.5246548 0.9932995 0.0299419
#> [3,] 0.5205927 0.0299419 0.9961396
#> 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 0.1111 5 0.3846 0.3847 0.3853 0.6301 0.6361 0.6374
#> PCTGRT   0.3757 0.1517 5 0.1517 0.1549 0.1693 0.5553 0.5672 0.5699
#> PCTSUPP  0.2254 0.0788 5 0.1100 0.1111 0.1160 0.2956 0.2968 0.2971
#> Call:
#> PCorNB(object = nb)
```

4

```
#>
#> 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 0.0229 5 0.7905 0.7905 0.7908 0.8411 0.8420 0.8422
#> adj 0.7906 0.0245 5 0.7755 0.7756 0.7759 0.8298 0.8307 0.8309
#> 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 0.0757 5 0.5017 0.5028 0.5079 0.6866 0.6896 0.6903
#> adj 0.5714 0.0774 5 0.4904 0.4915 0.4967 0.6795 0.6825 0.6832
#> 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 0.0293 5 0.3908 0.3910 0.3921 0.4616 0.4643 0.4649
#> PCTGRT  0.3430 0.0787 5 0.1943 0.1948 0.1974 0.3654 0.3657 0.3657
```

```
#> PCTSUPP 0.2385 0.0832 5 0.1913 0.1915 0.1926 0.3884 0.3971 0.3991
#> 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 0.0807 5 0.7045 0.7045 0.7047 0.8674 0.8679 0.8681
#>
#>
#> [[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,] 1.0238637   0.527099747   0.466016952
```

```
#> [2,] 0.5270997  1.045858802 -0.009218691
#> [3,] 0.4660170 -0.009218691  1.003775301
#>
#> [[1]][[4]]$value[[1]][[2]]
#>             [,1]          [,2]           [,3]
#> [1,] 0.9866362  0.453549507  0.471154920
#> [2,] 0.4535495  0.971052711 -0.002837038
#> [3,] 0.4711549 -0.002837038  0.974897633
#>
#> [[1]][[4]]$value[[1]][[3]]
#>             [,1]        [,2]        [,3]
#> [1,] 1.0636865 0.50463968 0.55276505
#> [2,] 0.5046397 1.00790946 0.05422819
#> [3,] 0.5527650 0.05422819 1.01842976
#>
#> [[1]][[4]]$value[[1]][[4]]
#>             [,1]       [,2]       [,3]
#> [1,] 1.0117138 0.5460247 0.4839604
#> [2,] 0.5460247 1.0683670 0.0551071
#> [3,] 0.4839604 0.0551071 0.9780819
#>
#> [[1]][[4]]$value[[1]][[5]]
#>             [,1]        [,2]        [,3]
#> [1,] 0.9493611 0.45382131 0.46876287
#> [2,] 0.4538213 0.90490165 0.04550983
#> [3,] 0.4687629 0.04550983 0.97178510
#>
#> [[1]][[4]]$value[[1]][[6]]
#>             [,1]       [,2]       [,3]
#> [1,] 1.0632011 0.5246548 0.5205927
#> [2,] 0.5246548 0.9932995 0.0299419
#> [3,] 0.5205927 0.0299419 0.9961396
#>
#>
#>
#> [[1]][[4]]$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. (2023). *R: A language and environment for statistical computing.* R Foundation for
    Statistical Computing. Vienna, Austria. https://www.R-project.org/