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:   1525.04681220815
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=1525.0468 (started at 1557.0026)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.681876035650159,0.505020709139641,0.00506745429259563,-0.00879738749637269,0.602655543315183,0.
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:   1683.45326767654
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=1683.4533 (started at 1722.7204)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.714804605746006,0.446703890455408,-0.13721198302543,-0.00286206756024512,0.597355872995894,0.5:
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
```

```
#>
#>  Lowest minimum so far:    1604.84592063254
#>
#> Solution found


#>
#>  Solution found!    Final fit=1604.8459 (started at 1635.9302)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.718058368656959,0.528359999810566,-0.104816475923908,0.00732512249938716,0.574318045498062,0.4
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:    1533.81902908531
#>
#> Solution found


#>
#>  Solution found!    Final fit=1533.819 (started at 1560.1578)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.704981979965995,0.554285033046039,-0.0873062362003015,0.0246866893412169,0.599406307429254,0.40
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:    1543.75235268955
#>
#> Solution found


#>
#>  Solution found!    Final fit=1543.7524 (started at 1589.4452)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.688872904922972,0.41616538330425,-0.205786688649001,-0.00462441638654678,0.686325462621811,0.41
#>
#> Means of the estimated paramaters per individual.
#>       beta_11      beta_21      beta_31      beta_12      beta_22      beta_32
#>   0.701718779  0.490107003 -0.106010786  0.003145588  0.612012246  0.435780957
#>       beta_13      beta_23      beta_33      psi_11      psi_21      psi_31
#> -0.014209537  0.006035679  0.477010497  0.099527928  0.001662018  0.001491316
#>       psi_22      psi_32      psi_33
```

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#>  0.099141811  0.001550675  0.098133395
#>
#> Estimated paramaters per individual.
#>          beta_11   beta_21      beta_31       beta_12   beta_22   beta_32
#> [1,] 0.6818760 0.5050207  0.005067454 -0.008797387 0.6026555 0.3434616
#> [2,] 0.7148046 0.4467039 -0.137211983 -0.002862068 0.5973559 0.5128710
#> [3,] 0.7180584 0.5283600 -0.104816476  0.007325122 0.5743180 0.4944230
#> [4,] 0.7049820 0.5542850 -0.087306236  0.024686689 0.5994063 0.4088951
#> [5,] 0.6888729 0.4161654 -0.205786689 -0.004624416 0.6863255 0.4192541
#>           beta_13       beta_23   beta_33    psi_11        psi_21         psi_31
#> [1,]  0.028761923  0.056455664 0.5183955 0.09611083 1.672909e-03 0.000000e+00
#> [2,] -0.024206301 -0.004791187 0.4822680 0.10395015 5.516910e-14 3.211198e-13
#> [3,]  0.007551358  0.030871524 0.4148441 0.09818603 1.316688e-11 1.634430e-04
#> [4,] -0.047107079 -0.029530953 0.4987415 0.10380124 5.305866e-03 6.471529e-03
#> [5,] -0.036047586 -0.022826652 0.4708034 0.09559139 1.331318e-03 8.216097e-04
#>          psi_22       psi_32     psi_33
#> [1,] 0.09990944 2.538809e-03 0.09533468
#> [2,] 0.10226569 3.282628e-13 0.10002055
#> [3,] 0.10348646 2.611468e-03 0.09774924
#> [4,] 0.08977609 1.351291e-12 0.09992012
#> [5,] 0.10027138 2.603097e-03 0.09764238

#> 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:    1683.45326767594
#>
#> Solution found
```

```
#>
#>  Solution found!    Final fit=1683.4533 (started at 1722.7204)   (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.714804676374992,0.446703804639109,-0.137212072446384,-0.00286225478262943,0.597355821730222,0.5
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:    1605.51702315236
#>
#> Solution found
```

```
#>
#>  Solution found!    Final fit=1605.517 (started at 1635.9302)   (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.718078154356792,0.52839255628165,-0.104829069626879,0.00732747689871291,0.57430031210843,0.4944
#> 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.
#>
#> Means of the estimated paramaters per individual.
#>      beta_11      beta_21      beta_31      beta_12      beta_22      beta_32
#>  0.701720516  0.490137387 -0.106010425  0.003144321  0.612003765  0.435809011
#>      beta_13      beta_23      beta_33      psi_11       psi_22       psi_33
#> -0.014208226  0.006029652  0.476983840  0.099522288  0.099143081  0.098132333
#>
#> 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 -0.002862255 0.5973558 0.5128712
#> [3,] 0.7180782 0.5283926 -0.104829070  0.007327477 0.5743003 0.4944582
#> [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,] -0.024206159 -0.004791158 0.4822680 0.10395017 0.10226568 0.10002053
#> [3,]  0.007524563  0.030858687 0.4148173 0.09818539 0.10348888 0.09775025
#> [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/