fitDTVARMx: Internal Tests

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Tests

```
#> test
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:   1524.97939232148
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=1524.9794 (started at 1557.0026)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.681884399637485,0.505025206662044,0.00506050712459571,-0.00880844481963858,0.602653154400743,0.
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:   1681.83659549401
#>
#> Solution found
```

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#>
#>  Solution found!   Final fit=1681.8366 (started at 1722.7204)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.714644528461438,0.446353594291677,-0.137212338869065,-0.00257767877354943,0.597640270246286,0.5
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
```

```
#>
#>  Lowest minimum so far:   1601.71644591383
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=1601.7164 (started at 1635.9302)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.71800476258364,0.528419880764906,-0.10482940602939,0.00736362924235293,0.574273814464634,0.494
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:   1531.86993218524
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=1531.8699 (started at 1560.1578)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.704974586703295,0.554273394549335,-0.087284854777545,0.0247250025241927,0.599417592359912,0.408
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:   1543.75235268938
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=1543.7524 (started at 1589.4452)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.688872877098987,0.416165285858525,-0.205786742272697,-0.00462436634601826,0.686325495735713,0.4
#>
#> Means of the estimated paramaters per individual.
#>       beta_11       beta_21       beta_31       beta_12       beta_22
#>  0.7016762309  0.4900474724 -0.1060105670  0.0032156284  0.6120620654
#>       beta_32       beta_13       beta_23       beta_33        psi_11
#>  0.4357929222 -0.0142610588  0.0060008591  0.4769960236  0.0995165970
#>        psi_21        psi_22        psi_31        psi_32        psi_33
```

```
#>  0.0003752380  0.0991479238  0.0006857301  0.0001355818  0.0981329873
#>
#> Estimated paramaters per individual.
#>        beta_11   beta_21      beta_31      beta_12   beta_22   beta_32
#> [1,] 0.6818844 0.5050252  0.005060507 -0.008808445 0.6026532 0.3434701
#> [2,] 0.7146445 0.4463536 -0.137212339 -0.002577679 0.5976403 0.5129555
#> [3,] 0.7180048 0.5284199 -0.104829406  0.007363629 0.5742738 0.4944551
#> [4,] 0.7049746 0.5542734 -0.087284855  0.024725003 0.5994176 0.4088297
#> [5,] 0.6888729 0.4161653 -0.205786742 -0.004624366 0.6863255 0.4192542
#>           beta_13      beta_23   beta_33     psi_11       psi_21     psi_22
#> [1,]  0.028766356  0.056455542 0.5183970 0.09611164  0.001651630 0.09990868
#> [2,] -0.024434516 -0.005013696 0.4821948 0.10392617 -0.000505320 0.10229593
#> [3,]  0.007565429  0.030893065 0.4147986 0.09818614 -0.005637000 0.10348546
#> [4,] -0.047154981 -0.029503897 0.4987864 0.10376766  0.005035551 0.08977813
#> [5,] -0.036047583 -0.022826719 0.4708033 0.09559137  0.001331329 0.10027142
#>             psi_31       psi_32     psi_33
#> [1,] -7.865557e-04  0.002525390 0.09533547
#> [2,] -2.856558e-03 -0.002869901 0.10001679
#> [3,]  2.348042e-05  0.002602347 0.09774676
#> [4,]  6.226675e-03 -0.004183038 0.09992354
#> [5,]  8.216079e-04  0.002603111 0.09764237

#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   1526.00731414886
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=1526.0073 (started at 1557.0026)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.681893265716128,0.505053274890204,0.00510867946731734,-0.00880537044501161,0.602624580422842,0
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   1683.45326767593
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=1683.4533 (started at 1722.7204)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.714804674842962,0.446703778085809,-0.137212071724935,-0.00286224947476047,0.597355821483634,0.5
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   1605.51702315235
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=1605.517 (started at 1635.9302)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.718078169954275,0.528392546303217,-0.104829061549278,0.00732747600476022,0.574300310244837,0.49
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   1540.5851271712
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=1540.5851 (started at 1560.1578)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.704947419473423,0.554348588558669,-0.0873190767870889,0.024687071043122,0.599422931825699,0.409
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   1544.6953978122
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=1544.6954 (started at 1589.4452)  (1 attempt(s):  1
valid, 0 errors)
```

```
#>  Start values from best fit:
#> 0.688879065105914,0.416188710841178,-0.205800583956037,-0.00462531692461861,0.686315176835109,0.4

#>
#> Means of the estimated paramaters per individual.
#>      beta_11      beta_21      beta_31      beta_12      beta_22      beta_32
#>  0.701720519  0.490137380 -0.106010423  0.003144322  0.612003764  0.435809007
#>      beta_13      beta_23      beta_33       psi_11       psi_22       psi_33
#> -0.014208228  0.006029654  0.476983842  0.099522285  0.099143083  0.098132334
#>
#> Estimated paramaters per individual.
#>        beta_11   beta_21      beta_31      beta_12   beta_22   beta_32
#> [1,] 0.6818933 0.5050533  0.005108679 -0.008805370 0.6026246 0.3434339
#> [2,] 0.7148047 0.4467038 -0.137212072 -0.002862249 0.5973558 0.5128712
#> [3,] 0.7180782 0.5283925 -0.104829062  0.007327476 0.5743003 0.4944581
#> [4,] 0.7049474 0.5543486 -0.087319077  0.024687071 0.5994229 0.4090176
#> [5,] 0.6888791 0.4161887 -0.205800584 -0.004625317 0.6863152 0.4192641
#>           beta_13      beta_23   beta_33     psi_11     psi_22     psi_33
#> [1,]  0.028747373  0.056477097 0.5183946 0.09611176 0.09990714 0.09533267
#> [2,] -0.024206175 -0.004791162 0.4822680 0.10395016 0.10226568 0.10002055
#> [3,]  0.007524571  0.030858698 0.4148173 0.09818538 0.10348889 0.09775024
#> [4,] -0.047063124 -0.029584381 0.4986395 0.10377264 0.08978277 0.09991549
#> [5,] -0.036043783 -0.022811982 0.4707998 0.09559149 0.10027094 0.09764272
#> Test passed
#> [[1]]
#> [[1]][[1]]
#> [[1]][[1]]$value
#> [[1]][[1]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[1]]$visible
#> [1] TRUE
```

Environment

```
ls()

#> [1] "root"
```

Class

```
#> [[1]]
#> [1] "root_criterion"
```

References

R Core Team. (2024). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. Vienna, Austria. https://www.R-project.org/