metaVAR: Internal Tests

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Tests

```
#> test-metaVAR-fit-ct-var-id-mx-theta-null
#> Running CTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 12 parameters
#>
#>  Lowest minimum so far:   -2707.31197426421
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=-2707.312 (started at -2583.5637)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> -0.545410808015616,0.655791704057053,-0.4319181053049,0.0684713570989829,-0.1952231790709,0.85913
#> Running CTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 12 parameters
#>
#>  Lowest minimum so far:   -2726.62588111983
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=-2726.6259 (started at -2584.9163)  (1 attempt(s):
1 valid, 0 errors)
#>  Start values from best fit:
#> -0.2139001517700005,0.861186849501166,-0.405561461480421,-0.131907517647472,-0.523808720935904,0.8
#> Running Model with 90 parameters
#>
#> Beginning initial fit attempt
#> Running Model with 90 parameters
```

```
#>
#>  Lowest minimum so far:   -253.096313795113
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=-253.09631 (started at 11.090095)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.201437063405138,0.0854390456636383,0.010230187048902,-0.112588179410761,-0.135600574443815,0.0
#> $estimates
#>                              est     se        z      p    2.5%   97.5%
#> mu_phi_11                -0.3797 0.1007  -3.7695 0.0002 -0.5771 -0.1823
#> mu_phi_21                 0.7585 0.0773   9.8155 0.0000  0.6070  0.9099
#> mu_phi_31                -0.4187 0.0571  -7.3377 0.0000 -0.5306 -0.3069
#> mu_phi_12                -0.0317 0.0680  -0.4665 0.6409 -0.1650  0.1015
#> mu_phi_22                -0.3595 0.0947  -3.7972 0.0001 -0.5451 -0.1739
#> mu_phi_32                 0.8622 0.0469  18.3837 0.0000  0.7703  0.9541
#> mu_phi_13                 0.0220 0.0591   0.3716 0.7102 -0.0938  0.1378
#> mu_phi_23                -0.0862 0.0949  -0.9084 0.3637 -0.2721  0.0997
#> mu_phi_33                -0.8663 0.0790 -10.9646 0.0000 -1.0211 -0.7114
#> mu_sigma_11               0.0972 0.0027  35.7297 0.0000  0.0919  0.1025
#> mu_sigma_22               0.1021 0.0036  28.2121 0.0000  0.0950  0.1092
#> mu_sigma_33               0.1005 0.0043  23.5161 0.0000  0.0922  0.1089
#> sigma_phi_11_phi_11       0.0406 0.0287   1.4142 0.1573 -0.0157  0.0968
#> sigma_phi_21_phi_11       0.0172 0.0178   0.9676 0.3332 -0.0177  0.0521
#> sigma_phi_31_phi_11       0.0021 0.0115   0.1786 0.8583 -0.0206  0.0247
#> sigma_phi_12_phi_11      -0.0227 0.0178  -1.2755 0.2021 -0.0575  0.0122
#> sigma_phi_22_phi_11      -0.0273 0.0235  -1.1644 0.2442 -0.0733  0.0187
#> sigma_phi_32_phi_11       0.0006 0.0095   0.0604 0.9519 -0.0180  0.0191
#> sigma_phi_13_phi_11       0.0165 0.0145   1.1385 0.2549 -0.0119  0.0449
#> sigma_phi_23_phi_11       0.0273 0.0235   1.1636 0.2446 -0.0187  0.0734
#> sigma_phi_33_phi_11      -0.0209 0.0190  -1.0989 0.2718 -0.0583  0.0164
#> sigma_sigma_11_phi_11    -0.0006 0.0006  -1.0039 0.3154 -0.0019  0.0006
#> sigma_sigma_22_phi_11    -0.0009 0.0009  -1.0612 0.2886 -0.0026  0.0008
#> sigma_sigma_33_phi_11     0.0012 0.0010   1.1408 0.2539 -0.0009  0.0033
#> sigma_phi_21_phi_21       0.0239 0.0169   1.4142 0.1573 -0.0092  0.0570
#> sigma_phi_31_phi_21       0.0013 0.0088   0.1520 0.8792 -0.0160  0.0187
#> sigma_phi_12_phi_21      -0.0105 0.0118  -0.8968 0.3698 -0.0336  0.0125
#> sigma_phi_22_phi_21      -0.0231 0.0186  -1.2388 0.2154 -0.0596  0.0134
#> sigma_phi_32_phi_21       0.0003 0.0072   0.0356 0.9716 -0.0140  0.0145
#> sigma_phi_13_phi_21       0.0078 0.0099   0.7824 0.4340 -0.0117  0.0272
#> sigma_phi_23_phi_21       0.0212 0.0181   1.1734 0.2406 -0.0142  0.0567
#> sigma_phi_33_phi_21      -0.0129 0.0138  -0.9333 0.3507 -0.0399  0.0142
#> sigma_sigma_11_phi_21    -0.0003 0.0004  -0.7099 0.4778 -0.0012  0.0006
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```
#> sigma_sigma_22_phi_21   -0.0005 0.0006  -0.8200 0.4122 -0.0017  0.0007
#> sigma_sigma_33_phi_21    0.0007 0.0008   0.9760 0.3291 -0.0007  0.0022
#> sigma_phi_31_phi_31      0.0130 0.0092   1.4142 0.1573 -0.0050  0.0311
#> sigma_phi_12_phi_31     -0.0011 0.0078  -0.1448 0.8849 -0.0164  0.0141
#> sigma_phi_22_phi_31     -0.0022 0.0109  -0.2055 0.8372 -0.0235  0.0191
#> sigma_phi_32_phi_31     -0.0061 0.0062  -0.9872 0.3235 -0.0181  0.0060
#> sigma_phi_13_phi_31      0.0007 0.0068   0.1065 0.9152 -0.0125  0.0140
#> sigma_phi_23_phi_31      0.0023 0.0109   0.2091 0.8344 -0.0191  0.0236
#> sigma_phi_33_phi_31      0.0027 0.0091   0.3011 0.7633 -0.0151  0.0206
#> sigma_sigma_11_phi_31    0.0000 0.0003  -0.1102 0.9123 -0.0006  0.0006
#> sigma_sigma_22_phi_31   -0.0001 0.0004  -0.1764 0.8600 -0.0009  0.0007
#> sigma_sigma_33_phi_31    0.0000 0.0005   0.0989 0.9212 -0.0009  0.0010
#> sigma_phi_12_phi_12      0.0185 0.0131   1.4142 0.1573 -0.0071  0.0441
#> sigma_phi_22_phi_12      0.0166 0.0153   1.0824 0.2791 -0.0134  0.0466
#> sigma_phi_32_phi_12     -0.0004 0.0064  -0.0628 0.9499 -0.0129  0.0121
#> sigma_phi_13_phi_12     -0.0141 0.0107  -1.3166 0.1880 -0.0350  0.0069
#> sigma_phi_23_phi_12     -0.0166 0.0153  -1.0806 0.2799 -0.0466  0.0135
#> sigma_phi_33_phi_12      0.0127 0.0125   1.0174 0.3090 -0.0118  0.0372
#> sigma_sigma_11_phi_12    0.0004 0.0004   0.8923 0.3723 -0.0004  0.0012
#> sigma_sigma_22_phi_12    0.0005 0.0006   0.9752 0.3294 -0.0006  0.0017
#> sigma_sigma_33_phi_12   -0.0007 0.0007  -1.0589 0.2896 -0.0021  0.0006
#> sigma_phi_22_phi_22      0.0359 0.0254   1.4142 0.1573 -0.0138  0.0855
#> sigma_phi_32_phi_22     -0.0004 0.0089  -0.0446 0.9644 -0.0178  0.0170
#> sigma_phi_13_phi_22     -0.0122 0.0127  -0.9573 0.3384 -0.0372  0.0128
#> sigma_phi_23_phi_22     -0.0340 0.0247  -1.3749 0.1692 -0.0825  0.0145
#> sigma_phi_33_phi_22      0.0206 0.0182   1.1343 0.2567 -0.0150  0.0562
#> sigma_sigma_11_phi_22    0.0005 0.0006   0.8788 0.3795 -0.0006  0.0016
#> sigma_sigma_22_phi_22    0.0008 0.0008   1.0258 0.3050 -0.0007  0.0024
#> sigma_sigma_33_phi_22   -0.0012 0.0010  -1.1792 0.2383 -0.0031  0.0008
#> sigma_phi_32_phi_32      0.0088 0.0062   1.4142 0.1573 -0.0034  0.0210
#> sigma_phi_13_phi_32      0.0003 0.0055   0.0629 0.9498 -0.0105  0.0112
#> sigma_phi_23_phi_32      0.0003 0.0089   0.0388 0.9690 -0.0171  0.0178
#> sigma_phi_33_phi_32     -0.0075 0.0083  -0.9003 0.3680 -0.0237  0.0088
#> sigma_sigma_11_phi_32    0.0000 0.0003  -0.0494 0.9606 -0.0005  0.0005
#> sigma_sigma_22_phi_32    0.0000 0.0003  -0.0499 0.9602 -0.0007  0.0006
#> sigma_sigma_33_phi_32    0.0001 0.0004   0.2303 0.8178 -0.0007  0.0009
#> sigma_phi_13_phi_13      0.0140 0.0099   1.4142 0.1573 -0.0054  0.0333
#> sigma_phi_23_phi_13      0.0122 0.0128   0.9555 0.3393 -0.0128  0.0372
#> sigma_phi_33_phi_13     -0.0094 0.0104  -0.8982 0.3691 -0.0299  0.0111
#> sigma_sigma_11_phi_13   -0.0003 0.0003  -0.7757 0.4379 -0.0010  0.0004
#> sigma_sigma_22_phi_13   -0.0004 0.0005  -0.8556 0.3922 -0.0013  0.0005
#> sigma_sigma_33_phi_13    0.0005 0.0006   0.9379 0.3483 -0.0006  0.0017
#> sigma_phi_23_phi_23      0.0360 0.0254   1.4142 0.1573 -0.0139  0.0859
#> sigma_phi_33_phi_23     -0.0206 0.0182  -1.1331 0.2572 -0.0563  0.0150
#> sigma_sigma_11_phi_23   -0.0005 0.0006  -0.8773 0.3803 -0.0016  0.0006
#> sigma_sigma_22_phi_23   -0.0008 0.0008  -1.0445 0.2962 -0.0024  0.0007
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```
#> sigma_sigma_33_phi_23    0.0012 0.0010   1.1789 0.2384 -0.0008  0.0032
#> sigma_phi_33_phi_33      0.0250 0.0177   1.4142 0.1573 -0.0096  0.0596
#> sigma_sigma_11_phi_33    0.0004 0.0005   0.8219 0.4111 -0.0005  0.0013
#> sigma_sigma_22_phi_33    0.0007 0.0007   1.0399 0.2984 -0.0006  0.0020
#> sigma_sigma_33_phi_33   -0.0010 0.0008  -1.1882 0.2347 -0.0026  0.0006
#> sigma_sigma_11_sigma_11  0.0000 0.0000   1.4142 0.1573  0.0000  0.0001
#> sigma_sigma_22_sigma_11  0.0000 0.0000   0.7857 0.4321  0.0000  0.0001
#> sigma_sigma_33_sigma_11  0.0000 0.0000  -0.8567 0.3916 -0.0001  0.0000
#> sigma_sigma_22_sigma_22  0.0001 0.0000   1.4142 0.1573  0.0000  0.0001
#> sigma_sigma_33_sigma_22  0.0000 0.0000  -1.0815 0.2795 -0.0001  0.0000
#> sigma_sigma_33_sigma_33  0.0001 0.0001   1.4142 0.1573  0.0000  0.0002
#>
#> $heterogeneity
#>   phi_11   phi_21   phi_31   phi_12   phi_22   phi_32   phi_13   phi_23
#>   0.6076   0.4724   0.3363   0.5224   0.6692   0.3336   0.4502   0.6691
#>   phi_33 sigma_11 sigma_22 sigma_33
#>   0.5786   0.4221   0.5449   0.6321
#>
#> Test passed
```

```
#> test-metaVAR-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:   741.858019666399
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=741.85802 (started at 3195.3436)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.744102359401248,0.471983549669145,-0.123485840970363,-0.00232191598171461,0.652661527232958,0.
#> Running DTVAR with 12 parameters
#>
#> Beginning initial fit attempt
#> Running DTVAR with 12 parameters
#>
#>  Lowest minimum so far:   823.404995013856
#>
#> Solution found
```

```
#>
#>  Solution found!  Final fit=823.405 (started at 2764.6005)  (1 attempt(s):  1 valid,
0 errors)
#>  Start values from best fit:
#> 0.654633086676883,0.509278984394305,-0.134962902847776,0.0271964367580654,0.606323423068992,0.42
#> Running Model with 90 parameters
#>
#> Beginning initial fit attempt
#> Running Model with 90 parameters
#>
#>  Lowest minimum so far:  -351.37166864254
#>
#> Solution found
```

```
#>
#>  Solution found!  Final fit=-351.37167 (started at 6.4476168)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> 0.05126020815179,-0.0162567742096582,0.00501256863277252,-0.0172436725758 67,0.02020671587788 94,0
```

```
#> $estimates
#>                             est     se        z      p    2.5%   97.5%
#> mu_beta_11               0.6994 0.0256  27.2870 0.0000  0.6491  0.7496
#> mu_beta_21               0.4906 0.0160  30.6265 0.0000  0.4592  0.5220
#> mu_beta_31              -0.1292 0.0128 -10.0622 0.0000 -0.1544 -0.1041
#> mu_beta_12               0.0124 0.0126   0.9874 0.3235 -0.0123  0.0371
#> mu_beta_22               0.6295 0.0157  40.0718 0.0000  0.5987  0.6603
#> mu_beta_32               0.4391 0.0117  37.5811 0.0000  0.4162  0.4620
#> mu_beta_13               0.0087 0.0108   0.8092 0.4184 -0.0124  0.0298
#> mu_beta_23              -0.0205 0.0158  -1.3004 0.1935 -0.0515  0.0104
#> mu_beta_33               0.4874 0.0150  32.5839 0.0000  0.4580  0.5167
#> mu_psi_11                0.0958 0.0044  21.8756 0.0000  0.0872  0.1043
#> mu_psi_22                0.1039 0.0024  42.7682 0.0000  0.0991  0.1087
#> mu_psi_33                0.0959 0.0023  42.1489 0.0000  0.0914  0.1004
#> sigma_beta_11_beta_11    0.0026 0.0019   1.4142 0.1573 -0.0010  0.0063
#> sigma_beta_21_beta_11   -0.0008 0.0009  -0.9050 0.3655 -0.0026  0.0010
#> sigma_beta_31_beta_11    0.0003 0.0007   0.3831 0.7017 -0.0011  0.0016
#> sigma_beta_12_beta_11   -0.0009 0.0008  -1.1297 0.2586 -0.0024  0.0006
#> sigma_beta_22_beta_11    0.0010 0.0010   1.0819 0.2793 -0.0008  0.0029
#> sigma_beta_32_beta_11    0.0005 0.0007   0.7807 0.4350 -0.0008  0.0018
#> sigma_beta_13_beta_11    0.0003 0.0006   0.4990 0.6177 -0.0008  0.0014
#> sigma_beta_23_beta_11    0.0010 0.0010   1.0705 0.2844 -0.0009  0.0029
#> sigma_beta_33_beta_11   -0.0010 0.0009  -1.0600 0.2892 -0.0027  0.0008
#> sigma_psi_11_beta_11    -0.0003 0.0003  -1.2108 0.2260 -0.0009  0.0002
#> sigma_psi_22_beta_11     0.0001 0.0001   0.4881 0.6255 -0.0002  0.0003
#> sigma_psi_33_beta_11    -0.0001 0.0001  -0.5554 0.5786 -0.0003  0.0002
```

```
#> sigma_beta_21_beta_21  0.0010 0.0007   1.4142 0.1573 -0.0004  0.0024
#> sigma_beta_31_beta_21 -0.0001 0.0004  -0.2573 0.7970 -0.0009  0.0007
#> sigma_beta_12_beta_21  0.0003 0.0004   0.6432 0.5201 -0.0006  0.0011
#> sigma_beta_22_beta_21 -0.0007 0.0006  -1.1133 0.2656 -0.0019  0.0005
#> sigma_beta_32_beta_21 -0.0002 0.0004  -0.5438 0.5866 -0.0010  0.0006
#> sigma_beta_13_beta_21 -0.0001 0.0003  -0.2804 0.7791 -0.0008  0.0006
#> sigma_beta_23_beta_21 -0.0004 0.0005  -0.6950 0.4871 -0.0014  0.0007
#> sigma_beta_33_beta_21  0.0004 0.0005   0.7687 0.4420 -0.0006  0.0014
#> sigma_psi_11_beta_21   0.0001 0.0002   0.9045 0.3657 -0.0002  0.0005
#> sigma_psi_22_beta_21   0.0000 0.0001  -0.3313 0.7404 -0.0002  0.0001
#> sigma_psi_33_beta_21   0.0000 0.0001   0.3784 0.7051 -0.0001  0.0002
#> sigma_beta_31_beta_31  0.0007 0.0005   1.4142 0.1573 -0.0003  0.0016
#> sigma_beta_12_beta_31 -0.0001 0.0003  -0.2586 0.7959 -0.0007  0.0006
#> sigma_beta_22_beta_31  0.0001 0.0004   0.3242 0.7458 -0.0007  0.0009
#> sigma_beta_32_beta_31 -0.0002 0.0003  -0.5122 0.6085 -0.0008  0.0004
#> sigma_beta_13_beta_31  0.0000 0.0003   0.1074 0.9144 -0.0005  0.0006
#> sigma_beta_23_beta_31  0.0001 0.0004   0.3207 0.7484 -0.0007  0.0009
#> sigma_beta_33_beta_31 -0.0001 0.0004  -0.1908 0.8487 -0.0008  0.0007
#> sigma_psi_11_beta_31   0.0000 0.0001  -0.3820 0.7025 -0.0003  0.0002
#> sigma_psi_22_beta_31   0.0000 0.0001   0.1283 0.8979 -0.0001  0.0001
#> sigma_psi_33_beta_31   0.0000 0.0001  -0.1495 0.8811 -0.0001  0.0001
#> sigma_beta_12_beta_12  0.0006 0.0004   1.4142 0.1573 -0.0002  0.0015
#> sigma_beta_22_beta_12 -0.0003 0.0004  -0.7905 0.4292 -0.0012  0.0005
#> sigma_beta_32_beta_12 -0.0002 0.0003  -0.5494 0.5828 -0.0008  0.0004
#> sigma_beta_13_beta_12 -0.0003 0.0003  -0.9025 0.3668 -0.0009  0.0003
#> sigma_beta_23_beta_12 -0.0003 0.0004  -0.7842 0.4329 -0.0012  0.0005
#> sigma_beta_33_beta_12  0.0003 0.0004   0.7747 0.4385 -0.0005  0.0011
#> sigma_psi_11_beta_12   0.0001 0.0001   0.9094 0.3631 -0.0001  0.0004
#> sigma_psi_22_beta_12   0.0000 0.0001  -0.3324 0.7396 -0.0001  0.0001
#> sigma_psi_33_beta_12   0.0000 0.0001   0.3811 0.7032 -0.0001  0.0001
#> sigma_beta_22_beta_22  0.0010 0.0007   1.4142 0.1573 -0.0004  0.0024
#> sigma_beta_32_beta_22  0.0003 0.0004   0.6761 0.4989 -0.0005  0.0010
#> sigma_beta_13_beta_22  0.0001 0.0003   0.3520 0.7249 -0.0006  0.0008
#> sigma_beta_23_beta_22  0.0003 0.0005   0.6095 0.5422 -0.0007  0.0013
#> sigma_beta_33_beta_22 -0.0005 0.0005  -0.9346 0.3500 -0.0015  0.0005
#> sigma_psi_11_beta_22  -0.0002 0.0002  -1.0811 0.2796 -0.0005  0.0001
#> sigma_psi_22_beta_22   0.0000 0.0001   0.4162 0.6773 -0.0001  0.0002
#> sigma_psi_33_beta_22   0.0000 0.0001  -0.4747 0.6350 -0.0002  0.0001
#> sigma_beta_32_beta_32  0.0005 0.0004   1.4142 0.1573 -0.0002  0.0013
#> sigma_beta_13_beta_32  0.0001 0.0003   0.2394 0.8108 -0.0004  0.0006
#> sigma_beta_23_beta_32  0.0003 0.0004   0.6632 0.5072 -0.0005  0.0010
#> sigma_beta_33_beta_32 -0.0004 0.0004  -1.0677 0.2857 -0.0013  0.0004
#> sigma_psi_11_beta_32  -0.0001 0.0001  -0.7797 0.4355 -0.0003  0.0001
#> sigma_psi_22_beta_32   0.0000 0.0001   0.2785 0.7806 -0.0001  0.0001
#> sigma_psi_33_beta_32   0.0000 0.0001  -0.3174 0.7510 -0.0001  0.0001
#> sigma_beta_13_beta_13  0.0005 0.0003   1.4142 0.1573 -0.0002  0.0011
```

```
#> sigma_beta_23_beta_13  0.0001 0.0003   0.3519 0.7249 -0.0006  0.0008
#> sigma_beta_33_beta_13 -0.0001 0.0003  -0.3473 0.7284 -0.0008  0.0005
#> sigma_psi_11_beta_13   0.0000 0.0001  -0.4168 0.6768 -0.0002  0.0001
#> sigma_psi_22_beta_13   0.0000 0.0001   0.1396 0.8890 -0.0001  0.0001
#> sigma_psi_33_beta_13   0.0000 0.0000  -0.1615 0.8717 -0.0001  0.0001
#> sigma_beta_23_beta_23  0.0010 0.0007   1.4142 0.1573 -0.0004  0.0024
#> sigma_beta_33_beta_23 -0.0005 0.0005  -0.9215 0.3568 -0.0015  0.0006
#> sigma_psi_11_beta_23  -0.0002 0.0002  -1.0691 0.2850 -0.0005  0.0001
#> sigma_psi_22_beta_23   0.0000 0.0001   0.4101 0.6817 -0.0001  0.0002
#> sigma_psi_33_beta_23   0.0000 0.0001  -0.4675 0.6401 -0.0002  0.0001
#> sigma_beta_33_beta_33  0.0009 0.0006   1.4142 0.1573 -0.0003  0.0021
#> sigma_psi_11_beta_33   0.0002 0.0002   1.0589 0.2896 -0.0001  0.0005
#> sigma_psi_22_beta_33   0.0000 0.0001  -0.4052 0.6853 -0.0002  0.0001
#> sigma_psi_33_beta_33   0.0000 0.0001   0.4616 0.6444 -0.0001  0.0002
#> sigma_psi_11_psi_11    0.0001 0.0001   1.4142 0.1573  0.0000  0.0002
#> sigma_psi_22_psi_11    0.0000 0.0000  -0.4874 0.6259 -0.0001  0.0000
#> sigma_psi_33_psi_11    0.0000 0.0000   0.5546 0.5791  0.0000  0.0001
#> sigma_psi_22_psi_22    0.0000 0.0000   1.4142 0.1573  0.0000  0.0001
#> sigma_psi_33_psi_22    0.0000 0.0000  -0.1903 0.8491  0.0000  0.0000
#> sigma_psi_33_psi_33    0.0000 0.0000   1.4142 0.1573  0.0000  0.0000
#>
#> $heterogeneity
#> beta_11 beta_21 beta_31 beta_12 beta_22 beta_32 beta_13 beta_23 beta_33  psi_11
#>  0.6771  0.4306  0.3448  0.4322  0.5229  0.3956  0.3472  0.5140  0.5067  0.6747
#>  psi_22  psi_33
#>  0.3529  0.3597
#>
#> Test passed

#> test-meta-default
#> Running Model with 5 parameters
#>
#> Beginning initial fit attempt
#> Running Model with 5 parameters
#>
#>  Lowest minimum so far:   -6611.68427517362
#>  OpenMx status code 6 not in list of acceptable status codes, (0,0)
#>
#> Beginning fit attempt 1 of at maximum 1000 extra tries
#> Running Model with 5 parameters
#>
#>  Lowest minimum so far:   -6611.68431201128
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=-6611.6843 (started at -6610.7136)  (2 attempt(s):
2 valid, 0 errors)
#>  Start values from best fit:
#> 0.313147152480532,7.99374649342459e-05,0.313092317860277,0.0997566705402282,0.100057277862812

#> Test passed
#> [[1]]
#> [[1]][[1]]
#> [[1]][[1]]$value
#> [[1]][[1]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[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
```

Environment

```
ls()

#> [1] "root"
```

Class

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

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/