fitDTVARMx: Internal Tests

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Tests

```
#> test-external-fitDTVARMx-fit-dt-var-id-mx-psi-diag
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   759.332723034266
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=759.33272 (started at 2818.8767)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.716461594268781,0.461130103434526,-0.111058104052503,0.00301990065158215,0.627962466371071,0.42
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   811.221283431467
#>
#> Solution found
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```
#>
#>  Solution found!   Final fit=811.22128 (started at 2588.505)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.644376822379958,0.498319862422355,-0.160138757853946,0.0339457523281381,0.60202505558271,0.438
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
```

```
#>
#>  Lowest minimum so far:   851.056191919888
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=851.05619 (started at 2728.4921)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.650804152587558,0.500936223533729,-0.117869966244044,0.0358584466671872,0.581033255621994,0.45
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   758.939240001087
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=758.93924 (started at 2854.9595)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.6942524827475 68,0.508254712117776,-0.105604057104861,0.00403646757951646,0.632271243648902,0.45
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   755.237014820988
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=755.23701 (started at 2812.8936)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.655922071168991,0.485798776878 36,-0.0839744194072475,0.0298173300980825,0.656191959996754,0.38
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   767.863852470668
```

```
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=767.86385 (started at 2522.5355)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.6661111148917,0.464519076919049,-0.0655319370278874,0.0379815425135491,0.576484188972957,0.401
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   807.608080756468
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=807.60808 (started at 3214.4662)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.7095130550531,0.512499712173206,-0.0692805896211676,0.0311077019364299,0.614389046595127,0.379
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   828.951705065187
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=828.95171 (started at 3126.4497)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.733264788863225,0.473562971107431,-0.173022757515241,-0.0104990839461825,0.625703544856902,0.4
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   746.033688503384
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=746.03369 (started at 2638.9239)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.668484301092742,0.51138621629638,-0.0225537318120472,-0.0555161115431583,0.637385379142246,0.38
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   851.374280350207
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=851.37428 (started at 3004.5656)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.718825722836537,0.48235380270807,-0.169307336880467,-0.00202819864122296,0.619552406230925,0.43
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   799.274821858165
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=799.27482 (started at 2962.9231)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.708588261228634,0.475388229135813,-0.0854309590011715,-0.0141769414286767,0.629365493947916,0.4
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   840.483916141231
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=840.48392 (started at 3098.1221)  (1 attempt(s):  1
valid, 0 errors)
```

```
#>  Start values from best fit:
#> 0.720735518069381,0.499551991405701,-0.149780544748022,-0.00930202643115042,0.574215681169346,0.
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   718.539233542402
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=718.53923 (started at 2186.5411)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.677880341672318,0.431826450749655,-0.166188298322661,-0.0373797352663127,0.594622543905395,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   779.766644444407
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=779.76664 (started at 2675.0592)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.609971646719175,0.539347774502O1,-0.112605660413882,0.0157158111595143,0.616305811402161,0.424
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   850.752343563444
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=850.75234 (started at 3142.1671)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.691623804012226,0.471544485897595,-0.0100294723327233,0.0250565521854465,0.633323731032243,0.4
#> Running DTVAR with 12 parameters
```

```
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   872.34306757139
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=872.34307 (started at 2583.8942)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.627986746606938,0.50335892249985,-0.108103630273034,0.0109464645923342,0.592093464791283,0.384
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   764.239047454334
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=764.23905 (started at 2962.0687)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.67105294053085,0.449887649000752,-0.143458815256208,0.0768224346437029,0.627515746666162,0.396
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   957.9243775737505
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=957.92438 (started at 3332.8123)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.739922346378846,0.485927042232824,-0.0717538017632368,-0.0342026956014292,0.6240774938083,0.40
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
```

```
#>
#>  Lowest minimum so far:   633.011904428566
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=633.0119 (started at 2223.8663)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.690213513068111,0.466362670344152,-0.0879599163745913,-0.0170226181885829,0.624374818924666,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   694.317115186718
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=694.31712 (started at 2880.1989)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.674456574145247,0.531884168814988,-0.0838788035112604,0.0242219856483305,0.605791688734476,0.4
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   706.595319003195
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=706.59532 (started at 2831.2135)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.696198361443529,0.47033350806689,-0.0677346577381333,0.0443111669122736,0.641500229796633,0.381
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   750.698512473323
```

```
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=750.69851 (started at 2617.189)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.671673577610027,0.553223041143065,-0.0309216980368968,0.027945584674691,0.576180619805424,0.38
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   833.816258681054
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=833.81626 (started at 2874.4152)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.64049564483478,0.521837363160335,-0.133809910294518,0.00875136386287813,0.607513730708 68,0.35
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   863.215725480729
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=863.21573 (started at 2735.9084)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.702336925380831,0.526763645809178,-0.10302942237239,-0.0646796395406807,0.566209899448809,0.41
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   782.276989787587
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=782.27699 (started at 2818.3029)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.751079842826758,0.515348162651717,-0.0856261602381017,-0.0423177565833913,0.565376921520485,0.
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   885.400081850406
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=885.40008 (started at 3108.7275)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.711902034855524,0.492753831090941,-0.0766983681358221,0.0284133659575973,0.592131565493811,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   870.776467535204
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=870.77647 (started at 2947.4234)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.717342945794694,0.483864010973883,-0.0377741740801736,-0.00846860357385741,0.59273073403503,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   825.091328764683
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=825.09133 (started at 2726.9105)  (1 attempt(s):  1
valid, 0 errors)
```

```
#>  Start values from best fit:
#> 0.671378784761566,0.495755549187164,-0.106318495635697,0.0223503756046088,0.58423655700464,0.439
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   732.657907507978
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=732.65791 (started at 2991.6161)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.764032648283235,0.471287001814766,-0.082229982090093,-0.00101245837563025,0.622298962927359,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   726.376014908232
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=726.37601 (started at 2487.1488)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.698020505561103,0.540256679924573,-0.130671049333998,0.0219015717434524,0.536368805316912,0.39
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   743.06253438225
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=743.06253 (started at 2694.1576)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.731754835793631,0.460965075767634,-0.1434716820242,-0.0216993813992399,0.6049383953541,0.42084
#> Running DTVAR with 12 parameters
```

```
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   797.484023499137
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=797.48402 (started at 2668.9238)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.6762776947936 17,0.501583771707843,-0.06187973035375,-0.0193575825688431,0.614583065520855,0.40
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   770.977494676037
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=770.97749 (started at 2648.519)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.706895800327194,0.511010577888189,-0.0872678711618278,0.0314694503916333,0.601610168470179,0.38
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   749.349505885161
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=749.34951 (started at 2244.6977)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.653912522999667,0.510586048106383,-0.100988573067708,-0.0413976764995652,0.545606806035989,0.39
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
```

```
#>
#>  Lowest minimum so far:   889.8616765020777
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=889.86168 (started at 2694.2373)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.6642893712791 09,0.5102449367562 76,-0.1016766676219 02,-0.0011836799932 8859,0.5695084024377 11,0.
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   725.595924157009
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=725.59592 (started at 2203.3335)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.6113883494090 92,0.5245113588901 67,-0.1241845842438 65,0.0219294400932992,0.5420406047368 46,0.395
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   812.090920433365
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=812.09092 (started at 3110.0582)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.7417519129415 88,0.4693205593884 66,-0.0879921988685319,-0.0380914370049528,0.6544367930942 38,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   815.197848341689
```

```
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=815.19785 (started at 2666.7364)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.6932274607788832,0.409815304298299,-0.0514572211617755,-0.0205940886660018,0.635597773482195,0.
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   820.593168415493
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=820.59317 (started at 2295.3086)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.643304825135551,0.397856735560794,-0.0386468193218034,-0.00783303145434867,0.661822704299331,0
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   752.466226469855
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=752.46623 (started at 2484.7537)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.664098311347438,0.53099071164222,-0.106972800626957,0.0260199511752171,0.584333638614264,0.378
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   766.219955415809
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=766.21996 (started at 2540.8022)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.624786762223102,0.480327062303527,-0.141720219803405,0.0410521888955309,0.634241889450656,0.44
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   768.771638793145
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=768.77164 (started at 2411.4559)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.744386847205346,0.465935456534318,-0.0692189873376725,-0.067624129591946 4,0.568648772015181,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   741.223147927192
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=741.22315 (started at 2324.9388)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.66217885362191,0.438474928833818,-0.011144207357192,0.0120288807502441,0.594398291774759,0.3289
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   780.836285441667
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=780.83629 (started at 2722.6984)  (1 attempt(s):  1
valid, 0 errors)
```

```
#>  Start values from best fit:
#> 0.690347402204549,0.490311341041875,-0.146390022374425,-0.0195401602514742,0.627402518041284,0.4
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   798.994200370794
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=798.9942 (started at 2724.6975)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.679564030022408,0.477657702995945,-0.037910120568797,0.0154876263593496,0.616824927873006,0.37
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   787.032257794103
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=787.03226 (started at 2825.0508)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.716093080348548,0.554203770132493,-0.123075968768171,-0.0417698302704187,0.571815555828147,0.42
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   751.084607795309
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=751.08461 (started at 2890.0689)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.66130950231391,0.532629819541967,-0.101641409043792,0.00192165906897013,0.614479809469556,0.398
#> Running DTVAR with 12 parameters
```

```
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   807.680486764465
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=807.68049 (started at 2653.0473)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.711536873275276,0.486718967297324,-0.182176023621629,-0.0261125305270112,0.599294484813252,0.4
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   767.418593752537
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=767.41859 (started at 3168.4061)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.771433701226941,0.515790796170361,-0.0891381959878861,-0.0397577895392098,0.579395644538703,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   838.480905826361
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=838.48091 (started at 3078.7657)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.746043240966985,0.531610392262968,-0.101115749197125,-0.0485678713783249,0.598258784644551,0.39
#>
#> Means of the estimated paramaters per individual.
#>      beta_11      beta_21      beta_31      beta_12      beta_22      beta_32
#>  0.689789887  0.492516179 -0.097208291 -0.001160441  0.603969442  0.400473459
```

```
#>      beta_13      beta_23      beta_33       psi_11       psi_22       psi_33
#> -0.007541712 -0.004560371  0.502174347  0.099612947  0.097622042  0.099534970
#>
#> Estimated paramaters per individual.
#>         beta_11   beta_21     beta_31      beta_12   beta_22   beta_32
#>  [1,] 0.7164616 0.4611301 -0.11105810  0.003019901 0.6279625 0.4261113
#>  [2,] 0.6443768 0.4983199 -0.16013876  0.033945752 0.6020251 0.4385686
#>  [3,] 0.6508042 0.5009362 -0.11786997  0.035858447 0.5810333 0.4552952
#>  [4,] 0.6942525 0.5082547 -0.10560406  0.004036468 0.6322712 0.4501661
#>  [5,] 0.6559221 0.4857988 -0.08397442  0.029817330 0.6561920 0.3855977
#>  [6,] 0.6661111 0.4645191 -0.06553194  0.037981543 0.5764842 0.4011884
#>  [7,] 0.7095131 0.5124997 -0.06928059  0.031107702 0.6143890 0.3797097
#>  [8,] 0.7332648 0.4735630 -0.17302276 -0.010499084 0.6257035 0.4001882
#>  [9,] 0.6684843 0.5113862 -0.02255373 -0.055516112 0.6373854 0.3820877
#> [10,] 0.7188257 0.4823538 -0.16930734 -0.002028199 0.6195524 0.4347762
#> [11,] 0.7085883 0.4753882 -0.08543096 -0.014176941 0.6293655 0.4134227
#> [12,] 0.7207355 0.4995520 -0.14978054 -0.009302026 0.5742157 0.4583398
#> [13,] 0.6778803 0.4318265 -0.16618830 -0.037379735 0.5946225 0.3642645
#> [14,] 0.6099716 0.5393478 -0.11260566  0.015715811 0.6163058 0.4240693
#> [15,] 0.6916238 0.4715445 -0.01002947  0.025056552 0.6333237 0.4381611
#> [16,] 0.6279867 0.5033589 -0.10810363  0.010946465 0.5920935 0.3841485
#> [17,] 0.6710529 0.4498876 -0.14345882  0.076822435 0.6275157 0.3968303
#> [18,] 0.7399223 0.4859270 -0.07175380 -0.034202696 0.6240775 0.4094839
#> [19,] 0.6902135 0.4663627 -0.08795992 -0.017022618 0.6243748 0.3692646
#> [20,] 0.6744566 0.5318842 -0.08387880  0.024221986 0.6057917 0.4026145
#> [21,] 0.6961984 0.4703335 -0.06773466  0.044311167 0.6415002 0.3819198
#> [22,] 0.6716736 0.5532230 -0.03092170  0.027945585 0.5761806 0.3866297
#> [23,] 0.6404996 0.5218374 -0.13380991  0.008751364 0.6075137 0.3509830
#> [24,] 0.7023369 0.5267636 -0.10302942 -0.064679640 0.5662099 0.4158082
#> [25,] 0.7510798 0.5153482 -0.08562616 -0.042317757 0.5653769 0.4564352
#> [26,] 0.7119020 0.4927538 -0.07669837  0.028413366 0.5921316 0.3655838
#> [27,] 0.7173429 0.4838640 -0.03777417 -0.008468604 0.5927307 0.3709144
#> [28,] 0.6713788 0.4957555 -0.10631850  0.022350376 0.5842366 0.4399083
#> [29,] 0.7640326 0.4712870 -0.08222998 -0.001012458 0.6222990 0.3766414
#> [30,] 0.6980205 0.5402567 -0.13067105  0.021901572 0.5363688 0.3970364
#> [31,] 0.7317548 0.4609651 -0.14347168 -0.021699381 0.6049384 0.4208462
#> [32,] 0.6762777 0.5015838 -0.06187973 -0.019357583 0.6145831 0.4066435
#> [33,] 0.7068958 0.5110106 -0.08726787  0.031469450 0.6016102 0.3810928
#> [34,] 0.6539125 0.5105860 -0.10098857 -0.041397676 0.5456068 0.3989759
#> [35,] 0.6642894 0.5102449 -0.10167667 -0.001183680 0.5695084 0.4201438
#> [36,] 0.6113883 0.5245114 -0.12418458  0.021929440 0.5420406 0.3953253
#> [37,] 0.7417519 0.4693206 -0.08799220 -0.038091437 0.6544368 0.3750018
#> [38,] 0.6932275 0.4098153 -0.05145722 -0.020594089 0.6355978 0.4059942
#> [39,] 0.6433048 0.3978567 -0.03864682 -0.007833031 0.6618227 0.3873891
#> [40,] 0.6640983 0.5309907 -0.10697280  0.026019951 0.5843336 0.3782343
#> [41,] 0.6247868 0.4803271 -0.14172022  0.041052189 0.6342419 0.4442859
```

```
#> [42,] 0.7443868 0.4659355 -0.06921899 -0.067624130 0.5686488 0.3592133
#> [43,] 0.6621789 0.4384749 -0.01114421  0.012028881 0.5943983 0.3289104
#> [44,] 0.6903474 0.4903113 -0.14639002 -0.019540160 0.6274025 0.4030966
#> [45,] 0.6795640 0.4776577 -0.03791012  0.015487626 0.6168249 0.3708391
#> [46,] 0.7160931 0.5542038 -0.12307597 -0.041769830 0.5718156 0.4239406
#> [47,] 0.6613095 0.5326298 -0.10164141  0.001921659 0.6144798 0.3987891
#> [48,] 0.7115369 0.4867190 -0.18217602 -0.026112531 0.5992945 0.4082521
#> [49,] 0.7714337 0.5157908 -0.08913820 -0.039757790 0.5793956 0.3691550
#> [50,] 0.7460432 0.5316104 -0.10111575 -0.048567871 0.5982588 0.3913953
#>             beta_13      beta_23   beta_33     psi_11     psi_22     psi_33
#>  [1,]  3.766321e-02 -0.016345474 0.4934312 0.09236374 0.10442078 0.09418048
#>  [2,] -2.868696e-02 -0.040651753 0.5059455 0.09910694 0.09980994 0.10212124
#>  [3,]  3.475715e-02  0.010209415 0.4141094 0.10950856 0.09957811 0.09872075
#>  [4,] -5.200307e-02 -0.030028889 0.5082318 0.08989099 0.10354565 0.09765059
#>  [5,]  3.984700e-02 -0.069530113 0.4829112 0.10637743 0.08962865 0.09469661
#>  [6,] -3.838135e-02  0.062856225 0.5273031 0.08918864 0.09647033 0.10745205
#>  [7,] -1.012232e-03  0.001434448 0.5321423 0.09379959 0.10741337 0.09954281
#>  [8,]  4.158243e-02 -0.002300319 0.4891234 0.10668354 0.09517969 0.10174689
#>  [9,]  1.646599e-02  0.025818019 0.5040378 0.09348925 0.10122975 0.09241113
#> [10,] -3.142686e-02 -0.055668870 0.4925615 0.10216479 0.10046242 0.10672199
#> [11,] -1.377331e-02  0.025907029 0.4755864 0.10501065 0.09658652 0.09725175
#> [12,] -1.756893e-02  0.062898238 0.4615222 0.10523331 0.10042737 0.09981171
#> [13,] -1.745601e-02 -0.028148956 0.5578391 0.09167552 0.09960214 0.09100054
#> [14,]  3.289825e-02  0.025124176 0.4842028 0.09207020 0.10111288 0.10157440
#> [15,] -2.574228e-02 -0.001442593 0.4606027 0.10868707 0.09304484 0.10704468
#> [16,] -2.811782e-02  0.049230543 0.4904419 0.10454709 0.10199743 0.10707069
#> [17,] -8.776754e-02 -0.020012814 0.5466148 0.10586313 0.09201577 0.09419730
#> [18,] -2.300225e-02  0.032711410 0.4693977 0.10696340 0.11474110 0.10854458
#> [19,]  1.314096e-02 -0.047143700 0.5118070 0.09152075 0.09404615 0.08204455
#> [20,] -1.261897e-02  0.009616594 0.5179773 0.09687967 0.08237648 0.09978836
#> [21,] -6.815015e-02  0.007413786 0.5272664 0.09142694 0.09282330 0.09561401
#> [22,] -4.863634e-03 -0.016289743 0.4824611 0.09230807 0.09539849 0.10072420
#> [23,]  2.646204e-02  0.012030152 0.5436758 0.10145891 0.09874026 0.10415321
#> [24,]  3.288922e-02  0.013814703 0.4980909 0.09194537 0.10077807 0.11961502
#> [25,] -1.835506e-02 -0.012896623 0.5157920 0.09533227 0.08987374 0.11049795
#> [26,] -1.430443e-02  0.011062850 0.4992745 0.10674700 0.10481627 0.10395295
#> [27,] -9.382568e-03 -0.023171568 0.4975279 0.10483983 0.09547021 0.10984374
#> [28,] -4.853135e-02  0.044445689 0.4337791 0.10756680 0.09401982 0.10193023
#> [29,] -1.136324e-02 -0.027614476 0.4915875 0.09609721 0.09400949 0.09177987
#> [30,] -6.325697e-02 -0.030491618 0.5275732 0.09851278 0.09148029 0.09455103
#> [31,]  2.381838e-02  0.008561366 0.5415278 0.08655574 0.09611562 0.10603963
#> [32,] -3.632402e-02 -0.017130016 0.5211696 0.10597889 0.09529871 0.09550858
#> [33,] -5.560589e-03 -0.041299898 0.4505113 0.08773347 0.10669455 0.09956571
#> [34,]  1.180648e-02  0.055463831 0.5006901 0.09812655 0.10251583 0.08812632
#> [35,]  2.503484e-02 -0.014371468 0.4952391 0.10577503 0.09759036 0.11414251
```

```
#> [36,] -7.831177e-02 -0.027436482 0.5619025 0.09509774 0.10233767 0.08746661
#> [37,]  5.952974e-02 -0.071780270 0.5050928 0.10569403 0.09820242 0.09704947
#> [38,]  8.170450e-04 -0.016619533 0.5260316 0.10722676 0.10136290 0.09374135
#> [39,]  2.132885e-03 -0.048487951 0.5055569 0.10175729 0.09809730 0.10164009
#> [40,] -2.124955e-04 -0.026087009 0.4682442 0.09969266 0.09250747 0.09729284
#> [41,] -2.016216e-02 -0.033393474 0.5045044 0.09472485 0.09315185 0.10441220
#> [42,]  1.181564e-02  0.005592989 0.5117620 0.10172676 0.08670600 0.10468666
#> [43,] -2.858280e-06  0.028079578 0.5423085 0.09650685 0.09456595 0.09616732
#> [44,] -2.437575e-02  0.023280146 0.4698629 0.09555777 0.10526905 0.09385805
#> [45,] -2.282189e-02  0.003263234 0.5064732 0.09936083 0.10017878 0.09863568
#> [46,] -2.384668e-03 -0.016295694 0.4737930 0.10989716 0.09951131 0.08770628
#> [47,]  5.980008e-04 -0.003089513 0.5597720 0.09813157 0.09974433 0.09096459
#> [48,] -1.493488e-02  0.022705090 0.4872727 0.10268223 0.09593739 0.10178159
#> [49,]  1.132494e-02  0.015525783 0.5218082 0.10660438 0.07986420 0.10695280
#> [50,]  2.118627e-02 -0.047335018 0.5123770 0.10455737 0.10435109 0.09477486

#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   759.332723034257
#>
#> Solution found

#>
#>  Solution found!   Final fit=759.33272 (started at 767.23983)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.716461585428167,0.461130087272103,-0.111058101747436,0.00301995000147525,0.627962429370563,0.42
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   811.221283431381
#>
#> Solution found

#>
#>  Solution found!   Final fit=811.22128 (started at 819.93175)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.644376917883203,0.498319815027411,-0.160138649888563,0.0339457279840114,0.602025160800339,0.438
#> Running DTVAR with 12 parameters
```

```
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   851.056191919858
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=851.05619 (started at 866.15931)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.650804232121634,0.500936239033408,-0.117869944184811,0.0358583580157441,0.581033136227764,0.455
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   758.939240001087
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=758.93924 (started at 772.80857)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.69425247833575,0.508254712519871,-0.105604056657861,0.00403646721373456,0.632271246543257,0.450
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   755.237014820981
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=755.23701 (started at 771.21109)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.655922064526889,0.485798758415577,-0.0839744808979841,0.0298172928302494,0.656191949541491,0.38
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
```

```
#>
#>  Lowest minimum so far:   767.863852470667
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=767.86385 (started at 783.11641)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.666111127492906,0.464519086417875,-0.0655319230812842,0.0379815355531992,0.576484176671073,0.4
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   807.608080756468
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=807.60808 (started at 815.15868)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.709513062158392,0.512499708099355,-0.0692805796170135,0.0311076914010664,0.614389043033527,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   828.951705065182
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=828.95171 (started at 841.57206)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.733264749902263,0.473562995775331,-0.173022759603442,-0.0104990560166985,0.625703542569827,0.4
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   746.033688503379
```

```
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=746.03369 (started at 764.8049)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.668484300948304,0.511386214511344,-0.0225537199171085,-0.0555161395310054,0.637385350117328,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   851.374280350157
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=851.37428 (started at 861.62867)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.718825604736078,0.482353834528678,-0.169307271979635,-0.00202808228451628,0.61955237324617,0.43
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   799.274821858098
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=799.27482 (started at 805.58759)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.708588218330156,0.475388236341846,-0.0854308202552785,-0.0141769860920425,0.629365591372229,0.4
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   840.483916141223
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=840.48392 (started at 851.00179)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.7207355111764,0.499551928552273,-0.14978054704757,-0.00930203523468703,0.574215742590509,0.458
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   718.539233542033
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=718.53923 (started at 741.63598)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.677879886561889,0.431826550789902,-0.166188403762372,-0.0373795473864487,0.594622470548096,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   779.766644444383
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=779.76664 (started at 793.31737)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.609971703606512,0.539347830163897,-0.112605600194933,0.0157157744132437,0.616305785508771,0.424
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   850.752343563441
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=850.75234 (started at 870.41089)  (1 attempt(s):  1
valid, 0 errors)
```

```
#>  Start values from best fit:
#> 0.691623842946204,0.471544492587184,-0.01002945583283,0.025056547442537,0.633323728415006,0.4381
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   872.343067571387
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=872.34307 (started at 882.368)  (1 attempt(s):  1 valid,
0 errors)
#>  Start values from best fit:
#> 0.627986713114911,0.503358910622752,-0.108103614997471,0.0109464800897341,0.592093469438707,0.382
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   764.239047454333
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=764.23905 (started at 784.80812)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.67105294959542,0.449887642591952,-0.143458786756119,0.0768224565147059,0.627515758592816,0.3968
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   957.924375737499
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=957.92438 (started at 976.21158)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.739922367162102,0.48592706713264,-0.0717538245459881,-0.034202697660309,0.624077503132598,0.409
#> Running DTVAR with 12 parameters
```

```
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   633.011904428516
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=633.0119 (started at 649.09008)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.690213663823057,0.46636269930082,-0.0879598248789163,-0.0170226022112735,0.624374780340516,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   694.317115186692
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=694.31712 (started at 706.63832)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.674456627932046,0.531884177705681,-0.0838787762828761,0.0242219079571848,0.605791639568043,0.40
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   706.595319002982
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=706.59532 (started at 719.7453)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.696198214011712,0.470333597005126,-0.067734751668189,0.0443113891228755,0.641500260684122,0.38
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
```

```
#>
#>  Lowest minimum so far:   750.698512473295
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=750.69851 (started at 759.7683)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.671673609111645,0.553223089870081,-0.0309216931729336,0.0279455905537439,0.576180579623614,0.38
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   833.816258681048
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=833.81626 (started at 845.53725)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.640499502275901,0.521837377170588,-0.133809939141175,0.0087513945145241 8,0.607513714681973,0.35
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   863.215725480724
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=863.21573 (started at 880.21941)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.70233691503351,0.52676364141794,-0.103029350673975,-0.0646796152983735,0.566209875148732,0.4158
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   782.276989781736
```

```
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=782.27699 (started at 802.16016)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.751080033038349,0.515348048019857,-0.0856262567981077,-0.0423177000638963,0.565376873969739,0.2
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   885.4000818504
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=885.40008 (started at 891.24522)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.711902092021382,0.492753826033058,-0.0766983353095619,0.0284133293266239,0.592131583550737,0.30
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   870.776467535192
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=870.77647 (started at 879.61589)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.717343023727884,0.483863994996277,-0.037774213058378,-0.00846865630005986,0.592730738847854,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   825.091328764672
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=825.09133 (started at 836.69057)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.671378801101552,0.495755542356324,-0.106318444891222,0.0223503254606083,0.584236589649017,0.43
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   732.657907507961
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=732.65791 (started at 743.57505)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.764032687703439,0.471287014221847,-0.0822300063767158,-0.00101252774380534,0.62229897574047,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   726.376014908232
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=726.37601 (started at 742.41338)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.698020502933625,0.540256680629718,-0.130671062767118,0.021901574828572,0.536368802056704,0.397
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   743.062534381883
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=743.06253 (started at 756.40648)  (1 attempt(s):  1
valid, 0 errors)
```

```
#>  Start values from best fit:
#> 0.731754806899753,0.460964906274982,-0.143471428894092,-0.0216994359253728,0.604938695643486,0.42
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   797.484023499046
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=797.48402 (started at 806.83396)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.676277609893595,0.501583766265347,-0.0618798951792299,-0.0193574397570838,0.614583011607736,0.4
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   770.97749467596
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=770.97749 (started at 784.17806)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.706895709607195,0.511010671262467,-0.0872678739613862,0.0314695930810643,0.601610179752207,0.38
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   749.349505885138
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=749.34951 (started at 762.66042)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.653912563390342,0.510586038131102,-0.100988567723116,-0.0413977100766392,0.545606865185711,0.39
#> Running DTVAR with 12 parameters
```

```
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   889.86167650208
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=889.86168 (started at 899.62257)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.664289357214513,0.5102449470297 33,-0.101676632875796,-0.00118367609196996,0.569508435314849,0.
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   725.595924156994
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=725.59592 (started at 751.84398)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.611388387413602,0.524511305659563,-0.124184601280723,0.0219294512140722,0.542040628278474,0.395
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   812.090920433347
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=812.09092 (started at 825.67386)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.741751985990055,0.469320568926058,-0.08799220120145,-0.0380914980600275,0.654436815220724,0.375
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
```

```
#>
#>  Lowest minimum so far:   815.197848341626
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=815.19785 (started at 829.66831)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.693227358332933,0.409815382546601,-0.0514574408005689,-0.0205940175054711,0.635597713904742,0.4
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   820.593168415362
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=820.59317 (started at 838.4595)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.643304808567l6,0.397856533791987,-0.0386467541729308,-0.00783303856946256,0.661822861740966,0.3
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   752.466226469853
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=752.46623 (started at 760.05983)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.664098292782441,0.530990710130654,-0.106972799788052,0.0260199662012602,0.584333638667574,0.378
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   766.2199554157l5
```

```
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=766.21996 (started at 777.65895)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.624786753491203,0.480326983366548,-0.141720275922804,0.041052227184432,0.634241947184696,0.444
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   768.77163879313
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=768.77164 (started at 784.45062)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.744386876914039,0.465935520562982,-0.0692190128049471,-0.0676241467206233,0.568648789348167,0.
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   741.223147927187
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=741.22315 (started at 755.42182)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.662178896542466,0.438474917081386,-0.0111442189404204,0.01202887882265,0.594398301245561,0.328
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   780.836285441667
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=780.83629 (started at 791.00989)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.69034740431757,0.49031134831171,-0.146390033092329,-0.0195401623412294,0.627402508235676,0.403
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   798.99420037079
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=798.9942 (started at 803.52761)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.67956403208763,0.47765774431945,-0.0379101593064794,0.0154875956487848,0.616824904549432,0.370
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   787.032257794067
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=787.03226 (started at 800.57952)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.71609313261114,0.554203807091305,-0.123075940611452,-0.0417698485929651,0.571815552896042,0.423
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   751.084607795309
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=751.08461 (started at 761.5739)  (1 attempt(s):  1
valid, 0 errors)
```

```
#>  Start values from best fit:
#> 0.66130950018045,0.532629821554621,-0.101641402677008,0.00192166165092056,0.614479804396606,0.398
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   807.680486764455
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=807.68049 (started at 816.98743)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.711536829679 32,0.486719003709776,-0.182176075602796,-0.0261125286606419,0.5992944461216,0.40825
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   767.418593752494
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=767.41859 (started at 787.98087)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.771433727134554,0.515790729464576,-0.089138196614291,-0.0397577183528818,0.579395652411828,0.36
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   838.480905826358
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=838.48091 (started at 847.96006)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.746043269189541,0.531610400000595,-0.101115741712202,-0.0485678796475715,0.598258794430362,0.39
#> test-external-fitDTVARMx-fit-dt-var-id-mx-psi-full-alpha
```

```
#> Running DTVAR with 21 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 21 parameters
#>
#>  Lowest minimum so far:   130.8607132126 73
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=130.86071 (started at 611.92411)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.907007229936191,0.572596720070576,-0.182862604928905,-0.100081655724612,0.650075339802413,0.54
#> Running DTVAR with 21 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 21 parameters
#>
#>  Lowest minimum so far:   139.32688570416
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=139.32689 (started at 522.26725)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.688944224187242,0.323709047517282,-0.115752554598636,-0.0451097560064444,0.705665692048061,0.5
```

```
#>
#> Means of the estimated paramaters per individual.
#>        beta_11        beta_21        beta_31        beta_12        beta_22
#>   7.979757e-01   4.481529e-01  -1.493076e-01  -7.259571e-02   6.778705e-01
#>        beta_32        beta_13        beta_23        beta_33        alpha_1
#>   5.565601e-01  -2.564633e-02  -6.116042e-02   4.168568e-01  -7.032956e-02
#>        alpha_2        alpha_3         psi_11         psi_21         psi_22
#>  -7.478141e-02   3.616966e-02   6.885404e-02  -1.020105e-02   8.737757e-02
#>         psi_31         psi_32         psi_33       theta_11       theta_22
#>  -2.155005e-03  -8.153513e-03   8.302782e-02   1.072575e-02   9.927406e-03
#>       theta_33
#>  2.225074e-308
#>
#> Estimated paramaters per individual.
#>        beta_11   beta_21    beta_31     beta_12   beta_22   beta_32     beta_13
#> [1,] 0.9070072 0.5725967 -0.1828626 -0.10008166 0.6500753 0.5445502  0.05538699
#> [2,] 0.6889442 0.3237090 -0.1157526 -0.04510976 0.7056657 0.5685701 -0.10667965
```

```
#>          beta_23   beta_33     alpha_1     alpha_2    alpha_3     psi_11
#> [1,]  0.01068892 0.3643206 -0.02853877 -0.08489982 0.05058161 0.05380210
#> [2,] -0.13300975 0.4693931 -0.11212035 -0.06466300 0.02175772 0.08390599
#>            psi_21     psi_22       psi_31        psi_32     psi_33    theta_11
#> [1,]  0.003243194 0.07543105  0.001439259  0.0005402401 0.08549315 0.020084579
#> [2,] -0.023645299 0.09932410 -0.005749269 -0.0168472654 0.08056248 0.001366913
#>         theta_22      theta_33
#> [1,] 0.008943096 2.225074e-308
#> [2,] 0.010911715 2.225074e-308
```

```
#> Running DTVAR with 21 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 21 parameters
#>
#>  Lowest minimum so far:   130.860713212637
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=130.86071 (started at 258.45164)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.907007204309977,0.5725969877786318,-0.182862254278148,-0.100081604525029,0.650074994301332,0.54
#> Running DTVAR with 21 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 21 parameters
#>
#>  Lowest minimum so far:   139.326885704181
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=139.32689 (started at 270.70682)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.688944186887408,0.323709081867955,-0.115752660001728,-0.0451097085798538,0.705665730422289,0.5
#> Running DTVAR with 21 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 21 parameters
#>
#>  Lowest minimum so far:   130.860713212673
#>
```

```
#> Solution found
```

```
#>
#>  Solution found!  Final fit=130.86071 (started at 611.92411)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.907007229936191,0.5725967200705 76,-0.182862604928905,-0.100081655724612,0.650075339802413,0.54
#> Running DTVAR with 21 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 21 parameters
#>
#>  Lowest minimum so far:  139.32688570416
#>
#> Solution found
```

```
#>
#>  Solution found!  Final fit=139.32689 (started at 522.26725)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.688944224187242,0.3237090475172 82,-0.115752554598636,-0.0451097560064444,0.705665692048061,0.5
#> test-fitDTVARMx-fit-dt-var-id-mx-psi-full
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:  141.227445040053
#>
#> Solution found
```

```
#>
#>  Solution found!  Final fit=141.22745 (started at 864.26372)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.759132597237 25,0.5117467240654,-0.117001720448976,-0.00765252376376461,0.696207291827696,0.478
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:  152.427876381749
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=152.42788 (started at 704.47502)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.763892338563301,0.383013731924256,-0.120352902982372,0.00499878077485043,0.70344260993121,0.535

#>
#> Means of the estimated paramaters per individual.
#>      beta_11      beta_21      beta_31      beta_12      beta_22      beta_32
#>  0.761512468  0.447380228 -0.118677312 -0.001326871  0.699824951  0.507138094
#>      beta_13      beta_23      beta_33       psi_11       psi_21       psi_22
#> -0.023866582 -0.030153805  0.428050275  0.091046873 -0.003051278  0.109030721
#>       psi_31       psi_32       psi_33
#> -0.003780057 -0.008290530  0.087063236
#>
#> Estimated paramaters per individual.
#>        beta_11   beta_21    beta_31      beta_12   beta_22   beta_32
#> [1,] 0.7591326 0.5117467 -0.1170017 -0.007652524 0.6962073 0.4789361
#> [2,] 0.7638923 0.3830137 -0.1203529  0.004998781 0.7034426 0.5353401
#>          beta_13     beta_23   beta_33     psi_11      psi_21     psi_22
#> [1,] -0.00573355  0.02068753 0.3880270 0.08903364  0.01356789 0.09988748
#> [2,] -0.04199961 -0.08099514 0.4680735 0.09306011 -0.01967044 0.11817396
#>             psi_31       psi_32     psi_33
#> [1,] -0.0004085943 -0.003218197 0.09006036
#> [2,] -0.0071515206 -0.013362864 0.08406612

#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:   141.227445040052
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=141.22745 (started at 155.30127)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.759132618087095,0.511746732947333,-0.117001718768712,-0.00765252326881371,0.696207294595838,0.4
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:   152.427876381749
```

```
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=152.42788 (started at 173.82468)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.763892345928953,0.383013729597576,-0.120352907158379,0.00499877965420416,0.703442611112905,0.53
#> test-fitDTVARMx-fit-dt-var-id-mx-theta-diag
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:   141.007091765542
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=141.00709 (started at 611.92411)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.874067073976316,0.560970873321944,-0.157379395224968,-0.060316286602635,0.691271352979595,0.501
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:   158.95495094583
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=158.95495 (started at 522.26725)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.762881202903151,0.381929333900888,-0.121087935820448,0.0059717522349965,0.703854338321474,0.535

#>
#> Means of the estimated paramaters per individual.
#>       beta_11       beta_21       beta_31       beta_12       beta_22
#>  8.184741e-01  4.714501e-01 -1.392337e-01 -2.717227e-02  6.975628e-01
#>       beta_32       beta_13       beta_23       beta_33        psi_11
#>  5.186768e-01 -2.890123e-03 -3.372155e-02  4.216677e-01  7.556594e-02
#>        psi_22        psi_33      theta_11      theta_22      theta_33
```

```
#>  1.031500e-01  8.625905e-02  9.121430e-03  2.428910e-03  1.086906e-15
#>
#> Estimated paramaters per individual.
#>        beta_11   beta_21    beta_31      beta_12   beta_22   beta_32
#> [1,] 0.8740671 0.5609709 -0.1573794 -0.060316287 0.6912714 0.5017106
#> [2,] 0.7628812 0.3819293 -0.1210879  0.005971752 0.7038543 0.5356429
#>          beta_13     beta_23   beta_33     psi_11     psi_22    psi_33
#> [1,]  0.03623910  0.01460806 0.3754179 0.05815627 0.08808056 0.0884348
#> [2,] -0.04201934 -0.08205117 0.4679174 0.09297562 0.11821939 0.0840833
#>          theta_11      theta_22     theta_33
#> [1,] 1.824286e-02  4.857820e-03 1.563815e-17
#> [2,] 4.106886e-16 2.225074e-308 2.158173e-15

#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:   141.007091765538
#>
#> Solution found

#>
#>  Solution found!   Final fit=141.00709 (started at 258.45164)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.874067142181008,0.5609708958694,-0.15737939309628,-0.0603162743016983,0.691271362120305,0.5017
#> Running DTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 15 parameters
#>
#>  Lowest minimum so far:   158.954950945828
#>
#> Solution found

#>
#>  Solution found!   Final fit=158.95495 (started at 270.70682)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.762881282455708,0.381929306213834,-0.121087899520994,0.00597174192083925,0.703854337192701,0.53
#> test-fitDTVARMx-fit-dt-var-id-mx-theta-null
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
```

```
#>
#>  Lowest minimum so far:   143.407404986776
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=143.4074 (started at 864.26372)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.759698255386954,0.51293068501254,-0.117571330106502,-0.0083159710380848 3,0.695728660324113,0.4
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   158.954950945854
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=158.95495 (started at 704.47502)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.762881446913649,0.381929224963492,-0.121087879936601,0.005971740759823,0.703854252822966,0.535
#>
#> Means of the estimated paramaters per individual.
#>      beta_11      beta_21      beta_31      beta_12      beta_22      beta_32
#>  0.761289851  0.447429955 -0.119329605 -0.001172115  0.699791457  0.507666249
#>      beta_13      beta_23      beta_33       psi_11       psi_22       psi_33
#> -0.023737292 -0.030511210  0.427704600  0.091023282  0.109070259  0.087071311
#>
#> Estimated paramaters per individual.
#>        beta_11   beta_21    beta_31      beta_12   beta_22   beta_32
#> [1,] 0.7596983 0.5129307 -0.1175713 -0.008315971 0.6957287 0.4796895
#> [2,] 0.7628814 0.3819292 -0.1210879  0.005971741 0.7038543 0.5356430
#>          beta_13     beta_23   beta_33     psi_11     psi_22     psi_33
#> [1,] -0.00545524  0.02102876 0.3874918 0.08907097 0.09992115 0.09005935
#> [2,] -0.04201934 -0.08205118 0.4679174 0.09297560 0.11821937 0.08408327

#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   143.407404986772
```

```
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=143.4074 (started at 155.30127)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.759698244277544,0.512930696767456,-0.11757139938928,-0.00831595469091632,0.695728628998621,0.47
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   158.954950945827
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=158.95495 (started at 173.82468)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.762881277475544,0.381929289092408,-0.121087909101016,0.00597173839718756,0.703854341041715,0.53
#> test-fitDTVARMx-fit-dt-var-mx-theta-null
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   314.833515756451
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=314.83352 (started at 1681.6314)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.779809576758782,0.456449509059093,-0.149069435059919,-0.0215205293644486,0.709204637901126,0.49
```

```
#> Summary of DTVAR
#>
#> free parameters:
#>       name       matrix  row  col     Estimate   Std.Error A
#> 1  beta_11 DTVAR_1.beta eta1 eta1  0.779809577 0.047072463
#> 2  beta_21 DTVAR_1.beta eta2 eta1  0.456449509 0.054243686
#> 3  beta_31 DTVAR_1.beta eta3 eta1 -0.149069435 0.048836546
```

```
#> 4  beta_12 DTVAR_1.beta eta1 eta2 -0.021520529 0.038964011
#> 5  beta_22 DTVAR_1.beta eta2 eta2  0.709204638 0.043964740
#> 6  beta_32 DTVAR_1.beta eta3 eta2  0.493807895 0.040264748
#> 7  beta_13 DTVAR_1.beta eta1 eta3  0.001827002 0.039865722
#> 8  beta_23 DTVAR_1.beta eta2 eta3 -0.027125794 0.044899602
#> 9  beta_33 DTVAR_1.beta eta3 eta3  0.453982960 0.040562888
#> 10  psi_11  DTVAR_1.psi eta1 eta1  0.087188163 0.008810128
#> 11  psi_22  DTVAR_1.psi eta2 eta2  0.111929802 0.011280144
#> 12  psi_33  DTVAR_1.psi eta3 eta3  0.089489071 0.009032654
#>                  lbound ubound
#> 1
#> 2
#> 3
#> 4
#> 5
#> 6
#> 7
#> 8
#> 9
#> 10 2.2250738585072e-308
#> 11 2.2250738585072e-308
#> 12 2.2250738585072e-308
#>
#> Model Statistics:
#>                |  Parameters  |  Degrees of Freedom  |  Fit (-2lnL units)
#>        Model:             12                    588              314.8335
#>    Saturated:             NA                     NA                    NA
#> Independence:             NA                     NA                    NA
#> Number of observations/statistics: 200/600
#>
#> Information Criteria:
#>       |  df Penalty  |  Parameters Penalty  |  Sample-Size Adjusted
#> AIC:      -861.1665               338.8335                340.5020
#> BIC:     -2800.5771               378.4133                340.3961
#> CFI: NA
#> TLI: 1   (also known as NNFI)
#> RMSEA:  0  [95% CI (NA, NA)]
#> Prob(RMSEA <= 0.05): NA
#> To get additional fit indices, see help(mxRefModels)
#> timestamp: 2024-07-25 05:17:11
#> Wall clock time: 1.099764 secs
#> optimizer:  SLSQP
#> OpenMx version number: 2.21.11
#> Need help?  See help(mxSummary)
#>
#> Summary of DTVAR
```

```
#>
#> free parameters:
#>       name       matrix  row  col     Estimate   Std.Error A
#> 1  beta_11 DTVAR_1.beta eta1 eta1  0.779809577 0.047072463
#> 2  beta_21 DTVAR_1.beta eta2 eta1  0.456449509 0.054243686
#> 3  beta_31 DTVAR_1.beta eta3 eta1 -0.149069435 0.048836546
#> 4  beta_12 DTVAR_1.beta eta1 eta2 -0.021520529 0.038964011
#> 5  beta_22 DTVAR_1.beta eta2 eta2  0.709204638 0.043964740
#> 6  beta_32 DTVAR_1.beta eta3 eta2  0.493807895 0.040264748
#> 7  beta_13 DTVAR_1.beta eta1 eta3  0.001827002 0.039865722
#> 8  beta_23 DTVAR_1.beta eta2 eta3 -0.027125794 0.044899602
#> 9  beta_33 DTVAR_1.beta eta3 eta3  0.453982960 0.040562888
#> 10  psi_11  DTVAR_1.psi eta1 eta1  0.087188163 0.008810128
#> 11  psi_22  DTVAR_1.psi eta2 eta2  0.111929802 0.011280144
#> 12  psi_33  DTVAR_1.psi eta3 eta3  0.089489071 0.009032654
#>                  lbound ubound
#> 1
#> 2
#> 3
#> 4
#> 5
#> 6
#> 7
#> 8
#> 9
#> 10 2.2250738585072e-308
#> 11 2.2250738585072e-308
#> 12 2.2250738585072e-308
#>
#> Model Statistics:
#>                |  Parameters  |  Degrees of Freedom  |  Fit (-2lnL units)
#>        Model:             12                   588              314.8335
#>    Saturated:             NA                    NA                    NA
#> Independence:             NA                    NA                    NA
#> Number of observations/statistics: 200/600
#>
#> Information Criteria:
#>       |  df Penalty  |  Parameters Penalty  |  Sample-Size Adjusted
#> AIC:      -861.1665              338.8335                340.5020
#> BIC:     -2800.5771              378.4133                340.3961
#> CFI: NA
#> TLI: 1   (also known as NNFI)
#> RMSEA:  0  [95% CI (NA, NA)]
#> Prob(RMSEA <= 0.05): NA
#> To get additional fit indices, see help(mxRefModels)
#> timestamp: 2024-07-25 05:17:11
```

```
#> Wall clock time: 1.099764 secs
#> optimizer:  SLSQP
#> OpenMx version number: 2.21.11
#> Need help?  See help(mxSummary)
```

```
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   314.833515756454
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=314.83352 (started at 335.05402)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.779809570696339,0.456449524879204,-0.149069418133212,-0.0215205227899933,0.709204639349302,0.4
```

```
#> [[1]]
#> [[1]][[1]]
#> [[1]][[1]]$value
#> [[1]][[1]]$value[[1]]
#>
#> Means of the estimated paramaters per individual.
#>      beta_11      beta_21      beta_31      beta_12      beta_22      beta_32
#>  0.689789886  0.492516178 -0.097208289 -0.001160432  0.603969448  0.400473465
#>      beta_13      beta_23      beta_33       psi_11       psi_22       psi_33
#> -0.007541716 -0.004560360  0.502174351  0.099612948  0.097622042  0.099534969
#>
#>
#> [[1]][[1]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[2]]
#> [[1]][[2]]$value
#> [[1]][[2]]$value[[1]]
#>
#> Means of the estimated paramaters per individual.
#>        beta_11        beta_21        beta_31        beta_12        beta_22
#>   7.979757e-01   4.481529e-01  -1.493076e-01  -7.259571e-02   6.778705e-01
#>        beta_32        beta_13        beta_23        beta_33        alpha_1
#>   5.565601e-01  -2.564633e-02  -6.116042e-02   4.168568e-01  -7.032956e-02
#>        alpha_2        alpha_3         psi_11         psi_21         psi_22
```

```
#>  -7.478141e-02   3.616966e-02   6.885404e-02  -1.020105e-02   8.737757e-02
#>         psi_31         psi_32         psi_33       theta_11       theta_22
#>  -2.155005e-03  -8.153513e-03   8.302782e-02   1.072575e-02   9.927406e-03
#>       theta_33
#>  2.225074e-308
#>
#>
#> [[1]][[2]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[3]]
#> [[1]][[3]]$value
#> [[1]][[3]]$value[[1]]
#>
#> Means of the estimated paramaters per individual.
#>      beta_11      beta_21      beta_31      beta_12      beta_22      beta_32
#>  0.761512482  0.447380231 -0.118677313 -0.001326872  0.699824953  0.507138098
#>      beta_13      beta_23      beta_33       psi_11       psi_21       psi_22
#> -0.023866568 -0.030153803  0.428050266  0.091046872 -0.003051278  0.109030718
#>       psi_31       psi_32       psi_33
#> -0.003780055 -0.008290528  0.087063235
#>
#>
#> [[1]][[3]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[4]]
#> [[1]][[4]]$value
#> [[1]][[4]]$value[[1]]
#>
#> Means of the estimated paramaters per individual.
#>        beta_11        beta_21        beta_31        beta_12        beta_22
#>   8.184742e-01   4.714501e-01  -1.392336e-01  -2.717227e-02   6.975628e-01
#>        beta_32        beta_13        beta_23        beta_33         psi_11
#>   5.186768e-01  -2.890133e-03  -3.372160e-02   4.216676e-01   7.556594e-02
#>         psi_22         psi_33       theta_11       theta_22       theta_33
#>   1.031499e-01   8.625905e-02   9.121433e-03   2.428920e-03  2.225074e-308
#>
#>
#> [[1]][[4]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[5]]
```

```
#> [[1]][[5]]$value
#> [[1]][[5]]$value[[1]]
#>
#> Means of the estimated paramaters per individual.
#>      beta_11      beta_21      beta_31      beta_12      beta_22      beta_32
#>  0.761289761  0.447429993 -0.119329654 -0.001172108  0.699791485  0.507666213
#>      beta_13      beta_23      beta_33       psi_11       psi_22       psi_33
#> -0.023737279 -0.030511209  0.427704612  0.091023290  0.109070270  0.087071328
#>
#>
#> [[1]][[5]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[6]]
#> [[1]][[6]]$value
#> [[1]][[6]]$value[[1]]
#> Summary of DTVAR
#>
#> free parameters:
#>       name       matrix  row  col     Estimate   Std.Error A
#> 1  beta_11 DTVAR_1.beta eta1 eta1  0.779809571 0.047072530
#> 2  beta_21 DTVAR_1.beta eta2 eta1  0.456449525 0.054243727
#> 3  beta_31 DTVAR_1.beta eta3 eta1 -0.149069418 0.048836629
#> 4  beta_12 DTVAR_1.beta eta1 eta2 -0.021520523 0.038964110
#> 5  beta_22 DTVAR_1.beta eta2 eta2  0.709204639 0.043964666
#> 6  beta_32 DTVAR_1.beta eta3 eta2  0.493807878 0.040264807
#> 7  beta_13 DTVAR_1.beta eta1 eta3  0.001826994 0.039865786
#> 8  beta_23 DTVAR_1.beta eta2 eta3 -0.027125777 0.044899552
#> 9  beta_33 DTVAR_1.beta eta3 eta3  0.453982989 0.040562957
#> 10  psi_11  DTVAR_1.psi eta1 eta1  0.087188176 0.008810130
#> 11  psi_22  DTVAR_1.psi eta2 eta2  0.111929803 0.011280145
#> 12  psi_33  DTVAR_1.psi eta3 eta3  0.089489077 0.009032656
#>
#> Model Statistics:
#>                |  Parameters  |  Degrees of Freedom  |  Fit (-2lnL units)
#>        Model:             12                     588              314.8335
#>    Saturated:             NA                      NA                    NA
#> Independence:             NA                      NA                    NA
#> Number of observations/statistics: 200/600
#>
#> Information Criteria:
#>       |  df Penalty  |  Parameters Penalty  |  Sample-Size Adjusted
#> AIC:      -861.1665              338.8335                340.5020
#> BIC:     -2800.5771              378.4133                340.3961
```

```
#> CFI: NA
#> TLI: 1   (also known as NNFI)
#> RMSEA:  0  [95% CI (NA, NA)]
#> Prob(RMSEA <= 0.05): NA
#> To get additional fit indices, see help(mxRefModels)
#> timestamp: 2024-07-25 05:17:12
#> Wall clock time: 0.7746668 secs
#> optimizer:  SLSQP
#> OpenMx version number: 2.21.11
#> Need help?  See help(mxSummary)
#>
#>
#>
#> [[1]][[6]]$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/