# fitCTVARMx: Internal Tests

Ivan Jacob Agaloos Pesigan

## Tests

```
#> test-fitCTVARMx-fit-ct-var-id-mx-sigma-diag
#> 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:
#> -0.213900151770005,0.861186849501166,-0.405561461480421,-0.131907517647472,-0.523808720935904,0.8
#>
#> Means of the estimated paramaters per individual.
#>      phi_11     phi_21     phi_31     phi_12     phi_22     phi_32
#> -0.37965548  0.75848928 -0.41873978 -0.03171808 -0.35951595  0.86221607
```

```
#>      phi_13      phi_23      phi_33    sigma_11    sigma_22    sigma_33
#>  0.02195558 -0.08616503 -0.86629112  0.09721581  0.10211013  0.10053139
#>
#> Estimated paramaters per individual.
#>          phi_11     phi_21     phi_31     phi_12     phi_22     phi_32
#> [1,] -0.5454108 0.6557917 -0.4319181  0.06847136 -0.1952232 0.8591364
#> [2,] -0.2139002 0.8611868 -0.4055615 -0.13190752 -0.5238087 0.8652957
#>            phi_13      phi_23     phi_33   sigma_11   sigma_22   sigma_33
#> [1,] -0.05178730 -0.25075038 -0.7402852 0.10027176 0.10763468 0.09333226
#> [2,]  0.09569846  0.07842031 -0.9922970 0.09415987 0.09658558 0.10773053
#> Test passed
```

*#> 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 -2692.6342)  (1 attempt(s):  1*
*valid, 0 errors)*
*#>  Start values from best fit:*
*#> -0.545410822968464,0.655791720204795,-0.431918099282865,0.0684713331800128,-0.195223149243982,0.8*
*#> 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 -2715.8485)  (1 attempt(s):*
*1 valid, 0 errors)*
*#>  Start values from best fit:*
*#> -0.213900127082883,0.861186936784289,-0.405561515713572,-0.131907503993629,-0.523808771434401,0.8*

```
#>
#> Means of the estimated paramaters per individual.
#>      phi_11     phi_21     phi_31     phi_12     phi_22     phi_32
#> -0.37965548  0.75848933 -0.41873981 -0.03171809 -0.35951596  0.86221611
#>      phi_13     phi_23     phi_33   sigma_11   sigma_22   sigma_33
```

```
#>  0.02195557 -0.08616504 -0.86629114  0.09721581  0.10211014  0.10053139
#>
#> Estimated paramaters per individual.
#>          phi_11    phi_21    phi_31    phi_12    phi_22    phi_32
#> [1,] -0.5454108 0.6557917 -0.4319181  0.06847133 -0.1952231 0.8591364
#> [2,] -0.2139001 0.8611869 -0.4055615 -0.13190750 -0.5238088 0.8652958
#>          phi_13    phi_23    phi_33  sigma_11  sigma_22  sigma_33
#> [1,] -0.05178729 -0.25075041 -0.7402852 0.10027176 0.10763469 0.09333226
#> [2,]  0.09569843  0.07842032 -0.9922971 0.09415987 0.09658559 0.10773052
#> Test passed

#> test-fitCTVARMx-fit-ct-var-id-mx-sigma-full-iota
#> Running CTVAR with 21 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2708.30352478403
#>  Not all eigenvalues of the Hessian are positive:  30721089.926683, 24835803.7013657,
20405567.9407961, 108357.114679194, 97945.2541152169, 90869.5887398491, 17750.7056309225,
17431.0121237759, 16343.315479509, 584.689320235362, 551.851004503713, 493.793471345016,
140.979956007956, 134.124452176923, 121.424223969448, 48.0105428890707, 42.9996605685013,
39.7787612725532, 1.73320819374214e-11, 4.78476574482658e-14, -1.49220592367107e-12
#>
#> Beginning fit attempt 1 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30721089.926683, 24835803.7013657,
20405567.9407961, 108357.114679194, 97945.2541152169, 90869.5887398491, 17750.7056309225,
17431.0121237759, 16343.315479509, 584.689320235362, 551.851004503713, 493.793471345016,
140.979956007956, 134.124452176923, 121.424223969448, 48.0105428890707, 42.9996605685013,
39.7787612725532, 1.73320819374214e-11, 4.78476574482658e-14, -1.49220592367107e-12
#>
#> Beginning fit attempt 2 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 3 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 4 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#> 
#> Beginning fit attempt 5 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 6 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 7 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Lowest minimum so far:    -2708.30352549538
#>   Not all eigenvalues of the Hessian are positive:   30715706.8728482, 24836590.5358908,
20405894.3730669, 108351.898153855, 97937.7532203767, 90869.6891813856, 17750.795759219,
17431.2435509503, 16341.2121533136, 584.644701175691, 551.895939705451, 493.75202576822,
140.982024378598, 134.157791285611, 121.460361670588, 48.0623885088766, 43.0384155163599,
39.8161207639873, 2.83891669834836e-12, 1.82014832115883e-12, -3.9503325901274e-13
#> 
#> Beginning fit attempt 8 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:   30715706.8728482, 24836590.5358908,
20405894.3730669, 108351.898153855, 97937.7532203767, 90869.6891813856, 17750.795759219,
17431.2435509503, 16341.2121533136, 584.644701175691, 551.895939705451, 493.75202576822,
140.982024378598, 134.157791285611, 121.460361670588, 48.0623885088766, 43.0384155163599,
39.8161207639873, 2.83891669834836e-12, 1.82014832115883e-12, -3.9503325901274e-13
#> 
#> Beginning fit attempt 9 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 10 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 11 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 12 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 13 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 14 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 15 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 16 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 17 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 18 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 19 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 20 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 21 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 22 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 23 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 24 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 25 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 26 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 27 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 28 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 29 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 30 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 31 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 32 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 33 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 34 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 35 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 36 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 37 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 38 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 39 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 40 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 41 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 42 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 43 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Lowest minimum so far:   -2708.30352549541
#>   Not all eigenvalues of the Hessian are positive:  30715706.9659416, 24836580.2893508,
20405879.3623156, 108351.873245002, 97937.7119097938, 90869.6424642794, 17750.8133976129,
17431.2066611489, 16341.1523589521, 584.681806734078, 551.854423308218, 493.810072454409,
140.894184721875, 134.09212434908, 121.373844675369, 48.0102016607214, 42.9643794036508,
39.7566684527213, 5.47987607972284e-13, -2.81308934098023e-12, -3.32154183093297e-12
#>
#> Beginning fit attempt 44 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Lowest minimum so far:   -2708.30352549541
#>   Not all eigenvalues of the Hessian are positive:  30715705.1893106, 24836575.810544,
20405884.6178586, 108351.937053222, 97937.7187516106, 90869.6607028926, 17750.8207399097,
17431.2658698879, 16341.2496155848, 584.694057747276, 551.881088604991, 493.828596745376,
140.954744165461, 134.138579624024, 121.403844293597, 48.0391336351725, 43.0008972237615,
39.7369950356337, 5.29501442197724e-13, -3.26953678916458e-12, -1.59219670186053e-11
#>
#> Beginning fit attempt 45 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  30715705.1893106, 24836575.810544,
20405884.6178586, 108351.937053222, 97937.7187516106, 90869.6607028926, 17750.8207399097,
17431.2658698879, 16341.2496155848, 584.694057747276, 551.881088604991, 493.828596745376,
140.954744165461, 134.138579624024, 121.403844293597, 48.0391336351725, 43.0008972237615,
39.7369950356337, 5.29501442197724e-13, -3.26953678916458e-12, -1.59219670186053e-11
```

```
#>
#> Beginning fit attempt 46 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 47 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 48 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 49 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 50 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 51 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 52 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 53 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 54 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 55 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 56 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 57 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 58 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 59 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 60 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 61 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 62 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 63 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 64 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 65 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 66 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 67 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 68 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 69 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 70 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 71 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 72 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 73 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 74 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 75 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 76 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 77 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 78 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 79 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 80 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 81 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 82 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 83 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 84 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 85 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 86 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 87 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  30717060.8712311, 24836600.5285144,
20405889.4453853, 108353.42874307, 97939.9835101317, 90870.2957358815, 17750.8119641554,
17431.244782667, 16341.7974441893, 584.657203808189, 551.858928399641, 493.813460581663,
140.962357685551, 134.129449590391, 121.468518562417, 48.0784541841724, 42.9635811521952,
39.725526195823, 3.90153000521661e-12, 1.62818560538339e-13, -1.79128485640301e-11
#>
#> Beginning fit attempt 88 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 89 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 90 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 91 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 92 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 93 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 94 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 95 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 96 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 97 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715695.0839162, 24836562.6651325,
20405908.8966538, 108351.86308373, 97937.6822562411, 90869.6276370585, 17750.8157609522,
17431.2030457164, 16341.1427278637, 584.687563747299, 551.856402409025, 493.784200334373,
140.891302069543, 134.047609166541, 121.369977737854, 47.9912324315624, 42.9148671363986,
39.755011751339, 1.21535253330021e-11, -1.63416366190388e-14, -5.80181095000987e-12
#>
#> Beginning fit attempt 98 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 99 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 100 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 101 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 102 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 103 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 104 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 105 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 106 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 107 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 108 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 109 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 110 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 111 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 112 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 113 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 114 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 115 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 116 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 117 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 118 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 119 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 120 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 121 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 122 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 123 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 124 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 125 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt worse than current best:   -2708.30350283589 vs -2708.30352549541
```

```
#>
#> Beginning fit attempt 126 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 127 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 128 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 129 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 130 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 131 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 132 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 133 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 134 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#> 
#> Beginning fit attempt 135 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 136 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 137 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 138 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 139 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 140 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 141 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 142 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 143 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 144 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 145 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 146 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 147 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 148 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 149 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 150 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 151 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 152 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
```

```
#> 
#> Beginning fit attempt 153 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 154 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 155 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 156 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 157 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 158 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 159 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 160 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 161 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 162 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 163 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 164 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 165 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  30715678.2536344, 24836562.6665053,
20405905.9358458, 108351.885622622, 97937.7595957084, 90869.7208107441, 17750.9293851084,
17431.3274797418, 16341.2183198448, 584.646124095804, 551.940141318769, 493.80482918837,
141.051700130287, 134.247221379102, 121.526500756461, 48.0556255205766, 43.0430813123071,
39.8397577381247, 1.92353127601041e-13, -1.98568364897858e-12, -1.50449625220533e-11
#>
#> Beginning fit attempt 166 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 167 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 168 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  30715704.1301526, 24836579.4007772,
20405823.1355998, 108351.841277367, 97937.6069032196, 90869.5592581943, 17750.7383326593,
17431.2798736575, 16341.1932767745, 584.630833913042, 551.913535315848, 493.793100482172,
140.997931943379, 134.153843451317, 121.510099602973, 48.0653910800231, 42.9328860645531,
39.7479305696043, 1.94525221265649e-14, -3.68924824321404e-13, -4.40007012940167e-12
#>
#> Beginning fit attempt 169 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 170 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 171 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 172 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 173 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 174 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 175 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 176 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 177 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 178 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 179 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 180 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  30715704.3365362, 24836584.3621129,
20405875.076203, 108351.995332334, 97937.7424206112, 90869.68877239, 17750.8165846895,
17431.2982203892, 16341.241348243, 584.664574717379, 551.941722718087, 493.744527826814,
141.03241918512, 134.271718730703, 121.558259686421, 48.0852782381855, 43.0871100856776,
39.8486184075772, 1.2347824102223e-12, -2.07072855154786e-13, -2.33130460646021e-12
#>
#> Beginning fit attempt 181 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 182 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 183 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 184 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 185 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 186 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 187 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 188 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 189 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 190 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 191 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 192 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 193 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 194 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 195 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 196 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 197 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 198 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 199 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 200 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 201 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 202 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 203 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 204 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 205 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 206 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 207 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 208 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 209 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 210 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 211 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 212 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715695.5331405, 24836585.2116971,
20405894.6652154, 108351.948495484, 97937.6537396805, 90869.7322397, 17750.8657521606,
17431.2058720687, 16341.2095283979, 584.659664612924, 551.900727627917, 493.812087183641,
141.005921518236, 134.170088139003, 121.527810371691, 48.0742695697073, 43.031974053655,
39.7571763514234, 3.41433974498144e-12, -1.00701944517525e-13, -1.67434383784626e-12
#>
#> Beginning fit attempt 213 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 214 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 215 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 216 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 217 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 218 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 219 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 220 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 221 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 222 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 223 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 224 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 225 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 226 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 227 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 228 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 229 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 230 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 231 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 232 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 233 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 234 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 235 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 236 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 237 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt worse than current best:   -2708.2946470441 vs -2708.30352549541
#>
#> Beginning fit attempt 238 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 239 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715063.9918804, 24838668.9133566,
20403261.0998505, 108354.526647478, 97933.4927446264, 90867.4474420608, 17748.9789699218,
17432.7294993663, 16341.1514872933, 584.635784425746, 551.838561305918, 493.759152406943,
140.932906338842, 134.085447053913, 121.349831097113, 47.9691913829216, 42.8946934276798,
39.7289059308125, 6.9431771545467e-12, 4.85969170799741e-12, -3.31260777228861e-13
#>
#> Beginning fit attempt 240 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 241 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 242 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 243 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 244 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 245 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 246 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 247 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 248 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 249 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 250 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 251 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 252 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 253 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 254 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 255 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 256 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 257 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 258 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>  Not all eigenvalues of the Hessian are positive:  30715665.7528068, 24836564.7170273,
20405924.3308092, 108351.856231727, 97937.6569329274, 90869.6444623532, 17750.7449459459,
17431.2181959074, 16341.1260207146, 584.649177021694, 551.795839638621, 493.84039675264,
140.945515376282, 134.039653327568, 121.352797900522, 48.0269086424106, 42.8668929616936,
39.7215832315732, 3.60557659642902e-12, 1.3026958226182e-12, -8.63872634209163e-14
#>
#> Beginning fit attempt 259 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 260 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 261 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 262 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 263 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 264 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 265 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 266 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 267 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715214.1681613, 24836195.9743639,
20405808.0073901, 108350.412756865, 97935.834533584, 90869.1091753848, 17750.7737243554,
17431.0586411381, 16340.92553946, 584.662900320424, 551.909022169473, 493.799822729898,
140.981915232728, 134.202309135609, 121.474756568528, 48.0433712510613, 43.0295178930793,
39.7882675559047, 7.71703572036482e-12, 9.78185810184817e-13, -4.73357881194137e-13
#>
#> Beginning fit attempt 268 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 269 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 270 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 271 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 272 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=-2708.3035 (started at 59.80475)  (273 attempt(s):
19 valid, 254 errors)
#>  Start values from best fit:
#> -0.534241218153635,0.627973802367441,-0.434553996425044,0.0533435955415811,-0.189553465600991,0.8
#> Running CTVAR with 21 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2729.43541395444
```

```
#>  Not all eigenvalues of the Hessian are positive:  29525705.9055929, 28656950.1464639,
23524019.7246255, 112732.481235427, 97113.1965901236, 92650.4448569708, 21754.029510104,
18545.9100880615, 17400.1035492018, 773.8799723268, 706.580507801913, 630.665094261115,
184.011610445367, 171.687958188087, 152.28119295691, 42.2538812075353, 38.8441241787968,
34.1236100210406, 1.70044444906159e-12, -2.3442519648227e-12, -3.33012480759054e-12
#>
#> Beginning fit attempt 1 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2729.43541395448
#>  Not all eigenvalues of the Hessian are positive:  29525739.4036878, 28656971.1045355,
23524038.5888871, 112732.579764377, 97113.2565793016, 92650.5162867426, 21754.0106222094,
18545.8878406483, 17400.1252515249, 773.951878436291, 706.497197444325, 630.610668162412,
183.908394629741, 171.593994560775, 152.236457680157, 42.2582365519817, 38.7628126698638,
34.0740821733034, 6.42636490295432e-12, -8.47332480338435e-13, -3.98697272899216e-12
#>
#> Beginning fit attempt 2 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  29525739.4036878, 28656971.1045355,
23524038.5888871, 112732.579764377, 97113.2565793016, 92650.5162867426, 21754.0106222094,
18545.8878406483, 17400.1252515249, 773.951878436291, 706.497197444325, 630.610668162412,
183.908394629741, 171.593994560775, 152.236457680157, 42.2582365519817, 38.7628126698638,
34.0740821733034, 6.42636490295432e-12, -8.47332480338435e-13, -3.98697272899216e-12
#>
#> Beginning fit attempt 3 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 4 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 5 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 6 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 7 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 8 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 9 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 10 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 11 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 12 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2729.43541395448
#>  Not all eigenvalues of the Hessian are positive:  29525767.1159324, 28656981.3511761,
23524041.3598065, 112732.624016952, 97113.1990967431, 92650.5070552258, 21753.9490292286,
18545.8881709025, 17400.0541039516, 774.081739953554, 706.430317218861, 630.572234253516,
183.89951044257, 171.573757112399, 152.173207900195, 42.1447759044279, 38.6552962960739,
34.0020651534674, 1.89691704067687e-12, -1.61975053028796e-12, -2.01044671134608e-12
#>
#> Beginning fit attempt 13 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2729.4354139545
#>  Not all eigenvalues of the Hessian are positive:  29525743.9360059, 28656971.9945621,
23524043.0212353, 112732.59981955, 97113.2936862959, 92650.5581796156, 21754.0206852269,
18545.9289981539, 17400.1725103253, 773.875433153488, 706.5475068887, 630.666457366365,
183.984626089305, 171.672631018808, 152.304316872639, 42.2787912533282, 38.8219599636766,
34.1149835878231, 5.67609871205975e-12, -1.67169250986545e-13, -9.998698091188e-13
#>
#> Beginning fit attempt 14 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Lowest minimum so far:   -2729.4354139545
#>  Not all eigenvalues of the Hessian are positive:  29525744.0077286, 28656972.0468633,
23524043.0838153, 112732.607409022, 97113.2944368133, 92650.6416065174, 21754.0385749947,
18545.9804038231, 17400.1432142014, 773.794406465257, 706.620190969493, 630.725454004034,
183.999640215229, 171.714659293061, 152.308281963284, 42.360192837248, 38.8412173358015,
34.1613616612943, 9.36234371013623e-12, 2.14365099189997e-12, -1.9094492139297e-12
#>
#> Beginning fit attempt 15 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt worse than current best:   -2729.43523378159 vs -2729.4354139545
#>
#> Beginning fit attempt 16 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 17 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  29525759.5949306, 28656965.6808788,
23524035.4421034, 112732.625290527, 97113.2315278028, 92650.548627791, 21754.0146247375,
18545.9648851801, 17400.1425842129, 773.86689085404, 706.549086743482, 630.677659062149,
183.985365896677, 171.663298652761, 152.358066672944, 42.2577402310093, 38.8118102823647,
34.1394811236363, -1.46999766228629e-13, -2.40195748785839e-12, -8.38540742335156e-12
#>
#> Beginning fit attempt 18 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 19 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 20 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 21 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 22 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 23 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 24 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 25 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 26 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 27 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 28 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 29 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 30 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 31 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 32 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 33 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 34 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 35 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 36 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 37 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 38 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 39 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 40 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 41 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 42 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 43 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 44 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 45 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 46 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 47 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 48 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 49 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 50 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  29524984.5693456, 28656659.7206254,
23524961.3494475, 112731.553204368, 97113.6155463028, 92651.4366979963, 21753.8630645054,
18545.5512826149, 17400.6993324092, 773.829229572613, 706.59927002916, 630.700173527781,
183.98205664823, 171.679572924036, 152.311032078955, 42.3038357360427, 38.7871689093782,
34.1480394594025, 4.90938434936605e-13, -1.18335764531864e-12, -4.63576357331863e-12
#>
#> Beginning fit attempt 51 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 52 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 53 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 54 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 55 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 56 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 57 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 58 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 59 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 60 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 61 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 62 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 63 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 64 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 65 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 66 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 67 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 68 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 69 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 70 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 71 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 72 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 73 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 74 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 75 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 76 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 77 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 78 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 79 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 80 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 81 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 82 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 83 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 84 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 85 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 86 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 87 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 88 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 89 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 90 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 91 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 92 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 93 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 94 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 95 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 96 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 97 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=-2729.4354 (started at 84.166179)  (98 attempt(s):
#> 10 valid, 88 errors)
#>  Start values from best fit:
#> -0.205072974775029,0.881043520115859,-0.376751377496581,-0.147027009118753,-0.542917472718603,0.8
#>
#> Means of the estimated paramaters per individual.
#>        phi_11        phi_21        phi_31        phi_12        phi_22
#> -3.696571e-01  7.545087e-01 -4.056527e-01 -4.684171e-02 -3.662355e-01
#>        phi_32        phi_13        phi_23        phi_33        iota_1
#>  8.612717e-01  3.884734e-02 -7.476226e-02 -8.654211e-01 -1.940727e-01
#>        iota_2        iota_3       sigma_11       sigma_21       sigma_22
#> -2.688925e-01  1.404266e-01  9.712849e-02  9.342563e-04  1.021726e-01
#>       sigma_31       sigma_32       sigma_33       theta_11       theta_22
#> -3.582115e-03 -2.662028e-03  1.005236e-01  3.618749e-18  5.277221e-18
#>       theta_33
#>  4.558534e-19
#>
#> Estimated paramaters per individual.
#>           phi_11    phi_21    phi_31    phi_12    phi_22    phi_32
#> [1,] -0.5342412 0.6279738 -0.4345540  0.0533436 -0.1895535 0.8656382
#> [2,] -0.2050730 0.8810435 -0.3767514 -0.1470270 -0.5429175 0.8569053
```

```
#>           phi_13       phi_23      phi_33      iota_1      iota_2     iota_3
#> [1,] -0.04057747 -0.24885250 -0.7448656 -0.29224827 -0.3159253 0.1128185
#> [2,]  0.11827215  0.09932798 -0.9859766 -0.09589709 -0.2218596 0.1680347
#>        sigma_11     sigma_21    sigma_22       sigma_31      sigma_32   sigma_33
#> [1,] 0.10016897  0.004029840 0.10757832 -0.0005085991 -0.002368608 0.09337775
#> [2,] 0.09408802 -0.002161327 0.09676684 -0.0066556317 -0.002955447 0.10766940
#>          theta_11      theta_22      theta_33
#> [1,] 7.037229e-18  1.055444e-17 7.581279e-19
#> [2,] 2.002690e-19 2.225074e-308 1.535790e-19


#> Running CTVAR with 21 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2708.30348505956
#>  OpenMx status code 6 not in list of acceptable status codes, (0,0)
#>  Not all eigenvalues of the Hessian are positive:  30711126.8851965, 24833319.8568181,
20406344.7868806, 108317.680397036, 97929.3515002133, 90881.9846080243, 17753.0781162471,
17430.2744625529, 16333.575820114, 584.634201448921, 551.84025088247, 493.784112297483,
140.930563942634, 134.112054893147, 121.421343463091, 47.9710252218382, 42.9765115064897,
39.7708730880543, 2.80819877333109e-11, 6.76987123535631e-13, -1.07269276616645e-12
#>
#> Beginning fit attempt 1 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2708.30351491663
#>  Not all eigenvalues of the Hessian are positive:  30721357.9553739, 24835362.1752378,
20404761.1457134, 108359.445134379, 97945.2505639849, 90866.8017647772, 17750.9586019978,
17431.8757407037, 16341.3505315208, 584.710540313594, 551.84167917222, 493.798590785678,
140.966605292243, 134.063851077153, 121.342388637221, 47.9793098696514, 42.874858769167,
39.7062284672318, 5.32459299653704e-12, 3.8823810589522e-12, -6.62875517969289e-14
#>
#> Beginning fit attempt 2 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30721357.9553739, 24835362.1752378,
20404761.1457134, 108359.445134379, 97945.2505639849, 90866.8017647772, 17750.9586019978,
17431.8757407037, 16341.3505315208, 584.710540313594, 551.84167917222, 493.798590785678,
140.966605292243, 134.063851077153, 121.342388637221, 47.9793098696514, 42.874858769167,
39.7062284672318, 5.32459299653704e-12, 3.8823810589522e-12, -6.62875517969289e-14
#>
#> Beginning fit attempt 3 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

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```
#>
#> Beginning fit attempt 4 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 5 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 6 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 7 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 8 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 9 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 10 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 11 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 12 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 13 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 14 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 15 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 16 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 17 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 18 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 19 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 20 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 21 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 22 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 23 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 24 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 25 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 26 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 27 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 28 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 29 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 30 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 31 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 32 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 33 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 34 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 35 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 36 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 37 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 38 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 39 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

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#>
#> Beginning fit attempt 40 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 41 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 42 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 43 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 44 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 45 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 46 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 47 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 48 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

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#> 
#> Beginning fit attempt 49 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 50 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 51 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 52 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 53 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 54 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 55 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 56 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 57 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
```

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#>
#> Beginning fit attempt 58 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 59 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 60 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 61 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 62 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 63 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 64 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 65 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 66 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

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#>
#> Beginning fit attempt 67 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 68 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 69 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 70 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 71 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 72 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 73 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 74 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 75 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 76 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 77 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 78 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 79 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 80 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 81 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 82 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 83 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 84 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

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#>
#> Beginning fit attempt 85 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 86 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 87 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 88 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 89 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 90 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:    -2708.30352549203
#>  Not all eigenvalues of the Hessian are positive:  30715691.9003139, 24836474.2280935,
20405665.9844436, 108351.558429316, 97937.3817720961, 90869.0759336148, 17750.6674895278,
17431.2029450009, 16341.2111229231, 584.677050575913, 551.891669340115, 493.784621661139,
140.99421592779, 134.125103495833, 121.491587294546, 47.9839994484383, 42.9900153953191,
39.7343457805762, 2.52525552560682e-12, -1.33099245537607e-13, -1.64307701307246e-11
#>
#> Beginning fit attempt 91 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:    -2708.30352549382
#>  Not all eigenvalues of the Hessian are positive:  30715689.3705694, 24836522.4332173,
20405752.0133135, 108351.730560627, 97937.4540393509, 90869.2814956462, 17750.652894054,
17431.2066990669, 16341.1890710687, 584.666074214052, 551.87342619544, 493.767477191322,
140.961570221854, 134.10166863988, 121.452997019255, 48.0465528696744, 42.9417917262894,
39.7600730928713, 6.87301074302665e-13, -1.30827459648463e-13, -9.44243270934474e-13
```

```
#>
#> Beginning fit attempt 92 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715689.3705694, 24836522.4332173,
20405752.0133135, 108351.730560627, 97937.4540393509, 90869.2814956462, 17750.652894054,
17431.2066990669, 16341.1890710687, 584.666074214052, 551.87342619544, 493.767477191322,
140.961570221854, 134.10166863988, 121.452997019255, 48.0465528696744, 42.9417917262894,
39.7600730928713, 6.87301074302665e-13, -1.30827459648463e-13, -9.44243270934474e-13
#>
#> Beginning fit attempt 93 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 94 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 95 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 96 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 97 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 98 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 99 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 100 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 101 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 102 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 103 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 104 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 105 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 106 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 107 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 108 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 109 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 110 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 111 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 112 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 113 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 114 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 115 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 116 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 117 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 118 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>  Lowest minimum so far:    -2708.30352549382
#>  Not all eigenvalues of the Hessian are positive:  30715697.8124303, 24836550.4676825,
20405881.556506, 108351.799216515, 97937.7806123738, 90869.5665698615, 17750.818657787,
17431.2508141477, 16341.2503515804, 584.667053342301, 551.878329943768, 493.799386594412,
140.992502208438, 134.191978064221, 121.459428631215, 48.1140490607854, 43.0301082337547,
39.7866605889748, 3.99656008305105e-12, 2.47741409410102e-13, -9.74701285018238e-12
#>
#> Beginning fit attempt 119 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:    -2708.30352549395
#>  Not all eigenvalues of the Hessian are positive:  30715698.317335, 24836581.6475502,
20405889.529687, 108351.887164151, 97937.6889450497, 90869.5710333749, 17750.7038260824,
17431.1549050756, 16341.17092055, 584.649377655946, 551.859697411165, 493.776446902649,
140.906368850479, 134.10142357625, 121.373933294808, 48.0481301788753, 42.9081256152865,
39.7165794501993, 9.07683609629755e-13, 2.49476894920576e-14, -3.49636596703946e-12
#>
#> Beginning fit attempt 120 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715698.317335, 24836581.6475502,
20405889.529687, 108351.887164151, 97937.6889450497, 90869.5710333749, 17750.7038260824,
17431.1549050756, 16341.17092055, 584.649377655946, 551.859697411165, 493.776446902649,
140.906368850479, 134.10142357625, 121.373933294808, 48.0481301788753, 42.9081256152865,
39.7165794501993, 9.07683609629755e-13, 2.49476894920576e-14, -3.49636596703946e-12
#>
#> Beginning fit attempt 121 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 122 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 123 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 124 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:    -2708.3035254954
```

```
#>  Not all eigenvalues of the Hessian are positive:   30715713.7120713, 24836580.779308,
20405869.2525116, 108351.882306871, 97937.6938196125, 90869.6543987535, 17750.7872231505,
17431.2338837539, 16341.2235965463, 584.676982499926, 551.889693657325, 493.765082501889,
140.931894347528, 134.130892848918, 121.448359546513, 47.9896855869841, 42.9470359501931,
39.7531850267703, 1.3627496085165e-11, 3.56500453306778e-13, -2.11393849064575e-12
#>
#> Beginning fit attempt 125 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2708.30352549541
#>  Not all eigenvalues of the Hessian are positive:   30715709.3332283, 24836583.2056811,
20405876.6679759, 108351.933270142, 97937.7200089744, 90869.6074714456, 17750.7558727539,
17431.2101853224, 16341.1637042726, 584.67393356831, 551.869361151272, 493.776938601247,
140.949702822097, 134.099528635884, 121.375211586827, 48.000715229185, 43.005971566458,
39.7976377454436, 1.58824864385338e-12, 2.70587080133177e-13, -2.5827024474644e-12
#>
#> Beginning fit attempt 126 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:   30715709.3332283, 24836583.2056811,
20405876.6679759, 108351.933270142, 97937.7200089744, 90869.6074714456, 17750.7558727539,
17431.2101853224, 16341.1637042726, 584.67393356831, 551.869361151272, 493.776938601247,
140.949702822097, 134.099528635884, 121.375211586827, 48.000715229185, 43.005971566458,
39.7976377454436, 1.58824864385338e-12, 2.70587080133177e-13, -2.5827024474644e-12
#>
#> Beginning fit attempt 127 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 128 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 129 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 130 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 131 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 132 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>  Fit attempt generated errors
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#> Beginning fit attempt 133 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>  Fit attempt generated errors
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#> Beginning fit attempt 134 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
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#> Beginning fit attempt 135 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 136 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>  Fit attempt generated errors
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#> Beginning fit attempt 137 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
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#> Beginning fit attempt 138 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
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#> Beginning fit attempt 139 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 140 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 141 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>  Fit attempt generated errors
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#> Beginning fit attempt 142 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>  Fit attempt generated errors
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#> Beginning fit attempt 143 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
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#> Beginning fit attempt 144 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>  Fit attempt generated errors
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#> Beginning fit attempt 145 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>  Fit attempt generated errors
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#> Beginning fit attempt 146 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
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#> Beginning fit attempt 147 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
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#> Beginning fit attempt 148 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>  Fit attempt generated errors
#>
#> Beginning fit attempt 149 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>
#>   Fit attempt generated errors
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#> Beginning fit attempt 150 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>   Fit attempt generated errors
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#> Beginning fit attempt 151 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 152 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
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#> Beginning fit attempt 153 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>   Fit attempt generated errors
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#> Beginning fit attempt 154 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>   Fit attempt generated errors
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#> Beginning fit attempt 155 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>   Fit attempt generated errors
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#> Beginning fit attempt 156 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>   Fit attempt generated errors
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#> Beginning fit attempt 157 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>   Fit attempt generated errors
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#> Beginning fit attempt 158 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 159 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
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#> Beginning fit attempt 160 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 161 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
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#> Beginning fit attempt 162 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
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#>   Fit attempt generated errors
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#> Beginning fit attempt 163 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 164 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 165 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 166 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 167 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#> Solution found


#>
#>  Solution found!   Final fit=-2708.3035 (started at -34.74447)  (168 attempt(s):
13 valid, 155 errors)
#>  Start values from best fit:
#> -0.53424099057258,0.627974095423782,-0.434554575178054,0.0533425589090221,-0.189554412988332,0.86
#> Running CTVAR with 21 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2729.43541395408
#>  Not all eigenvalues of the Hessian are positive:  29525731.3709691, 28656941.6665995,
23524038.75803, 112732.512818651, 97113.1583594122, 92650.4872329501, 21753.9538374866,
18545.880465442, 17400.0853968872, 774.006941073094, 706.513901289735, 630.584306035739,
183.883824671343, 171.609932400042, 152.264194860866, 42.1713862754213, 38.7374849795161,
34.0012644916685, 3.45614042093017e-13, -6.60938420482709e-13, -2.24751461390894e-12
#>
#> Beginning fit attempt 1 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2729.43541395419
#>  Not all eigenvalues of the Hessian are positive:  29525732.5953028, 28656946.6567347,
23524039.139461, 112732.574479344, 97113.2003436501, 92650.5249647279, 21754.0660048183,
18545.9478062877, 17400.1700035568, 773.905472698807, 706.534129740418, 630.673024258465,
183.986575708238, 171.663549135433, 152.256957332454, 42.2782176210272, 38.7547378432732,
34.1090180814405, 2.48099358948933e-13, -8.00190616795335e-13, -2.5500940925279e-12
#>
#> Beginning fit attempt 2 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  29525732.5953028, 28656946.6567347,
23524039.139461, 112732.574479344, 97113.2003436501, 92650.5249647279, 21754.0660048183,
18545.9478062877, 17400.1700035568, 773.905472698807, 706.534129740418, 630.673024258465,
183.986575708238, 171.663549135433, 152.256957332454, 42.2782176210272, 38.7547378432732,
34.1090180814405, 2.48099358948933e-13, -8.00190616795335e-13, -2.5500940925279e-12
#>
#> Beginning fit attempt 3 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 4 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>  Not all eigenvalues of the Hessian are positive:  29525750.4147017, 28656942.903033,
#> 23524015.741234, 112732.47858207, 97113.1485329149, 92650.5159308122, 21753.9620879512,
#> 18545.894284359, 17400.0611629855, 774.052793522366, 706.470062406308, 630.546336206168,
#> 183.87813418064, 171.607588220117, 152.205657109954, 42.1388308419936, 38.7081559813186,
#> 34.0043314493806, 2.00381977534301e-12, -7.99726003669168e-13, -3.95811315638142e-12
#>
#> Beginning fit attempt 5 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 6 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 7 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 8 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 9 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 10 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 11 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 12 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 13 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 14 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 15 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  29525722.585678, 28657028.6194386,
23524083.2296249, 112732.619781635, 97113.5050183076, 92650.6418977592, 21754.0640634661,
18545.9016829605, 17400.1796209935, 773.85621649903, 706.54936441319, 630.673868934241,
184.002237899995, 171.647876896082, 152.246194611108, 42.2782340621236, 38.8228055907537,
34.0783681532849, 1.12586056149769e-11, 3.93306026204561e-12, -1.57025767211746e-13
#>
#> Beginning fit attempt 16 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 17 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 18 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 19 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 20 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 21 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 22 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 23 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 24 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 25 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 26 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 27 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 28 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 29 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 30 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 31 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 32 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 33 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 34 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 35 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 36 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 37 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 38 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 39 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 40 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 41 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 42 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 43 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 44 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 45 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 46 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 47 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 48 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 49 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 50 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 51 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 52 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 53 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 54 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 55 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 56 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 57 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 58 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 59 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 60 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 61 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 62 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 63 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 64 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 65 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 66 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 67 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 68 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 69 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 70 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 71 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 72 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 73 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 74 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 75 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 76 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 77 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 78 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 79 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 80 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 81 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 82 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 83 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 84 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 85 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 86 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 87 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 88 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 89 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 90 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 91 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 92 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 93 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 94 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 95 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 96 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 97 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 98 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 99 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2729.43541395444
#>  Not all eigenvalues of the Hessian are positive:  29525741.3033412, 28656963.1121877,
23524061.9023797, 112732.566933079, 97113.300341025, 92650.5131580265, 21754.0073216882,
18545.877616063, 17400.1886806863, 773.974621905418, 706.519684181007, 630.584187364231,
183.944021855424, 171.648554507182, 152.264492797043, 42.1776786724722, 38.7876796350244,
34.0900261004534, 3.86823525018058e-12, -6.13183052678153e-13, -3.81105192941503e-12
#>
#> Beginning fit attempt 100 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2729.43541395449
#>  Not all eigenvalues of the Hessian are positive:  29525740.0847231, 28656976.4324878,
23524050.1318426, 112732.591748721, 97113.2028778529, 92650.4779544843, 21753.9760773005,
18545.9259235783, 17400.0774556838, 773.967107350198, 706.497199988361, 630.567111692692,
```

```
183.926740926089, 171.635108535284, 152.277838383606, 42.1958993095495, 38.7391928027047,
34.0676594973308, 5.81590346277753e-13, 2.98921168120126e-13, -5.28276793853184e-12
#>
#> Beginning fit attempt 101 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:   29525740.0847231, 28656976.4324878,
23524050.1318426, 112732.591748721, 97113.2028778529, 92650.4779544843, 21753.9760773005,
18545.9259235783, 17400.0774556838, 773.967107350198, 706.497199988361, 630.567111692692,
183.926740926089, 171.635108535284, 152.277838383606, 42.1958993095495, 38.7391928027047,
34.0676594973308, 5.81590346277753e-13, 2.98921168120126e-13, -5.28276793853184e-12
#>
#> Beginning fit attempt 102 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 103 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 104 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 105 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 106 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 107 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 108 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 109 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 110 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 111 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 112 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 113 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 114 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 115 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 116 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 117 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 118 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 119 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Lowest minimum so far:    -2729.43541395449
#>   Not all eigenvalues of the Hessian are positive:  29525731.0617908, 28656963.5868257,
23524042.5089057, 112732.540254145, 97113.1835760098, 92650.4886811438, 21754.0194174607,
18545.8522070898, 17400.0942438523, 773.949255008031, 706.490548969772, 630.612624696645,
183.93998252137, 171.585267786155, 152.209028746083, 42.2288851773551, 38.7346122340515,
34.0355603751828, 6.28453490189705e-12, 9.51727501928045e-13, -2.64549037492476e-12
#>
#> Beginning fit attempt 120 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  29525731.0617908, 28656963.5868257,
23524042.5089057, 112732.540254145, 97113.1835760098, 92650.4886811438, 21754.0194174607,
18545.8522070898, 17400.0942438523, 773.949255008031, 706.490548969772, 630.612624696645,
183.93998252137, 171.585267786155, 152.209028746083, 42.2288851773551, 38.7346122340515,
34.0355603751828, 6.28453490189705e-12, 9.51727501928045e-13, -2.64549037492476e-12
#>
#> Beginning fit attempt 121 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 122 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 123 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 124 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 125 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 126 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  29525754.9946798, 28656961.9672728,
23524028.4597183, 112732.584008486, 97113.1673057353, 92650.4420672117, 21753.9626886746,
18545.876289294, 17400.0906367085, 774.011554586081, 706.495643742501, 630.578617879104,
183.882539822, 171.572756490626, 152.190168558725, 42.2060493078951, 38.7417363339344,
34.0077841038153, -1.5675674020059e-12, -3.07560832245825e-12, -3.7232430757058e-12
#>
#> Beginning fit attempt 127 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  29526331.9407, 28655583.8960994,
23521319.4065133, 112730.883935215, 97109.5302282865, 92649.3564152461, 21754.2568055022,
18545.8326850039, 17400.0785165107, 773.921543045202, 706.511877251473, 630.579557640452,
183.914226091194, 171.671215354445, 152.23963491498, 42.2111614704719, 38.7713030706774,
34.0477847552601, 2.98782356537034e-12, 2.03179617967455e-12, -6.93080686974897e-13
#>
#> Beginning fit attempt 128 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 129 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 130 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 131 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  29525784.234993, 28656987.0480495,
23524035.6537459, 112732.668634773, 97113.2144362672, 92650.5260929513, 21754.0392122154,
18545.9397139347, 17400.0895270976, 773.921327860533, 706.52242883155, 630.597376685338,
183.978176500104, 171.67229802507, 152.213451994608, 42.2185400740195, 38.7954178208229,
34.0302840077555, 2.24872880905549e-12, -2.30880707122917e-13, -2.29940077387859e-12
#>
#> Beginning fit attempt 132 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
```

```
#> 
#> Beginning fit attempt 133 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 134 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 135 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 136 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 137 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 138 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 139 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 140 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 141 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
```

```
#> 
#> Beginning fit attempt 142 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 143 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 144 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 145 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 146 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 147 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 148 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 149 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 150 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 151 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 152 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 153 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  29524874.2599126, 28657733.420676,
23525102.6989242, 112732.691318587, 97115.2654985748, 92650.8715065811, 21753.9134430877,
18546.1091663353, 17400.3098534572, 773.950212620064, 706.519361276252, 630.627874333715,
183.923556339459, 171.553878996585, 152.222254597246, 42.2210903048297, 38.7448830558208,
34.0140029873694, 1.01482601182249e-12, -5.9214803764143e-12, -9.07482887916604e-12
#>
#> Beginning fit attempt 154 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 155 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 156 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 157 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 158 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 159 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 160 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 161 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 162 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 163 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 164 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 165 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 166 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 167 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 168 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 169 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 170 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 171 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 172 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  29525718.9852424, 28657044.298625,
23524035.39982, 112732.634426492, 97113.3712340077, 92650.5775442651, 21754.0768789995,
18545.9576617569, 17400.1275597866, 773.877936958505, 706.565069681459, 630.674840957259,
184.011898848258, 171.753946344681, 152.316141719305, 42.2507432601118, 38.8253202456405,
34.1205857702006, 1.22471066450729e-11, 5.4538835936339e-13, -1.11228286032741e-12
#>
#> Beginning fit attempt 173 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 174 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 175 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 176 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#> Solution found
```

```
#>
#>  Solution found!    Final fit=-2729.4354 (started at -26.856599)  (177 attempt(s):
16 valid, 161 errors)
#>  Start values from best fit:
#> -0.205070891236716,0.881043946167293,-0.376750066324149,-0.147028809379295,-0.542917631144295,0.8

#>
#> Means of the estimated paramaters per individual.
#>        phi_11         phi_21         phi_31         phi_12         phi_22
#> -3.696559e-01  7.545090e-01 -4.056523e-01 -4.684313e-02 -3.662360e-01
#>        phi_32         phi_13         phi_23         phi_33         iota_1
#>  8.612715e-01  3.884832e-02 -7.476224e-02 -8.654207e-01  3.266211e-01
#>        iota_2         iota_3       sigma_11       sigma_21       sigma_22
#> -2.599850e-01 -3.675569e-01  9.712853e-02  9.342605e-04  1.021726e-01
#>      sigma_31       sigma_32       sigma_33       theta_11       theta_22
#> -3.582111e-03 -2.662034e-03  1.005236e-01  4.166069e-19  2.795169e-19
#>      theta_33
#>  6.965235e-19
#>
#> Estimated paramaters per individual.
#>          phi_11     phi_21     phi_31      phi_12     phi_22     phi_32
#> [1,] -0.5342410 0.6279741 -0.4345546  0.05334256 -0.1895544 0.8656384
#> [2,] -0.2050709 0.8810439 -0.3767501 -0.14702881 -0.5429176 0.8569046
#>          phi_13      phi_23     phi_33    iota_1      iota_2     iota_3
#> [1,] -0.04057697 -0.24885239 -0.7448655 0.4383249 -0.54315948 -0.6307760
#> [2,]  0.11827360  0.09932792 -0.9859759 0.2149174  0.02318954 -0.1043377
#>        sigma_11    sigma_21  sigma_22      sigma_31     sigma_32   sigma_33
#> [1,] 0.10016900  0.004029847 0.10757832 -0.0005085932 -0.002368598 0.09337776
#> [2,] 0.09408806 -0.002161326 0.09676685 -0.0066556295 -0.002955470 0.10766947
#>          theta_11       theta_22       theta_33
#> [1,] 2.225074e-308 2.225074e-308 2.225074e-308
#> [2,]  8.332137e-19  5.590338e-19  1.393047e-18

#> Running CTVAR with 21 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2708.30352478403
#>  Not all eigenvalues of the Hessian are positive:  30721089.926683, 24835803.7013657,
20405567.9407961, 108357.114679194, 97945.2541152169, 90869.5887398491, 17750.7056309225,
17431.0121237759, 16343.315479509, 584.689320235362, 551.851004503713, 493.793471345016,
140.979956007956, 134.124452176923, 121.424223969448, 48.0105428890707, 42.9996605685013,
39.7787612725532, 1.73320819374214e-11, 4.78476574482658e-14, -1.49220592367107e-12
#>
#> Beginning fit attempt 1 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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```
#>  Not all eigenvalues of the Hessian are positive:  30721089.926683, 24835803.7013657,
20405567.9407961, 108357.114679194, 97945.2541152169, 90869.5887398491, 17750.7056309225,
17431.0121237759, 16343.315479509, 584.689320235362, 551.851004503713, 493.793471345016,
140.979956007956, 134.124452176923, 121.424223969448, 48.0105428890707, 42.9996605685013,
39.7787612725532, 1.73320819374214e-11, 4.78476574482658e-14, -1.49220592367107e-12
#>
#> Beginning fit attempt 2 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 3 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 4 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 5 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 6 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 7 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 8 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 9 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 10 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 11 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 12 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 13 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 14 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 15 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 16 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 17 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 18 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 19 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 20 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 21 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 22 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 23 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 24 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 25 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 26 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 27 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt worse than current best:   -2708.30269247452 vs -2708.30352478403
```

```
#>
#> Beginning fit attempt 28 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 29 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 30 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 31 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 32 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 33 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 34 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 35 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 36 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 37 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Lowest minimum so far:    -2708.3035254951
#>   Not all eigenvalues of the Hessian are positive:  30715703.6241182, 24836601.0219893,
20405921.1734154, 108351.867319154, 97937.862822998, 90869.7654701267, 17750.754560941,
17431.2622906077, 16341.2048880089, 584.662424402962, 551.848800060021, 493.818992699942,
140.968750992143, 134.0612395427, 121.410173606777, 48.0219055312479, 42.9442011029392,
39.7192444953729, 4.72188982474019e-13, -2.78373574276776e-12, -2.31067900206349e-11
#>
#> Beginning fit attempt 38 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Lowest minimum so far:    -2708.30352549531
#>   Not all eigenvalues of the Hessian are positive:  30715703.4924063, 24836572.3404932,
20405875.6453234, 108351.921766697, 97937.6717442261, 90869.5898292765, 17750.8060271292,
17431.219510684, 16341.184141161, 584.659432574702, 551.863893403712, 493.832175072926,
140.963876060765, 134.10902220011, 121.379744274949, 48.057905469182, 42.9693092578899,
39.7520481760014, 5.53866254189426e-12, 2.03586750114933e-12, -6.03663532492404e-13
#>
#> Beginning fit attempt 39 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  30715703.4924063, 24836572.3404932,
20405875.6453234, 108351.921766697, 97937.6717442261, 90869.5898292765, 17750.8060271292,
17431.219510684, 16341.184141161, 584.659432574702, 551.863893403712, 493.832175072926,
140.963876060765, 134.10902220011, 121.379744274949, 48.057905469182, 42.9693092578899,
39.7520481760014, 5.53866254189426e-12, 2.03586750114933e-12, -6.03663532492404e-13
#>
#> Beginning fit attempt 40 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 41 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 42 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 43 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 44 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 45 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 46 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 47 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 48 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2708.30352549537
#>  Not all eigenvalues of the Hessian are positive:  30715704.4073688, 24836574.705959,
20405853.8422252, 108351.849301397, 97937.6866525977, 90869.5930869574, 17750.800927239,
17431.2724636398, 16341.1894028022, 584.663485086608, 551.905231446863, 493.805191160719,
140.988816722349, 134.14495835373, 121.458758895845, 48.0640731533158, 43.020949362717,
39.7653686789808, 3.63582227855446e-13, -9.05147704674657e-13, -3.19468793520505e-12
#>
#> Beginning fit attempt 49 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715704.4073688, 24836574.705959,
20405853.8422252, 108351.849301397, 97937.6866525977, 90869.5930869574, 17750.800927239,
17431.2724636398, 16341.1894028022, 584.663485086608, 551.905231446863, 493.805191160719,
140.988816722349, 134.14495835373, 121.458758895845, 48.0640731533158, 43.020949362717,
39.7653686789808, 3.63582227855446e-13, -9.05147704674657e-13, -3.19468793520505e-12
#>
#> Beginning fit attempt 50 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 51 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 52 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 53 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 54 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 55 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 56 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 57 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715693.4063848, 24836566.3026474,
20405850.7553449, 108351.88310636, 97937.7201369952, 90869.486631454, 17750.7618422909,
17431.1838180446, 16341.1977261664, 584.6889158263, 551.832464856363, 493.80188086426,
140.938893921436, 134.127675442273, 121.420563122634, 48.0418746373281, 42.976350356279,
39.7342576226921, -3.35654173473561e-13, -3.99851200933101e-12, -7.91103310163464e-12
#>
#> Beginning fit attempt 58 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 59 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 60 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 61 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 62 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 63 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 64 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 65 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 66 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 67 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 68 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 69 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 70 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 71 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 72 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 73 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 74 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 75 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 76 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 77 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 78 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 79 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 80 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 81 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 82 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 83 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 84 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 85 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 86 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 87 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 88 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 89 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 90 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 91 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 92 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 93 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715614.0804227, 24836528.5083257,
20405868.7303594, 108351.716754492, 97937.5354778063, 90869.5533849062, 17750.8413350581,
17431.2520377144, 16341.1960683332, 584.632389146273, 551.888610341386, 493.796031101685,
141.047443084284, 134.186953123821, 121.467483689151, 48.0818685617943, 43.0407812634332,
39.8206166207025, 5.11257174573438e-12, 1.59045465822926e-12, -2.41147373065496e-13
#>
#> Beginning fit attempt 94 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 95 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 96 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 97 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 98 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 99 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 100 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 101 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 102 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 103 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 104 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 105 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 106 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 107 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 108 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 109 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  30715722.6024171, 24836595.8507139,
20405832.7966133, 108351.842895636, 97937.6301451677, 90869.5729609137, 17750.7015263865,
17431.1916202898, 16341.1742653707, 584.676667721016, 551.852667573159, 493.772064334342,
140.924644806785, 134.112308730575, 121.396495356518, 48.0445423790108, 42.9383879342771,
39.7509483908719, 5.25501786823654e-13, -6.25986135155327e-13, -4.94933557052494e-12
#>
#> Beginning fit attempt 110 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 111 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 112 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 113 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 114 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 115 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 116 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 117 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 118 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715683.0727488, 24836602.2475919,
20405824.049968, 108351.824135684, 97937.5652384442, 90869.4911326106, 17750.7119641615,
17431.2176089296, 16341.1598009791, 584.674976417112, 551.846207659004, 493.75530484888,
140.867192074485, 134.080132111172, 121.4290760882, 47.9928311250283, 42.9380533106724,
39.723687949305, -3.39549349096842e-13, -1.90672340392566e-12, -1.67950162820037e-11
#>
#> Beginning fit attempt 119 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 120 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#> 
#> Beginning fit attempt 121 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 122 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 123 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 124 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  30715701.5818836, 24836669.1176554,
20405820.0876466, 108352.063889009, 97937.6136736316, 90869.5718099225, 17750.7359116444,
17431.2157082271, 16341.1430180225, 584.652074019909, 551.835156895106, 493.826528941587,
140.969362397768, 134.054859988701, 121.356863276233, 47.988245571506, 42.9098690348288,
39.7036897905263, 1.07020349067598e-12, 5.64719372245118e-13, -1.69487585830739e-12
#> 
#> Beginning fit attempt 125 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 126 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 127 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>   Fit attempt generated errors
#> 
#> Beginning fit attempt 128 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  30715717.0043712, 24836577.8067674,
20405886.939325, 108351.956263285, 97937.7057736907, 90869.6353546143, 17750.7986787016,
17431.2080944975, 16341.1937201354, 584.676465604296, 551.85925452214, 493.789896708979,
140.9523500745, 134.147424371712, 121.418975434263, 48.0346070870811, 42.9620941897565,
39.7534813717803, 1.91151963028586e-12, -5.0480976839258e-13, -1.58878938045982e-12
```

```
#>
#> Beginning fit attempt 129 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 130 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 131 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 132 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 133 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 134 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 135 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 136 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 137 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 138 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt worse than current best:   -2708.30307354196 vs -2708.30352549537
#>
#> Beginning fit attempt 139 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 140 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 141 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 142 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 143 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 144 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 145 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 146 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2708.30352549537
```

```
#>  Not all eigenvalues of the Hessian are positive:  30715724.43606, 24836573.256622,
20405873.6349843, 108351.837329297, 97937.7441748471, 90869.5327230895, 17750.6792238621,
17431.1659506076, 16341.1255760929, 584.672262916819, 551.810612099203, 493.783801386008,
140.910549224654, 134.0067644071, 121.312246305534, 47.9451624670337, 42.829373838954,
39.6750866351192, 3.75668892823156e-12, -2.57033576438863e-13, -2.02483514264359e-12
#>
#> Beginning fit attempt 147 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715724.43606, 24836573.256622,
20405873.6349843, 108351.837329297, 97937.7441748471, 90869.5327230895, 17750.6792238621,
17431.1659506076, 16341.1255760929, 584.672262916819, 551.810612099203, 493.783801386008,
140.910549224654, 134.0067644071, 121.312246305534, 47.9451624670337, 42.829373838954,
39.6750866351192, 3.75668892823156e-12, -2.57033576438863e-13, -2.02483514264359e-12
#>
#> Beginning fit attempt 148 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 149 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 150 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 151 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 152 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 153 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 154 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 155 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 156 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 157 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 158 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 159 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 160 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 161 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 162 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 163 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 164 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 165 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 166 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 167 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 168 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 169 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 170 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 171 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 172 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 173 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 174 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 175 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 176 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 177 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 178 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 179 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 180 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 181 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 182 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 183 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 184 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 185 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 186 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 187 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 188 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 189 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 190 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 191 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
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#> Beginning fit attempt 192 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 193 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
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#> Beginning fit attempt 194 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 195 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 196 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 197 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 198 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 199 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 200 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 201 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 202 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 203 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 204 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 205 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 206 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 207 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 208 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 209 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 210 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 211 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 212 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 213 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 214 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 215 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 216 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 217 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 218 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 219 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 220 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 221 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 222 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:   -2708.30352549537
#>  Not all eigenvalues of the Hessian are positive:  30715710.5612914, 24836588.6119565,
20405904.2039073, 108351.92413709, 97937.7474483552, 90869.7440669909, 17750.8024920721,
17431.2160764147, 16341.220153422, 584.684248179488, 551.87804168988, 493.798622354856,
140.961023742155, 134.146156012522, 121.439157351626, 48.0075648655498, 42.9797903901399,
39.7720127952015, 1.71955417888833e-11, 2.26833411722496e-12, -1.69098137898976e-13
#>
#> Beginning fit attempt 223 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715710.5612914, 24836588.6119565,
20405904.2039073, 108351.92413709, 97937.7474483552, 90869.7440669909, 17750.8024920721,
17431.2160764147, 16341.220153422, 584.684248179488, 551.87804168988, 493.798622354856,
140.961023742155, 134.146156012522, 121.439157351626, 48.0075648655498, 42.9797903901399,
39.7720127952015, 1.71955417888833e-11, 2.26833411722496e-12, -1.69098137898976e-13
#>
#> Beginning fit attempt 224 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 225 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 226 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 227 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 228 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 229 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 230 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 231 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 232 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 233 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 234 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 235 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 236 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 237 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 238 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 239 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 240 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715404.0011908, 24836777.2226203,
20405789.6071654, 108351.520161921, 97937.3178266392, 90869.5200909755, 17750.753856,
17431.0851548871, 16341.183562578, 584.689362034677, 551.828953403631, 493.786745678073,
140.97154767788, 134.072212496795, 121.380828862006, 47.9385147918883, 42.8709034234,
39.7260761052592, 5.56990374113972e-12, 1.7221916895531e-14, -1.64465353547756e-11
#>
#> Beginning fit attempt 241 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 242 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 243 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 244 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 245 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 246 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 247 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 248 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 249 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 250 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 251 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt worse than current best:   -2708.30332352068 vs -2708.30352549537
#>
#> Beginning fit attempt 252 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 253 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 254 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 255 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 256 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 257 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 258 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 259 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 260 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 261 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 262 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 263 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 264 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 265 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 266 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 267 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt worse than current best:   -2708.30350600612 vs -2708.30352549537
#>
#> Beginning fit attempt 268 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 269 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 270 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 271 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 272 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 273 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 274 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 275 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715271.3005944, 24834030.0933343,
20398594.9593749, 108342.611605462, 97928.4792231287, 90854.8445485118, 17745.8097686433,
17431.6896527965, 16340.6818879649, 584.679270625645, 551.888073466246, 493.763244361742,
140.966445395682, 134.159780246891, 121.449820537192, 48.0306314045948, 43.0021646865828,
39.8325701893603, 1.20779213634004e-11, 5.90721192459129e-12, -6.01053219189864e-14
#>
#> Beginning fit attempt 276 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 277 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 278 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 279 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 280 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 281 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 282 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 283 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 284 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 285 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 286 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

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#> 
#> Beginning fit attempt 287 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 288 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 289 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 290 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 291 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 292 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 293 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 294 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 295 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 296 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715803.4985703, 24836621.4115619,
20405868.7838836, 108352.091211679, 97937.7770397717, 90869.6764273697, 17750.7909409945,
17431.2615711265, 16341.2203052796, 584.660137790426, 551.877119402457, 493.766504182798,
140.943132842765, 134.181297330066, 121.464202361094, 48.0790137393419, 43.0081070337701,
39.7953817425292, -2.11917600311975e-13, -1.50536573192354e-12, -9.14973224873265e-12
#>
#> Beginning fit attempt 297 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 298 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 299 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 300 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 301 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 302 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 303 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 304 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 305 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 306 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 307 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 308 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 309 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 310 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 311 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 312 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 313 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 314 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 315 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 316 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 317 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 318 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 319 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 320 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 321 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 322 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 323 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 324 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 325 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 326 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 327 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 328 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 329 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 330 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 331 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 332 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 333 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715719.4075946, 24836628.1571066,
20405907.2864114, 108352.073771578, 97937.7895575354, 90869.6196572157, 17750.7942145577,
17431.2061676623, 16341.1500839636, 584.651522751285, 551.880190483316, 493.768457369435,
140.908797405847, 134.094437966055, 121.409259152693, 48.0156898111649, 42.9325822696577,
39.7503586085842, 5.7233725325295e-12, 1.65577329335897e-12, -3.18590145178999e-13
#>
#> Beginning fit attempt 334 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 335 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 336 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 337 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 338 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 339 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 340 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 341 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 342 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 343 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  30715722.8500212, 24836507.8132645,
20405885.0546511, 108351.859846932, 97937.7398731927, 90869.5998764687, 17750.8590997645,
17431.3384614515, 16341.2547689517, 584.6420105811, 551.944732028346, 493.789002317164,
141.046823704059, 134.226140326387, 121.471948853257, 48.0830369144827, 43.0501672171007,
39.8314940824653, -2.32573798817501e-14, -8.82381367723768e-13, -1.12557660995181e-11
#>
#> Beginning fit attempt 344 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 345 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 346 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 347 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 348 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 349 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 350 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 351 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 352 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 353 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 354 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 355 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:    -2708.30352549541
#>  Not all eigenvalues of the Hessian are positive:  30715709.3767559, 24836581.5094911,
20405874.5302063, 108351.88321089, 97937.702658449, 90869.6761941205, 17750.7767285925,
17431.2484469808, 16341.2002185188, 584.661872926088, 551.870751602047, 493.777761401075,
141.025932097152, 134.228909545886, 121.47829313663, 48.052386556059, 43.0199604766088,
39.7900668394017, 3.40338479498949e-11, 2.0463958822221e-13, -3.2402515444380
4e-12
#>
#> Beginning fit attempt 356 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>  Not all eigenvalues of the Hessian are positive:  30715709.3767559, 24836581.5094911,
20405874.5302063, 108351.88321089, 97937.702658449, 90869.6761941205, 17750.7767285925,
17431.2484469808, 16341.2002185188, 584.661872926088, 551.870751602047, 493.777761401075,
141.025932097152, 134.228909545886, 121.47829313663, 48.052386556059, 43.0199604766088,
39.7900668394017, 3.40338479498949e-11, 2.0463958822221e-13, -3.24025154443804e-12
#>
#> Beginning fit attempt 357 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 358 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 359 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 360 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 361 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 362 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 363 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715695.3883392, 24836588.2205899,
20405867.119705, 108351.938585606, 97937.6305709891, 90869.6628858344, 17750.764283353,
17431.2686830814, 16341.2367071049, 584.658007943297, 551.84419260493, 493.797675174732,
140.956636762257, 134.122355684135, 121.35926636705, 48.0631714078438, 42.94778183209,
39.7728175240035, 3.26492416121888e-12, 7.92087249024986e-14, -1.39072560439451e-11
#>
#> Beginning fit attempt 364 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 365 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 366 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 367 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 368 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 369 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 370 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 371 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 372 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 373 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 374 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 375 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 376 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 377 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 378 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 379 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt worse than current best:   -2708.30351121685 vs -2708.30352549541
#>
#> Beginning fit attempt 380 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 381 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 382 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 383 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 384 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 385 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 386 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715703.5204248, 24836578.8861805,
#> 20405885.9958532, 108351.836073625, 97937.690278243, 90869.6093177037, 17750.6984394395,
#> 17431.208645688, 16341.1587081734, 584.673986548632, 551.852381214948, 493.738523860784,
#> 140.915450659429, 134.122420541511, 121.379712849997, 47.9436267953429, 42.9495567183733,
#> 39.7406357818013, -3.12037818794548e-13, -5.26461893262934e-13, -7.0761654548042e-12
#>
#> Beginning fit attempt 387 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 388 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 389 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 390 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 391 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 392 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 393 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 394 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 395 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 396 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 397 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 398 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 399 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 400 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 401 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 402 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 403 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 404 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 405 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 406 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 407 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 408 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
```

135

```
#>
#> Beginning fit attempt 409 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 410 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 411 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 412 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 413 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 414 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 415 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 416 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 417 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715721.6505784, 24836531.7135703,
20405858.8918407, 108351.832341814, 97937.7478360558, 90869.6007953915, 17750.8127678791,
17431.2443654787, 16341.2348565546, 584.665670318452, 551.886671018386, 493.81969608235,
```

```
#> 141.008561448903, 134.174131418363, 121.445863804653, 48.1262442040592, 43.0253041712389,
#> 39.7681002360043, 1.70936893096335e-12, -5.28665829423228e-13, -1.04593896523021e-11
#>
#> Beginning fit attempt 418 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 419 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  30715701.0850724, 24836586.7974992,
#> 20405877.1440151, 108351.922584092, 97937.6659676433, 90869.621401261, 17750.7060371337,
#> 17431.1796588794, 16341.1976180242, 584.703896515727, 551.843214679727, 493.822545767639,
#> 140.875346526791, 134.052322041759, 121.319738964046, 48.0021904797521, 42.9028959324972,
#> 39.7200039287067, 2.36498225316447e-11, 1.42542442092796e-12, -9.99525255260092e-14
#>
#> Beginning fit attempt 420 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 421 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  OpenMx status code 6 not in list of acceptable status codes, (0,0)
#>  Not all eigenvalues of the Hessian are positive:  30713688.471482, 24829454.360136,
#> 20392507.9138785, 108321.100836283, 97910.3576502693, 90837.7799877525, 17741.2418527239,
#> 17426.8079657343, 16340.057925508, 584.616607949145, 551.802202491394, 493.776889271688,
#> 141.006518298644, 134.143986321747, 121.453908941827, 48.0808745640105, 43.0195455918046,
#> 39.7496326407751, 4.00056148156195e-13, -4.5788942607162e-12, -7.99768996073304e-12
#>
#> Beginning fit attempt 422 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 423 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 424 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 425 of at maximum 1000 extra tries
```

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```
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 426 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 427 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 428 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 429 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 430 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 431 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 432 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 433 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 434 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 435 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 436 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 437 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 438 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 439 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 440 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 441 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 442 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 443 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  OpenMx status code 6 not in list of acceptable status codes, (0,0)
```

```
#>  Not all eigenvalues of the Hessian are positive:  30716581.2472578, 24823405.6488447,
20401471.8207666, 108330.079874902, 97932.9899228747, 90838.4578835619, 17747.5415907833,
17424.2577210925, 16341.0394928726, 584.656301943658, 551.813517321474, 493.765424842882,
140.927616678626, 134.109797787752, 121.418820726386, 48.0115233485455, 42.9537209306394,
39.7674889577818, -1.75724783941004e-13, -1.19162401729703e-12, -1.1738182295927e-11
#>
#> Beginning fit attempt 444 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 445 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 446 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 447 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 448 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 449 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 450 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 451 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 452 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 453 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 454 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 455 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 456 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 457 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 458 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 459 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 460 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 461 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 462 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 463 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 464 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 465 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 466 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 467 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=-2708.3035 (started at 59.80475)  (468 attempt(s):
36 valid, 432 errors)
#>  Start values from best fit:
#> -0.534237859061368,0.627986583542506,-0.434557224287947,0.0533448510136748,-0.189552288180654,0.8
#> Running CTVAR with 21 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 21 parameters
```

```
#>
#>  Lowest minimum so far:    -2729.43541395444
#>  Not all eigenvalues of the Hessian are positive:  29525705.9055929, 28656950.1464639,
23524019.7246255, 112732.481235427, 97113.1965901236, 92650.4448569708, 21754.029510104,
18545.9100880615, 17400.1035492018, 773.8799723268, 706.580507801913, 630.665094261115,
184.011610445367, 171.687958188087, 152.28119295691, 42.2538812075353, 38.8441241787968,
34.1236100210406, 1.70044444906159e-12, -2.34425196482277e-12, -3.33012480759054e-12
#>
#> Beginning fit attempt 1 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Lowest minimum so far:    -2729.43541395448
#>  Not all eigenvalues of the Hessian are positive:  29525739.4036878, 28656971.1045355,
23524038.5888871, 112732.579764377, 97113.2565793016, 92650.5162867426, 21754.0106222094,
18545.8878406483, 17400.1252515249, 773.951878436291, 706.497197444325, 630.610668162412,
183.908394629741, 171.593994560775, 152.236457680157, 42.2582365519817, 38.7628126698638,
34.0740821733034, 6.42636490295432e-12, -8.47332480338435e-13, -3.98697272899216e-12
#>
#> Beginning fit attempt 2 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  29525739.4036878, 28656971.1045355,
23524038.5888871, 112732.579764377, 97113.2565793016, 92650.5162867426, 21754.0106222094,
18545.8878406483, 17400.1252515249, 773.951878436291, 706.497197444325, 630.610668162412,
183.908394629741, 171.593994560775, 152.236457680157, 42.2582365519817, 38.7628126698638,
34.0740821733034, 6.42636490295432e-12, -8.47332480338435e-13, -3.98697272899216e-12
#>
#> Beginning fit attempt 3 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 4 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 5 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 6 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 7 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 8 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 9 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 10 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 11 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 12 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 13 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 14 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 15 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 16 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 17 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 18 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 19 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 20 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 21 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 22 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 23 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 24 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 25 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 26 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 27 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 28 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 29 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 30 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 31 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 32 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 33 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#> 
#> Beginning fit attempt 34 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 35 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 36 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 37 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt worse than current best:   -2118.67542758709 vs -2729.43541395448
#> 
#> Beginning fit attempt 38 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 39 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 40 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 41 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 42 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 43 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 44 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 45 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 46 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 47 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 48 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 49 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 50 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 51 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 52 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 53 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 54 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 55 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 56 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 57 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 58 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 59 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 60 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 61 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 62 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 63 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 64 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 65 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 66 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 67 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 68 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 69 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 70 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 71 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 72 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 73 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 74 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 75 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 76 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 77 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 78 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 79 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 80 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 81 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 82 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 83 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 84 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 85 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  29525752.9666683, 28656968.5917813,
23524031.7456787, 112732.573178788, 97113.185961381, 92650.5800326792, 21753.9658645009,
18545.8794716071, 17400.0937147527, 774.002572786348, 706.49978858165, 630.605464617067,
183.94595413935, 171.621650393459, 152.242025814493, 42.1947371691126, 38.8138921151226,
34.0123820921972, 2.18014568300062e-12, -1.44774408305754e-12, -6.54308686894429e-12
#>
#> Beginning fit attempt 86 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 87 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 88 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 89 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 90 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 91 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 92 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 93 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 94 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 95 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 96 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>  Not all eigenvalues of the Hessian are positive:  29525424.3740263, 28656192.1353671,
23521777.457814, 112732.496607133, 97108.0681925297, 92644.4023273249, 21754.6994937067,
18545.5973558333, 17398.6199842651, 773.914176351699, 706.542662201255, 630.635116542177,
183.995676663451, 171.761721220577, 152.288913703191, 42.2361494311368, 38.8284640468874,
34.1167827846123, 1.19270916320823e-13, -3.28637018716316e-13, -1.22266861608956e-11
#>
#> Beginning fit attempt 97 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 98 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 99 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 100 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 101 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 102 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 103 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 104 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 105 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 106 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 107 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 108 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 109 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 110 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 111 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 112 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 113 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 114 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 115 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 116 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 117 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 118 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 119 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 120 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 121 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  29525731.6654124, 28656980.6477568,
23524032.3215943, 112732.543752917, 97113.1910000656, 92650.4416743279, 21753.9726286604,
18545.8776631126, 17400.1234794011, 773.996408006877, 706.503983054209, 630.567227788484,
183.889366080743, 171.606906885686, 152.172292028496, 42.1813664383487, 38.6793951601944,
33.99044645774, 1.27491866742675e-12, 2.75095396979202e-14, -9.47100562267938e-12
#>
#> Beginning fit attempt 122 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 123 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 124 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 125 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 126 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 127 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 128 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 129 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 130 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 131 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

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#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 132 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 133 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 134 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 135 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 136 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 137 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 138 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 139 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 140 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt worse than current best:   -2728.54059444917 vs -2729.43541395448
#>
#> Beginning fit attempt 141 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 142 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 143 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 144 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 145 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 146 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 147 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 148 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 149 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 150 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 151 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 152 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 153 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 154 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 155 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 156 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 157 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 158 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 159 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 160 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 161 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 162 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 163 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 164 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 165 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 166 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 167 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 168 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 169 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 170 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 171 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 172 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 173 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 174 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 175 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 176 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 177 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 178 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 179 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 180 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 181 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 182 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 183 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 184 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 185 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 186 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 187 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  29525752.6893492, 28657006.4949832,
23524042.0641589, 112732.655770551, 97113.2411446401, 92650.5825028155, 21754.0260804419,
18545.9240603504, 17400.1165271194, 773.901332262521, 706.555797643372, 630.600710767218,
183.932929969888, 171.623915249545, 152.252218021026, 42.2314874552012, 38.7673811624087,
34.0436296286726, 1.20870733474713e-12, 3.16604430285028e-13, -1.85060719981669e-12
#>
#> Beginning fit attempt 188 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 189 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 190 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 191 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 192 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 193 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 194 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 195 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 196 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 197 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  29525776.3093818, 28657005.4157419,
23524050.7189449, 112732.672927899, 97113.3406639605, 92650.5789666207, 21754.0519843677,
18546.013808846, 17400.1463090269, 773.845203405697, 706.559912754821, 630.643797289186,
183.99636493422, 171.704459179023, 152.296489916983, 42.2499140271278, 38.7929079963935,
34.1372956273287, 2.20319256722074e-12, -1.93249969169462e-12, -6.4435332074409e-12
#>
#> Beginning fit attempt 198 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 199 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 200 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 201 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 202 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 203 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 204 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 205 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 206 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 207 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 208 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 209 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 210 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 211 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 212 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 213 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 214 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 215 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 216 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 217 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  29525681.2766191, 28656911.8553312,
23524024.7870554, 112732.426823932, 97113.0044749928, 92650.4165063898, 21754.0453366966,
18545.8904442053, 17400.1354292545, 773.903113709991, 706.546334803289, 630.658146787804,
184.000972343073, 171.726837001815, 152.230196167844, 42.2261479217203, 38.8061158480239,
34.1106877206319, 9.26902588430926e-13, 4.73666362373431e-13, -7.1521904717445e-12
#>
#> Beginning fit attempt 218 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 219 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

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```
#>
#> Beginning fit attempt 220 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 221 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 222 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 223 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 224 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 225 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 226 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 227 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  29525732.6967698, 28656995.3341651,
23524111.8436261, 112732.642676843, 97113.4236852902, 92650.5800513445, 21754.0209243418,
18545.9467836208, 17400.1969193416, 773.900899659893, 706.560947452983, 630.63979061426,
183.977110290003, 171.658767405281, 152.293304867674, 42.2683123471094, 38.7748320833108,
34.1516771914644, 1.23511766732951e-12, -4.37679307477045e-12, -1.50653161153345e-11
#>
#> Beginning fit attempt 228 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 229 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 230 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 231 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 232 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 233 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 234 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 235 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 236 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 237 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 238 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 239 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 240 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 241 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 242 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 243 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 244 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 245 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 246 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 247 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 248 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 249 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 250 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 251 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 252 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 253 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 254 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 255 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 256 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 257 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 258 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 259 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 260 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 261 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 262 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 263 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 264 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 265 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 266 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 267 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 268 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 269 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 270 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 271 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 272 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 273 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 274 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 275 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 276 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>  Not all eigenvalues of the Hessian are positive:  29525774.2742276, 28656974.3144534,
23524041.8917209, 112732.663070488, 97113.2702892803, 92650.5277697711, 21754.0486675566,
18545.9558254882, 17400.1083275489, 773.957914120081, 706.520360214726, 630.606494583494,
183.965344277368, 171.666029307214, 152.292891212582, 42.2500615637655, 38.7815933426087,
34.0811812913957, 5.45941486602377e-13, -2.3554338614575e-12, -1.08708088907713e-11
#> 
#> Beginning fit attempt 277 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 278 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 279 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 280 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
#> 
#> Beginning fit attempt 281 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#> 
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 282 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 283 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 284 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 285 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 286 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 287 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 288 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 289 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 290 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 291 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 292 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 293 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 294 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 295 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 296 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 297 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 298 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 299 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 300 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 301 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 302 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 303 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 304 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 305 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 306 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 307 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 308 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 309 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 310 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 311 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 312 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 313 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 314 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 315 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 316 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 317 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
```

```
#>
#> Beginning fit attempt 318 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 319 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 320 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>   Not all eigenvalues of the Hessian are positive:  29526377.5653, 28657141.942266,
23524054.6949102, 112734.404723958, 97113.7504174984, 92651.5117654489, 21754.2814228633,
18546.383719249, 17400.2551668503, 773.864526368043, 706.592136502396, 630.668711829206,
183.953579190376, 171.628739139824, 152.270536943342, 42.2595330442058, 38.7816235708072,
34.1427801371917, 1.37937848002029e-11, -6.90642831551642e-13, -3.48394766343624e-12
#>
#> Beginning fit attempt 321 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 322 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 323 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 324 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 325 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>   Fit attempt generated errors
#>
#> Beginning fit attempt 326 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
```

```
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 327 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#>  Fit attempt generated errors
#>
#> Beginning fit attempt 328 of at maximum 1000 extra tries
#> Running CTVAR with 21 parameters
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=-2729.4354 (started at 84.166179)  (329 attempt(s):
15 valid, 314 errors)
#>  Start values from best fit:
#> -0.205068957250406,0.881044110247211,-0.376755110350864,-0.147030474727215,-0.542921370914795,0.8
#> test-fitCTVARMx-fit-ct-var-id-mx-sigma-full
#> Running CTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 15 parameters
#>
#>  Lowest minimum so far:   -2708.30352549539
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=-2708.3035 (started at -2583.5637)  (1 attempt(s):
1 valid, 0 errors)
#>  Start values from best fit:
#> -0.534241206420914,0.62797339469317,-0.434553823990626,0.0533435092912926,-0.189553489184932,0.86
#> Running CTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 15 parameters
#>
#>  Lowest minimum so far:   -2729.43541395449
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=-2729.4354 (started at -2584.9163)  (1 attempt(s):
1 valid, 0 errors)
```

```
#> Start values from best fit:
#> -0.205071078209191,0.88104367367791,-0.376750228145059,-0.147028539743142,-0.542917489941515,0.85
#>
#> Means of the estimated paramaters per individual.
#>        phi_11        phi_21        phi_31        phi_12        phi_22
#> -0.3696561423  0.7545085342 -0.4056520261 -0.0468425152 -0.3662354896
#>        phi_32        phi_13        phi_23        phi_33       sigma_11
#>  0.8612711545  0.0388481598 -0.0747622926 -0.8654204220  0.0971285185
#>      sigma_21      sigma_22      sigma_31      sigma_32      sigma_33
#>  0.0009342611  0.1021725684 -0.0035821148 -0.0026620320  0.1005236058
#>
#> Estimated paramaters per individual.
#>           phi_11    phi_21    phi_31     phi_12     phi_22    phi_32
#> [1,] -0.5342412 0.6279734 -0.4345538  0.05334351 -0.1895535 0.8656379
#> [2,] -0.2050711 0.8810437 -0.3767502 -0.14702854 -0.5429175 0.8569044
#>            phi_13      phi_23     phi_33   sigma_11     sigma_21   sigma_22
#> [1,] -0.04057728 -0.24885244 -0.7448651 0.10016898  0.004029849 0.10757830
#> [2,]  0.11827360  0.09932785 -0.9859757 0.09408806 -0.002161327 0.09676684
#>           sigma_31     sigma_32   sigma_33
#> [1,] -0.0005085985 -0.002368596 0.09337775
#> [2,] -0.0066556310 -0.002955468 0.10766946
#> Test passed

#> Running CTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 15 parameters
#>
#>  Lowest minimum so far:   -2708.30352549542
#>
#> Solution found
```

```
#>
#>  Solution found!   Final fit=-2708.3035 (started at -2692.6342)  (1 attempt(s):
#> 1 valid, 0 errors)
#>  Start values from best fit:
#> -0.534241439090794,0.627973836182731,-0.434554104324778,0.0533436206892379,-0.189553553245162,0.8
#> Running CTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 15 parameters
#>
#>  Lowest minimum so far:   -2729.43541395448
#>
#> Solution found
```

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```
#>
#>  Solution found!    Final fit=-2729.4354 (started at -2715.8485)  (1 attempt(s):
1 valid, 0 errors)
#>  Start values from best fit:
#> -0.205071165693674,0.881043783235328,-0.376750185855582,-0.147028678756531,-0.542917492518065,0.8
#>
#> Means of the estimated paramaters per individual.
#>        phi_11         phi_21         phi_31         phi_12         phi_22
#> -0.3696563024  0.7545088097 -0.4056521451 -0.0468425290 -0.3662355229
#>        phi_32         phi_13         phi_23         phi_33       sigma_11
#>  0.8612712273  0.0388481828 -0.0747623322 -0.8654204659  0.0971285260
#>      sigma_21       sigma_22       sigma_31       sigma_32       sigma_33
#>  0.0009342544  0.1021725758 -0.0035821156 -0.0026620324  0.1005236009
#>
#> Estimated paramaters per individual.
#>          phi_11    phi_21    phi_31     phi_12     phi_22    phi_32
#> [1,] -0.5342414 0.6279738 -0.4345541  0.05334362 -0.1895536 0.8656381
#> [2,] -0.2050712 0.8810438 -0.3767502 -0.14702868 -0.5429175 0.8569043
#>          phi_13    phi_23    phi_33 sigma_11    sigma_21 sigma_22
#> [1,] -0.04057732 -0.24885250 -0.7448653 0.10016898  0.004029840 0.10757833
#> [2,]  0.11827368  0.09932784 -0.9859756 0.09408807 -0.002161331 0.09676682
#>          sigma_31    sigma_32   sigma_33
#> [1,] -0.0005085965 -0.002368602 0.09337775
#> [2,] -0.0066556348 -0.002955463 0.10766945
#> Test passed
#>
#> test-fitCTVARMx-fit-ct-var-id-mx-theta-diag
#> Running CTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 15 parameters
#>
#>  Lowest minimum so far:   -2707.31197420096
#>
#> Solution found

#>
#>  Solution found!    Final fit=-2707.312 (started at 59.80475)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> -0.545403553270473,0.655780191333924,-0.431937927519135,0.068469691036237,-0.195215180793901,0.85
#> Running CTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 15 parameters
```

```
#>
#>  Lowest minimum so far:    -2726.62588111855
#>
#> Solution found


#>
#>  Solution found!    Final fit=-2726.6259 (started at 84.166179)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> -0.213899106730518,0.861185478973193,-0.405561987990989,-0.131907351800459,-0.523808434338325,0.8

#>
#> Means of the estimated paramaters per individual.
#>          phi_11         phi_21         phi_31         phi_12         phi_22
#>  -3.796513e-01   7.584828e-01  -4.187500e-01  -3.171883e-02  -3.595118e-01
#>          phi_32         phi_13         phi_23         phi_33        sigma_11
#>   8.622209e-01   2.195191e-02  -8.616802e-02  -8.662899e-01   9.721588e-02
#>        sigma_22       sigma_33       theta_11       theta_22       theta_33
#>   1.021101e-01   1.005314e-01   2.225074e-308   1.424465e-12   2.395002e-13
#>
#> Estimated paramaters per individual.
#>          phi_11     phi_21     phi_31     phi_12     phi_22     phi_32
#> [1,] -0.5454036 0.6557802 -0.4319379  0.06846969 -0.1952152 0.8591466
#> [2,] -0.2138991 0.8611855 -0.4055620 -0.13190735 -0.5238084 0.8652951
#>          phi_13     phi_23     phi_33  sigma_11  sigma_22  sigma_33
#> [1,] -0.05179217 -0.25075666 -0.7402836 0.10027194 0.10763471 0.09333229
#> [2,]  0.09569600  0.07842062 -0.9922962 0.09415982 0.09658557 0.10773048
#>           theta_11     theta_22     theta_33
#> [1,] 2.225074e-308 2.848888e-12 4.787923e-13
#> [2,] 2.225074e-308 4.055903e-17 2.080635e-16
#> Test passed

#> Running CTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 15 parameters
#>
#>  Lowest minimum so far:    -2707.31197426421
#>
#> Solution found


#>
#>  Solution found!    Final fit=-2707.312 (started at -34.74447)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> -0.545411047455776,0.655791769968899,-0.431918087958712,0.0684714732476686,-0.195223148449835,0.8
```

```
#> Running CTVAR with 15 parameters
#>
#> Beginning initial fit attempt
#> Running CTVAR with 15 parameters
#>
#>  Lowest minimum so far:    -2726.62588111983
#>
#> Solution found
```

```
#>
#>  Solution found!    Final fit=-2726.6259 (started at -26.856599)  (1 attempt(s):
1 valid, 0 errors)
#>  Start values from best fit:
#> -0.213900157034642,0.861186935515007,-0.405561579767654,-0.131907487288541,-0.523808807245147,0.8
#>
#> Means of the estimated paramaters per individual.
#>        phi_11         phi_21         phi_31         phi_12         phi_22
#> -3.796556e-01  7.584894e-01 -4.187398e-01 -3.171801e-02 -3.595160e-01
#>        phi_32         phi_13         phi_23         phi_33        sigma_11
#>  8.622161e-01  2.195551e-02 -8.616503e-02 -8.662912e-01  9.721582e-02
#>      sigma_22       sigma_33       theta_11       theta_22        theta_33
#>  1.021101e-01  1.005314e-01  1.583135e-17  1.049599e-17  4.394859e-18
#>
#> Estimated paramaters per individual.
#>          phi_11     phi_21     phi_31     phi_12     phi_22     phi_32
#> [1,] -0.5454110 0.6557918 -0.4319181  0.06847147 -0.1952231 0.8591365
#> [2,] -0.2139002 0.8611869 -0.4055616 -0.13190749 -0.5238088 0.8652957
#>            phi_13     phi_23     phi_33   sigma_11  sigma_22   sigma_33
#> [1,] -0.05178742 -0.25075041 -0.7402854 0.10027177 0.1076347 0.09333225
#> [2,]  0.09569844  0.07842035 -0.9922970 0.09415987 0.0965856 0.10773052
#>          theta_11       theta_22       theta_33
#> [1,] 8.404687e-20 2.225074e-308 2.225074e-308
#> [2,] 3.157865e-17  2.099199e-17  8.789718e-18
#> Test passed

#> test-fitCTVARMx-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
```

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```
#>
#>  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:
#> -0.213900151770005,0.861186849501166,-0.405561461480421,-0.131907517647472,-0.523808720935904,0.8

#>
#> Means of the estimated paramaters per individual.
#>      phi_11      phi_21      phi_31      phi_12      phi_22      phi_32
#> -0.37965548  0.75848928 -0.41873978 -0.03171808 -0.35951595  0.86221607
#>      phi_13      phi_23      phi_33    sigma_11    sigma_22    sigma_33
#>  0.02195558 -0.08616503 -0.86629112  0.09721581  0.10211013  0.10053139
#>
#> Estimated paramaters per individual.
#>           phi_11     phi_21     phi_31      phi_12     phi_22     phi_32
#> [1,] -0.5454108  0.6557917 -0.4319181  0.06847136 -0.1952232  0.8591364
#> [2,] -0.2139002  0.8611868 -0.4055615 -0.13190752 -0.5238087  0.8652957
#>            phi_13      phi_23     phi_33    sigma_11   sigma_22   sigma_33
#> [1,] -0.05178730 -0.25075038 -0.7402852  0.10027176 0.10763468 0.09333226
#> [2,]  0.09569846  0.07842031 -0.9922970  0.09415987 0.09658558 0.10773053
#> Test passed

#> 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 -2692.6342)  (1 attempt(s):  1
valid, 0 errors)
#>  Start values from best fit:
#> -0.545410822968464,0.655791720204795,-0.431918099282865,0.0684713331800128,-0.195223149243982,0.8
#> 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 -2715.8485)  (1 attempt(s):
1 valid, 0 errors)
#>  Start values from best fit:
#> -0.213900127082883,0.861186936784289,-0.405561515713572,-0.131907503993629,-0.523808771434401,0.8

#>
#> Means of the estimated paramaters per individual.
#>      phi_11      phi_21      phi_31      phi_12      phi_22      phi_32
#> -0.37965548  0.75848933 -0.41873981 -0.03171809 -0.35951596  0.86221611
#>      phi_13      phi_23      phi_33    sigma_11    sigma_22    sigma_33
#>  0.02195557 -0.08616504 -0.86629114  0.09721581  0.10211014  0.10053139
#>
#> Estimated paramaters per individual.
#>           phi_11    phi_21     phi_31      phi_12     phi_22    phi_32
#> [1,] -0.5454108 0.6557917 -0.4319181  0.06847133 -0.1952231 0.8591364
#> [2,] -0.2139001 0.8611869 -0.4055615 -0.13190750 -0.5238088 0.8652958
#>           phi_13      phi_23     phi_33    sigma_11   sigma_22   sigma_33
#> [1,] -0.05178729 -0.25075041 -0.7402852 0.10027176 0.10763469 0.09333226
#> [2,]  0.09569843  0.07842032 -0.9922971 0.09415987 0.09658559 0.10773052
#> Test passed

#> test-fitCTVARMx-fit-ct-var-mx-theta-null
#> Error in mxFitFunctionMultigroup(paste0("CTVAR", "_", ids)):  could not find function
"mxFitFunctionMultigroup"
```

## Environment

```r
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/