

A Verbose smacof

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1 Input

1.1 delta

##	[,1]	[,2]	[,3]	[,4]
## [1,]	+0.0000000000	+3.0000000000	+2.0000000000	+3.0000000000
## [2,]	+3.0000000000	+0.0000000000	+1.0000000000	+2.0000000000
## [3,]	+2.0000000000	+1.0000000000	+0.0000000000	+3.0000000000
## [4,]	+3.0000000000	+2.0000000000	+3.0000000000	+0.0000000000

1.2 weights

##	[,1]	[,2]	[,3]	[,4]
## [1,]	+0.0000000000	+1.0000000000	+1.0000000000	+1.0000000000
## [2,]	+1.0000000000	+0.0000000000	+1.0000000000	+1.0000000000
## [3,]	+1.0000000000	+1.0000000000	+0.0000000000	+1.0000000000
## [4,]	+1.0000000000	+1.0000000000	+1.0000000000	+0.0000000000

2 Normalize

2.1 nweights

##	[,1]	[,2]	[,3]	[,4]
## [1,]	+0.0000000000	+0.0833333333	+0.0833333333	+0.0833333333
## [2,]	+0.0833333333	+0.0000000000	+0.0833333333	+0.0833333333
## [3,]	+0.0833333333	+0.0833333333	+0.0000000000	+0.0833333333
## [4,]	+0.0833333333	+0.0833333333	+0.0833333333	+0.0000000000

2.2 ndelta

##	[,1]	[,2]	[,3]	[,4]
## [1,]	+0.0000000000	+1.2247448714	+0.8164965809	+1.2247448714

```
## [2,] +1.2247448714 +0.0000000000 +0.4082482905 +0.8164965809
## [3,] +0.8164965809 +0.4082482905 +0.0000000000 +1.2247448714
## [4,] +1.2247448714 +0.8164965809 +1.2247448714 +0.0000000000
```

3 Vmatrix

3.1 vmat

```
##      [,1]      [,2]      [,3]      [,4]
## [1,] +0.2500000000 -0.0833333333 -0.0833333333 -0.0833333333
## [2,] -0.0833333333 +0.2500000000 -0.0833333333 -0.0833333333
## [3,] -0.0833333333 -0.0833333333 +0.2500000000 -0.0833333333
## [4,] -0.0833333333 -0.0833333333 -0.0833333333 +0.2500000000
```

3.2 vinv

```
##      [,1]      [,2]      [,3]      [,4]
## [1,] +2.2500000000 -0.7500000000 -0.7500000000 -0.7500000000
## [2,] -0.7500000000 +2.2500000000 -0.7500000000 -0.7500000000
## [3,] -0.7500000000 -0.7500000000 +2.2500000000 -0.7500000000
## [4,] -0.7500000000 -0.7500000000 -0.7500000000 +2.2500000000
```

4 Initialize

4.1 xini

```
##      [,1]      [,2]
## [1,] +0.6212655007 +0.4082482905
## [2,] -0.2985956365 -0.4082482905
## [3,] +0.2985956365 -0.4082482905
## [4,] -0.6212655007 +0.4082482905
```

4.2 dini

```
##      1      2      3      4
## 1 +0.0000000000 +1.2299638932 +0.8779422008 +1.2425310015
## 2 +1.2299638932 +0.0000000000 +0.5971912731 +0.8779422008
## 3 +0.8779422008 +0.5971912731 +0.0000000000 +1.2299638932
## 4 +1.2425310015 +0.8779422008 +1.2299638932 +0.0000000000
```

4.3 xold

```
##      [,1]      [,2]
## [1,] +0.5967072366 +0.3921104729
```

```
## [2,] -0.2867923246 -0.3921104729
## [3,] +0.2867923246 -0.3921104729
## [4,] -0.5967072366 +0.3921104729
```

4.4 dold

```
##      1          2          3          4
## 1 +0.0000000000 +1.1813441355 +0.8432376560 +1.1934144733
## 2 +1.1813441355 +0.0000000000 +0.5735846492 +0.8432376560
## 3 +0.8432376560 +0.5735846492 +0.0000000000 +1.1813441355
## 4 +1.1934144733 +0.8432376560 +1.1813441355 +0.0000000000
```

4.5 bold

```
##      1          2          3          4
## 1 +0.2526065660 -0.0863948697 -0.0806906348 -0.0855210615
## 2 -0.0863948697 +0.2263979197 -0.0593124152 -0.0806906348
## 3 -0.0806906348 -0.0593124152 +0.2263979197 -0.0863948697
## 4 -0.0855210615 -0.0806906348 -0.0863948697 +0.2526065660
```

4.6 sold

```
## [1] +0.0055858539
```

5 First Iteration

5.1 xnew1

```
##      [,1]      [,2]
## [1,] +0.6101973991 +0.3930958570
## [2,] -0.2560298680 -0.3930958570
## [3,] +0.2560298680 -0.3930958570
## [4,] -0.6101973991 +0.3930958570
```

5.2 dnew1

```
##      1          2          3          4
## 1 +0.0000000000 +1.1698064325 +0.8622830459 +1.2203947983
## 2 +1.1698064325 +0.0000000000 +0.5120597360 +0.8622830459
## 3 +0.8622830459 +0.5120597360 +0.0000000000 +1.1698064325
## 4 +1.2203947983 +0.8622830459 +1.1698064325 +0.0000000000
```

5.3 bnew1

```
##      1          2          3          4
## 1  +0.2497857556 -0.0872469750 -0.0789084072 -0.0836303734
## 2  -0.0872469750 +0.2325942926 -0.0664389103 -0.0789084072
## 3  -0.0789084072 -0.0664389103 +0.2325942926 -0.0872469750
## 4  -0.0836303734 -0.0789084072 -0.0872469750 +0.2497857556
```

5.4 snew1

```
## [1] +0.0035041674
```

6 Second Iteration

6.1 xnew2

```
##      [,1]      [,2]
## [1,] +0.6167537315 +0.3918899543
## [2,] -0.2449488115 -0.3918899543
## [3,] +0.2449488115 -0.3918899543
## [4,] -0.6167537315 +0.3918899543
```

6.2 dnew2

```
##      1          2          3          4
## 1  +0.0000000000 +1.1648357042 +0.8674963076 +1.2335074629
## 2  +1.1648357042 +0.0000000000 +0.4898976231 +0.8674963076
## 3  +0.8674963076 +0.4898976231 +0.0000000000 +1.1648357042
## 4  +1.2335074629 +0.8674963076 +1.1648357042 +0.0000000000
```

6.3 bnew2

```
##      1          2          3          4
## 1  +0.2487948391 -0.0876192859 -0.0784342033 -0.0827413499
## 2  -0.0876192859 +0.2354979798 -0.0694444906 -0.0784342033
## 3  -0.0784342033 -0.0694444906 +0.2354979798 -0.0876192859
## 4  -0.0827413499 -0.0784342033 -0.0876192859 +0.2487948391
```

6.4 snew2

```
## [1] +0.0031872596
```

7 Third Iteration

7.1 xnew3

```
##      [,1]      [,2]
## [1,] +0.6201781703 +0.3904481658
## [2,] -0.2410806891 -0.3904481658
## [3,] +0.2410806891 -0.3904481658
## [4,] -0.6201781703 +0.3904481658
```

7.2 dnew3

```
##      1      2      3      4
## 1 +0.0000000000 +1.1625686662 +0.8680518309 +1.2403563407
## 2 +1.1625686662 +0.0000000000 +0.4821613781 +0.8680518309
## 3 +0.8680518309 +0.4821613781 +0.0000000000 +1.1625686662
## 4 +1.2403563407 +0.8680518309 +1.1625686662 +0.0000000000
```

7.3 bnew3

```
##      1      2      3      4
## 1 +0.2484586307 -0.0877901457 -0.0783840081 -0.0822844769
## 2 -0.0877901457 +0.2367328763 -0.0705587225 -0.0783840081
## 3 -0.0783840081 -0.0705587225 +0.2367328763 -0.0877901457
## 4 -0.0822844769 -0.0783840081 -0.0877901457 +0.2484586307
```

7.4 snew3

```
## [1] +0.0031257518
```

8 Fourth Iteration

8.1 xnew4

```
##      [,1]      [,2]
## [1,] +0.6221618803 +0.3892943614
## [2,] -0.2397466548 -0.3892943614
## [3,] +0.2397466548 -0.3892943614
## [4,] -0.6221618803 +0.3892943614
```

8.2 dnew4

```
##      1      2      3      4
## 1 +0.0000000000 +1.1615019251 +0.8674340344 +1.2443237606
## 2 +1.1615019251 +0.0000000000 +0.4794933096 +0.8674340344
```

```
## 3 +0.8674340344 +0.4794933096 +0.0000000000 +1.1615019251
## 4 +1.2443237606 +0.8674340344 +1.1615019251 +0.0000000000
```

8.3 bnew4

```
##      1          2          3          4
## 1 +0.2483327275 -0.0878707735 -0.0784398341 -0.0820221198
## 2 -0.0878707735 +0.2372619435 -0.0709513359 -0.0784398341
## 3 -0.0784398341 -0.0709513359 +0.2372619435 -0.0878707735
## 4 -0.0820221198 -0.0784398341 -0.0878707735 +0.2483327275
```

8.4 snew4

```
## [1] +0.0031079624
```

9 Fifth Iteration

9.1 xnew5

```
##      [,1]      [,2]
## [1,] +0.6233856874 +0.3884626907
## [2,] -0.2392820211 -0.3884626907
## [3,] +0.2392820211 -0.3884626907
## [4,] -0.6233856874 +0.3884626907
```

9.2 dnew5

```
##      1          2          3          4
## 1 +0.0000000000 +1.1609516027 +0.8666883378 +1.2467713749
## 2 +1.1609516027 +0.0000000000 +0.4785640423 +0.8666883378
## 3 +0.8666883378 +0.4785640423 +0.0000000000 +1.1609516027
## 4 +1.2467713749 +0.8666883378 +1.1609516027 +0.0000000000
```

9.3 bnew5

```
##      1          2          3          4
## 1 +0.2482808473 -0.0879124266 -0.0785073235 -0.0818610971
## 2 -0.0879124266 +0.2375088582 -0.0710891080 -0.0785073235
## 3 -0.0785073235 -0.0710891080 +0.2375088582 -0.0879124266
## 4 -0.0818610971 -0.0785073235 -0.0879124266 +0.2482808473
```

9.4 snew5

```
## [1] +0.0031011765
```