semmcci: Internal Tests

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Tests

```
\#> test-semmcci-mc-latent-med-defined-none
#> Test passed
#> Test passed
#> Test passed
\#>\ test-semmcci-mc-latent-med-defined
#> Test passed
#> Test passed
#> Test passed
\#> test-semmcci-mc-latent-med-std-defined-none
#> Test passed
#> Test passed
#> Test passed
\#> test-semmcci-mc-latent-med-std-defined
#> Test passed
#> Test passed
#> Test passed
#> test-semmcci-mc-moment
#> Test passed
\#> test-semmcci-mc-simple-med-defined-equality
#> Test passed
#> Test passed
#> Test passed
\textit{\#> test-semmcci-mc-simple-med-defined-inequality}
#> Test passed
#> Test passed
#> Test passed
```

```
\#> test-semmcci-mc-simple-med-defined-mean structure
#> Test passed
#> Test passed
#> Test passed
\#> test-semmcci-mc-simple-med-defined-mi-amelia
#> Test passed
\#> test-semmcci-mc-simple-med-defined-mi-list
#> Test passed
\#> test-semmcci-mc-simple-med-defined-mi-mice
#> Test passed
\#> test-semmcci-mc-simple-med-defined-none
#> Test passed
#> Test passed
#> Test passed
\#> test-semmcci-mc-simple-med-defined
#> Test passed
#> Test passed
#> Test passed
\#>\ test-semmcci-mc-simple-med-std-defined-mean structure
#> Test passed
#> Test passed
#> Test passed
\textit{\#> test-semmcci-mc-simple-med-std-defined-none-random-x}
#> Test passed
#> Test passed
#> Test passed
\#> test-semmcci-mc-simple-med-std-defined-none
#> Test passed
#> Test passed
#> Test passed
\textit{\#> test-semmcci-mc-simple-med-std-defined}
#> Test passed
#> Test passed
#> Test passed
```

#> test-semmcci-mc-methods #> Monte Carlo Confidence Intervals est #> se R 0.05% 0.5% 2.5% 97.5% 99.5% 99.95% #> visual=~x1 1.0000 0.0000 100 1.0000 1.0000 1.0000 1.0000 1.0000 #> visual=~x2 0.5535 0.1055 100 0.3239 0.3335 0.3800 0.7712 0.8101 0.8181 0.7294 0.1156 100 0.4031 0.4330 0.4840 0.9437 0.9592 0.9665 #> visual=~x3 1.0000 0.0000 100 1.0000 1.0000 1.0000 1.0000 1.0000 #> textual=~x4 #> textual=~x5 1.1131 0.0653 100 0.9232 0.9426 0.9968 1.2237 1.2397 1.2417 #> textual=~x6 0.9261 0.0535 100 0.7842 0.8002 0.8335 1.0366 1.0795 1.1110 #> speed=~x7 1.0000 0.0000 100 1.0000 1.0000 1.0000 1.0000 1.0000 1.1800 0.1808 100 0.7931 0.8021 0.8528 1.5187 1.6487 1.7423 #> speed=~x8 1.0815 0.1601 100 0.6776 0.6898 0.7671 1.3824 1.4355 1.4604 #> speed=~x9 #> x1~~x1 0.5491 0.1051 100 0.3141 0.3328 0.3891 0.7386 0.7638 0.7682 #> x2~~x2 1.1338 0.1113 100 0.8727 0.8888 0.9097 1.3083 1.3331 1.3436 #> x3~~x3 0.8443 0.0944 100 0.5973 0.6148 0.6539 1.0091 1.0726 1.0911 #> x4~~x4 0.3712 0.0572 100 0.2463 0.2531 0.2731 0.4867 0.5284 0.5466 #> x5~~x5 0.4463 0.0578 100 0.3185 0.3237 0.3313 0.5532 0.5858 0.6082 #> x6~~x6 0.3562 0.0431 100 0.2561 0.2664 0.2887 0.4455 0.4523 0.4523 #> x7~~x7 0.7994 0.0821 100 0.5745 0.5776 0.6262 0.9496 0.9888 1.0151 #> x8~~x8 0.4877 0.0764 100 0.3015 0.3035 0.3411 0.6317 0.6466 0.6513 #> x9~~x9 0.5661 0.0675 100 0.3764 0.3871 0.4181 0.6656 0.6991 0.7065 #> visual~~visual 0.8093 0.1401 100 0.4536 0.4554 0.5189 0.9988 1.0407 1.0618 #> textual~~textual 0.9795 0.0967 100 0.7772 0.7781 0.8128 1.2006 1.2371 1.2490 #> speed~~speed 0.3837 0.0905 100 0.1434 0.1802 0.2260 0.5495 0.6007 0.6021 #> visual~~textual 0.4082 0.0692 100 0.2111 0.2224 0.2657 0.5312 0.5931 0.6085 #> visual~~speed 0.2622 0.0582 100 0.0797 0.0986 0.1586 0.3844 0.4204 0.4329 0.1735 0.0515 100 0.0486 0.0545 0.0804 0.2707 0.3250 0.3428 #> textual~~speed #> Monte Carlo Confidence Intervals (Multiple Imputation Estimates) se R 0.05% 0.5% 2.5% 97.5% 99.5% 99.95% est #> visual=~x1 1.0000 0.0000 100 1.0000 1.0000 1.0000 1.0000 1.0000 #> visual=~x2 0.5535 0.1034 100 0.2848 0.3177 0.3661 0.7722 0.8358 0.8691 #> visual=~x3 0.7294 0.1243 100 0.3888 0.4237 0.4952 0.9635 0.9906 0.9937 #> textual=~x4 1.0000 0.0000 100 1.0000 1.0000 1.0000 1.0000 1.0000 1.1131 0.0637 100 0.9490 0.9596 0.9892 1.2298 1.2525 1.2538 #> textual=~x5 0.9261 0.0582 100 0.7825 0.7920 0.8156 1.0269 1.0458 1.0568 #> textual=~x6 #> speed=~x7 1.0000 0.0000 100 1.0000 1.0000 1.0000 1.0000 1.0000 1.1800 0.1790 100 0.5521 0.6582 0.8095 1.4798 1.5591 1.6098 #> speed=~x8 #> speed=~x9 1.0815 0.1408 100 0.7237 0.7669 0.8453 1.3499 1.3802 1.4023 #> x1~~x1 0.5491 0.1141 100 0.2339 0.2775 0.3408 0.8138 0.8539 0.8870 #> x2~~x2 1.1338 0.1108 100 0.8568 0.8632 0.9240 1.3122 1.3776 1.4061 #> x3~~x3 0.8443 0.0989 100 0.6247 0.6307 0.6643 1.0325 1.0595 1.0780 #> x4~~x4 0.3712 0.0485 100 0.2654 0.2666 0.2712 0.4680 0.4852 0.4905 0.4463 0.0508 100 0.3344 0.3382 0.3551 0.5465 0.5847 0.6115 #> x5~~x5 #> x6~~x6 0.3562 0.0425 100 0.2686 0.2690 0.2731 0.4492 0.4580 0.4612 #> x7~~x7 0.7994 0.0825 100 0.6206 0.6258 0.6386 0.9510 0.9729 0.9754

```
#> x8~~x8
                  0.4877 0.0770 100 0.3237 0.3327 0.3624 0.6327 0.6752 0.6755
                  0.5661 0.0688 100 0.3701 0.3796 0.4317 0.6742 0.7086 0.7179
#> x9~~x9
#> visual~~visual 0.8093 0.1516 100 0.3785 0.4050 0.4447 1.0596 1.1210 1.1701
#> textual~~textual 0.9795 0.1156 100 0.6339 0.6692 0.7677 1.1880 1.2440 1.2732
#> speed~~speed 0.3837 0.0803 100 0.2004 0.2087 0.2360 0.5439 0.6014 0.6236
#> visual~~textual 0.4082 0.0666 100 0.2259 0.2422 0.2658 0.5229 0.5576 0.5700
#> visual~~speed
                  0.2622 0.0575 100 0.1088 0.1163 0.1614 0.3786 0.3856 0.3890
#> textual~~speed
                 0.1735 0.0517 100 0.0072 0.0262 0.0744 0.2527 0.2907 0.2955
#> Standardized Monte Carlo Confidence Intervals
                     est
                            se R 0.05% 0.5%
                                                2.5% 97.5% 99.5% 99.95%
#> visual=~x1
                  0.7719 0.0548 100 0.6319 0.6392 0.6499 0.8398 0.8612 0.8727
                  0.4236 0.0594 100 0.2772 0.2870 0.3123 0.5464 0.5895 0.6084
#> visual=~x2
#> visual=~x3
                  0.5811 0.0616 100 0.3690 0.3976 0.4456 0.6888 0.7179 0.7306
                 0.8516 0.0246 100 0.7861 0.7909 0.8007 0.8967 0.9003 0.9024
#> textual=~x4
                  0.8551 0.0221 100 0.7814 0.7925 0.8087 0.8934 0.9045 0.9099
#> textual=~x5
#> textual=~x6
                  0.8380 0.0221 100 0.7878 0.7896 0.7956 0.8788 0.8923 0.9014
#> speed=~x7
                  0.5695 0.0564 100 0.4084 0.4292 0.4614 0.6693 0.6888 0.6956
#> speed=~x8
                  0.7230 0.0492 100 0.5769 0.5805 0.6196 0.8005 0.8306 0.8483
#> speed=~x9
                 0.6650 0.0556 100 0.5054 0.5162 0.5551 0.7700 0.7875 0.8004
#> x1~~x1
                 0.4042 0.0825 100 0.2383 0.2581 0.2947 0.5776 0.5914 0.6007
#> x2~~x2
                 0.8206 0.0516 100 0.6298 0.6520 0.7014 0.9024 0.9175 0.9232
#> x3~~x3
                 0.6623 0.0696 100 0.4663 0.4845 0.5256 0.8014 0.8409 0.8637
#> x4~~x4
                 0.2748 0.0418 100 0.1856 0.1895 0.1959 0.3589 0.3744 0.3820
#> x5~~x5
                 0.2689 0.0376 100 0.1721 0.1818 0.2018 0.3459 0.3718 0.3893
                 0.2977 0.0370 100 0.1875 0.2037 0.2277 0.3670 0.3765 0.3793
#> x6~~x6
#> x7~~x7
                 0.6757 0.0632 100 0.5162 0.5255 0.5520 0.7871 0.8152 0.8331
#> x8~~x8
                 0.4772 0.0702 100 0.2804 0.3097 0.3593 0.6160 0.6630 0.6671
#> x9~~x9
                 0.5578 0.0733 100 0.3594 0.3796 0.4071 0.6916 0.7334 0.7446
#> textual~~textual 1.0000 0.0000 100 1.0000 1.0000 1.0000 1.0000 1.0000
#> speed~~speed 1.0000 0.0000 100 1.0000 1.0000 1.0000 1.0000 1.0000
#> visual~~textual 0.4585 0.0607 100 0.2877 0.3063 0.3333 0.5652 0.6111 0.6242
                  0.4705 0.0717 100 0.2595 0.2926 0.3489 0.6090 0.6352 0.6551
#> visual~~speed
#> Standardized Monte Carlo Confidence Intervals
                     est
                            se R 0.05% 0.5% 2.5% 97.5% 99.5% 99.95%
#> visual=~x1
                  0.7719 0.0594 100 0.5917 0.5998 0.6125 0.8552 0.8929 0.9126
#> visual=~x2
                  0.4236 0.0622 100 0.2674 0.2718 0.2892 0.5339 0.5495 0.5506
#> visual=~x3
                  0.5811 0.0670 100 0.3661 0.3894 0.4191 0.6828 0.7062 0.7083
                  0.8516 0.0235 100 0.7842 0.7898 0.7973 0.8850 0.8952 0.8996
#> textual=~x4
#> textual=~x5
                  0.8551 0.0206 100 0.8020 0.8057 0.8154 0.8944 0.8978 0.9005
                  0.8380 0.0242 100 0.7649 0.7703 0.7857 0.8760 0.8840 0.8850
#> textual=~x6
#> speed=~x7
                  0.5695 0.0509 100 0.4371 0.4375 0.4567 0.6713 0.6969 0.7076
                  0.7230 0.0600 100 0.4792 0.5144 0.5772 0.8030 0.8142 0.8193
#> speed=~x8
#> speed=~x9
                  0.6650 0.0496 100 0.5584 0.5604 0.5665 0.7606 0.7780 0.7868
                  0.4042 0.0879 100 0.1670 0.2022 0.2686 0.6248 0.6401 0.6499
#> x1~~x1
```

```
#> x2~~x2
               0.8206 0.0518 100 0.6968 0.6981 0.7149 0.9163 0.9261 0.9285
                  0.6623 0.0750 100 0.4983 0.5013 0.5338 0.8244 0.8477 0.8659
#> x3~~x3
                 0.2748 0.0396 100 0.1908 0.1986 0.2168 0.3642 0.3762 0.3850
#> x4~~x4
#> x5~~x5
                 0.2689 0.0353 100 0.1891 0.1939 0.2001 0.3351 0.3509 0.3568
#> x6~~x6
                  0.2977 0.0402 100 0.2168 0.2185 0.2327 0.3826 0.4067 0.4150
#> x7~~x7
                 0.6757 0.0575 100 0.4992 0.5142 0.5493 0.7913 0.8086 0.8090
#> x8~~x8
                 0.4772 0.0825 100 0.3288 0.3371 0.3552 0.6667 0.7338 0.7701
#> x9~~x9
                  0.5578 0.0660 100 0.3809 0.3946 0.4214 0.6791 0.6859 0.6882
#> textual~~textual 1.0000 0.0000 100 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000
#> speed~~speed 1.0000 0.0000 100 1.0000 1.0000 1.0000 1.0000 1.0000
#> visual~~textual 0.4585 0.0686 100 0.2822 0.2982 0.3417 0.6046 0.6279 0.6317
#> visual~~speed 0.4705 0.0862 100 0.2635 0.2871 0.3150 0.6327 0.7343 0.7356
#> textual~~speed 0.2830 0.0804 100 0.0143 0.0439 0.1265 0.4323 0.4603 0.4712
#> Monte Carlo Confidence Intervals
#> Monte Carlo Confidence Intervals (Multiple Imputation Estimates)
#> Standardized Monte Carlo Confidence Intervals
#> Standardized Monte Carlo Confidence Intervals
\#> test-semmcci-npd
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> test-semmcci-zzz-coverage
#> [[1]]
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#> [[1]][[2]]$value
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#>
#>
#> [[1]][[2]]$visible
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```

```
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#>
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#> [1] TRUE
#>
#>
#> [[1]][[5]]
#> [[1]][[5]]$value
#> [[1]][[5]]$value[[1]]
#> Monte Carlo Confidence Intervals
#>
                                     se R 0.05%
                                                        0.5%
                                                                  2.5%
                             est
#> ses=~education
                           1.0000 0.0000 20000 1.0000
                                                       1.0000
                                                                1.0000
                          5.2195 0.4231 20000 3.8564 4.1337
#> ses=~sei
                                                              4.3988
#> alien67=~anomia67
                          1.0000 0.0000 20000 1.0000 1.0000
                                                              1.0000
                          0.9787 0.0619 20000 0.7824
#> alien67=~powerless67
                                                      0.8217
                                                              0.8590
                                                      1.0000
#> alien71=~anomia71
                          1.0000 0.0000 20000 1.0000
                                                               1.0000
#> alien71=~powerless71
                         0.9221 0.0598 20000 0.7309
                                                      0.7710 0.8046
#> alien71~alien67
                          0.6070 0.0508 20000
                                             0.4382
                                                      0.4708
                                                              0.5062
#> alien71~ses
                         -0.2268 0.0523 20000 -0.3920 -0.3607
                                                               -0.3295
#> alien67~ses
                         -0.5750 0.0563 20000 -0.7599 -0.7223
                                                              -0.6856
#> anomia67~~anomia71
                         1.6229 0.3151 20000
                                              0.6017
                                                      0.8266
                                                               1.0093
-0.1822
#> education~~education
                          2.8013 0.5056 20000
                                              1.1857
                                                       1.5229
                                                               1.8109
#> sei~~sei
                         264.5971 18.2660 20000 204.7500 217.8910 228.6739
#> anomia67~~anomia67
                         4.7307 0.4556 20000 3.2663 3.5667 3.8382
#> powerless67~~powerless67 2.5634 0.4038 20000 1.2439
                                                       1.5117
                                                               1.7665
#> anomia71~~anomia71
                          4.3992 0.5183 20000 2.7290
                                                       3.0881
                                                                3.3966
#> powerless71~~powerless71 3.0699 0.4366 20000 1.6260
                                                      1.9447
                                                                2.2244
#> ses~~ses
                          6.7983 0.6464 20000 4.7312
                                                       5.1152
                                                                5.5269
#> alien67~~alien67
                          4.8415 0.4663 20000 3.3137 3.6526 3.9274
```

```
#> alien71~~alien71 4.0832 0.4039 20000 2.7546 3.0389 3.2862
#>
                          97.5% 99.5% 99.95%
#> ses=~education
                         1.0000 1.0000 1.0000
#> ses=~sei
                         6.0607 6.3247 6.6606
#> alien67=~anomia67
                        1.0000 1.0000 1.0000
1.1016 1.1391 1.1907
#> alien67=~powerless67
#> alien71=~anomia71
                         1.0000 1.0000 1.0000
#> alien71=~powerless71
                         1.0397 1.0794 1.1236
                          0.7051 0.7344
                                         0.7759
#> alien71~alien67
#> alien71~ses
                         -0.1233 -0.0905 -0.0545
#> alien67~ses
                         -0.4648 -0.4320 -0.4002
#> powerless67~~powerless71  0.8409  1.0070  1.1923
#> education~~education 3.7998 4.1020 4.5343
#> sei~~sei
                       300.1412 311.8073 323.4907
#> anomia67~~anomia67
                        5.6268 5.9093 6.2769
#> powerless67~~powerless67 3.3470 3.6063
                                         3.8540
#> anomia71~~anomia71 5.4215 5.7447 6.1556
#> powerless71~~powerless71 3.9307 4.1965 4.4544
                          8.0509 8.4790 9.0009
#> ses~~ses
#> alien67~~alien67
                         5.7524 6.0259 6.3139
#> alien71~~alien71
                         4.8758 5.1437 5.4091
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```

```
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#>
#> [[1]][[14]]
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#>
```

```
#> [[1]][[17]]
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#>
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#>
#>
#> [[1]][[18]]
#> [[1]][[18]]$value
#> [[1]][[18]]$value[[1]]
                       2.5% 97.5%
#> visual=~x1
                 0.6125182 0.8552047
#> speed=~x8
                 0.5771977 0.8029691
                 0.5665158 0.7606303
#> speed=~x9
#> x1~~x1
#> x2~~x2
                 0.2686003 0.6248090
                 0.7149348 0.9163181
#> x3~~x3
                 0.5337643 0.8243722
#> x4~~x4
                 0.2168270 0.3642443
                 0.2001172 0.3351218
#> x5~~x5
#> x6~~x6
                 0.2326766 0.3826304
#> x7~~x7
                 0.5492509 0.7912928
#> x8~~x8
#> x9~~x9
                 0.3552280 0.6666878
                 0.4214411 0.6790557
#> visual~~visual 1.0000000 1.0000000
#> textual~~textual 1.0000000 1.0000000
#> speed~~speed 1.0000000 1.0000000
#> visual~~textual 0.3417123 0.6045818
#> visual~~speed 0.3149689 0.6326969
#> textual~~speed    0.1264945    0.4323215
#>
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#> [[1]][[19]]
```

```
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#> [[1]][[19]]$value[[1]]
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#>
                     у1
                                   у2
#>
      [1,] -0.6244996970 -1.4153342002 -1.564189609
      [2,] -1.5094558168 -2.2072418029 -3.107187404
#>
#>
      [3,] -0.5106057961  0.1442702867 -0.556651044
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#>
#>
#> [[1]][[19]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[20]]
#> [[1]][[20]]$value
#> [[1]][[20]]$value[[1]]
#> [[1]][[20]]$value[[1]]$M
#> [1] 2
#>
#> [[1]][[20]]$value[[1]]$est
#> [1] 0 0 0
#> [[1]][[20]]$value[[1]]$within
#> [,1] [,2] [,3]
```

```
#> [1,] 1 0 0
#> [2,] 0 1 0
#> [3,] 0 0 1
#>
#> [[1]][[20]]$value[[1]]$between
#> [,1] [,2] [,3]
#> [1,] 0 0 0
#> [2,] 0 0 0 #> [3,] 0 0 0
#> [[1]][[20]]$value[[1]]$total
#> [,1] [,2] [,3]
#> [1,] 1 0 0
#> [2,] 0 1 0
#> [3,] 0 0 1
#> [[1]][[20]]$value[[1]]$ariv
#> [1] NA
#>
#> [[1]][[20]]$value[[1]]$total_adj
#> [1] NA
#>
#>
#>
#> [[1]][[20]]$visible
#> [1] TRUE
```

Environment

```
ls()
#> [1] "i" "root" "tex_file"
```

Class

```
#> [[1]]
#> [1] "character"

#>
#> [[2]]
#> [1] "root_criterion"
#>
#> [[3]]
#> [1] "character"
```

References

R Core Team. (2023). R: A language and environment for statistical computing. R Foundation for Statistical Computing. Vienna, Austria. https://www.R-project.org/