D:\anaconda\python.exe "D:\PyCharm 2022.1.4\plugins\python\helpers\pydev\pydevconsole.py" --mode=client --port=9346

import sys; print('Python %s on %s' % (sys.version, sys.platform))

sys.path.extend(['D:\\数模\\Pre\_For\_Mathematical\_Modeling\\题目\\2022华数杯\\codes', 'D:/数模/Pre\_For\_Mathematical\_Modeling/题目/2022华数杯/codes'])

Python 3.7.4 (default, Aug 9 2019, 18:34:13) [MSC v.1915 64 bit (AMD64)]

Type 'copyright', 'credits' or 'license' for more information

IPython 7.27.0 -- An enhanced Interactive Python. Type '?' for help.

PyDev console: using IPython 7.27.0

Python 3.7.4 (default, Aug 9 2019, 18:34:13) [MSC v.1915 64 bit (AMD64)] on win32

runfile('D:/数模/Pre\_For\_Mathematical\_Modeling/题目/2022华数杯/codes/3/阻滞增长/最值搜索.py', wdir='D:/数模/Pre\_For\_Mathematical\_Modeling/题目/2022华数杯/codes/3/阻滞增长')

[0, 0]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 2 variables are exactly at the bounds

At iterate 0 f= -4.00000D+01 |proj g|= 2.81506D+00

At iterate 1 f= -4.06416D+01 |proj g|= 2.32780D+00

At iterate 2 f= -4.31204D+01 |proj g|= 7.78002D-01

At iterate 3 f= -4.32061D+01 |proj g|= 1.17655D-01

At iterate 4 f= -4.32102D+01 |proj g|= 1.17981D-01

At iterate 5 f= -4.32686D+01 |proj g|= 4.15481D-01

At iterate 6 f= -4.33841D+01 |proj g|= 8.97450D-01

At iterate 7 f= -4.37508D+01 |proj g|= 1.83484D+00

At iterate 8 f= -4.48466D+01 |proj g|= 2.99063D+00

At iterate 9 f= -5.59448D+01 |proj g|= 3.40395D+00

At iterate 10 f= -8.35682D+01 |proj g|= 9.53888D+00

At iterate 11 f= -9.93568D+01 |proj g|= 1.80563D-02

At iterate 12 f= -9.95065D+01 |proj g|= 1.12550D-02

At iterate 13 f= -9.97956D+01 |proj g|= 2.31921D-03

At iterate 14 f= -9.98907D+01 |proj g|= 7.51754D-04

At iterate 15 f= -9.99468D+01 |proj g|= 2.04636D-04

At iterate 16 f= -9.99731D+01 |proj g|= 8.81082D-05

At iterate 17 f= -9.99867D+01 |proj g|= 4.40541D-05

At iterate 18 f= -9.99934D+01 |proj g|= 2.13165D-05

At iterate 19 f= -9.99966D+01 |proj g|= 1.13688D-05

At iterate 20 f= -9.99984D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 20 23 20 0 0 5.684D-06 -1.000D+02

F = -99.998376982232870

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99837698223287

True

[ 11.82403008 3063.90592404] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -5.51034D+01 |proj g|= 3.26800D+00

At iterate 1 f= -5.73869D+01 |proj g|= 1.39839D+00

At iterate 2 f= -5.75549D+01 |proj g|= 1.54721D-01

At iterate 3 f= -5.76345D+01 |proj g|= 2.92418D-01

At iterate 4 f= -5.84408D+01 |proj g|= 1.33442D+00

At iterate 5 f= -6.03270D+01 |proj g|= 1.71783D+00

At iterate 6 f= -6.61195D+01 |proj g|= 2.52343D+00

At iterate 7 f= -8.28139D+01 |proj g|= 4.49036D+00

At iterate 8 f= -9.54973D+01 |proj g|= 9.69425D-01

At iterate 9 f= -9.73907D+01 |proj g|= 4.69201D-01

At iterate 10 f= -9.87313D+01 |proj g|= 1.72162D-01

At iterate 11 f= -9.93309D+01 |proj g|= 6.86001D-02

At iterate 12 f= -9.96576D+01 |proj g|= 2.55497D-02

At iterate 13 f= -9.98236D+01 |proj g|= 9.56533D-03

At iterate 14 f= -9.99112D+01 |proj g|= 3.79856D-03

At iterate 15 f= -9.99561D+01 |proj g|= 2.25384D-03

At iterate 16 f= -9.99766D+01 |proj g|= 1.02318D-04

At iterate 17 f= -9.99901D+01 |proj g|= 1.36424D-04

At iterate 18 f= -9.99923D+01 |proj g|= 2.41587D-05

At iterate 19 f= -9.99953D+01 |proj g|= 1.42110D-05

At iterate 20 f= -9.99977D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 20 26 21 0 0 7.106D-06 -1.000D+02

F = -99.997667211591505

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9976672115915

True

[ 15.05019143 2953.22833098] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -6.66402D+01 |proj g|= 6.00008D+00

At iterate 1 f= -7.17746D+01 |proj g|= 7.44961D-01

At iterate 2 f= -7.17997D+01 |proj g|= 4.79429D-01

At iterate 3 f= -7.18166D+01 |proj g|= 1.24675D-01

At iterate 4 f= -7.18192D+01 |proj g|= 1.24494D-01

At iterate 5 f= -7.18539D+01 |proj g|= 4.10849D-01

At iterate 6 f= -7.19182D+01 |proj g|= 8.56406D-01

At iterate 7 f= -7.21147D+01 |proj g|= 1.70053D+00

At iterate 8 f= -7.25979D+01 |proj g|= 2.93993D+00

At iterate 9 f= -7.38331D+01 |proj g|= 4.71782D+00

At iterate 10 f= -7.65910D+01 |proj g|= 6.63051D+00

At iterate 11 f= -8.19354D+01 |proj g|= 7.60165D+00

At iterate 12 f= -9.04138D+01 |proj g|= 5.03073D+00

At iterate 13 f= -9.56657D+01 |proj g|= 1.85017D+00

At iterate 14 f= -9.76295D+01 |proj g|= 7.59304D-01

At iterate 15 f= -9.87683D+01 |proj g|= 2.74086D-01

At iterate 16 f= -9.93592D+01 |proj g|= 9.69038D-02

At iterate 17 f= -9.96739D+01 |proj g|= 3.36968D-02

At iterate 18 f= -9.98367D+01 |proj g|= 1.33781D-02

At iterate 19 f= -9.99201D+01 |proj g|= 8.52225D-03

At iterate 20 f= -9.99535D+01 |proj g|= 1.53479D-04

At iterate 21 f= -9.99778D+01 |proj g|= 7.38972D-05

At iterate 22 f= -9.99888D+01 |proj g|= 3.69486D-05

At iterate 23 f= -9.99943D+01 |proj g|= 5.96856D-05

At iterate 24 f= -9.99977D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 24 26 24 0 0 7.106D-06 -1.000D+02

F = -99.997707843626827

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99770784362683

True

[ 21.91054834 2958.61745091] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -7.32160D+01 |proj g|= 8.05809D+00

At iterate 1 f= -8.20451D+01 |proj g|= 4.87968D-01

At iterate 2 f= -8.20684D+01 |proj g|= 8.10331D-02

At iterate 3 f= -8.20699D+01 |proj g|= 8.12931D-02

At iterate 4 f= -8.20751D+01 |proj g|= 1.06770D-01

At iterate 5 f= -8.20883D+01 |proj g|= 2.88452D-01

At iterate 6 f= -8.21230D+01 |proj g|= 5.78463D-01

At iterate 7 f= -8.22122D+01 |proj g|= 1.01970D+00

At iterate 8 f= -8.24404D+01 |proj g|= 1.65539D+00

At iterate 9 f= -8.30111D+01 |proj g|= 2.42216D+00

At iterate 10 f= -8.43970D+01 |proj g|= 3.05691D+00

At iterate 11 f= -8.76193D+01 |proj g|= 2.93481D+00

At iterate 12 f= -9.37255D+01 |proj g|= 1.64626D+00

At iterate 13 f= -9.75005D+01 |proj g|= 7.19510D-01

At iterate 14 f= -9.87547D+01 |proj g|= 3.80611D-01

At iterate 15 f= -9.93942D+01 |proj g|= 1.95548D-01

At iterate 16 f= -9.96970D+01 |proj g|= 1.02398D-01

At iterate 17 f= -9.98486D+01 |proj g|= 5.31472D-02

At iterate 18 f= -9.99241D+01 |proj g|= 2.73744D-02

At iterate 19 f= -9.99623D+01 |proj g|= 1.38087D-02

At iterate 20 f= -9.99808D+01 |proj g|= 6.99458D-03

At iterate 21 f= -9.99906D+01 |proj g|= 3.45324D-03

At iterate 22 f= -9.99952D+01 |proj g|= 1.74509D-03

At iterate 23 f= -9.99978D+01 |proj g|= 8.29914D-04

At iterate 24 f= -9.99987D+01 |proj g|= 4.12115D-04

At iterate 25 f= -9.99995D+01 |proj g|= 1.30740D-04

At iterate 26 f= -9.99999D+01 |proj g|= 1.13687D-05

At iterate 27 f= -1.00000D+02 |proj g|= 1.42109D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 27 30 27 0 0 1.421D-06 -1.000D+02

F = -99.999993848527552

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999384852755

True

[ 65.83502507 5000. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -7.68150D+01 |proj g|= 8.99555D+00

At iterate 1 f= -8.83805D+01 |proj g|= 7.40928D-01

At iterate 2 f= -8.84705D+01 |proj g|= 2.10525D-01

At iterate 3 f= -8.84785D+01 |proj g|= 4.90814D-02

At iterate 4 f= -8.84822D+01 |proj g|= 4.93884D-02

At iterate 5 f= -8.84983D+01 |proj g|= 1.77360D-01

At iterate 6 f= -8.85525D+01 |proj g|= 4.52486D-01

At iterate 7 f= -8.86822D+01 |proj g|= 8.20005D-01

At iterate 8 f= -8.90163D+01 |proj g|= 1.29083D+00

At iterate 9 f= -8.98269D+01 |proj g|= 1.68718D+00

At iterate 10 f= -9.17648D+01 |proj g|= 1.66709D+00

At iterate 11 f= -9.59835D+01 |proj g|= 8.70217D-01

At iterate 12 f= -9.82771D+01 |proj g|= 4.01353D-01

At iterate 13 f= -9.91464D+01 |proj g|= 2.11068D-01

At iterate 14 f= -9.95813D+01 |proj g|= 1.09635D-01

At iterate 15 f= -9.97905D+01 |proj g|= 5.77259D-02

At iterate 16 f= -9.98956D+01 |proj g|= 3.00531D-02

At iterate 17 f= -9.99476D+01 |proj g|= 1.55097D-02

At iterate 18 f= -9.99737D+01 |proj g|= 7.83871D-03

At iterate 19 f= -9.99874D+01 |proj g|= 3.86677D-03

At iterate 20 f= -9.99931D+01 |proj g|= 1.86731D-03

At iterate 21 f= -9.99968D+01 |proj g|= 8.79652D-04

At iterate 22 f= -9.99988D+01 |proj g|= 4.03588D-04

At iterate 23 f= -9.99993D+01 |proj g|= 1.23634D-04

At iterate 24 f= -9.99996D+01 |proj g|= 5.82645D-05

At iterate 25 f= -9.99999D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 25 28 25 0 0 9.948D-06 -1.000D+02

F = -99.999921221242474

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99992122124247

True

[ 50.43263253 4053.99983354] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -7.90218D+01 |proj g|= 9.34953D+00

At iterate 1 f= -9.20560D+01 |proj g|= 8.35851D-01

At iterate 2 f= -9.22430D+01 |proj g|= 5.27749D-01

At iterate 3 f= -9.23391D+01 |proj g|= 1.68758D-01

At iterate 4 f= -9.23473D+01 |proj g|= 3.00559D-02

At iterate 5 f= -9.23479D+01 |proj g|= 2.99465D-02

At iterate 6 f= -9.23501D+01 |proj g|= 4.09827D-02

At iterate 7 f= -9.23551D+01 |proj g|= 1.02978D-01

At iterate 8 f= -9.23690D+01 |proj g|= 2.13291D-01

At iterate 9 f= -9.24053D+01 |proj g|= 3.92384D-01

At iterate 10 f= -9.25041D+01 |proj g|= 6.92532D-01

At iterate 11 f= -9.27723D+01 |proj g|= 1.16029D+00

At iterate 12 f= -9.34959D+01 |proj g|= 1.72619D+00

At iterate 13 f= -9.51843D+01 |proj g|= 1.83420D+00

At iterate 14 f= -9.74242D+01 |proj g|= 1.12644D+00

At iterate 15 f= -9.87612D+01 |proj g|= 5.69284D-01

At iterate 16 f= -9.93955D+01 |proj g|= 2.86985D-01

At iterate 17 f= -9.97021D+01 |proj g|= 1.45383D-01

At iterate 18 f= -9.98520D+01 |proj g|= 7.40357D-02

At iterate 19 f= -9.99262D+01 |proj g|= 3.77185D-02

At iterate 20 f= -9.99631D+01 |proj g|= 1.91804D-02

At iterate 21 f= -9.99818D+01 |proj g|= 9.56391D-03

At iterate 22 f= -9.99908D+01 |proj g|= 4.75779D-03

At iterate 23 f= -9.99956D+01 |proj g|= 2.54943D-03

At iterate 24 f= -9.99979D+01 |proj g|= 9.50706D-04

At iterate 25 f= -9.99987D+01 |proj g|= 5.52802D-04

At iterate 26 f= -9.99995D+01 |proj g|= 2.92744D-04

At iterate 27 f= -9.99998D+01 |proj g|= 1.25056D-04

At iterate 28 f= -9.99998D+01 |proj g|= 1.42109D-05

At iterate 29 f= -9.99998D+01 |proj g|= 1.42109D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 29 47 29 0 0 1.421D-05 -1.000D+02

F = -99.999802013885216

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99980201388522

True

[ 9.51652647 3721.30221888] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[0, 600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.05496D+01 |proj g|= 9.47451D+00

At iterate 1 f= -9.44385D+01 |proj g|= 5.64539D-01

At iterate 2 f= -9.45577D+01 |proj g|= 4.52832D-01

At iterate 3 f= -9.47274D+01 |proj g|= 1.72939D-01

At iterate 4 f= -9.47423D+01 |proj g|= 4.94026D-02

At iterate 5 f= -9.47443D+01 |proj g|= 1.90340D-02

At iterate 6 f= -9.47449D+01 |proj g|= 1.89658D-02

At iterate 7 f= -9.47476D+01 |proj g|= 4.12626D-02

At iterate 8 f= -9.47537D+01 |proj g|= 9.03725D-02

At iterate 9 f= -9.47711D+01 |proj g|= 1.77793D-01

At iterate 10 f= -9.48171D+01 |proj g|= 3.23543D-01

At iterate 11 f= -9.49453D+01 |proj g|= 5.69224D-01

At iterate 12 f= -9.53056D+01 |proj g|= 9.31000D-01

At iterate 13 f= -9.62673D+01 |proj g|= 1.19255D+00

At iterate 14 f= -9.79226D+01 |proj g|= 8.45642D-01

At iterate 15 f= -9.90046D+01 |proj g|= 4.43056D-01

At iterate 16 f= -9.95098D+01 |proj g|= 2.30382D-01

At iterate 17 f= -9.97581D+01 |proj g|= 1.18831D-01

At iterate 18 f= -9.98792D+01 |proj g|= 6.16765D-02

At iterate 19 f= -9.99397D+01 |proj g|= 3.18536D-02

At iterate 20 f= -9.99697D+01 |proj g|= 1.64505D-02

At iterate 21 f= -9.99850D+01 |proj g|= 8.30482D-03

At iterate 22 f= -9.99929D+01 |proj g|= 4.09557D-03

At iterate 23 f= -9.99964D+01 |proj g|= 1.94120D-03

At iterate 24 f= -9.99983D+01 |proj g|= 1.09281D-03

At iterate 25 f= -9.99989D+01 |proj g|= 1.77636D-04

At iterate 26 f= -9.99999D+01 |proj g|= 1.70530D-05

At iterate 27 f= -1.00000D+02 |proj g|= 2.84217D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 27 30 27 0 0 2.842D-06 -1.000D+02

F = -99.999990427827584

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999042782758

True

[ 10.31193375 4736.47136809] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.16793D+01 |proj g|= 9.51761D+00

At iterate 1 f= -8.96083D+01 |proj g|= 3.41833D+00

At iterate 2 f= -9.47735D+01 |proj g|= 1.04710D+00

At iterate 3 f= -9.56537D+01 |proj g|= 5.78036D-01

At iterate 4 f= -9.61933D+01 |proj g|= 2.32194D-01

At iterate 5 f= -9.63011D+01 |proj g|= 2.51049D-02

At iterate 6 f= -9.63024D+01 |proj g|= 1.26960D-02

At iterate 7 f= -9.63133D+01 |proj g|= 2.73289D-02

At iterate 8 f= -9.63726D+01 |proj g|= 1.39940D-01

At iterate 9 f= -9.65295D+01 |proj g|= 3.22116D-01

At iterate 10 f= -9.70104D+01 |proj g|= 5.65494D-01

At iterate 11 f= -9.81748D+01 |proj g|= 5.12122D-01

At iterate 12 f= -9.91440D+01 |proj g|= 2.52058D-01

At iterate 13 f= -9.95751D+01 |proj g|= 1.28091D-01

At iterate 14 f= -9.97911D+01 |proj g|= 6.42885D-02

At iterate 15 f= -9.98965D+01 |proj g|= 3.24874D-02

At iterate 16 f= -9.99480D+01 |proj g|= 1.66139D-02

At iterate 17 f= -9.99742D+01 |proj g|= 8.38725D-03

At iterate 18 f= -9.99872D+01 |proj g|= 4.21636D-03

At iterate 19 f= -9.99934D+01 |proj g|= 2.15152D-03

At iterate 20 f= -9.99968D+01 |proj g|= 1.08855D-03

At iterate 21 f= -9.99984D+01 |proj g|= 5.18696D-04

At iterate 22 f= -9.99992D+01 |proj g|= 3.01270D-04

At iterate 23 f= -9.99993D+01 |proj g|= 3.69482D-05

At iterate 24 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 24 29 24 0 0 0.000D+00 -1.000D+02

F = -99.999852529375147

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99985252937515

True

[ 11.82543494 3795.75346767] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

Warning: more than 10 function and gradient

evaluations in the last line search. Termination

may possibly be caused by a bad search direction.

[0, 800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.25329D+01 |proj g|= 9.53237D+00

At iterate 1 f= -9.48517D+01 |proj g|= 1.42884D+00

At iterate 2 f= -9.61666D+01 |proj g|= 7.51984D-01

At iterate 3 f= -9.69004D+01 |proj g|= 3.56359D-01

At iterate 4 f= -9.72193D+01 |proj g|= 1.72915D-01

At iterate 5 f= -9.73508D+01 |proj g|= 4.67395D-02

At iterate 6 f= -9.73585D+01 |proj g|= 2.14371D-02

At iterate 7 f= -9.73599D+01 |proj g|= 8.75814D-03

At iterate 8 f= -9.73704D+01 |proj g|= 2.34209D-02

At iterate 9 f= -9.74202D+01 |proj g|= 6.59526D-02

At iterate 10 f= -9.75859D+01 |proj g|= 1.22304D-01

At iterate 11 f= -9.79712D+01 |proj g|= 2.02708D-01

At iterate 12 f= -9.84289D+01 |proj g|= 2.93343D-01

At iterate 13 f= -9.89159D+01 |proj g|= 2.66530D-01

At iterate 14 f= -9.94752D+01 |proj g|= 1.47332D-01

At iterate 15 f= -9.97337D+01 |proj g|= 7.89257D-02

At iterate 16 f= -9.98676D+01 |proj g|= 4.07653D-02

At iterate 17 f= -9.99336D+01 |proj g|= 2.10861D-02

At iterate 18 f= -9.99671D+01 |proj g|= 1.07576D-02

At iterate 19 f= -9.99830D+01 |proj g|= 5.63176D-03

At iterate 20 f= -9.99921D+01 |proj g|= 2.69722D-03

At iterate 21 f= -9.99959D+01 |proj g|= 1.39551D-03

At iterate 22 f= -9.99981D+01 |proj g|= 6.79279D-04

At iterate 23 f= -9.99990D+01 |proj g|= 3.41060D-04

At iterate 24 f= -9.99997D+01 |proj g|= 1.39266D-04

At iterate 25 f= -9.99999D+01 |proj g|= 3.69482D-05

At iterate 26 f= -1.00000D+02 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 26 29 26 0 0 5.684D-06 -1.000D+02

F = -99.999977898681379

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997789868138

True

[ 58.1574249 4515.92501171] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.31780D+01 |proj g|= 9.53740D+00

At iterate 1 f= -9.72279D+01 |proj g|= 5.24842D-01

At iterate 2 f= -9.74570D+01 |proj g|= 4.00792D-01

At iterate 3 f= -9.78857D+01 |proj g|= 1.65119D-01

At iterate 4 f= -9.80236D+01 |proj g|= 8.58080D-02

At iterate 5 f= -9.80932D+01 |proj g|= 2.61537D-02

At iterate 6 f= -9.80994D+01 |proj g|= 1.16387D-02

At iterate 7 f= -9.81005D+01 |proj g|= 6.19309D-03

At iterate 8 f= -9.81040D+01 |proj g|= 1.04748D-02

At iterate 9 f= -9.81156D+01 |proj g|= 2.47667D-02

At iterate 10 f= -9.81601D+01 |proj g|= 5.17190D-02

At iterate 11 f= -9.82588D+01 |proj g|= 9.15378D-02

At iterate 12 f= -9.84143D+01 |proj g|= 1.59295D-01

At iterate 13 f= -9.86693D+01 |proj g|= 1.92111D-01

At iterate 14 f= -9.93266D+01 |proj g|= 1.27493D-01

At iterate 15 f= -9.96667D+01 |proj g|= 6.63235D-02

At iterate 16 f= -9.98342D+01 |proj g|= 3.39270D-02

At iterate 17 f= -9.99174D+01 |proj g|= 1.72804D-02

At iterate 18 f= -9.99589D+01 |proj g|= 8.77804D-03

At iterate 19 f= -9.99796D+01 |proj g|= 4.43805D-03

At iterate 20 f= -9.99894D+01 |proj g|= 2.31921D-03

At iterate 21 f= -9.99949D+01 |proj g|= 1.13971D-03

At iterate 22 f= -9.99973D+01 |proj g|= 5.94014D-04

At iterate 23 f= -9.99997D+01 |proj g|= 1.20792D-04

At iterate 24 f= -9.99998D+01 |proj g|= 5.11591D-05

At iterate 25 f= -9.99998D+01 |proj g|= 2.27374D-05

At iterate 26 f= -9.99998D+01 |proj g|= 1.70530D-05

At iterate 27 f= -9.99998D+01 |proj g|= 1.27898D-05

At iterate 28 f= -9.99998D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 28 32 28 0 0 8.527D-06 -1.000D+02

F = -99.999847844455275

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99984784445527

True

[ 45.12084787 3808.92764899] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 1000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.36620D+01 |proj g|= 9.53911D+00

At iterate 1 f= -9.83338D+01 |proj g|= 1.83601D-01

At iterate 2 f= -9.84642D+01 |proj g|= 1.11316D-01

At iterate 3 f= -9.85721D+01 |proj g|= 5.07384D-02

At iterate 4 f= -9.86150D+01 |proj g|= 2.29008D-02

At iterate 5 f= -9.86278D+01 |proj g|= 4.43378D-03

At iterate 6 f= -9.86311D+01 |proj g|= 5.12586D-03

At iterate 7 f= -9.86441D+01 |proj g|= 1.25965D-02

At iterate 8 f= -9.87344D+01 |proj g|= 3.57474D-02

At iterate 9 f= -9.88897D+01 |proj g|= 8.91930D-02

At iterate 10 f= -9.90767D+01 |proj g|= 1.06316D-01

At iterate 11 f= -9.96006D+01 |proj g|= 5.13538D-02

At iterate 12 f= -9.97934D+01 |proj g|= 2.70631D-02

At iterate 13 f= -9.98991D+01 |proj g|= 1.34179D-02

At iterate 14 f= -9.99498D+01 |proj g|= 6.77573D-03

At iterate 15 f= -9.99748D+01 |proj g|= 3.43903D-03

At iterate 16 f= -9.99872D+01 |proj g|= 1.76357D-03

At iterate 17 f= -9.99937D+01 |proj g|= 8.78231D-04

At iterate 18 f= -9.99966D+01 |proj g|= 4.64695D-04

At iterate 19 f= -9.99988D+01 |proj g|= 1.79057D-04

At iterate 20 f= -9.99992D+01 |proj g|= 5.82645D-05

At iterate 21 f= -9.99999D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 21 24 21 0 0 1.421D-06 -1.000D+02

F = -99.999884922211763

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99988492221176

True

[ 43.6189944 3877.04032824] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 1100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.40221D+01 |proj g|= 9.53970D+00

At iterate 1 f= -9.89097D+01 |proj g|= 6.31218D-02

At iterate 2 f= -9.89280D+01 |proj g|= 5.29639D-02

At iterate 3 f= -9.89854D+01 |proj g|= 2.08018D-02

At iterate 4 f= -9.90025D+01 |proj g|= 9.62928D-03

At iterate 5 f= -9.90085D+01 |proj g|= 3.19463D-03

At iterate 6 f= -9.90095D+01 |proj g|= 3.19748D-03

At iterate 7 f= -9.90240D+01 |proj g|= 6.03961D-03

At iterate 8 f= -9.90745D+01 |proj g|= 1.81700D-02

At iterate 9 f= -9.91509D+01 |proj g|= 5.96685D-02

At iterate 10 f= -9.92453D+01 |proj g|= 5.48070D-02

At iterate 11 f= -9.97149D+01 |proj g|= 1.86077D-02

At iterate 12 f= -9.98451D+01 |proj g|= 1.04848D-02

At iterate 13 f= -9.99254D+01 |proj g|= 5.17844D-03

At iterate 14 f= -9.99630D+01 |proj g|= 2.63043D-03

At iterate 15 f= -9.99812D+01 |proj g|= 1.35856D-03

At iterate 16 f= -9.99907D+01 |proj g|= 6.86384D-04

At iterate 17 f= -9.99953D+01 |proj g|= 3.49587D-04

At iterate 18 f= -9.99974D+01 |proj g|= 1.96110D-04

At iterate 19 f= -9.99990D+01 |proj g|= 7.53175D-05

At iterate 20 f= -9.99995D+01 |proj g|= 3.41060D-05

At iterate 21 f= -9.99998D+01 |proj g|= 6.82121D-05

At iterate 22 f= -9.99998D+01 |proj g|= 6.82121D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 22 42 22 0 0 6.821D-05 -1.000D+02

F = -99.999836428586889

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99983642858689

True

[ 56.39626368 4174.47876317] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[0, 1200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.42880D+01 |proj g|= 9.53990D+00

At iterate 1 f= -9.92496D+01 |proj g|= 2.15664D-02

At iterate 2 f= -9.92583D+01 |proj g|= 1.67191D-02

At iterate 3 f= -9.92767D+01 |proj g|= 6.49152D-03

At iterate 4 f= -9.92826D+01 |proj g|= 2.33060D-03

At iterate 5 f= -9.92844D+01 |proj g|= 3.27987D-03

At iterate 6 f= -9.94025D+01 |proj g|= 3.72196D-02

At iterate 7 f= -9.98246D+01 |proj g|= 5.69861D-04

At iterate 8 f= -9.98926D+01 |proj g|= 3.51012D-04

At iterate 9 f= -9.99511D+01 |proj g|= 1.60584D-04

At iterate 10 f= -9.99748D+01 |proj g|= 8.24238D-05

At iterate 11 f= -9.99875D+01 |proj g|= 4.26330D-05

At iterate 12 f= -9.99941D+01 |proj g|= 1.98954D-05

At iterate 13 f= -9.99969D+01 |proj g|= 1.13688D-05

At iterate 14 f= -9.99987D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 14 20 14 0 0 4.263D-06 -1.000D+02

F = -99.998713811031081

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99871381103108

True

[ 12.26278361 3134.81990834] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 1300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.44830D+01 |proj g|= 9.53996D+00

At iterate 1 f= -9.94699D+01 |proj g|= 7.34701D-03

At iterate 2 f= -9.94740D+01 |proj g|= 5.13864D-03

At iterate 3 f= -9.94806D+01 |proj g|= 1.69679D-03

At iterate 4 f= -9.94832D+01 |proj g|= 1.83746D-03

At iterate 5 f= -9.94909D+01 |proj g|= 4.41105D-03

At iterate 6 f= -9.96051D+01 |proj g|= 5.60931D-02

At iterate 7 f= -9.98852D+01 |proj g|= 1.08002D-03

At iterate 8 f= -9.99286D+01 |proj g|= 6.19593D-04

At iterate 9 f= -9.99677D+01 |proj g|= 2.47269D-04

At iterate 10 f= -9.99832D+01 |proj g|= 1.15108D-04

At iterate 11 f= -9.99919D+01 |proj g|= 5.11591D-05

At iterate 12 f= -9.99956D+01 |proj g|= 2.55795D-05

At iterate 13 f= -9.99980D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 18 13 0 0 8.527D-06 -1.000D+02

F = -99.997989581614419

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99798958161442

True

[ 9.821508 2999.52207262] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 1400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.46254D+01 |proj g|= 9.53999D+00

At iterate 1 f= -9.96209D+01 |proj g|= 2.49400D-03

At iterate 2 f= -9.96231D+01 |proj g|= 1.49214D-03

At iterate 3 f= -9.96266D+01 |proj g|= 1.21078D-03

At iterate 4 f= -9.96282D+01 |proj g|= 3.20171D-03

At iterate 5 f= -9.96534D+01 |proj g|= 5.97709D-03

At iterate 6 f= -9.98860D+01 |proj g|= 3.72328D-04

At iterate 7 f= -9.99337D+01 |proj g|= 2.16007D-04

At iterate 8 f= -9.99687D+01 |proj g|= 1.02319D-04

At iterate 9 f= -9.99840D+01 |proj g|= 5.25807D-05

At iterate 10 f= -9.99922D+01 |proj g|= 2.55798D-05

At iterate 11 f= -9.99960D+01 |proj g|= 1.13688D-05

At iterate 12 f= -9.99977D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 18 12 0 0 8.527D-06 -1.000D+02

F = -99.997677415704260

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99767741570426

True

[ 12.59930406 2954.57430532] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

Warning: more than 10 function and gradient

evaluations in the last line search. Termination

may possibly be caused by a bad search direction.

[0, 1500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.47290D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.97275D+01 |proj g|= 8.95293D-04

At iterate 2 f= -9.97292D+01 |proj g|= 8.83925D-04

At iterate 3 f= -9.97314D+01 |proj g|= 8.71135D-04

At iterate 4 f= -9.97328D+01 |proj g|= 3.94067D-03

At iterate 5 f= -9.97636D+01 |proj g|= 1.52625D-03

At iterate 6 f= -9.99081D+01 |proj g|= 6.87805D-04

At iterate 7 f= -9.99500D+01 |proj g|= 3.78009D-04

At iterate 8 f= -9.99760D+01 |proj g|= 1.80478D-04

At iterate 9 f= -9.99877D+01 |proj g|= 9.37916D-05

At iterate 10 f= -9.99939D+01 |proj g|= 4.83169D-05

At iterate 11 f= -9.99969D+01 |proj g|= 2.27374D-05

At iterate 12 f= -9.99985D+01 |proj g|= 1.27898D-05

At iterate 13 f= -9.99991D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 21 13 0 0 8.527D-06 -1.000D+02

F = -99.999099449600635

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99909944960064

True

[ 10.05945458 3244.92150283] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 1600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.48042D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.98037D+01 |proj g|= 6.42337D-04

At iterate 2 f= -9.98061D+01 |proj g|= 6.32390D-04

At iterate 3 f= -9.98077D+01 |proj g|= 2.74838D-03

At iterate 4 f= -9.98083D+01 |proj g|= 9.27969D-04

At iterate 5 f= -9.98313D+01 |proj g|= 5.49966D-04

At iterate 6 f= -9.99139D+01 |proj g|= 3.33955D-04

At iterate 7 f= -9.99548D+01 |proj g|= 8.78231D-04

At iterate 8 f= -9.99747D+01 |proj g|= 1.56888D-03

At iterate 9 f= -9.99853D+01 |proj g|= 1.68114D-03

At iterate 10 f= -9.99929D+01 |proj g|= 7.02016D-04

At iterate 11 f= -9.99964D+01 |proj g|= 3.35376D-04

At iterate 12 f= -9.99980D+01 |proj g|= 1.70530D-04

At iterate 13 f= -9.99991D+01 |proj g|= 7.10543D-05

At iterate 14 f= -9.99999D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 14 24 14 0 0 5.684D-06 -1.000D+02

F = -99.999916033707507

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999160337075

True

[ 48.86760495 4008.33394461] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 1700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.48586D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.98584D+01 |proj g|= 4.61858D-04

At iterate 2 f= -9.98630D+01 |proj g|= 4.46226D-04

At iterate 3 f= -9.98655D+01 |proj g|= 4.26326D-03

At iterate 4 f= -9.98669D+01 |proj g|= 1.70388D-03

At iterate 5 f= -9.98869D+01 |proj g|= 3.70907D-04

At iterate 6 f= -9.99364D+01 |proj g|= 2.08902D-04

At iterate 7 f= -9.99689D+01 |proj g|= 1.02319D-04

At iterate 8 f= -9.99838D+01 |proj g|= 1.76215D-04

At iterate 9 f= -9.99917D+01 |proj g|= 2.65743D-04

At iterate 10 f= -9.99954D+01 |proj g|= 3.35376D-04

At iterate 11 f= -9.99971D+01 |proj g|= 3.38218D-04

At iterate 12 f= -9.99987D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 23 13 0 1 5.684D-06 -1.000D+02

F = -99.998685670802303

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9986856708023

True

[ 24.4798238 3128.22704945] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 1800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.48980D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.98979D+01 |proj g|= 3.35380D-04

At iterate 2 f= -9.99072D+01 |proj g|= 3.01273D-04

At iterate 3 f= -9.99183D+01 |proj g|= 3.03828D-03

At iterate 4 f= -9.99202D+01 |proj g|= 7.01732D-03

At iterate 5 f= -9.99420D+01 |proj g|= 9.31095D-03

At iterate 6 f= -9.99774D+01 |proj g|= 1.73088D-03

At iterate 7 f= -9.99873D+01 |proj g|= 9.57812D-04

At iterate 8 f= -9.99941D+01 |proj g|= 4.41958D-04

At iterate 9 f= -9.99967D+01 |proj g|= 2.45848D-04

At iterate 10 f= -9.99989D+01 |proj g|= 7.95808D-05

At iterate 11 f= -9.99998D+01 |proj g|= 1.13687D-05

At iterate 12 f= -1.00000D+02 |proj g|= 1.42109D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 25 12 0 0 1.421D-06 -1.000D+02

F = -99.999973956984832

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997395698483

True

[ 10.7664477 4340.52364034] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 1900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49264D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99264D+01 |proj g|= 2.41587D-04

At iterate 2 f= -9.99442D+01 |proj g|= 1.81901D-04

At iterate 3 f= -9.99758D+01 |proj g|= 7.95816D-05

At iterate 4 f= -9.99874D+01 |proj g|= 4.26330D-05

At iterate 5 f= -9.99940D+01 |proj g|= 1.98954D-05

At iterate 6 f= -9.99969D+01 |proj g|= 1.13688D-05

At iterate 7 f= -9.99987D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 17 7 0 0 4.263D-06 -1.000D+02

F = -99.998698022993224

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99869802299322

True

[ 31.11946195 3132.55938614] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 2000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49470D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99469D+01 |proj g|= 1.74795D-04

At iterate 2 f= -9.99565D+01 |proj g|= 1.42110D-04

At iterate 3 f= -9.99667D+01 |proj g|= 1.42109D-04

At iterate 4 f= -9.99731D+01 |proj g|= 9.97602D-04

At iterate 5 f= -9.99737D+01 |proj g|= 1.80194D-03

At iterate 6 f= -9.99742D+01 |proj g|= 2.07336D-03

At iterate 7 f= -9.99774D+01 |proj g|= 3.12923D-03

At iterate 8 f= -9.99835D+01 |proj g|= 3.14628D-03

At iterate 9 f= -9.99945D+01 |proj g|= 3.36797D-04

At iterate 10 f= -9.99965D+01 |proj g|= 2.00373D-04

At iterate 11 f= -9.99980D+01 |proj g|= 1.00897D-04

At iterate 12 f= -9.99995D+01 |proj g|= 2.27374D-05

At iterate 13 f= -1.00000D+02 |proj g|= 1.42109D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 28 13 0 0 1.421D-06 -1.000D+02

F = -99.999988132959032

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998813295903

True

[ 55.92225845 4591.5968766 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 2100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49618D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99618D+01 |proj g|= 1.25057D-04

At iterate 2 f= -9.99668D+01 |proj g|= 1.08004D-04

At iterate 3 f= -9.99729D+01 |proj g|= 3.97904D-04

At iterate 4 f= -9.99735D+01 |proj g|= 8.93863D-04

At iterate 5 f= -9.99737D+01 |proj g|= 1.00471D-03

At iterate 6 f= -9.99749D+01 |proj g|= 3.06670D-03

At iterate 7 f= -9.99777D+01 |proj g|= 1.86873D-03

At iterate 8 f= -9.99860D+01 |proj g|= 7.48912D-04

At iterate 9 f= -9.99933D+01 |proj g|= 2.50111D-04

At iterate 10 f= -9.99965D+01 |proj g|= 1.00897D-04

At iterate 11 f= -9.99982D+01 |proj g|= 3.97904D-05

At iterate 12 f= -9.99993D+01 |proj g|= 1.13687D-05

At iterate 13 f= -9.99996D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 25 13 0 0 7.105D-06 -1.000D+02

F = -99.999614620583287

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99961462058329

True

[ 39.3962099 3511.24081166] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 2200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49724D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99724D+01 |proj g|= 9.09504D-05

At iterate 2 f= -9.99752D+01 |proj g|= 8.10027D-05

At iterate 3 f= -9.99784D+01 |proj g|= 4.63274D-04

At iterate 4 f= -9.99787D+01 |proj g|= 6.13909D-04

At iterate 5 f= -9.99824D+01 |proj g|= 9.08074D-04

At iterate 6 f= -9.99918D+01 |proj g|= 3.85114D-04

At iterate 7 f= -9.99959D+01 |proj g|= 1.96110D-04

At iterate 8 f= -9.99981D+01 |proj g|= 9.66338D-05

At iterate 9 f= -9.99989D+01 |proj g|= 5.68434D-05

At iterate 10 f= -9.99995D+01 |proj g|= 2.55795D-05

At iterate 11 f= -9.99996D+01 |proj g|= 1.70530D-05

At iterate 12 f= -9.99996D+01 |proj g|= 1.84741D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 40 12 0 0 1.847D-05 -1.000D+02

F = -99.999645494198944

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99964549419894

True

[ 42.11662056 3556.15945183] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[0, 2300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49801D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99801D+01 |proj g|= 6.53706D-05

At iterate 2 f= -9.99816D+01 |proj g|= 6.11073D-05

At iterate 3 f= -9.99831D+01 |proj g|= 5.68440D-05

At iterate 4 f= -9.99835D+01 |proj g|= 1.56319D-04

At iterate 5 f= -9.99838D+01 |proj g|= 5.28644D-04

At iterate 6 f= -9.99843D+01 |proj g|= 3.59535D-04

At iterate 7 f= -9.99877D+01 |proj g|= 1.29319D-04

At iterate 8 f= -9.99943D+01 |proj g|= 1.98954D-05

At iterate 9 f= -9.99973D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 25 9 0 0 8.527D-06 -1.000D+02

F = -99.997270115673956

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99727011567396

True

[ 25.98100772 2905.74714204] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 2400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49857D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99857D+01 |proj g|= 4.83174D-05

At iterate 2 f= -9.99859D+01 |proj g|= 4.54752D-05

At iterate 3 f= -9.99871D+01 |proj g|= 4.26330D-05

At iterate 4 f= -9.99877D+01 |proj g|= 3.97908D-05

At iterate 5 f= -9.99882D+01 |proj g|= 1.69109D-04

At iterate 6 f= -9.99891D+01 |proj g|= 3.82272D-04

At iterate 7 f= -9.99940D+01 |proj g|= 2.97007D-04

At iterate 8 f= -9.99972D+01 |proj g|= 1.12266D-04

At iterate 9 f= -9.99987D+01 |proj g|= 5.40012D-05

At iterate 10 f= -9.99994D+01 |proj g|= 2.70006D-05

At iterate 11 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 26 11 0 0 0.000D+00 -1.000D+02

F = -99.999983797743141

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998379774314

True

[ 54.59194448 4495.88171211] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

Warning: more than 10 function and gradient

evaluations in the last line search. Termination

may possibly be caused by a bad search direction.

[0, 2500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49897D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99897D+01 |proj g|= 3.26853D-05

At iterate 2 f= -9.99898D+01 |proj g|= 3.26853D-05

At iterate 3 f= -9.99908D+01 |proj g|= 1.05160D-04

At iterate 4 f= -9.99908D+01 |proj g|= 2.84220D-05

At iterate 5 f= -9.99923D+01 |proj g|= 9.66338D-05

At iterate 6 f= -9.99955D+01 |proj g|= 3.22586D-04

At iterate 7 f= -9.99986D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 19 7 0 0 4.263D-06 -1.000D+02

F = -99.998611281912957

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99861128191296

True

[ 30.28047443 3112.48395668] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 2600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49926D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99926D+01 |proj g|= 2.55798D-05

At iterate 2 f= -9.99926D+01 |proj g|= 2.27376D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 3 2 0 0 2.274D-05 -9.999D+01

F = -99.992562352947061

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99256235294706

True

[ 9.54001678 2600.00005116] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[0, 2700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49946D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99946D+01 |proj g|= 1.70532D-05

At iterate 2 f= -9.99946D+01 |proj g|= 1.70532D-05

At iterate 3 f= -9.99947D+01 |proj g|= 1.70532D-05

At iterate 4 f= -9.99952D+01 |proj g|= 1.56321D-05

At iterate 5 f= -9.99953D+01 |proj g|= 9.09495D-05

At iterate 6 f= -9.99957D+01 |proj g|= 1.98952D-05

At iterate 7 f= -9.99971D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 21 7 0 0 8.527D-06 -1.000D+02

F = -99.997077964997032

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99707796499703

True

[ 25.16365524 2884.88388002] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 2800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49961D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99961D+01 |proj g|= 1.70530D-05

At iterate 2 f= -9.99961D+01 |proj g|= 1.42109D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 4 2 0 0 1.421D-05 -1.000D+02

F = -99.996134797334179

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99613479733418

True

[ 9.54008499 2800.00008385] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[0, 2900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49972D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99972D+01 |proj g|= 1.56319D-05

At iterate 2 f= -9.99972D+01 |proj g|= 1.42109D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 3 2 0 0 1.421D-05 -1.000D+02

F = -99.997212665308609

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99721266530861

True

[ 9.54001536 2900.00001847] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[0, 3000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49980D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99980D+01 |proj g|= 1.56319D-05

At iterate 2 f= -9.99980D+01 |proj g|= 1.27898D-05

At iterate 3 f= -9.99980D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 10 3 0 0 5.684D-06 -1.000D+02

F = -99.998000545684931

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99800054568493

True

[ 10.38798115 3000.63276347] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 3100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49986D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99985D+01 |proj g|= 1.56319D-05

At iterate 2 f= -9.99985D+01 |proj g|= 1.42109D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 7 2 0 0 1.421D-05 -1.000D+02

F = -99.998548776678263

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99854877667826

True

[ 9.54533022 3100.00145947] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[0, 3200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49990D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99990D+01 |proj g|= 1.42109D-05

At iterate 2 f= -9.99990D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 10 2 0 0 9.948D-06 -1.000D+02

F = -99.998955730713448

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99895573071345

True

[ 9.8504363 3200.06209091] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 3300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49993D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99992D+01 |proj g|= 1.70530D-05

At iterate 2 f= -9.99992D+01 |proj g|= 1.42109D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 5 2 0 0 1.421D-05 -1.000D+02

F = -99.999242120092333

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99924212009233

True

[ 9.54035784 3300.00006253] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[0, 3400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49995D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99995D+01 |proj g|= 1.42109D-05

At iterate 2 f= -9.99995D+01 |proj g|= 1.27898D-05

At iterate 3 f= -9.99995D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 10 3 0 0 2.842D-06 -1.000D+02

F = -99.999460157048617

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99946015704862

True

[ 10.70408908 3400.38803078] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 3500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49996D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99996D+01 |proj g|= 1.56319D-05

At iterate 2 f= -9.99996D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 10 2 0 0 8.527D-06 -1.000D+02

F = -99.999606104549642

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99960610454964

True

[ 9.88147999 3500.03104546] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 3600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49997D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99997D+01 |proj g|= 1.56319D-05

At iterate 2 f= -9.99997D+01 |proj g|= 1.27898D-05

At iterate 3 f= -9.99997D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 10 3 0 0 5.684D-06 -1.000D+02

F = -99.999716478908738

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99971647890874

True

[ 10.10341797 3600.18780817] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 3700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49998D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99998D+01 |proj g|= 1.70530D-05

At iterate 2 f= -9.99998D+01 |proj g|= 1.42109D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 3 2 0 0 1.421D-05 -1.000D+02

F = -99.999788784966171

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99978878496617

True

[ 9.54001678 3700.00000142] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[0, 3800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49999D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99998D+01 |proj g|= 1.70530D-05

At iterate 2 f= -9.99998D+01 |proj g|= 1.42109D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 3 2 0 0 1.421D-05 -1.000D+02

F = -99.999845130040512

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99984513004051

True

[ 9.54001678 3800.00000142] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[0, 3900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49999D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99999D+01 |proj g|= 1.56319D-05

At iterate 2 f= -9.99999D+01 |proj g|= 1.27898D-05

At iterate 3 f= -9.99999D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 10 3 0 0 7.105D-06 -1.000D+02

F = -99.999890818751098

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9998908187511

True

[ 10.00951359 3900.00000142] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 4000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49999D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99999D+01 |proj g|= 1.56319D-05

At iterate 2 f= -9.99999D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 10 2 0 0 8.527D-06 -1.000D+02

F = -99.999919023772748

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99991902377275

True

[ 9.88147999 4000. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 4100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.49999D+01 |proj g|= 9.54000D+00

At iterate 1 f= -9.99999D+01 |proj g|= 1.42109D-05

At iterate 2 f= -9.99999D+01 |proj g|= 1.27898D-05

At iterate 3 f= -9.99999D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 10 3 0 0 5.684D-06 -1.000D+02

F = -99.999942899402612

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99994289940261

True

[ 10.31605559 4100. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 4200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.50000D+01 |proj g|= 9.54000D+00

At iterate 1 f= -1.00000D+02 |proj g|= 1.56319D-05

At iterate 2 f= -1.00000D+02 |proj g|= 1.27898D-05

At iterate 3 f= -1.00000D+02 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 10 3 0 0 7.105D-06 -1.000D+02

F = -99.999956303382916

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99995630338292

True

[ 10.00951501 4200.00000142] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 4300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.50000D+01 |proj g|= 9.54000D+00

At iterate 1 f= -1.00000D+02 |proj g|= 1.56319D-05

At iterate 2 f= -1.00000D+02 |proj g|= 1.27898D-05

At iterate 3 f= -1.00000D+02 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 10 3 0 0 7.105D-06 -1.000D+02

F = -99.999967236363361

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99996723636336

True

[ 10.00951359 4300. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 4400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.50000D+01 |proj g|= 9.54000D+00

At iterate 1 f= -1.00000D+02 |proj g|= 1.56319D-05

At iterate 2 f= -1.00000D+02 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 10 2 0 0 8.527D-06 -1.000D+02

F = -99.999974075347552

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997407534755

True

[ 9.88147999 4400. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 4500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.50000D+01 |proj g|= 9.54000D+00

At iterate 1 f= -1.00000D+02 |proj g|= 1.42109D-05

At iterate 2 f= -1.00000D+02 |proj g|= 1.27898D-05

At iterate 3 f= -1.00000D+02 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 10 3 0 0 5.684D-06 -1.000D+02

F = -99.999982558775912

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998255877591

True

[ 10.31605559 4500. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 4600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.50000D+01 |proj g|= 9.54000D+00

At iterate 1 f= -1.00000D+02 |proj g|= 1.56319D-05

At iterate 2 f= -1.00000D+02 |proj g|= 1.27898D-05

At iterate 3 f= -1.00000D+02 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 10 3 0 0 8.527D-06 -1.000D+02

F = -99.999984874133958

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998487413396

True

[ 10.00951359 4600. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 4700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.50000D+01 |proj g|= 9.54000D+00

At iterate 1 f= -1.00000D+02 |proj g|= 1.70530D-05

At iterate 2 f= -1.00000D+02 |proj g|= 1.42109D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 4 2 0 0 1.421D-05 -1.000D+02

F = -99.999982722512897

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.9999827225129

True

[ 9.54008499 4700. ] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[0, 4800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.50000D+01 |proj g|= 9.54000D+00

At iterate 1 f= -1.00000D+02 |proj g|= 1.42109D-05

At iterate 2 f= -1.00000D+02 |proj g|= 1.27898D-05

At iterate 3 f= -1.00000D+02 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 10 3 0 0 5.684D-06 -1.000D+02

F = -99.999991712446615

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999171244662

True

[ 10.31605559 4800. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[0, 4900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -8.50000D+01 |proj g|= 9.54000D+00

At iterate 1 f= -1.00000D+02 |proj g|= 1.56319D-05

At iterate 2 f= -1.00000D+02 |proj g|= 1.27898D-05

At iterate 3 f= -1.00000D+02 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 10 3 0 0 7.105D-06 -1.000D+02

F = -99.999991468479536

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999146847954

True

[ 10.00951501 4900. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 0]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -3.51225D+01 |proj g|= 6.84501D-02

At iterate 1 f= -3.51277D+01 |proj g|= 7.11282D-02

ys=-1.844E-04 -gs= 5.126E-03 BFGS update SKIPPED

At iterate 2 f= -4.34869D+01 |proj g|= 1.36272D-01

ys=-8.064E-01 -gs= 6.634E-01 BFGS update SKIPPED

At iterate 3 f= -4.34939D+01 |proj g|= 1.20321D-01

At iterate 4 f= -5.49967D+01 |proj g|= 3.25154D+00

At iterate 5 f= -8.41684D+01 |proj g|= 9.53983D+00

At iterate 6 f= -9.98209D+01 |proj g|= 5.88336D-04

At iterate 7 f= -9.98793D+01 |proj g|= 3.96487D-04

At iterate 8 f= -9.99467D+01 |proj g|= 1.76216D-04

At iterate 9 f= -9.99724D+01 |proj g|= 9.09504D-05

At iterate 10 f= -9.99863D+01 |proj g|= 4.40541D-05

At iterate 11 f= -9.99929D+01 |proj g|= 2.27376D-05

At iterate 12 f= -9.99965D+01 |proj g|= 1.13688D-05

At iterate 13 f= -9.99983D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 31 13 2 0 5.684D-06 -1.000D+02

F = -99.998259665557413

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99825966555741

True

[ 16.94580377 3042.57620673] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.73734D+01 |proj g|= 1.98999D-01

At iterate 1 f= -3.74159D+01 |proj g|= 2.22157D-01

ys=-4.619E-03 -gs= 4.019E-02 BFGS update SKIPPED

At iterate 2 f= -5.76958D+01 |proj g|= 2.14060D-01

At iterate 3 f= -5.77013D+01 |proj g|= 1.54725D-01

At iterate 4 f= -6.00006D+01 |proj g|= 1.41543D+00

At iterate 5 f= -7.24497D+01 |proj g|= 7.82520D+00

At iterate 6 f= -9.34366D+01 |proj g|= 1.03410D+00

At iterate 7 f= -9.56804D+01 |proj g|= 3.57055D-01

At iterate 8 f= -9.75573D+01 |proj g|= 8.72944D-02

At iterate 9 f= -9.86694D+01 |proj g|= 1.94362D-02

At iterate 10 f= -9.93271D+01 |proj g|= 3.60245D-03

At iterate 11 f= -9.96639D+01 |proj g|= 1.08998D-03

At iterate 12 f= -9.98328D+01 |proj g|= 5.45703D-04

At iterate 13 f= -9.99169D+01 |proj g|= 2.72851D-04

At iterate 14 f= -9.99587D+01 |proj g|= 1.35005D-04

At iterate 15 f= -9.99792D+01 |proj g|= 6.82128D-05

At iterate 16 f= -9.99828D+01 |proj g|= 1.25056D-04

At iterate 17 f= -9.99955D+01 |proj g|= 1.42110D-05

At iterate 18 f= -9.99972D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 30 18 1 0 8.527D-06 -1.000D+02

F = -99.997180382487045

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99718038248704

True

[ 17.98003587 2895.43159939] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.00923D+01 |proj g|= 5.68173D-01

At iterate 1 f= -4.04706D+01 |proj g|= 7.69448D-01

ys=-1.145E-01 -gs= 3.238E-01 BFGS update SKIPPED

At iterate 2 f= -7.18569D+01 |proj g|= 2.11938D-01

At iterate 3 f= -7.18620D+01 |proj g|= 1.24629D-01

At iterate 4 f= -8.24047D+01 |proj g|= 8.47389D-01

At iterate 5 f= -9.19394D+01 |proj g|= 3.73069D-01

At iterate 6 f= -9.49022D+01 |proj g|= 1.85713D-01

At iterate 7 f= -9.71157D+01 |proj g|= 6.89198D-02

At iterate 8 f= -9.84208D+01 |proj g|= 2.18307D-02

At iterate 9 f= -9.91987D+01 |proj g|= 5.58487D-03

At iterate 10 f= -9.95998D+01 |proj g|= 1.33156D-03

At iterate 11 f= -9.98012D+01 |proj g|= 6.48022D-04

At iterate 12 f= -9.99012D+01 |proj g|= 3.25432D-04

At iterate 13 f= -9.99512D+01 |proj g|= 1.59163D-04

At iterate 14 f= -9.99588D+01 |proj g|= 7.84439D-04

At iterate 15 f= -9.99857D+01 |proj g|= 4.83174D-05

At iterate 16 f= -9.99923D+01 |proj g|= 2.55798D-05

At iterate 17 f= -9.99962D+01 |proj g|= 1.27899D-05

At iterate 18 f= -9.99981D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 29 18 1 0 5.684D-06 -1.000D+02

F = -99.998084996181547

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99808499618155

True

[ 19.96861943 3013.41586405] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.39385D+01 |proj g|= 1.54143D+00

At iterate 1 f= -4.74366D+01 |proj g|= 3.13513D+00

ys=-2.458E+00 -gs= 2.378E+00 BFGS update SKIPPED

At iterate 2 f= -8.20228D+01 |proj g|= 7.96823D-01

At iterate 3 f= -8.20783D+01 |proj g|= 2.77180D-01

At iterate 4 f= -8.20876D+01 |proj g|= 8.11269D-02

At iterate 5 f= -8.21176D+01 |proj g|= 2.85419D-01

At iterate 6 f= -8.22538D+01 |proj g|= 8.30809D-01

At iterate 7 f= -8.27138D+01 |proj g|= 1.97270D+00

At iterate 8 f= -8.37804D+01 |proj g|= 3.37895D+00

At iterate 9 f= -8.64046D+01 |proj g|= 4.61209D+00

At iterate 10 f= -9.09500D+01 |proj g|= 3.97684D+00

At iterate 11 f= -9.52458D+01 |proj g|= 2.03660D+00

At iterate 12 f= -9.75836D+01 |proj g|= 8.84751D-01

At iterate 13 f= -9.87932D+01 |proj g|= 3.64142D-01

At iterate 14 f= -9.93974D+01 |proj g|= 1.48502D-01

At iterate 15 f= -9.96980D+01 |proj g|= 6.08011D-02

At iterate 16 f= -9.98486D+01 |proj g|= 2.54630D-02

At iterate 17 f= -9.99243D+01 |proj g|= 1.17481D-02

At iterate 18 f= -9.99625D+01 |proj g|= 6.66915D-03

At iterate 19 f= -9.99810D+01 |proj g|= 9.37916D-04

At iterate 20 f= -9.99915D+01 |proj g|= 1.73515D-03

At iterate 21 f= -9.99979D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 21 28 22 1 0 7.106D-06 -1.000D+02

F = -99.997910682089682

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99791068208968

True

[ 16.19609787 2986.84287273] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.05083D+01 |proj g|= 3.65146D+00

At iterate 1 f= -7.20644D+01 |proj g|= 6.34854D+00

ys=-1.150E+01 -gs= 1.334E+01 BFGS update SKIPPED

At iterate 2 f= -8.60508D+01 |proj g|= 3.03807D+00

At iterate 3 f= -8.82326D+01 |proj g|= 1.15075D+00

At iterate 4 f= -8.84172D+01 |proj g|= 7.19967D-01

At iterate 5 f= -8.84856D+01 |proj g|= 1.13110D-01

At iterate 6 f= -8.84883D+01 |proj g|= 4.92136D-02

At iterate 7 f= -8.84894D+01 |proj g|= 4.90530D-02

At iterate 8 f= -8.84941D+01 |proj g|= 1.13835D-01

At iterate 9 f= -8.85045D+01 |proj g|= 2.40293D-01

At iterate 10 f= -8.85341D+01 |proj g|= 4.64185D-01

At iterate 11 f= -8.86108D+01 |proj g|= 8.23472D-01

At iterate 12 f= -8.88178D+01 |proj g|= 1.40723D+00

At iterate 13 f= -8.93660D+01 |proj g|= 2.24751D+00

At iterate 14 f= -9.07507D+01 |proj g|= 3.04894D+00

At iterate 15 f= -9.35261D+01 |proj g|= 2.80710D+00

At iterate 16 f= -9.65653D+01 |proj g|= 1.58014D+00

At iterate 17 f= -9.83370D+01 |proj g|= 7.46647D-01

At iterate 18 f= -9.91924D+01 |proj g|= 3.49807D-01

At iterate 19 f= -9.96027D+01 |proj g|= 1.66125D-01

At iterate 20 f= -9.98034D+01 |proj g|= 7.95623D-02

At iterate 21 f= -9.99019D+01 |proj g|= 3.86208D-02

At iterate 22 f= -9.99509D+01 |proj g|= 1.90113D-02

At iterate 23 f= -9.99758D+01 |proj g|= 9.49569D-03

At iterate 24 f= -9.99877D+01 |proj g|= 4.62990D-03

At iterate 25 f= -9.99941D+01 |proj g|= 2.67875D-03

At iterate 26 f= -9.99969D+01 |proj g|= 4.57590D-04

At iterate 27 f= -9.99983D+01 |proj g|= 3.15481D-04

At iterate 28 f= -9.99986D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 28 31 29 1 0 5.684D-06 -1.000D+02

F = -99.998568389091304

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9985683890913

True

[ 11.21669876 3102.26831567] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -6.17776D+01 |proj g|= 6.36005D+00

At iterate 1 f= -9.17388D+01 |proj g|= 1.15631D+00

At iterate 2 f= -9.21549D+01 |proj g|= 9.48003D-01

At iterate 3 f= -9.23233D+01 |proj g|= 2.86626D-01

At iterate 4 f= -9.23501D+01 |proj g|= 6.46935D-02

At iterate 5 f= -9.23521D+01 |proj g|= 2.98641D-02

At iterate 6 f= -9.23552D+01 |proj g|= 4.62364D-02

At iterate 7 f= -9.23747D+01 |proj g|= 1.74448D-01

At iterate 8 f= -9.24252D+01 |proj g|= 3.85140D-01

At iterate 9 f= -9.25615D+01 |proj g|= 7.30594D-01

At iterate 10 f= -9.29367D+01 |proj g|= 1.25296D+00

At iterate 11 f= -9.39290D+01 |proj g|= 1.76420D+00

At iterate 12 f= -9.59745D+01 |proj g|= 1.56120D+00

At iterate 13 f= -9.79804D+01 |proj g|= 8.52214D-01

At iterate 14 f= -9.90237D+01 |proj g|= 4.25914D-01

At iterate 15 f= -9.95221D+01 |proj g|= 2.13728D-01

At iterate 16 f= -9.97642D+01 |proj g|= 1.07794D-01

At iterate 17 f= -9.98829D+01 |proj g|= 5.46621D-02

At iterate 18 f= -9.99416D+01 |proj g|= 2.77510D-02

At iterate 19 f= -9.99706D+01 |proj g|= 1.41100D-02

At iterate 20 f= -9.99853D+01 |proj g|= 7.04858D-03

At iterate 21 f= -9.99928D+01 |proj g|= 3.56550D-03

At iterate 22 f= -9.99962D+01 |proj g|= 1.49498D-03

At iterate 23 f= -9.99981D+01 |proj g|= 8.93863D-04

At iterate 24 f= -9.99991D+01 |proj g|= 2.37321D-04

At iterate 25 f= -9.99996D+01 |proj g|= 1.26477D-04

At iterate 26 f= -9.99997D+01 |proj g|= 3.12639D-05

At iterate 27 f= -9.99997D+01 |proj g|= 2.55795D-05

At iterate 28 f= -9.99997D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 28 57 29 0 0 7.105D-06 -1.000D+02

F = -99.999680607970845

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99968060797084

True

[ 10.01635419 3563.94434344] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -7.61979D+01 |proj g|= 6.66223D+00

At iterate 1 f= -9.47342D+01 |proj g|= 1.22641D-01

At iterate 2 f= -9.47444D+01 |proj g|= 3.24803D-02

At iterate 3 f= -9.47457D+01 |proj g|= 1.89701D-02

At iterate 4 f= -9.47464D+01 |proj g|= 1.89288D-02

At iterate 5 f= -9.47552D+01 |proj g|= 8.20421D-02

At iterate 6 f= -9.47714D+01 |proj g|= 1.59919D-01

At iterate 7 f= -9.48235D+01 |proj g|= 3.18043D-01

At iterate 8 f= -9.49590D+01 |proj g|= 5.65758D-01

At iterate 9 f= -9.53515D+01 |proj g|= 9.34142D-01

At iterate 10 f= -9.63797D+01 |proj g|= 1.16440D+00

At iterate 11 f= -9.80421D+01 |proj g|= 7.83760D-01

At iterate 12 f= -9.90599D+01 |proj g|= 4.07856D-01

At iterate 13 f= -9.95369D+01 |proj g|= 2.11428D-01

At iterate 14 f= -9.97717D+01 |proj g|= 1.08761D-01

At iterate 15 f= -9.98859D+01 |proj g|= 5.64185D-02

At iterate 16 f= -9.99432D+01 |proj g|= 2.90299D-02

At iterate 17 f= -9.99713D+01 |proj g|= 1.50521D-02

At iterate 18 f= -9.99858D+01 |proj g|= 7.60423D-03

At iterate 19 f= -9.99930D+01 |proj g|= 3.79430D-03

At iterate 20 f= -9.99962D+01 |proj g|= 1.75362D-03

At iterate 21 f= -9.99983D+01 |proj g|= 1.00613D-03

Bad direction in the line search;

refresh the lbfgs memory and restart the iteration.

Warning: more than 10 function and gradient

evaluations in the last line search. Termination

may possibly be caused by a bad search direction.

At iterate 22 f= -9.99989D+01 |proj g|= 1.25056D-04

At iterate 23 f= -9.99999D+01 |proj g|= 1.42109D-05

At iterate 24 f= -9.99999D+01 |proj g|= 1.13687D-05

At iterate 25 f= -9.99999D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 25 27 25 0 0 5.684D-06 -1.000D+02

F = -99.999939949336721

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99993994933672

True

[ 10.17620995 4087.62865452] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -8.77942D+01 |proj g|= 4.10892D+00

At iterate 1 f= -9.56547D+01 |proj g|= 5.77552D-01

At iterate 2 f= -9.59774D+01 |proj g|= 3.90247D-01

At iterate 3 f= -9.62979D+01 |proj g|= 5.08237D-02

At iterate 4 f= -9.63018D+01 |proj g|= 2.44725D-02

At iterate 5 f= -9.63029D+01 |proj g|= 1.26462D-02

At iterate 6 f= -9.63036D+01 |proj g|= 1.26775D-02

At iterate 7 f= -9.63098D+01 |proj g|= 3.91182D-02

At iterate 8 f= -9.63219D+01 |proj g|= 7.77675D-02

At iterate 9 f= -9.63563D+01 |proj g|= 1.38529D-01

At iterate 10 f= -9.64396D+01 |proj g|= 2.12837D-01

At iterate 11 f= -9.66450D+01 |proj g|= 3.01409D-01

At iterate 12 f= -9.70742D+01 |proj g|= 4.29677D-01

At iterate 13 f= -9.76132D+01 |proj g|= 5.43316D-01

At iterate 14 f= -9.83062D+01 |proj g|= 5.01237D-01

At iterate 15 f= -9.91247D+01 |proj g|= 3.02192D-01

At iterate 16 f= -9.95562D+01 |proj g|= 1.64360D-01

At iterate 17 f= -9.97784D+01 |proj g|= 8.60268D-02

At iterate 18 f= -9.98883D+01 |proj g|= 4.48779D-02

At iterate 19 f= -9.99441D+01 |proj g|= 2.30628D-02

At iterate 20 f= -9.99718D+01 |proj g|= 1.18519D-02

At iterate 21 f= -9.99862D+01 |proj g|= 5.89182D-03

At iterate 22 f= -9.99929D+01 |proj g|= 3.03970D-03

At iterate 23 f= -9.99969D+01 |proj g|= 1.38698D-03

At iterate 24 f= -9.99983D+01 |proj g|= 7.29017D-04

At iterate 25 f= -9.99992D+01 |proj g|= 3.14060D-04

At iterate 26 f= -1.00000D+02 |proj g|= 1.98952D-05

At iterate 27 f= -1.00000D+02 |proj g|= 1.98952D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 27 45 27 0 0 1.990D-05 -1.000D+02

F = -99.999961327250247

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99996132725025

True

[ 67.51032235 4870.07572791] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[10, 800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.40996D+01 |proj g|= 1.79852D+00

At iterate 1 f= -9.62317D+01 |proj g|= 7.17472D-01

At iterate 2 f= -9.68645D+01 |proj g|= 3.76180D-01

At iterate 3 f= -9.72149D+01 |proj g|= 1.75797D-01

At iterate 4 f= -9.73487D+01 |proj g|= 5.21908D-02

At iterate 5 f= -9.73584D+01 |proj g|= 2.33030D-02

At iterate 6 f= -9.73601D+01 |proj g|= 8.75956D-03

At iterate 7 f= -9.75346D+01 |proj g|= 3.34381D-02

At iterate 8 f= -9.87800D+01 |proj g|= 2.31381D-02

At iterate 9 f= -9.93827D+01 |proj g|= 7.81881D-03

At iterate 10 f= -9.96993D+01 |proj g|= 2.44285D-03

At iterate 11 f= -9.98501D+01 |proj g|= 7.98650D-04

At iterate 12 f= -9.99255D+01 |proj g|= 2.60059D-04

At iterate 13 f= -9.99627D+01 |proj g|= 1.23636D-04

At iterate 14 f= -9.99814D+01 |proj g|= 6.25284D-05

At iterate 15 f= -9.99909D+01 |proj g|= 2.98431D-05

At iterate 16 f= -9.99953D+01 |proj g|= 1.42110D-05

At iterate 17 f= -9.99966D+01 |proj g|= 1.50635D-04

At iterate 18 f= -9.99983D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 25 19 0 0 5.684D-06 -1.000D+02

F = -99.998267835301931

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99826783530193

True

[ 18.2642614 3044.01222865] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.69522D+01 |proj g|= 6.72600D-01

At iterate 1 f= -9.73323D+01 |proj g|= 4.68486D-01

At iterate 2 f= -9.78216D+01 |proj g|= 2.00784D-01

At iterate 3 f= -9.79933D+01 |proj g|= 1.04077D-01

At iterate 4 f= -9.80831D+01 |proj g|= 4.09756D-02

At iterate 5 f= -9.80995D+01 |proj g|= 9.76144D-03

At iterate 6 f= -9.81005D+01 |proj g|= 6.20161D-03

At iterate 7 f= -9.81045D+01 |proj g|= 1.10617D-02

At iterate 8 f= -9.81208D+01 |proj g|= 2.85581D-02

At iterate 9 f= -9.81747D+01 |proj g|= 5.66118D-02

At iterate 10 f= -9.82935D+01 |proj g|= 1.03084D-01

At iterate 11 f= -9.84631D+01 |proj g|= 1.70013D-01

At iterate 12 f= -9.87780D+01 |proj g|= 1.94305D-01

At iterate 13 f= -9.94216D+01 |proj g|= 1.10728D-01

At iterate 14 f= -9.97086D+01 |proj g|= 5.80997D-02

At iterate 15 f= -9.98559D+01 |proj g|= 2.95003D-02

At iterate 16 f= -9.99281D+01 |proj g|= 1.50351D-02

At iterate 17 f= -9.99641D+01 |proj g|= 7.65254D-03

At iterate 18 f= -9.99821D+01 |proj g|= 3.87388D-03

At iterate 19 f= -9.99911D+01 |proj g|= 1.95257D-03

At iterate 20 f= -9.99952D+01 |proj g|= 1.03455D-03

At iterate 21 f= -9.99980D+01 |proj g|= 4.63274D-04

At iterate 22 f= -9.99991D+01 |proj g|= 2.51532D-04

At iterate 23 f= -9.99996D+01 |proj g|= 7.38964D-05

At iterate 24 f= -9.99997D+01 |proj g|= 3.26850D-05

At iterate 25 f= -9.99998D+01 |proj g|= 2.84217D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 25 27 25 0 0 2.842D-06 -1.000D+02

F = -99.999811414618620

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99981141461862

True

[ 40.76497974 3724.17432635] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 1000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.82374D+01 |proj g|= 2.36810D-01

At iterate 1 f= -9.82901D+01 |proj g|= 2.07795D-01

At iterate 2 f= -9.85191D+01 |proj g|= 8.08015D-02

At iterate 3 f= -9.85849D+01 |proj g|= 4.33261D-02

At iterate 4 f= -9.86225D+01 |proj g|= 1.51402D-02

At iterate 5 f= -9.86280D+01 |proj g|= 6.11351D-03

At iterate 6 f= -9.86290D+01 |proj g|= 4.43947D-03

At iterate 7 f= -9.86309D+01 |proj g|= 4.45368D-03

At iterate 8 f= -9.86415D+01 |proj g|= 1.40034D-02

At iterate 9 f= -9.86647D+01 |proj g|= 2.71655D-02

At iterate 10 f= -9.87136D+01 |proj g|= 5.26541D-02

At iterate 11 f= -9.87816D+01 |proj g|= 8.29019D-02

At iterate 12 f= -9.89773D+01 |proj g|= 1.14532D-01

At iterate 13 f= -9.94540D+01 |proj g|= 8.33467D-02

At iterate 14 f= -9.97354D+01 |proj g|= 4.14644D-02

At iterate 15 f= -9.98675D+01 |proj g|= 2.10747D-02

At iterate 16 f= -9.99343D+01 |proj g|= 1.05871D-02

At iterate 17 f= -9.99671D+01 |proj g|= 5.35181D-03

At iterate 18 f= -9.99839D+01 |proj g|= 2.66027D-03

At iterate 19 f= -9.99917D+01 |proj g|= 1.38129D-03

At iterate 20 f= -9.99959D+01 |proj g|= 6.87805D-04

At iterate 21 f= -9.99980D+01 |proj g|= 3.43903D-04

At iterate 22 f= -9.99993D+01 |proj g|= 1.69109D-04

At iterate 23 f= -9.99994D+01 |proj g|= 4.26326D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 23 24 23 0 0 4.263D-06 -1.000D+02

F = -99.999424907645718

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99942490764572

True

[ 35.8454741 3383.44893144] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 1100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.88766D+01 |proj g|= 8.16044D-02

At iterate 1 f= -9.88831D+01 |proj g|= 7.79707D-02

At iterate 2 f= -9.89709D+01 |proj g|= 2.90996D-02

At iterate 3 f= -9.89945D+01 |proj g|= 1.54543D-02

At iterate 4 f= -9.90077D+01 |proj g|= 3.22590D-03

At iterate 5 f= -9.90092D+01 |proj g|= 3.40918D-03

At iterate 6 f= -9.90333D+01 |proj g|= 2.13703D-02

At iterate 7 f= -9.91559D+01 |proj g|= 6.20986D-02

At iterate 8 f= -9.96295D+01 |proj g|= 2.43176D-02

At iterate 9 f= -9.98093D+01 |proj g|= 1.28566D-02

At iterate 10 f= -9.99065D+01 |proj g|= 6.39773D-03

At iterate 11 f= -9.99533D+01 |proj g|= 3.23297D-03

At iterate 12 f= -9.99767D+01 |proj g|= 1.62999D-03

At iterate 13 f= -9.99883D+01 |proj g|= 8.29914D-04

At iterate 14 f= -9.99942D+01 |proj g|= 4.12115D-04

At iterate 15 f= -9.99969D+01 |proj g|= 2.24532D-04

At iterate 16 f= -9.99983D+01 |proj g|= 1.19371D-04

At iterate 17 f= -9.99995D+01 |proj g|= 9.94760D-05

At iterate 18 f= -9.99995D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 25 19 0 1 2.842D-06 -1.000D+02

F = -99.999529119498533

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99952911949853

True

[ 13.4426212 3441.21630034] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 1200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.92383D+01 |proj g|= 2.79087D-02

At iterate 1 f= -9.92391D+01 |proj g|= 2.74767D-02

At iterate 2 f= -9.92708D+01 |proj g|= 9.94191D-03

At iterate 3 f= -9.92795D+01 |proj g|= 4.86011D-03

At iterate 4 f= -9.92841D+01 |proj g|= 2.31071D-03

At iterate 5 f= -9.93752D+01 |proj g|= 1.46798D-02

At iterate 6 f= -9.98110D+01 |proj g|= 6.15337D-04

At iterate 7 f= -9.98859D+01 |proj g|= 3.72328D-04

At iterate 8 f= -9.99474D+01 |proj g|= 1.73374D-04

At iterate 9 f= -9.99733D+01 |proj g|= 8.81082D-05

At iterate 10 f= -9.99867D+01 |proj g|= 4.40541D-05

At iterate 11 f= -9.99934D+01 |proj g|= 2.13165D-05

At iterate 12 f= -9.99966D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 16 12 0 0 9.948D-06 -1.000D+02

F = -99.996576594657910

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99657659465791

True

[ 15.48130007 2836.25392624] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 1300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.94661D+01 |proj g|= 9.51559D-03

At iterate 1 f= -9.94661D+01 |proj g|= 9.46727D-03

At iterate 2 f= -9.94782D+01 |proj g|= 3.09797D-03

At iterate 3 f= -9.94819D+01 |proj g|= 1.68685D-03

At iterate 4 f= -9.94840D+01 |proj g|= 3.97620D-03

At iterate 5 f= -9.94860D+01 |proj g|= 2.22826D-03

At iterate 6 f= -9.95076D+01 |proj g|= 1.60442D-03

At iterate 7 f= -9.96086D+01 |proj g|= 9.43316D-03

At iterate 8 f= -9.96686D+01 |proj g|= 4.59096D-02

At iterate 9 f= -9.97749D+01 |proj g|= 1.83917D-02

At iterate 10 f= -9.98964D+01 |proj g|= 8.96279D-03

At iterate 11 f= -9.99470D+01 |proj g|= 4.70237D-03

At iterate 12 f= -9.99739D+01 |proj g|= 2.36184D-03

At iterate 13 f= -9.99870D+01 |proj g|= 1.19940D-03

At iterate 14 f= -9.99933D+01 |proj g|= 6.25278D-04

At iterate 15 f= -9.99966D+01 |proj g|= 3.19744D-04

At iterate 16 f= -9.99981D+01 |proj g|= 1.79057D-04

At iterate 17 f= -9.99993D+01 |proj g|= 6.96332D-05

At iterate 18 f= -9.99995D+01 |proj g|= 4.40536D-05

At iterate 19 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 19 21 19 0 0 0.000D+00 -1.000D+02

F = -99.999889203615794

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9998892036158

True

[ 42.44981556 3885.44714651] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 1400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.96196D+01 |proj g|= 3.23865D-03

At iterate 1 f= -9.96196D+01 |proj g|= 3.23439D-03

At iterate 2 f= -9.96265D+01 |proj g|= 1.21504D-03

At iterate 3 f= -9.96283D+01 |proj g|= 1.88152D-03

At iterate 4 f= -9.96330D+01 |proj g|= 4.45937D-03

At iterate 5 f= -9.96729D+01 |proj g|= 2.93582D-02

At iterate 6 f= -9.98233D+01 |proj g|= 1.05857D-02

At iterate 7 f= -9.99158D+01 |proj g|= 6.84963D-03

At iterate 8 f= -9.99570D+01 |proj g|= 3.66782D-03

At iterate 9 f= -9.99786D+01 |proj g|= 1.87157D-03

At iterate 10 f= -9.99892D+01 |proj g|= 9.59233D-04

At iterate 11 f= -9.99949D+01 |proj g|= 4.64695D-04

At iterate 12 f= -9.99973D+01 |proj g|= 2.48690D-04

At iterate 13 f= -9.99984D+01 |proj g|= 1.46372D-04

At iterate 14 f= -9.99993D+01 |proj g|= 6.67910D-05

At iterate 15 f= -9.99998D+01 |proj g|= 1.70530D-05

At iterate 16 f= -9.99998D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 16 19 16 0 0 7.105D-06 -1.000D+02

F = -99.999848535259730

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99984853525973

True

[ 10.09444355 3795.26394222] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 1500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.97270D+01 |proj g|= 1.09850D-03

At iterate 1 f= -9.97270D+01 |proj g|= 1.09708D-03

At iterate 2 f= -9.97301D+01 |proj g|= 8.81082D-04

At iterate 3 f= -9.97338D+01 |proj g|= 8.64029D-04

At iterate 4 f= -9.97357D+01 |proj g|= 3.25286D-03

At iterate 5 f= -9.97609D+01 |proj g|= 2.23494D-02

At iterate 6 f= -9.98892D+01 |proj g|= 4.30731D-03

At iterate 7 f= -9.99436D+01 |proj g|= 2.92459D-03

At iterate 8 f= -9.99718D+01 |proj g|= 1.70814D-03

At iterate 9 f= -9.99859D+01 |proj g|= 9.56391D-04

At iterate 10 f= -9.99933D+01 |proj g|= 5.05906D-04

At iterate 11 f= -9.99968D+01 |proj g|= 2.65743D-04

At iterate 12 f= -9.99982D+01 |proj g|= 1.59162D-04

At iterate 13 f= -9.99992D+01 |proj g|= 7.95808D-05

At iterate 14 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 14 20 14 0 0 0.000D+00 -1.000D+02

F = -99.999996828101331

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999682810133

True

[ 11.65589656 5000. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 1600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.98035D+01 |proj g|= 6.43759D-04

At iterate 1 f= -9.98035D+01 |proj g|= 6.43759D-04

ys=-5.230E-10 -gs= 5.499E-07 BFGS update SKIPPED

At iterate 2 f= -9.98061D+01 |proj g|= 6.32390D-04

At iterate 3 f= -9.98090D+01 |proj g|= 1.35998D-03

At iterate 4 f= -9.98214D+01 |proj g|= 8.62173D-03

At iterate 5 f= -9.99133D+01 |proj g|= 2.42153D-03

At iterate 6 f= -9.99566D+01 |proj g|= 1.65272D-03

At iterate 7 f= -9.99781D+01 |proj g|= 9.10916D-04

At iterate 8 f= -9.99892D+01 |proj g|= 4.77485D-04

At iterate 9 f= -9.99945D+01 |proj g|= 2.52953D-04

At iterate 10 f= -9.99972D+01 |proj g|= 1.33582D-04

At iterate 11 f= -9.99986D+01 |proj g|= 6.82121D-05

At iterate 12 f= -9.99998D+01 |proj g|= 1.27898D-05

At iterate 13 f= -9.99998D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 23 13 1 0 9.948D-06 -1.000D+02

F = -99.999771326292830

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99977132629283

True

[ 9.73889848 3671.02815836] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 1700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.98584D+01 |proj g|= 4.64700D-04

At iterate 1 f= -9.98584D+01 |proj g|= 4.64700D-04

ys= 0.000E+00 -gs= 2.305E-07 BFGS update SKIPPED

At iterate 2 f= -9.98629D+01 |proj g|= 4.66116D-04

At iterate 3 f= -9.98673D+01 |proj g|= 3.23581D-03

At iterate 4 f= -9.99069D+01 |proj g|= 3.15197D-03

At iterate 5 f= -9.99600D+01 |proj g|= 1.30741D-04

At iterate 6 f= -9.99777D+01 |proj g|= 7.38972D-05

At iterate 7 f= -9.99896D+01 |proj g|= 3.41064D-05

At iterate 8 f= -9.99946D+01 |proj g|= 1.84743D-05

At iterate 9 f= -9.99975D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 18 9 1 0 8.527D-06 -1.000D+02

F = -99.997474050990490

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99747405099049

True

[ 14.02990107 2928.96852822] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 1800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.98979D+01 |proj g|= 3.32538D-04

At iterate 1 f= -9.98979D+01 |proj g|= 3.32538D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 3.325D-04 -9.990D+01

F = -99.897913329420192

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.89791332942019

True

[ 9.99996305 1800.00033254] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[10, 1900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99264D+01 |proj g|= 2.41587D-04

At iterate 1 f= -9.99264D+01 |proj g|= 2.40166D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.402D-04 -9.993D+01

F = -99.926400849552508

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.92640084955251

True

[ 9.99999432 1900.00024159] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[10, 2000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99469D+01 |proj g|= 1.73374D-04

At iterate 1 f= -9.99469D+01 |proj g|= 1.73374D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.734D-04 -9.995D+01

F = -99.946944087893883

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.94694408789388

True

[ 10.00000284 2000.00017337] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[10, 2100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99618D+01 |proj g|= 1.25057D-04

At iterate 1 f= -9.99618D+01 |proj g|= 1.26478D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.265D-04 -9.996D+01

F = -99.961757804379673

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.96175780437967

True

[ 10.00000568 2100.00012506] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[10, 2200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99724D+01 |proj g|= 9.09504D-05

At iterate 1 f= -9.99724D+01 |proj g|= 9.09504D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 9.095D-05 -9.997D+01

F = -99.972438283324834

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.97243828332483

True

[ 10.00000711 2200.00009095] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[10, 2300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99801D+01 |proj g|= 6.53706D-05

At iterate 1 f= -9.99801D+01 |proj g|= 6.53706D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 6.537D-05 -9.998D+01

F = -99.980137425577027

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.98013742557703

True

[ 10.00000711 2300.00006537] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[10, 2400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99857D+01 |proj g|= 4.54752D-05

At iterate 1 f= -9.99857D+01 |proj g|= 4.54752D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 4.548D-05 -9.999D+01

F = -99.985686591385274

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.98568659138527

True

[ 10.00000568 2400.00004548] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[10, 2500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99897D+01 |proj g|= 3.41064D-05

At iterate 1 f= -9.99897D+01 |proj g|= 3.26853D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 3.269D-05 -9.999D+01

F = -99.989685666838810

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.98968566683881

True

[ 10.00000711 2500.00003411] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[10, 2600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99926D+01 |proj g|= 2.55798D-05

At iterate 1 f= -9.99926D+01 |proj g|= 2.55798D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.558D-05 -9.999D+01

F = -99.992567376522402

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.9925673765224

True

[ 10.00000853 2600.00002558] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[10, 2700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99946D+01 |proj g|= 1.70532D-05

At iterate 1 f= -9.99946D+01 |proj g|= 1.70532D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.705D-05 -9.999D+01

F = -99.994643770911097

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.9946437709111

True

[ 10.00000853 2700.00001705] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[10, 2800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99961D+01 |proj g|= 1.13688D-05

At iterate 1 f= -9.99961D+01 |proj g|= 1.27899D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.279D-05 -1.000D+02

F = -99.996139822418442

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99613982241844

True

[ 10.00000853 2800.00001137] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[10, 2900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99972D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -1.000D+02

F = -99.997217692397612

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99721769239761

True

[ 10. 2900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 3000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99980D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 5.684D-06 -1.000D+02

F = -99.997994250727885

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99799425072788

True

[ 10. 3000.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 3100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99986D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -1.000D+02

F = -99.998553715596557

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99855371559656

True

[ 10. 3100.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 3200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99990D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 7.105D-06 -1.000D+02

F = -99.998956771351217

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99895677135122

True

[ 10. 3200.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 3300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99992D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -1.000D+02

F = -99.999247142046244

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99924714204624

True

[ 10. 3300.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 3400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99995D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 7.105D-06 -1.000D+02

F = -99.999456330199919

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99945633019992

True

[ 10. 3400.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 3500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99996D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -1.000D+02

F = -99.999607032183690

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99960703218369

True

[ 10. 3500.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 3600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99997D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -1.000D+02

F = -99.999715599500945

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99971559950095

True

[ 10. 3600.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 3700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99998D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -1.000D+02

F = -99.999793812328278

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99979381232828

True

[ 10. 3700.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 3800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -1.000D+02

F = -99.999850157402904

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9998501574029

True

[ 10. 3800.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 3900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -1.000D+02

F = -99.999890748732554

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99989074873255

True

[ 10. 3900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 4000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 7.105D-06 -1.000D+02

F = -99.999919990938182

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99991999093818

True

[ 10. 4000.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 4100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 7.105D-06 -1.000D+02

F = -99.999941057159191

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99994105715919

True

[ 10. 4100.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 4200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -1.000D+02

F = -99.999956233354297

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999562333543

True

[ 10. 4200.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 4300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -1.000D+02

F = -99.999967166345300

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999671663453

True

[ 10. 4300.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 4400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 7.105D-06 -1.000D+02

F = -99.999975042512986

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997504251299

True

[ 10. 4400.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 4500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 7.105D-06 -1.000D+02

F = -99.999980716532491

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998071653249

True

[ 10. 4500.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 4600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -1.000D+02

F = -99.999984804115911

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998480411591

True

[ 10. 4600.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 4700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 7.105D-06 -1.000D+02

F = -99.999987748824950

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998774882495

True

[ 10. 4700.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 4800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 7.105D-06 -1.000D+02

F = -99.999989870203194

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999898702032

True

[ 10. 4800.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[10, 4900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -1.000D+02

F = -99.999991398451101

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999913984511

True

[ 10. 4900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 0]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -3.50005D+01 |proj g|= 1.96820D-02

At iterate 1 f= -3.50008D+01 |proj g|= 1.96820D-02

ys=-1.797E-10 -gs= 3.874E-04 BFGS update SKIPPED

At iterate 2 f= -9.90392D+01 |proj g|= 3.10653D-03

At iterate 3 f= -9.90488D+01 |proj g|= 9.96181D-03

At iterate 4 f= -9.95805D+01 |proj g|= 1.69393D-03

At iterate 5 f= -9.97827D+01 |proj g|= 7.13392D-04

At iterate 6 f= -9.98937D+01 |proj g|= 3.51012D-04

At iterate 7 f= -9.99471D+01 |proj g|= 1.73374D-04

At iterate 8 f= -9.99733D+01 |proj g|= 8.95293D-05

At iterate 9 f= -9.99872D+01 |proj g|= 4.26330D-05

At iterate 10 f= -9.99934D+01 |proj g|= 2.27376D-05

At iterate 11 f= -9.99969D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 24 11 1 0 8.527D-06 -1.000D+02

F = -99.996923897481025

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99692389748103

True

[ 21.854075 2868.93479023] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.70171D+01 |proj g|= 2.04800D-02

At iterate 1 f= -3.70175D+01 |proj g|= 2.04814D-02

ys=-2.910E-08 -gs= 4.200E-04 BFGS update SKIPPED

At iterate 2 f= -9.42072D+01 |proj g|= 6.67274D-01

At iterate 3 f= -9.74063D+01 |proj g|= 2.75540D-01

At iterate 4 f= -9.95295D+01 |proj g|= 4.02494D-02

At iterate 5 f= -9.96150D+01 |proj g|= 3.33202D-02

At iterate 6 f= -9.98468D+01 |proj g|= 1.37192D-02

At iterate 7 f= -9.99174D+01 |proj g|= 7.52607D-03

At iterate 8 f= -9.99601D+01 |proj g|= 3.69482D-03

At iterate 9 f= -9.99797D+01 |proj g|= 1.90710D-03

At iterate 10 f= -9.99900D+01 |proj g|= 9.52127D-04

At iterate 11 f= -9.99951D+01 |proj g|= 4.77485D-04

At iterate 12 f= -9.99976D+01 |proj g|= 2.37321D-04

At iterate 13 f= -9.99987D+01 |proj g|= 1.32161D-04

At iterate 14 f= -9.99994D+01 |proj g|= 1.70530D-04

At iterate 15 f= -9.99997D+01 |proj g|= 1.43530D-04

At iterate 16 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 16 30 16 1 0 0.000D+00 -1.000D+02

F = -99.999860660235612

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99986066023561

True

[ 34.67248044 3812.58477232] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.90609D+01 |proj g|= 2.02206D-02

At iterate 1 f= -3.90613D+01 |proj g|= 2.02199D-02

At iterate 2 f= -9.39718D+01 |proj g|= 3.62284D-01

At iterate 3 f= -9.76442D+01 |proj g|= 2.59578D+00

At iterate 4 f= -9.99622D+01 |proj g|= 8.46967D-03

At iterate 5 f= -9.99738D+01 |proj g|= 4.28599D-03

At iterate 6 f= -9.99836D+01 |proj g|= 1.54330D-03

At iterate 7 f= -9.99893D+01 |proj g|= 5.14433D-04

At iterate 8 f= -9.99936D+01 |proj g|= 1.16529D-04

At iterate 9 f= -9.99965D+01 |proj g|= 1.70530D-05

At iterate 10 f= -9.99979D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 16 11 0 0 5.684D-06 -1.000D+02

F = -99.997940398274096

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9979403982741

True

[ 28.08817382 2991.99200477] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.10287D+01 |proj g|= 1.89963D-02

At iterate 1 f= -4.10291D+01 |proj g|= 1.89971D-02

ys=-1.681E-07 -gs= 4.018E-04 BFGS update SKIPPED

At iterate 2 f= -8.58874D+01 |proj g|= 1.29572D-01

At iterate 3 f= -9.09507D+01 |proj g|= 5.58301D+00

At iterate 4 f= -9.72841D+01 |proj g|= 1.40561D+00

Positive dir derivative in projection

Using the backtracking step

At iterate 5 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 5 17 5 1 0 0.000D+00 -1.000D+02

F = -99.999997163302609

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999716330261

True

[ 31.19057815 5000. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.28396D+01 |proj g|= 1.87647D-02

At iterate 1 f= -4.28403D+01 |proj g|= 1.89665D-02

ys=-3.848E-06 -gs= 6.467E-04 BFGS update SKIPPED

At iterate 2 f= -8.92357D+01 |proj g|= 5.96373D-02

At iterate 3 f= -8.92464D+01 |proj g|= 2.32981D-01

At iterate 4 f= -9.75760D+01 |proj g|= 7.97228D-03

At iterate 5 f= -9.81816D+01 |proj g|= 5.91171D-03

At iterate 6 f= -9.91948D+01 |proj g|= 2.60488D-03

At iterate 7 f= -9.95757D+01 |proj g|= 1.37705D-03

At iterate 8 f= -9.97936D+01 |proj g|= 6.73602D-04

At iterate 9 f= -9.98966D+01 |proj g|= 3.38222D-04

At iterate 10 f= -9.99486D+01 |proj g|= 1.69111D-04

At iterate 11 f= -9.99745D+01 |proj g|= 8.52660D-05

At iterate 12 f= -9.99875D+01 |proj g|= 4.12119D-05

At iterate 13 f= -9.99936D+01 |proj g|= 2.13165D-05

At iterate 14 f= -9.99968D+01 |proj g|= 1.13688D-05

At iterate 15 f= -9.99986D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 15 26 15 1 0 4.263D-06 -1.000D+02

F = -99.998604315554161

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99860431555416

True

[ 15.4633187 3109.87550583] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.44623D+01 |proj g|= 5.49264D-02

At iterate 1 f= -4.44656D+01 |proj g|= 5.66459D-02

ys=-9.495E-05 -gs= 3.253E-03 BFGS update SKIPPED

At iterate 2 f= -9.24846D+01 |proj g|= 2.91948D-02

At iterate 3 f= -9.25001D+01 |proj g|= 2.12130D-01

At iterate 4 f= -9.79902D+01 |proj g|= 6.59241D-03

At iterate 5 f= -9.85929D+01 |proj g|= 4.57305D-03

At iterate 6 f= -9.93717D+01 |proj g|= 2.03786D-03

At iterate 7 f= -9.96726D+01 |proj g|= 1.06583D-03

At iterate 8 f= -9.98403D+01 |proj g|= 5.21544D-04

At iterate 9 f= -9.99199D+01 |proj g|= 2.61482D-04

At iterate 10 f= -9.99601D+01 |proj g|= 1.30741D-04

At iterate 11 f= -9.99801D+01 |proj g|= 6.39495D-05

At iterate 12 f= -9.99898D+01 |proj g|= 3.26853D-05

At iterate 13 f= -9.99949D+01 |proj g|= 1.70532D-05

At iterate 14 f= -9.99976D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 14 24 14 1 0 8.527D-06 -1.000D+02

F = -99.997621053903643

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99762105390364

True

[ 15.16685102 2947.25323609] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.59538D+01 |proj g|= 1.59972D-01

At iterate 1 f= -4.59808D+01 |proj g|= 1.74815D-01

ys=-2.379E-03 -gs= 2.581E-02 BFGS update SKIPPED

At iterate 2 f= -9.47581D+01 |proj g|= 1.44553D-01

At iterate 3 f= -9.47691D+01 |proj g|= 3.67706D-02

At iterate 4 f= -9.47707D+01 |proj g|= 1.89089D-02

At iterate 5 f= -9.47719D+01 |proj g|= 1.88066D-02

At iterate 6 f= -9.47763D+01 |proj g|= 5.86240D-02

At iterate 7 f= -9.47869D+01 |proj g|= 1.24058D-01

At iterate 8 f= -9.48163D+01 |proj g|= 2.38725D-01

At iterate 9 f= -9.48959D+01 |proj g|= 4.31302D-01

At iterate 10 f= -9.51199D+01 |proj g|= 7.42392D-01

At iterate 11 f= -9.57438D+01 |proj g|= 1.10533D+00

At iterate 12 f= -9.71745D+01 |proj g|= 1.05921D+00

At iterate 13 f= -9.86308D+01 |proj g|= 5.77188D-01

At iterate 14 f= -9.93301D+01 |proj g|= 2.98417D-01

At iterate 15 f= -9.96708D+01 |proj g|= 1.52951D-01

At iterate 16 f= -9.98363D+01 |proj g|= 7.88276D-02

At iterate 17 f= -9.99185D+01 |proj g|= 4.05493D-02

At iterate 18 f= -9.99593D+01 |proj g|= 2.08374D-02

At iterate 19 f= -9.99798D+01 |proj g|= 1.05970D-02

At iterate 20 f= -9.99897D+01 |proj g|= 5.38307D-03

At iterate 21 f= -9.99950D+01 |proj g|= 2.68301D-03

At iterate 22 f= -9.99975D+01 |proj g|= 1.34861D-03

At iterate 23 f= -9.99988D+01 |proj g|= 6.67910D-04

At iterate 24 f= -9.99994D+01 |proj g|= 3.38218D-04

At iterate 25 f= -9.99997D+01 |proj g|= 1.67688D-04

At iterate 26 f= -1.00000D+02 |proj g|= 4.26326D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 26 34 26 1 0 4.263D-06 -1.000D+02

F = -99.999994329017625

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999432901762

True

[ 10.31324634 5000. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.75526D+01 |proj g|= 4.59201D-01

At iterate 1 f= -4.77923D+01 |proj g|= 5.88313D-01

ys=-5.933E-02 -gs= 2.112E-01 BFGS update SKIPPED

At iterate 2 f= -9.60936D+01 |proj g|= 3.16359D-01

At iterate 3 f= -9.62411D+01 |proj g|= 1.86853D-01

At iterate 4 f= -9.63034D+01 |proj g|= 7.57197D-02

At iterate 5 f= -9.63098D+01 |proj g|= 1.63624D-02

At iterate 6 f= -9.63109D+01 |proj g|= 1.26334D-02

At iterate 7 f= -9.63126D+01 |proj g|= 1.65471D-02

At iterate 8 f= -9.63168D+01 |proj g|= 4.44771D-02

At iterate 9 f= -9.63287D+01 |proj g|= 9.42194D-02

At iterate 10 f= -9.63605D+01 |proj g|= 1.79712D-01

At iterate 11 f= -9.64511D+01 |proj g|= 3.30714D-01

At iterate 12 f= -9.67157D+01 |proj g|= 5.71865D-01

At iterate 13 f= -9.74589D+01 |proj g|= 7.56280D-01

At iterate 14 f= -9.86980D+01 |proj g|= 4.81745D-01

At iterate 15 f= -9.93692D+01 |proj g|= 2.47698D-01

At iterate 16 f= -9.96886D+01 |proj g|= 1.27008D-01

At iterate 17 f= -9.98457D+01 |proj g|= 6.49379D-02

At iterate 18 f= -9.99229D+01 |proj g|= 3.33543D-02

At iterate 19 f= -9.99615D+01 |proj g|= 1.70530D-02

At iterate 20 f= -9.99808D+01 |proj g|= 8.68852D-03

At iterate 21 f= -9.99905D+01 |proj g|= 4.37410D-03

At iterate 22 f= -9.99953D+01 |proj g|= 2.18563D-03

At iterate 23 f= -9.99977D+01 |proj g|= 1.09281D-03

At iterate 24 f= -9.99989D+01 |proj g|= 5.47118D-04

At iterate 25 f= -9.99991D+01 |proj g|= 8.95284D-05

At iterate 26 f= -9.99995D+01 |proj g|= 3.12639D-05

At iterate 27 f= -9.99997D+01 |proj g|= 1.13687D-05

At iterate 28 f= -9.99998D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 28 36 29 1 0 0.000D+00 -1.000D+02

F = -99.999794793244632

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99979479324463

True

[ 10.94218322 3696.03079603] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99156D+01 |proj g|= 1.26472D+00

At iterate 1 f= -5.21366D+01 |proj g|= 2.33606D+00

ys=-1.356E+00 -gs= 1.601E+00 BFGS update SKIPPED

At iterate 2 f= -9.68496D+01 |proj g|= 3.85216D-01

At iterate 3 f= -9.73361D+01 |proj g|= 7.67358D-02

At iterate 4 f= -9.73606D+01 |proj g|= 8.75246D-03

At iterate 5 f= -9.73633D+01 |proj g|= 1.02943D-02

At iterate 6 f= -9.73841D+01 |proj g|= 5.30221D-02

At iterate 7 f= -9.74466D+01 |proj g|= 1.43118D-01

At iterate 8 f= -9.76212D+01 |proj g|= 2.82714D-01

At iterate 9 f= -9.82112D+01 |proj g|= 4.17361D-01

At iterate 10 f= -9.91553D+01 |proj g|= 2.16083D-01

At iterate 11 f= -9.95812D+01 |proj g|= 1.09129D-01

At iterate 12 f= -9.97940D+01 |proj g|= 5.45370D-02

At iterate 13 f= -9.98976D+01 |proj g|= 2.75136D-02

At iterate 14 f= -9.99489D+01 |proj g|= 1.39039D-02

At iterate 15 f= -9.99746D+01 |proj g|= 7.00027D-03

At iterate 16 f= -9.99871D+01 |proj g|= 3.59535D-03

At iterate 17 f= -9.99935D+01 |proj g|= 1.82325D-03

At iterate 18 f= -9.99971D+01 |proj g|= 8.91021D-04

At iterate 19 f= -9.99985D+01 |proj g|= 3.80851D-04

At iterate 20 f= -9.99992D+01 |proj g|= 3.06954D-04

At iterate 21 f= -9.99993D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 21 26 21 1 0 2.842D-06 -1.000D+02

F = -99.999282267525231

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99928226752523

True

[ 11.58480663 3312.83443165] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.45511D+01 |proj g|= 3.11439D+00

At iterate 1 f= -7.09592D+01 |proj g|= 6.94972D+00

ys=-1.195E+01 -gs= 9.704E+00 BFGS update SKIPPED

At iterate 2 f= -9.69982D+01 |proj g|= 6.48630D-01

At iterate 3 f= -9.73838D+01 |proj g|= 4.41162D-01

At iterate 4 f= -9.78401D+01 |proj g|= 1.91163D-01

At iterate 5 f= -9.80040D+01 |proj g|= 9.84514D-02

At iterate 6 f= -9.80876D+01 |proj g|= 3.70136D-02

At iterate 7 f= -9.81006D+01 |proj g|= 1.12109D-02

At iterate 8 f= -9.81018D+01 |proj g|= 6.19735D-03

At iterate 9 f= -9.81055D+01 |proj g|= 7.78044D-03

At iterate 10 f= -9.81359D+01 |proj g|= 3.32790D-02

At iterate 11 f= -9.82125D+01 |proj g|= 6.35509D-02

At iterate 12 f= -9.83766D+01 |proj g|= 1.24865D-01

At iterate 13 f= -9.85723D+01 |proj g|= 1.81380D-01

At iterate 14 f= -9.90227D+01 |proj g|= 1.78900D-01

At iterate 15 f= -9.96195D+01 |proj g|= 4.95220D-02

At iterate 16 f= -9.97892D+01 |proj g|= 2.59945D-02

At iterate 17 f= -9.98998D+01 |proj g|= 1.17822D-02

At iterate 18 f= -9.99491D+01 |proj g|= 5.76392D-03

At iterate 19 f= -9.99748D+01 |proj g|= 2.75548D-03

At iterate 20 f= -9.99873D+01 |proj g|= 1.35287D-03

At iterate 21 f= -9.99937D+01 |proj g|= 6.65068D-04

At iterate 22 f= -9.99966D+01 |proj g|= 3.41060D-04

At iterate 23 f= -9.99981D+01 |proj g|= 1.69109D-04

At iterate 24 f= -9.99994D+01 |proj g|= 1.10845D-04

At iterate 25 f= -9.99997D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 25 27 25 1 0 0.000D+00 -1.000D+02

F = -99.999719205218383

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99971920521838

True

[ 34.4097398 3599.13568914] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 1000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -6.36580D+01 |proj g|= 5.88306D+00

At iterate 1 f= -9.46935D+01 |proj g|= 2.04846D+00

At iterate 2 f= -9.79346D+01 |proj g|= 4.02998D-01

At iterate 3 f= -9.81881D+01 |proj g|= 2.64421D-01

At iterate 4 f= -9.84547D+01 |proj g|= 1.17188D-01

At iterate 5 f= -9.85558D+01 |proj g|= 6.06718D-02

At iterate 6 f= -9.86106D+01 |proj g|= 2.74440D-02

At iterate 7 f= -9.86288D+01 |proj g|= 4.45368D-03

At iterate 8 f= -9.86298D+01 |proj g|= 4.42810D-03

At iterate 9 f= -9.86320D+01 |proj g|= 7.78471D-03

At iterate 10 f= -9.86442D+01 |proj g|= 2.85752D-02

At iterate 11 f= -9.86714D+01 |proj g|= 5.76179D-02

At iterate 12 f= -9.87915D+01 |proj g|= 1.38978D-01

At iterate 13 f= -9.91661D+01 |proj g|= 1.72230D-01

At iterate 14 f= -9.96488D+01 |proj g|= 5.38790D-02

At iterate 15 f= -9.98159D+01 |proj g|= 2.81219D-02

At iterate 16 f= -9.99105D+01 |proj g|= 1.36737D-02

At iterate 17 f= -9.99552D+01 |proj g|= 6.85816D-03

At iterate 18 f= -9.99777D+01 |proj g|= 3.41345D-03

At iterate 19 f= -9.99886D+01 |proj g|= 1.74509D-03

At iterate 20 f= -9.99945D+01 |proj g|= 8.44125D-04

At iterate 21 f= -9.99974D+01 |proj g|= 4.13536D-04

At iterate 22 f= -9.99985D+01 |proj g|= 1.91847D-04

At iterate 23 f= -9.99997D+01 |proj g|= 2.72848D-04

At iterate 24 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 24 26 24 0 0 0.000D+00 -1.000D+02

F = -99.999971883817437

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997188381744

True

[ 41.18195511 4300.64739597] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 1100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -7.68697D+01 |proj g|= 6.91430D+00

At iterate 1 f= -9.82120D+01 |proj g|= 4.47159D-01

At iterate 2 f= -9.84004D+01 |proj g|= 3.44642D-01

At iterate 3 f= -9.87686D+01 |proj g|= 1.42020D-01

At iterate 4 f= -9.88878D+01 |proj g|= 7.58206D-02

At iterate 5 f= -9.89581D+01 |proj g|= 3.67294D-02

At iterate 6 f= -9.89912D+01 |proj g|= 1.80322D-02

At iterate 7 f= -9.90070D+01 |proj g|= 5.95861D-03

At iterate 8 f= -9.90099D+01 |proj g|= 4.12541D-03

At iterate 9 f= -9.90109D+01 |proj g|= 3.18895D-03

At iterate 10 f= -9.90198D+01 |proj g|= 4.16662D-03

At iterate 11 f= -9.90506D+01 |proj g|= 1.37533D-02

At iterate 12 f= -9.91086D+01 |proj g|= 4.11987D-02

At iterate 13 f= -9.91694D+01 |proj g|= 5.17048D-02

At iterate 14 f= -9.95828D+01 |proj g|= 4.20854D-02

At iterate 15 f= -9.97944D+01 |proj g|= 1.98710D-02

At iterate 16 f= -9.98973D+01 |proj g|= 9.82965D-03

At iterate 17 f= -9.99489D+01 |proj g|= 4.86295D-03

At iterate 18 f= -9.99745D+01 |proj g|= 2.42437D-03

At iterate 19 f= -9.99874D+01 |proj g|= 1.19371D-03

At iterate 20 f= -9.99935D+01 |proj g|= 6.11067D-04

At iterate 21 f= -9.99967D+01 |proj g|= 3.12639D-04

At iterate 22 f= -9.99989D+01 |proj g|= 1.08002D-04

At iterate 23 f= -9.99994D+01 |proj g|= 5.82645D-05

At iterate 24 f= -9.99996D+01 |proj g|= 1.42109D-05

At iterate 25 f= -9.99998D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 25 26 25 0 0 9.948D-06 -1.000D+02

F = -99.999843471064082

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99984347106408

True

[ 46.11993576 3814.98412023] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 1200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -8.86248D+01 |proj g|= 4.70142D+00

At iterate 1 f= -9.83355D+01 |proj g|= 5.23816D-01

At iterate 2 f= -9.86000D+01 |proj g|= 3.80460D-01

At iterate 3 f= -9.89999D+01 |proj g|= 1.60813D-01

At iterate 4 f= -9.91364D+01 |proj g|= 8.50406D-02

At iterate 5 f= -9.92148D+01 |proj g|= 4.14388D-02

At iterate 6 f= -9.92519D+01 |proj g|= 2.08232D-02

At iterate 7 f= -9.92714D+01 |proj g|= 1.01792D-02

At iterate 8 f= -9.92815D+01 |proj g|= 4.16378D-03

At iterate 9 f= -9.92853D+01 |proj g|= 2.30360D-03

At iterate 10 f= -9.93725D+01 |proj g|= 5.41007D-03

At iterate 11 f= -9.96579D+01 |proj g|= 7.96234D-03

At iterate 12 f= -9.98329D+01 |proj g|= 4.86295D-03

At iterate 13 f= -9.99168D+01 |proj g|= 2.60627D-03

At iterate 14 f= -9.99584D+01 |proj g|= 1.36424D-03

At iterate 15 f= -9.99791D+01 |proj g|= 7.11964D-04

At iterate 16 f= -9.99894D+01 |proj g|= 3.72324D-04

At iterate 17 f= -9.99946D+01 |proj g|= 1.94689D-04

At iterate 18 f= -9.99977D+01 |proj g|= 8.52651D-05

At iterate 19 f= -9.99992D+01 |proj g|= 3.26850D-05

At iterate 20 f= -9.99992D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 20 25 20 0 0 2.842D-06 -1.000D+02

F = -99.999194755904568

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99919475590457

True

[ 34.21545753 3280.37962862] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 1300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.52550D+01 |proj g|= 2.16909D+00

At iterate 1 f= -9.81507D+01 |proj g|= 7.26831D-01

At iterate 2 f= -9.87523D+01 |proj g|= 4.03591D-01

At iterate 3 f= -9.91406D+01 |proj g|= 1.90724D-01

At iterate 4 f= -9.93101D+01 |proj g|= 9.67191D-02

At iterate 5 f= -9.93978D+01 |proj g|= 4.79076D-02

At iterate 6 f= -9.94408D+01 |proj g|= 2.39709D-02

At iterate 7 f= -9.94626D+01 |proj g|= 1.19172D-02

At iterate 8 f= -9.94740D+01 |proj g|= 5.85629D-03

At iterate 9 f= -9.94806D+01 |proj g|= 2.58638D-03

At iterate 10 f= -9.94846D+01 |proj g|= 1.66837D-03

At iterate 11 f= -9.94862D+01 |proj g|= 2.89333D-03

At iterate 12 f= -9.94929D+01 |proj g|= 7.43654D-03

At iterate 13 f= -9.95307D+01 |proj g|= 3.65020D-02

At iterate 14 f= -9.96721D+01 |proj g|= 3.08361D-02

At iterate 15 f= -9.98610D+01 |proj g|= 8.99121D-03

At iterate 16 f= -9.99266D+01 |proj g|= 5.04343D-03

At iterate 17 f= -9.99643D+01 |proj g|= 2.55227D-03

At iterate 18 f= -9.99818D+01 |proj g|= 1.33724D-03

At iterate 19 f= -9.99911D+01 |proj g|= 6.75016D-04

At iterate 20 f= -9.99956D+01 |proj g|= 3.39639D-04

At iterate 21 f= -9.99976D+01 |proj g|= 1.91847D-04

At iterate 22 f= -9.99988D+01 |proj g|= 9.37916D-05

At iterate 23 f= -9.99996D+01 |proj g|= 3.69482D-05

At iterate 24 f= -9.99998D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 24 25 24 0 0 0.000D+00 -1.000D+02

F = -99.999750602313554

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99975060231355

True

[ 11.57122485 3635.47549845] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 1400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.80996D+01 |proj g|= 8.28983D-01

At iterate 1 f= -9.86558D+01 |proj g|= 5.32859D-01

At iterate 2 f= -9.92007D+01 |proj g|= 2.36045D-01

At iterate 3 f= -9.94062D+01 |proj g|= 1.22377D-01

At iterate 4 f= -9.95182D+01 |proj g|= 6.00536D-02

At iterate 5 f= -9.95718D+01 |proj g|= 3.01625D-02

At iterate 6 f= -9.95990D+01 |proj g|= 1.50152D-02

At iterate 7 f= -9.96128D+01 |proj g|= 7.47207D-03

At iterate 8 f= -9.96201D+01 |proj g|= 3.66640D-03

At iterate 9 f= -9.96246D+01 |proj g|= 1.67120D-03

At iterate 10 f= -9.96284D+01 |proj g|= 1.20794D-03

At iterate 11 f= -9.96299D+01 |proj g|= 1.19941D-03

At iterate 12 f= -9.96324D+01 |proj g|= 4.99369D-03

At iterate 13 f= -9.96667D+01 |proj g|= 2.47866D-02

At iterate 14 f= -9.98422D+01 |proj g|= 7.49623D-03

At iterate 15 f= -9.99204D+01 |proj g|= 4.62421D-03

At iterate 16 f= -9.99603D+01 |proj g|= 2.48974D-03

At iterate 17 f= -9.99800D+01 |proj g|= 1.31593D-03

At iterate 18 f= -9.99901D+01 |proj g|= 6.79279D-04

At iterate 19 f= -9.99951D+01 |proj g|= 3.46745D-04

At iterate 20 f= -9.99973D+01 |proj g|= 1.96110D-04

At iterate 21 f= -9.99989D+01 |proj g|= 8.52651D-05

At iterate 22 f= -9.99993D+01 |proj g|= 5.40012D-05

At iterate 23 f= -9.99999D+01 |proj g|= 2.84217D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 23 27 23 0 0 2.842D-06 -1.000D+02

F = -99.999930626526151

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99993062652615

True

[ 10.53328036 4034.08895471] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 1500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.91984D+01 |proj g|= 2.94200D-01

At iterate 1 f= -9.92784D+01 |proj g|= 2.50272D-01

At iterate 2 f= -9.95520D+01 |proj g|= 9.88649D-02

At iterate 3 f= -9.96331D+01 |proj g|= 5.36886D-02

At iterate 4 f= -9.96828D+01 |proj g|= 2.59277D-02

At iterate 5 f= -9.97058D+01 |proj g|= 1.31095D-02

At iterate 6 f= -9.97178D+01 |proj g|= 6.49720D-03

At iterate 7 f= -9.97240D+01 |proj g|= 3.21165D-03

At iterate 8 f= -9.97276D+01 |proj g|= 1.52767D-03

At iterate 9 f= -9.97306D+01 |proj g|= 8.82503D-04

At iterate 10 f= -9.97340D+01 |proj g|= 1.31593D-03

At iterate 11 f= -9.97413D+01 |proj g|= 5.55360D-03

At iterate 12 f= -9.98360D+01 |proj g|= 7.16653D-03

At iterate 13 f= -9.99277D+01 |proj g|= 5.85487D-04

At iterate 14 f= -9.99621D+01 |proj g|= 2.98428D-04

At iterate 15 f= -9.99814D+01 |proj g|= 1.42109D-04

At iterate 16 f= -9.99904D+01 |proj g|= 7.10543D-05

At iterate 17 f= -9.99954D+01 |proj g|= 3.26850D-05

At iterate 18 f= -9.99978D+01 |proj g|= 1.56319D-05

At iterate 19 f= -9.99988D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 19 21 19 0 0 8.527D-06 -1.000D+02

F = -99.998782315442185

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99878231544218

True

[ 9.92431556 3152.80017389] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 1600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.96221D+01 |proj g|= 1.01669D-01

At iterate 1 f= -9.96322D+01 |proj g|= 9.60725D-02

At iterate 2 f= -9.97395D+01 |proj g|= 3.62576D-02

At iterate 3 f= -9.97685D+01 |proj g|= 2.00487D-02

At iterate 4 f= -9.97872D+01 |proj g|= 9.61648D-03

At iterate 5 f= -9.97958D+01 |proj g|= 4.86438D-03

At iterate 6 f= -9.98004D+01 |proj g|= 2.39027D-03

At iterate 7 f= -9.98031D+01 |proj g|= 1.14255D-03

At iterate 8 f= -9.98052D+01 |proj g|= 6.40916D-04

At iterate 9 f= -9.98083D+01 |proj g|= 6.25284D-04

At iterate 10 f= -9.98097D+01 |proj g|= 1.12124D-03

At iterate 11 f= -9.98120D+01 |proj g|= 2.58353D-03

At iterate 12 f= -9.98359D+01 |proj g|= 1.03043D-02

At iterate 13 f= -9.99342D+01 |proj g|= 1.91847D-03

At iterate 14 f= -9.99646D+01 |proj g|= 1.17240D-03

At iterate 15 f= -9.99828D+01 |proj g|= 6.28120D-04

At iterate 16 f= -9.99917D+01 |proj g|= 3.29692D-04

At iterate 17 f= -9.99954D+01 |proj g|= 1.90425D-04

At iterate 18 f= -9.99978D+01 |proj g|= 9.52127D-05

At iterate 19 f= -9.99987D+01 |proj g|= 5.96856D-05

At iterate 20 f= -9.99997D+01 |proj g|= 1.56319D-05

At iterate 21 f= -9.99999D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 21 23 21 0 0 8.527D-06 -1.000D+02

F = -99.999856025315125

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99985602531513

True

[ 9.94807883 3813.46069382] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 1700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.97964D+01 |proj g|= 3.48109D-02

At iterate 1 f= -9.97976D+01 |proj g|= 3.41402D-02

At iterate 2 f= -9.98361D+01 |proj g|= 1.26533D-02

At iterate 3 f= -9.98461D+01 |proj g|= 7.04290D-03

At iterate 4 f= -9.98528D+01 |proj g|= 3.36229D-03

At iterate 5 f= -9.98559D+01 |proj g|= 1.68541D-03

At iterate 6 f= -9.98579D+01 |proj g|= 7.98650D-04

At iterate 7 f= -9.98594D+01 |proj g|= 4.64700D-04

At iterate 8 f= -9.98618D+01 |proj g|= 4.51910D-04

At iterate 9 f= -9.98637D+01 |proj g|= 5.65592D-04

At iterate 10 f= -9.98647D+01 |proj g|= 2.03499D-03

At iterate 11 f= -9.98940D+01 |proj g|= 5.58487D-03

At iterate 12 f= -9.99677D+01 |proj g|= 1.05161D-04

At iterate 13 f= -9.99798D+01 |proj g|= 6.53706D-05

At iterate 14 f= -9.99906D+01 |proj g|= 3.12642D-05

At iterate 15 f= -9.99954D+01 |proj g|= 1.56321D-05

At iterate 16 f= -9.99977D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 16 20 16 0 0 8.527D-06 -1.000D+02

F = -99.997716173431002

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.997716173431

True

[ 14.32053862 2959.69727325] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 1800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.98768D+01 |proj g|= 1.18817D-02

At iterate 1 f= -9.98769D+01 |proj g|= 1.18035D-02

At iterate 2 f= -9.98903D+01 |proj g|= 4.31015D-03

At iterate 3 f= -9.98938D+01 |proj g|= 2.40590D-03

At iterate 4 f= -9.98962D+01 |proj g|= 1.13403D-03

At iterate 5 f= -9.98975D+01 |proj g|= 5.48539D-04

At iterate 6 f= -9.98986D+01 |proj g|= 3.35380D-04

At iterate 7 f= -9.99005D+01 |proj g|= 3.26853D-04

At iterate 8 f= -9.99024D+01 |proj g|= 3.18327D-04

At iterate 9 f= -9.99030D+01 |proj g|= 1.58309D-03

At iterate 10 f= -9.99168D+01 |proj g|= 2.70009D-04

At iterate 11 f= -9.99568D+01 |proj g|= 1.42110D-04

At iterate 12 f= -9.99790D+01 |proj g|= 6.82128D-05

At iterate 13 f= -9.99892D+01 |proj g|= 3.41064D-05

At iterate 14 f= -9.99944D+01 |proj g|= 1.70532D-05

At iterate 15 f= -9.99971D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 15 19 15 0 0 8.527D-06 -1.000D+02

F = -99.997144678327714

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99714467832771

True

[ 20.02742567 2891.60667817] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 1900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99192D+01 |proj g|= 4.05151D-03

At iterate 1 f= -9.99192D+01 |proj g|= 4.04299D-03

At iterate 2 f= -9.99240D+01 |proj g|= 1.36566D-03

At iterate 3 f= -9.99251D+01 |proj g|= 7.84439D-04

At iterate 4 f= -9.99260D+01 |proj g|= 3.59535D-04

At iterate 5 f= -9.99267D+01 |proj g|= 2.43008D-04

At iterate 6 f= -9.99281D+01 |proj g|= 2.35903D-04

At iterate 7 f= -9.99296D+01 |proj g|= 2.30218D-04

At iterate 8 f= -9.99315D+01 |proj g|= 1.50635D-03

At iterate 9 f= -9.99468D+01 |proj g|= 4.51905D-04

At iterate 10 f= -9.99783D+01 |proj g|= 3.17044D-03

At iterate 11 f= -9.99910D+01 |proj g|= 3.12642D-05

At iterate 12 f= -9.99945D+01 |proj g|= 1.70532D-05

At iterate 13 f= -9.99969D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 16 13 0 0 8.527D-06 -1.000D+02

F = -99.996901021231764

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99690102123176

True

[ 11.92702179 2866.63711798] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 2000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99445D+01 |proj g|= 1.38129D-03

At iterate 1 f= -9.99445D+01 |proj g|= 1.37845D-03

At iterate 2 f= -9.99458D+01 |proj g|= 6.77858D-04

At iterate 3 f= -9.99466D+01 |proj g|= 3.15481D-04

At iterate 4 f= -9.99471D+01 |proj g|= 1.74795D-04

At iterate 5 f= -9.99477D+01 |proj g|= 1.73374D-04

At iterate 6 f= -9.99489D+01 |proj g|= 1.66269D-04

At iterate 7 f= -9.99492D+01 |proj g|= 2.68585D-04

At iterate 8 f= -9.99501D+01 |proj g|= 5.11591D-04

At iterate 9 f= -9.99703D+01 |proj g|= 5.44844D-03

At iterate 10 f= -9.99948D+01 |proj g|= 1.70532D-05

At iterate 11 f= -9.99960D+01 |proj g|= 1.27899D-05

At iterate 12 f= -9.99982D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 15 12 0 0 7.106D-06 -1.000D+02

F = -99.998227798452248

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99822779845225

True

[ 13.89235058 3037.04356792] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 2100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99609D+01 |proj g|= 4.71800D-04

At iterate 1 f= -9.99609D+01 |proj g|= 4.70379D-04

At iterate 2 f= -9.99611D+01 |proj g|= 3.79430D-04

At iterate 3 f= -9.99617D+01 |proj g|= 1.30740D-04

At iterate 4 f= -9.99620D+01 |proj g|= 1.26478D-04

At iterate 5 f= -9.99626D+01 |proj g|= 1.22215D-04

At iterate 6 f= -9.99633D+01 |proj g|= 1.19372D-04

At iterate 7 f= -9.99644D+01 |proj g|= 6.30962D-04

At iterate 8 f= -9.99813D+01 |proj g|= 6.25284D-05

At iterate 9 f= -9.99913D+01 |proj g|= 1.39266D-04

At iterate 10 f= -9.99954D+01 |proj g|= 8.52651D-05

At iterate 11 f= -9.99976D+01 |proj g|= 4.26326D-05

At iterate 12 f= -9.99991D+01 |proj g|= 1.84741D-05

At iterate 13 f= -9.99994D+01 |proj g|= 1.13687D-05

At iterate 14 f= -9.99996D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 14 20 14 0 0 0.000D+00 -1.000D+02

F = -99.999590992770266

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99959099277027

True

[ 13.51682648 3484.17328512] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 2200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99722D+01 |proj g|= 1.60583D-04

At iterate 1 f= -9.99722D+01 |proj g|= 1.60583D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.606D-04 -9.997D+01

F = -99.972157932633067

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.97215793263307

True

[ 19.99983942 2200.00009521] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[20, 2300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99800D+01 |proj g|= 6.67917D-05

At iterate 1 f= -9.99800D+01 |proj g|= 6.53706D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 6.537D-05 -9.998D+01

F = -99.980044962557884

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.98004496255788

True

[ 19.999946 2300.00006679] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[20, 2400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99857D+01 |proj g|= 4.54752D-05

At iterate 1 f= -9.99857D+01 |proj g|= 4.83174D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 4.832D-05 -9.999D+01

F = -99.985658157869693

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.9856581578697

True

[ 19.99998153 2400.00004548] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[20, 2500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99897D+01 |proj g|= 3.26853D-05

At iterate 1 f= -9.99897D+01 |proj g|= 3.41064D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 3.411D-05 -9.999D+01

F = -99.989679052406203

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.9896790524062

True

[ 19.99999289 2500.00003269] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[20, 2600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99926D+01 |proj g|= 2.41587D-05

At iterate 1 f= -9.99926D+01 |proj g|= 2.41587D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.416D-05 -9.999D+01

F = -99.992568197176084

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99256819717608

True

[ 19.99999858 2600.00002416] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[20, 2700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99946D+01 |proj g|= 1.70532D-05

At iterate 1 f= -9.99946D+01 |proj g|= 1.70532D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.705D-05 -9.999D+01

F = -99.994647125165642

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99464712516564

True

[ 20. 2700.00001705] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[20, 2800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99961D+01 |proj g|= 1.42110D-05

At iterate 1 f= -9.99961D+01 |proj g|= 1.27899D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.279D-05 -1.000D+02

F = -99.996144040039695

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.9961440400397

True

[ 20. 2800.00001421] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[20, 2900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99972D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 9.948D-06 -1.000D+02

F = -99.997222204231875

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99722220423187

True

[ 20. 2900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 3000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99980D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 7.106D-06 -1.000D+02

F = -99.997998862807918

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99799886280792

True

[ 20. 3000.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 3100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99986D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 4.263D-06 -1.000D+02

F = -99.998558361836018

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99855836183602

True

[ 20. 3100.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 3200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99990D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 4.263D-06 -1.000D+02

F = -99.998961429230732

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99896142923073

True

[ 20. 3200.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 3300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99993D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 2.842D-06 -1.000D+02

F = -99.999251803892179

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99925180389218

True

[ 20. 3300.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 3400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99995D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 1.421D-06 -1.000D+02

F = -99.999460993397449

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99946099339745

True

[ 20. 3400.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 3500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99996D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 1.421D-06 -1.000D+02

F = -99.999611695841764

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99961169584176

True

[ 20. 3500.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 3600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99997D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999720263315965

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99972026331596

True

[ 20. 3600.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 3700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99998D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999798476196787

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99979847619679

True

[ 20. 3700.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 3800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999854821289631

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99985482128963

True

[ 20. 3800.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 3900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999895412625506

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9998954126255

True

[ 20. 3900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 4000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999924654833222

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99992465483322

True

[ 20. 4000.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 4100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999945721054956

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99994572105496

True

[ 20. 4100.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 4200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999960897250332

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99996089725033

True

[ 20. 4200.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 4300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999971830241407

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999718302414

True

[ 20. 4300.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 4400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999979706409121

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997970640912

True

[ 20. 4400.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 4500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 1.421D-06 -1.000D+02

F = -99.999985380428626

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998538042863

True

[ 20. 4500.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 4600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999989468012060

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998946801206

True

[ 20. 4600.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 4700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999992412721099

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999924127211

True

[ 20. 4700.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 4800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999994534099329

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999453409933

True

[ 20. 4800.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[20, 4900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999996062347250

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999606234725

True

[ 20. 4900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 0]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -3.50000D+01 |proj g|= 1.96763D-02

At iterate 1 f= -3.50004D+01 |proj g|= 1.96771D-02

ys=-1.398E-08 -gs= 3.872E-04 BFGS update SKIPPED

At iterate 2 f= -4.32975D+01 |proj g|= 1.60902D-02

At iterate 3 f= -4.58925D+01 |proj g|= 1.13459D-02

At iterate 4 f= -9.85045D+01 |proj g|= 3.47271D-02

At iterate 5 f= -9.87343D+01 |proj g|= 9.62217D-03

At iterate 6 f= -9.97874D+01 |proj g|= 5.54081D-03

At iterate 7 f= -9.98586D+01 |proj g|= 1.36282D-03

At iterate 8 f= -9.99273D+01 |proj g|= 2.38745D-04

At iterate 9 f= -9.99628D+01 |proj g|= 1.22215D-04

At iterate 10 f= -9.99817D+01 |proj g|= 5.96862D-05

At iterate 11 f= -9.99907D+01 |proj g|= 3.12642D-05

At iterate 12 f= -9.99956D+01 |proj g|= 1.42110D-05

At iterate 13 f= -9.99976D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 26 15 1 0 8.527D-06 -1.000D+02

F = -99.997637824586604

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9976378245866

True

[ 25.87261852 2949.71992307] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.70157D+01 |proj g|= 2.04651D-02

At iterate 1 f= -3.70162D+01 |proj g|= 2.04665D-02

ys=-2.908E-08 -gs= 4.188E-04 BFGS update SKIPPED

At iterate 2 f= -4.50105D+01 |proj g|= 1.31045D-02

At iterate 3 f= -9.91841D+01 |proj g|= 6.18741D-03

At iterate 4 f= -9.92662D+01 |proj g|= 7.69376D-03

At iterate 5 f= -9.96213D+01 |proj g|= 6.40341D-03

At iterate 6 f= -9.96289D+01 |proj g|= 1.20367D-03

At iterate 7 f= -9.98179D+01 |proj g|= 5.94020D-04

At iterate 8 f= -9.99093D+01 |proj g|= 2.95589D-04

At iterate 9 f= -9.99546D+01 |proj g|= 1.47794D-04

At iterate 10 f= -9.99772D+01 |proj g|= 7.38972D-05

At iterate 11 f= -9.99886D+01 |proj g|= 3.69486D-05

At iterate 12 f= -9.99943D+01 |proj g|= 1.98954D-05

At iterate 13 f= -9.99975D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 27 14 1 0 8.527D-06 -1.000D+02

F = -99.997450826573356

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99745082657336

True

[ 10.81229181 2926.32949246] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.90570D+01 |proj g|= 2.01787D-02

At iterate 1 f= -3.90574D+01 |proj g|= 2.01787D-02

ys= 0.000E+00 -gs= 4.072E-04 BFGS update SKIPPED

At iterate 2 f= -4.61274D+01 |proj g|= 1.07569D-02

At iterate 3 f= -9.87260D+01 |proj g|= 2.99821D-02

At iterate 4 f= -9.89338D+01 |proj g|= 3.58256D-03

At iterate 5 f= -9.97606D+01 |proj g|= 6.46452D-03

At iterate 6 f= -9.98580D+01 |proj g|= 4.67542D-04

At iterate 7 f= -9.99167D+01 |proj g|= 2.72851D-04

At iterate 8 f= -9.99606D+01 |proj g|= 1.30741D-04

At iterate 9 f= -9.99803D+01 |proj g|= 6.39495D-05

At iterate 10 f= -9.99898D+01 |proj g|= 3.26853D-05

At iterate 11 f= -9.99949D+01 |proj g|= 1.56321D-05

At iterate 12 f= -9.99973D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 24 14 1 0 8.527D-06 -1.000D+02

F = -99.997310958730878

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99731095873088

True

[ 19.8339561 2909.90049178] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.10173D+01 |proj g|= 1.88748D-02

At iterate 1 f= -4.10177D+01 |proj g|= 1.88734D-02

At iterate 2 f= -4.50575D+01 |proj g|= 1.30157D-02

At iterate 3 f= -9.85159D+01 |proj g|= 4.38945D-02

At iterate 4 f= -9.87773D+01 |proj g|= 3.94497D-03

At iterate 5 f= -9.96934D+01 |proj g|= 6.84110D-03

At iterate 6 f= -9.98236D+01 |proj g|= 5.76967D-04

At iterate 7 f= -9.98970D+01 |proj g|= 3.36801D-04

At iterate 8 f= -9.99518D+01 |proj g|= 1.59163D-04

At iterate 9 f= -9.99756D+01 |proj g|= 7.95816D-05

At iterate 10 f= -9.99877D+01 |proj g|= 4.12119D-05

At iterate 11 f= -9.99941D+01 |proj g|= 1.84743D-05

At iterate 12 f= -9.99967D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 17 13 0 0 9.948D-06 -1.000D+02

F = -99.996726957958131

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99672695795813

True

[ 11.57842 2849.98530287] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.28062D+01 |proj g|= 1.68050D-02

At iterate 1 f= -4.28065D+01 |proj g|= 1.68043D-02

At iterate 2 f= -4.75834D+01 |proj g|= 3.09733D-02

At iterate 3 f= -9.91218D+01 |proj g|= 2.84504D-03

At iterate 4 f= -9.92039D+01 |proj g|= 2.06867D-02

At iterate 5 f= -9.97287D+01 |proj g|= 8.81082D-04

At iterate 6 f= -9.98460D+01 |proj g|= 5.01648D-04

At iterate 7 f= -9.99273D+01 |proj g|= 2.35903D-04

At iterate 8 f= -9.99627D+01 |proj g|= 1.22215D-04

At iterate 9 f= -9.99818D+01 |proj g|= 5.96862D-05

At iterate 10 f= -9.99908D+01 |proj g|= 2.84220D-05

At iterate 11 f= -9.99951D+01 |proj g|= 1.56321D-05

At iterate 12 f= -9.99977D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 17 14 0 0 7.106D-06 -1.000D+02

F = -99.997701561163865

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99770156116386

True

[ 11.88055606 2957.78246302] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.43644D+01 |proj g|= 1.43196D-02

At iterate 1 f= -4.43646D+01 |proj g|= 1.43203D-02

ys=-1.017E-08 -gs= 2.051E-04 BFGS update SKIPPED

At iterate 2 f= -4.54064D+01 |proj g|= 1.23172D-02

At iterate 3 f= -9.83654D+01 |proj g|= 5.48596D-02

At iterate 4 f= -9.86264D+01 |proj g|= 4.44799D-03

At iterate 5 f= -9.97461D+01 |proj g|= 1.03157D-02

At iterate 6 f= -9.98461D+01 |proj g|= 5.05912D-04

At iterate 7 f= -9.98988D+01 |proj g|= 3.31116D-04

At iterate 8 f= -9.99540D+01 |proj g|= 1.50637D-04

At iterate 9 f= -9.99762D+01 |proj g|= 7.95816D-05

At iterate 10 f= -9.99886D+01 |proj g|= 3.83697D-05

At iterate 11 f= -9.99943D+01 |proj g|= 1.98954D-05

At iterate 12 f= -9.99973D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 23 14 1 0 8.527D-06 -1.000D+02

F = -99.997260250721283

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99726025072128

True

[ 11.45141051 2904.24087735] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.56678D+01 |proj g|= 1.17595D-02

At iterate 1 f= -4.56679D+01 |proj g|= 1.17581D-02

At iterate 2 f= -9.77868D+01 |proj g|= 2.75634D-02

At iterate 3 f= -9.78412D+01 |proj g|= 4.58527D-02

At iterate 4 f= -9.99543D+01 |proj g|= 1.49216D-04

At iterate 5 f= -9.99697D+01 |proj g|= 9.94770D-05

At iterate 6 f= -9.99867D+01 |proj g|= 4.40541D-05

At iterate 7 f= -9.99931D+01 |proj g|= 2.27376D-05

At iterate 8 f= -9.99965D+01 |proj g|= 1.27899D-05

At iterate 9 f= -9.99986D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 16 9 0 0 5.684D-06 -1.000D+02

F = -99.998587179659495

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9985871796595

True

[ 13.25473613 3106.15956337] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.67224D+01 |proj g|= 9.38129D-03

At iterate 1 f= -4.67225D+01 |proj g|= 9.38058D-03

At iterate 2 f= -9.75379D+01 |proj g|= 3.24178D-02

At iterate 3 f= -9.83875D+01 |proj g|= 2.52840D-02

At iterate 4 f= -9.95704D+01 |proj g|= 8.89045D-02

At iterate 5 f= -9.99169D+01 |proj g|= 8.02061D-03

At iterate 6 f= -9.99317D+01 |proj g|= 5.26654D-03

At iterate 7 f= -9.99665D+01 |proj g|= 1.32445D-03

At iterate 8 f= -9.99816D+01 |proj g|= 4.36273D-04

At iterate 9 f= -9.99908D+01 |proj g|= 1.22213D-04

At iterate 10 f= -9.99956D+01 |proj g|= 3.12639D-05

At iterate 11 f= -9.99972D+01 |proj g|= 1.42109D-05

At iterate 12 f= -9.99989D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 19 13 0 0 2.842D-06 -1.000D+02

F = -99.998888303865584

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99888830386558

True

[ 31.33890722 3180.42774891] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.75557D+01 |proj g|= 7.35411D-03

At iterate 1 f= -4.75558D+01 |proj g|= 7.35482D-03

ys=-8.178E-08 -gs= 8.041E-05 BFGS update SKIPPED

At iterate 2 f= -9.76581D+01 |proj g|= 1.96053D-02

At iterate 3 f= -9.76611D+01 |proj g|= 1.24771D-02

At iterate 4 f= -9.80576D+01 |proj g|= 6.36504D-03

At iterate 5 f= -9.91769D+01 |proj g|= 2.66883D-03

At iterate 6 f= -9.95581D+01 |proj g|= 1.43673D-03

At iterate 7 f= -9.97869D+01 |proj g|= 6.94918D-04

At iterate 8 f= -9.98927D+01 |proj g|= 3.51012D-04

At iterate 9 f= -9.99468D+01 |proj g|= 1.74795D-04

At iterate 10 f= -9.99735D+01 |proj g|= 8.81082D-05

At iterate 11 f= -9.99870D+01 |proj g|= 4.40541D-05

At iterate 12 f= -9.99936D+01 |proj g|= 2.27376D-05

At iterate 13 f= -9.99970D+01 |proj g|= 1.13688D-05

At iterate 14 f= -9.99986D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 14 25 14 1 0 4.263D-06 -1.000D+02

F = -99.998588463191268

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99858846319127

True

[ 16.21272479 3106.43143435] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.82095D+01 |proj g|= 1.50450D-02

At iterate 1 f= -4.82098D+01 |proj g|= 1.51736D-02

ys=-1.951E-06 -gs= 2.602E-04 BFGS update SKIPPED

At iterate 2 f= -9.81556D+01 |proj g|= 1.08173D-02

At iterate 3 f= -9.81567D+01 |proj g|= 6.03108D-03

At iterate 4 f= -9.85743D+01 |proj g|= 2.50679D-02

At iterate 5 f= -9.93798D+01 |proj g|= 6.60663D-03

At iterate 6 f= -9.96754D+01 |proj g|= 2.55369D-03

At iterate 7 f= -9.98423D+01 |proj g|= 8.69704D-04

At iterate 8 f= -9.99212D+01 |proj g|= 3.04112D-04

At iterate 9 f= -9.99606D+01 |proj g|= 1.29320D-04

At iterate 10 f= -9.99804D+01 |proj g|= 6.39495D-05

At iterate 11 f= -9.99901D+01 |proj g|= 3.26853D-05

At iterate 12 f= -9.99952D+01 |proj g|= 1.56321D-05

At iterate 13 f= -9.99975D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 27 13 1 0 8.527D-06 -1.000D+02

F = -99.997478691209579

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99747869120958

True

[ 10.93417997 2929.65569753] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 1000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.87424D+01 |proj g|= 4.40615D-02

At iterate 1 f= -4.87444D+01 |proj g|= 4.51621D-02

ys=-4.860E-05 -gs= 1.966E-03 BFGS update SKIPPED

At iterate 2 f= -9.86312D+01 |proj g|= 1.65940D-02

At iterate 3 f= -9.86389D+01 |proj g|= 7.11964D-03

At iterate 4 f= -9.86720D+01 |proj g|= 1.22654D-02

At iterate 5 f= -9.88138D+01 |proj g|= 2.63299D-02

At iterate 6 f= -9.92814D+01 |proj g|= 5.64228D-02

At iterate 7 f= -9.95795D+01 |proj g|= 5.10255D-02

At iterate 8 f= -9.97994D+01 |proj g|= 2.53536D-02

At iterate 9 f= -9.98991D+01 |proj g|= 1.30242D-02

At iterate 10 f= -9.99499D+01 |proj g|= 6.58247D-03

At iterate 11 f= -9.99750D+01 |proj g|= 3.32818D-03

At iterate 12 f= -9.99872D+01 |proj g|= 1.73088D-03

At iterate 13 f= -9.99938D+01 |proj g|= 8.42704D-04

At iterate 14 f= -9.99968D+01 |proj g|= 4.36273D-04

At iterate 15 f= -9.99980D+01 |proj g|= 1.57740D-04

At iterate 16 f= -9.99998D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 16 27 17 1 0 5.684D-06 -1.000D+02

F = -99.999817789828455

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99981778982846

True

[ 43.35057539 3744.85481384] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 1100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.92531D+01 |proj g|= 1.28521D-01

At iterate 1 f= -4.92702D+01 |proj g|= 1.38033D-01

ys=-1.224E-03 -gs= 1.655E-02 BFGS update SKIPPED

At iterate 2 f= -9.89530D+01 |proj g|= 4.04427D-02

At iterate 3 f= -9.90035D+01 |proj g|= 1.04521D-02

At iterate 4 f= -9.90097D+01 |proj g|= 3.21595D-03

At iterate 5 f= -9.90111D+01 |proj g|= 3.18611D-03

At iterate 6 f= -9.90128D+01 |proj g|= 4.86580D-03

At iterate 7 f= -9.90369D+01 |proj g|= 3.46532D-02

At iterate 8 f= -9.90867D+01 |proj g|= 5.03476D-02

At iterate 9 f= -9.95860D+01 |proj g|= 3.84290D-02

At iterate 10 f= -9.97891D+01 |proj g|= 1.73969D-02

At iterate 11 f= -9.98969D+01 |proj g|= 8.20251D-03

At iterate 12 f= -9.99482D+01 |proj g|= 4.03304D-03

At iterate 13 f= -9.99744D+01 |proj g|= 1.95826D-03

At iterate 14 f= -9.99870D+01 |proj g|= 9.76286D-04

At iterate 15 f= -9.99937D+01 |proj g|= 4.63274D-04

At iterate 16 f= -9.99965D+01 |proj g|= 2.51532D-04

At iterate 17 f= -9.99983D+01 |proj g|= 1.22213D-04

At iterate 18 f= -9.99993D+01 |proj g|= 1.39266D-04

At iterate 19 f= -9.99997D+01 |proj g|= 1.42109D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 19 29 21 1 1 1.421D-06 -1.000D+02

F = -99.999692038194524

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99969203819452

True

[ 31.41701765 3570.75392909] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 1200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99583D+01 |proj g|= 3.70527D-01

At iterate 1 f= -5.01105D+01 |proj g|= 4.53274D-01

ys=-3.067E-02 -gs= 1.374E-01 BFGS update SKIPPED

At iterate 2 f= -9.92483D+01 |proj g|= 2.29292D-02

At iterate 3 f= -9.92670D+01 |proj g|= 1.25567D-02

At iterate 4 f= -9.92793D+01 |proj g|= 5.46692D-03

At iterate 5 f= -9.92844D+01 |proj g|= 2.31355D-03

At iterate 6 f= -9.92858D+01 |proj g|= 2.45848D-03

At iterate 7 f= -9.92914D+01 |proj g|= 8.26503D-03

At iterate 8 f= -9.93122D+01 |proj g|= 2.71058D-02

At iterate 9 f= -9.93930D+01 |proj g|= 5.31898D-02

At iterate 10 f= -9.97440D+01 |proj g|= 2.14044D-02

At iterate 11 f= -9.98656D+01 |proj g|= 1.13914D-02

At iterate 12 f= -9.99347D+01 |proj g|= 5.59908D-03

At iterate 13 f= -9.99671D+01 |proj g|= 2.84786D-03

At iterate 14 f= -9.99837D+01 |proj g|= 1.42109D-03

At iterate 15 f= -9.99920D+01 |proj g|= 7.07701D-04

At iterate 16 f= -9.99960D+01 |proj g|= 3.52429D-04

At iterate 17 f= -9.99978D+01 |proj g|= 1.98952D-04

At iterate 18 f= -9.99991D+01 |proj g|= 8.24230D-05

At iterate 19 f= -9.99995D+01 |proj g|= 3.83693D-05

At iterate 20 f= -9.99997D+01 |proj g|= 5.96856D-05

At iterate 21 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 21 26 21 1 0 0.000D+00 -1.000D+02

F = -99.999950022035989

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99995002203599

True

[ 39.89120041 4125.29390821] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 1300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.14000D+01 |proj g|= 1.03310D+00

At iterate 1 f= -5.28042D+01 |proj g|= 1.73755D+00

ys=-7.281E-01 -gs= 1.068E+00 BFGS update SKIPPED

At iterate 2 f= -9.94802D+01 |proj g|= 1.68827D-03

At iterate 3 f= -9.94829D+01 |proj g|= 1.92131D-03

At iterate 4 f= -9.94840D+01 |proj g|= 8.07319D-03

At iterate 5 f= -9.94854D+01 |proj g|= 5.37170D-03

At iterate 6 f= -9.94913D+01 |proj g|= 2.20837D-03

At iterate 7 f= -9.95222D+01 |proj g|= 1.84173D-03

At iterate 8 f= -9.95981D+01 |proj g|= 1.81757D-02

At iterate 9 f= -9.96282D+01 |proj g|= 2.49514D-02

At iterate 10 f= -9.98177D+01 |proj g|= 1.60185D-02

At iterate 11 f= -9.99086D+01 |proj g|= 7.75770D-03

At iterate 12 f= -9.99546D+01 |proj g|= 3.81277D-03

At iterate 13 f= -9.99775D+01 |proj g|= 1.88152D-03

At iterate 14 f= -9.99888D+01 |proj g|= 9.36495D-04

At iterate 15 f= -9.99941D+01 |proj g|= 4.88853D-04

At iterate 16 f= -9.99975D+01 |proj g|= 2.08900D-04

At iterate 17 f= -9.99987D+01 |proj g|= 1.10845D-04

At iterate 18 f= -9.99996D+01 |proj g|= 3.83693D-05

At iterate 19 f= -9.99998D+01 |proj g|= 2.55795D-05

At iterate 20 f= -9.99998D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 20 27 21 1 1 1.421D-06 -1.000D+02

F = -99.999828219230167

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99982821923017

True

[ 32.48575446 3748.72597355] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 1400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.48626D+01 |proj g|= 2.62753D+00

At iterate 1 f= -6.65218D+01 |proj g|= 6.26911D+00

ys=-9.572E+00 -gs= 6.907E+00 BFGS update SKIPPED

At iterate 2 f= -9.68709D+01 |proj g|= 1.45872D+00

At iterate 3 f= -9.86413D+01 |proj g|= 5.40822D-01

At iterate 4 f= -9.90955D+01 |proj g|= 2.93990D-01

At iterate 5 f= -9.93734D+01 |proj g|= 1.40712D-01

At iterate 6 f= -9.94985D+01 |proj g|= 7.11552D-02

At iterate 7 f= -9.95628D+01 |proj g|= 3.53168D-02

At iterate 8 f= -9.95945D+01 |proj g|= 1.76655D-02

At iterate 9 f= -9.96106D+01 |proj g|= 8.78799D-03

At iterate 10 f= -9.96189D+01 |proj g|= 4.33431D-03

At iterate 11 f= -9.96239D+01 |proj g|= 2.03784D-03

At iterate 12 f= -9.96277D+01 |proj g|= 1.21362D-03

At iterate 13 f= -9.96298D+01 |proj g|= 1.19941D-03

At iterate 14 f= -9.96316D+01 |proj g|= 5.82077D-03

At iterate 15 f= -9.96365D+01 |proj g|= 3.52003D-03

At iterate 16 f= -9.97073D+01 |proj g|= 9.52137D-04

At iterate 17 f= -9.98518D+01 |proj g|= 4.88859D-04

At iterate 18 f= -9.99260D+01 |proj g|= 4.83169D-04

At iterate 19 f= -9.99632D+01 |proj g|= 3.95062D-04

At iterate 20 f= -9.99812D+01 |proj g|= 2.71427D-04

At iterate 21 f= -9.99901D+01 |proj g|= 1.76215D-04

At iterate 22 f= -9.99960D+01 |proj g|= 9.52127D-05

At iterate 23 f= -9.99977D+01 |proj g|= 6.25278D-05

At iterate 24 f= -9.99986D+01 |proj g|= 3.41060D-05

At iterate 25 f= -9.99999D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 25 27 25 1 0 5.684D-06 -1.000D+02

F = -99.999897865744799

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9998978657448

True

[ 46.85719283 3931.71321732] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 1500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -6.25085D+01 |proj g|= 5.33130D+00

At iterate 1 f= -9.33350D+01 |proj g|= 3.12509D+00

At iterate 2 f= -9.96232D+01 |proj g|= 5.93189D-02

At iterate 3 f= -9.96588D+01 |proj g|= 3.94351D-02

At iterate 4 f= -9.96981D+01 |proj g|= 1.75163D-02

At iterate 5 f= -9.97131D+01 |proj g|= 9.13474D-03

At iterate 6 f= -9.97217D+01 |proj g|= 4.45794D-03

At iterate 7 f= -9.97262D+01 |proj g|= 2.18847D-03

At iterate 8 f= -9.97293D+01 |proj g|= 9.80549D-04

At iterate 9 f= -9.97325D+01 |proj g|= 8.72556D-04

At iterate 10 f= -9.97344D+01 |proj g|= 1.00044D-03

At iterate 11 f= -9.97364D+01 |proj g|= 4.52332D-03

At iterate 12 f= -9.97789D+01 |proj g|= 4.17799D-03

At iterate 13 f= -9.99118D+01 |proj g|= 1.06581D-03

At iterate 14 f= -9.99528D+01 |proj g|= 6.26699D-04

At iterate 15 f= -9.99768D+01 |proj g|= 3.24007D-04

At iterate 16 f= -9.99883D+01 |proj g|= 1.71951D-04

At iterate 17 f= -9.99943D+01 |proj g|= 8.81073D-05

At iterate 18 f= -9.99974D+01 |proj g|= 4.26326D-05

At iterate 19 f= -9.99985D+01 |proj g|= 2.55795D-05

At iterate 20 f= -9.99995D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 20 24 20 0 0 8.527D-06 -1.000D+02

F = -99.999532090620136

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99953209062014

True

[ 9.93384385 3446.52919596] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 1600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -7.48988D+01 |proj g|= 7.00504D+00

At iterate 1 f= -9.88455D+01 |proj g|= 5.27019D-01

At iterate 2 f= -9.91040D+01 |proj g|= 3.86935D-01

At iterate 3 f= -9.95122D+01 |proj g|= 1.62747D-01

At iterate 4 f= -9.96500D+01 |proj g|= 8.62300D-02

At iterate 5 f= -9.97293D+01 |proj g|= 4.20144D-02

At iterate 6 f= -9.97666D+01 |proj g|= 2.11770D-02

At iterate 7 f= -9.97856D+01 |proj g|= 1.05373D-02

At iterate 8 f= -9.97952D+01 |proj g|= 5.25944D-03

At iterate 9 f= -9.98001D+01 |proj g|= 2.59917D-03

At iterate 10 f= -9.98029D+01 |proj g|= 1.25056D-03

At iterate 11 f= -9.98051D+01 |proj g|= 6.40916D-04

At iterate 12 f= -9.98079D+01 |proj g|= 6.26705D-04

At iterate 13 f= -9.98097D+01 |proj g|= 7.16227D-04

At iterate 14 f= -9.98109D+01 |proj g|= 2.02220D-03

At iterate 15 f= -9.98181D+01 |proj g|= 4.56026D-03

At iterate 16 f= -9.98838D+01 |proj g|= 1.42265D-02

At iterate 17 f= -9.99584D+01 |proj g|= 3.29692D-04

At iterate 18 f= -9.99751D+01 |proj g|= 1.47793D-04

At iterate 19 f= -9.99886D+01 |proj g|= 4.68958D-05

At iterate 20 f= -9.99942D+01 |proj g|= 1.84743D-05

At iterate 21 f= -9.99969D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 21 24 21 0 0 9.948D-06 -1.000D+02

F = -99.996895653758173

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99689565375817

True

[ 10.08556028 2866.48794284] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 1700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -8.72226D+01 |proj g|= 5.29177D+00

At iterate 1 f= -9.90032D+01 |proj g|= 4.71235D-01

At iterate 2 f= -9.92158D+01 |proj g|= 3.55661D-01

At iterate 3 f= -9.95933D+01 |proj g|= 1.47929D-01

At iterate 4 f= -9.97178D+01 |proj g|= 7.87395D-02

At iterate 5 f= -9.97903D+01 |proj g|= 3.83039D-02

At iterate 6 f= -9.98242D+01 |proj g|= 1.93253D-02

At iterate 7 f= -9.98416D+01 |proj g|= 9.61364D-03

At iterate 8 f= -9.98503D+01 |proj g|= 4.80469D-03

At iterate 9 f= -9.98547D+01 |proj g|= 2.38458D-03

At iterate 10 f= -9.98571D+01 |proj g|= 1.16387D-03

At iterate 11 f= -9.98587D+01 |proj g|= 5.28644D-04

At iterate 12 f= -9.98605D+01 |proj g|= 4.57594D-04

At iterate 13 f= -9.98636D+01 |proj g|= 1.31877D-03

At iterate 14 f= -9.98646D+01 |proj g|= 4.41962D-04

At iterate 15 f= -9.98880D+01 |proj g|= 3.68065D-04

At iterate 16 f= -9.99484D+01 |proj g|= 1.15108D-03

At iterate 17 f= -9.99666D+01 |proj g|= 2.45279D-03

At iterate 18 f= -9.99842D+01 |proj g|= 8.59757D-04

At iterate 19 f= -9.99917D+01 |proj g|= 4.46221D-04

At iterate 20 f= -9.99963D+01 |proj g|= 2.07478D-04

At iterate 21 f= -9.99979D+01 |proj g|= 1.17950D-04

At iterate 22 f= -9.99999D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 22 24 22 0 0 5.684D-06 -1.000D+02

F = -99.999920691662297

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999206916623

True

[ 48.93868544 4023.08782254] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 1800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.47314D+01 |proj g|= 2.59623D+00

At iterate 1 f= -9.85890D+01 |proj g|= 7.14370D-01

At iterate 2 f= -9.91362D+01 |proj g|= 4.20408D-01

At iterate 3 f= -9.95495D+01 |proj g|= 1.93977D-01

At iterate 4 f= -9.97203D+01 |proj g|= 9.92514D-02

At iterate 5 f= -9.98105D+01 |proj g|= 4.90033D-02

At iterate 6 f= -9.98542D+01 |proj g|= 2.45748D-02

At iterate 7 f= -9.98762D+01 |proj g|= 1.22583D-02

At iterate 8 f= -9.98872D+01 |proj g|= 6.12772D-03

At iterate 9 f= -9.98927D+01 |proj g|= 3.05533D-03

At iterate 10 f= -9.98956D+01 |proj g|= 1.51488D-03

At iterate 11 f= -9.98971D+01 |proj g|= 7.31859D-04

At iterate 12 f= -9.98983D+01 |proj g|= 3.38222D-04

At iterate 13 f= -9.98997D+01 |proj g|= 3.29695D-04

At iterate 14 f= -9.99015D+01 |proj g|= 3.21169D-04

At iterate 15 f= -9.99040D+01 |proj g|= 1.05871D-03

At iterate 16 f= -9.99136D+01 |proj g|= 1.78488D-03

At iterate 17 f= -9.99807D+01 |proj g|= 6.25284D-05

At iterate 18 f= -9.99869D+01 |proj g|= 4.40541D-05

At iterate 19 f= -9.99948D+01 |proj g|= 1.70532D-05

At iterate 20 f= -9.99971D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 20 23 20 0 0 9.948D-06 -1.000D+02

F = -99.997098417549978

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99709841754998

True

[ 22.70516502 2886.77148032] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 1900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.80372D+01 |proj g|= 1.01875D+00

At iterate 1 f= -9.88414D+01 |proj g|= 5.94878D-01

At iterate 2 f= -9.94338D+01 |proj g|= 2.73383D-01

At iterate 3 f= -9.96760D+01 |proj g|= 1.39634D-01

At iterate 4 f= -9.98032D+01 |proj g|= 6.88885D-02

At iterate 5 f= -9.98648D+01 |proj g|= 3.45352D-02

At iterate 6 f= -9.98957D+01 |proj g|= 1.72250D-02

At iterate 7 f= -9.99111D+01 |proj g|= 8.61462D-03

At iterate 8 f= -9.99188D+01 |proj g|= 4.30020D-03

At iterate 9 f= -9.99227D+01 |proj g|= 2.14442D-03

At iterate 10 f= -9.99247D+01 |proj g|= 1.06155D-03

At iterate 11 f= -9.99258D+01 |proj g|= 5.15854D-04

At iterate 12 f= -9.99267D+01 |proj g|= 2.41587D-04

At iterate 13 f= -9.99277D+01 |proj g|= 2.38745D-04

At iterate 14 f= -9.99303D+01 |proj g|= 4.46221D-04

At iterate 15 f= -9.99313D+01 |proj g|= 9.91918D-04

At iterate 16 f= -9.99634D+01 |proj g|= 4.57590D-04

At iterate 17 f= -9.99824D+01 |proj g|= 2.34479D-04

At iterate 18 f= -9.99912D+01 |proj g|= 1.20792D-04

At iterate 19 f= -9.99955D+01 |proj g|= 6.39488D-05

At iterate 20 f= -9.99980D+01 |proj g|= 2.84217D-05

At iterate 21 f= -9.99998D+01 |proj g|= 2.84217D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 21 23 21 0 0 2.842D-06 -1.000D+02

F = -99.999806926322236

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99980692632224

True

[ 10.62174418 3715.81524691] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 2000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.92867D+01 |proj g|= 3.65108D-01

At iterate 1 f= -9.94076D+01 |proj g|= 2.98986D-01

At iterate 2 f= -9.97318D+01 |proj g|= 1.20050D-01

At iterate 3 f= -9.98311D+01 |proj g|= 6.47731D-02

At iterate 4 f= -9.98909D+01 |proj g|= 3.13634D-02

At iterate 5 f= -9.99187D+01 |proj g|= 1.58536D-02

At iterate 6 f= -9.99329D+01 |proj g|= 7.88987D-03

At iterate 7 f= -9.99400D+01 |proj g|= 3.94635D-03

At iterate 8 f= -9.99435D+01 |proj g|= 1.96962D-03

At iterate 9 f= -9.99453D+01 |proj g|= 9.77707D-04

At iterate 10 f= -9.99463D+01 |proj g|= 4.78906D-04

At iterate 11 f= -9.99469D+01 |proj g|= 2.21689D-04

At iterate 12 f= -9.99476D+01 |proj g|= 1.71953D-04

At iterate 13 f= -9.99489D+01 |proj g|= 1.67690D-04

At iterate 14 f= -9.99505D+01 |proj g|= 1.62005D-04

At iterate 15 f= -9.99513D+01 |proj g|= 4.14957D-04

At iterate 16 f= -9.99601D+01 |proj g|= 3.02407D-03

At iterate 17 f= -9.99929D+01 |proj g|= 2.41587D-05

At iterate 18 f= -9.99949D+01 |proj g|= 1.70532D-05

At iterate 19 f= -9.99978D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 19 23 19 0 0 5.684D-06 -1.000D+02

F = -99.997797661079801

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9977976610798

True

[ 12.66917121 2970.78544555] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 2100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.97348D+01 |proj g|= 1.26607D-01

At iterate 1 f= -9.97503D+01 |proj g|= 1.18004D-01

At iterate 2 f= -9.98817D+01 |proj g|= 4.48068D-02

At iterate 3 f= -9.99176D+01 |proj g|= 2.47240D-02

At iterate 4 f= -9.99406D+01 |proj g|= 1.18803D-02

At iterate 5 f= -9.99510D+01 |proj g|= 6.02824D-03

At iterate 6 f= -9.99565D+01 |proj g|= 2.99423D-03

At iterate 7 f= -9.99591D+01 |proj g|= 1.49782D-03

At iterate 8 f= -9.99605D+01 |proj g|= 7.44649D-04

At iterate 9 f= -9.99612D+01 |proj g|= 3.65219D-04

At iterate 10 f= -9.99617D+01 |proj g|= 1.67688D-04

At iterate 11 f= -9.99621D+01 |proj g|= 1.25057D-04

At iterate 12 f= -9.99630D+01 |proj g|= 1.20794D-04

At iterate 13 f= -9.99642D+01 |proj g|= 1.16530D-04

At iterate 14 f= -9.99666D+01 |proj g|= 7.53175D-04

At iterate 15 f= -9.99957D+01 |proj g|= 1.42110D-05

At iterate 16 f= -9.99968D+01 |proj g|= 1.13688D-05

At iterate 17 f= -9.99990D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 20 17 0 0 2.842D-06 -1.000D+02

F = -99.999022715522869

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99902271552287

True

[ 15.53695375 3218.54607195] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 2200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.98949D+01 |proj g|= 4.34028D-02

At iterate 1 f= -9.98967D+01 |proj g|= 4.23626D-02

At iterate 2 f= -9.99443D+01 |proj g|= 1.57570D-02

At iterate 3 f= -9.99568D+01 |proj g|= 8.76241D-03

At iterate 4 f= -9.99650D+01 |proj g|= 4.20073D-03

At iterate 5 f= -9.99687D+01 |proj g|= 2.13305D-03

At iterate 6 f= -9.99706D+01 |proj g|= 1.05729D-03

At iterate 7 f= -9.99716D+01 |proj g|= 5.28644D-04

At iterate 8 f= -9.99721D+01 |proj g|= 2.58638D-04

At iterate 9 f= -9.99724D+01 |proj g|= 1.19371D-04

At iterate 10 f= -9.99727D+01 |proj g|= 8.95293D-05

At iterate 11 f= -9.99734D+01 |proj g|= 8.66871D-05

At iterate 12 f= -9.99746D+01 |proj g|= 8.24238D-05

At iterate 13 f= -9.99749D+01 |proj g|= 1.43530D-04

At iterate 14 f= -9.99806D+01 |proj g|= 8.10019D-04

At iterate 15 f= -9.99962D+01 |proj g|= 1.27899D-05

At iterate 16 f= -9.99973D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 16 22 16 0 0 8.527D-06 -1.000D+02

F = -99.997308079820044

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99730807982004

True

[ 14.76595581 2909.5610944 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 2300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99537D+01 |proj g|= 1.48191D-02

At iterate 1 f= -9.99539D+01 |proj g|= 1.46983D-02

At iterate 2 f= -9.99706D+01 |proj g|= 5.35039D-03

At iterate 3 f= -9.99748D+01 |proj g|= 2.99991D-03

At iterate 4 f= -9.99776D+01 |proj g|= 1.43245D-03

At iterate 5 f= -9.99789D+01 |proj g|= 7.29017D-04

At iterate 6 f= -9.99795D+01 |proj g|= 3.59535D-04

At iterate 7 f= -9.99799D+01 |proj g|= 1.77636D-04

At iterate 8 f= -9.99801D+01 |proj g|= 8.24230D-05

At iterate 9 f= -9.99804D+01 |proj g|= 6.39495D-05

At iterate 10 f= -9.99808D+01 |proj g|= 6.25284D-05

At iterate 11 f= -9.99819D+01 |proj g|= 5.82651D-05

At iterate 12 f= -9.99823D+01 |proj g|= 1.39266D-04

At iterate 13 f= -9.99915D+01 |proj g|= 1.64846D-04

At iterate 14 f= -9.99957D+01 |proj g|= 1.42110D-05

At iterate 15 f= -9.99979D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 15 21 15 0 0 5.684D-06 -1.000D+02

F = -99.997928507783968

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99792850778397

True

[ 10.55963056 2989.73696838] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 2400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99767D+01 |proj g|= 5.05338D-03

At iterate 1 f= -9.99767D+01 |proj g|= 5.03917D-03

At iterate 2 f= -9.99824D+01 |proj g|= 1.84315D-03

At iterate 3 f= -9.99839D+01 |proj g|= 1.03171D-03

At iterate 4 f= -9.99848D+01 |proj g|= 4.90274D-04

At iterate 5 f= -9.99853D+01 |proj g|= 2.47269D-04

At iterate 6 f= -9.99855D+01 |proj g|= 1.22213D-04

At iterate 7 f= -9.99857D+01 |proj g|= 5.40012D-05

At iterate 8 f= -9.99859D+01 |proj g|= 4.68963D-05

At iterate 9 f= -9.99863D+01 |proj g|= 4.54752D-05

At iterate 10 f= -9.99872D+01 |proj g|= 4.26330D-05

At iterate 11 f= -9.99875D+01 |proj g|= 1.03739D-04

At iterate 12 f= -9.99939D+01 |proj g|= 1.98954D-05

At iterate 13 f= -9.99969D+01 |proj g|= 1.13688D-05

At iterate 14 f= -9.99987D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 14 20 14 0 0 5.684D-06 -1.000D+02

F = -99.998716786422250

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99871678642225

True

[ 19.4312944 3135.49793901] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 2500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99866D+01 |proj g|= 1.72093D-03

At iterate 1 f= -9.99866D+01 |proj g|= 1.72093D-03

ys= 0.000E+00 -gs= 2.966E-06 BFGS update SKIPPED

At iterate 2 f= -9.99875D+01 |proj g|= 1.23777D-03

At iterate 3 f= -9.99887D+01 |proj g|= 5.32907D-04

At iterate 4 f= -9.99892D+01 |proj g|= 2.79954D-04

At iterate 5 f= -9.99895D+01 |proj g|= 1.36424D-04

At iterate 6 f= -9.99896D+01 |proj g|= 6.67910D-05

At iterate 7 f= -9.99897D+01 |proj g|= 3.41064D-05

At iterate 8 f= -9.99899D+01 |proj g|= 3.41064D-05

At iterate 9 f= -9.99903D+01 |proj g|= 3.12642D-05

At iterate 10 f= -9.99912D+01 |proj g|= 2.84220D-05

At iterate 11 f= -9.99927D+01 |proj g|= 3.26850D-04

At iterate 12 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 19 12 1 0 0.000D+00 -1.000D+02

F = -99.999996222525510

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999622252551

True

[ 46.12105482 4912.67433955] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 2600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99915D+01 |proj g|= 5.86908D-04

At iterate 1 f= -9.99915D+01 |proj g|= 5.85487D-04

At iterate 2 f= -9.99917D+01 |proj g|= 5.11591D-04

At iterate 3 f= -9.99922D+01 |proj g|= 1.97531D-04

At iterate 4 f= -9.99924D+01 |proj g|= 1.06581D-04

At iterate 5 f= -9.99925D+01 |proj g|= 5.11591D-05

At iterate 6 f= -9.99926D+01 |proj g|= 2.41587D-05

At iterate 7 f= -9.99927D+01 |proj g|= 2.41587D-05

At iterate 8 f= -9.99930D+01 |proj g|= 2.27376D-05

At iterate 9 f= -9.99938D+01 |proj g|= 1.98954D-05

At iterate 10 f= -9.99941D+01 |proj g|= 8.52651D-05

At iterate 11 f= -9.99980D+01 |proj g|= 9.64917D-04

At iterate 12 f= -9.99999D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 19 12 0 0 1.421D-06 -1.000D+02

F = -99.999876673388584

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99987667338858

True

[ 19.59354862 3849.74324783] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 2700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99943D+01 |proj g|= 2.00373D-04

At iterate 1 f= -9.99943D+01 |proj g|= 1.98952D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.990D-04 -9.999D+01

F = -99.994291561994203

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.9942915619942

True

[ 29.99979963 2700.0000199 ] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[30, 2800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99960D+01 |proj g|= 6.67910D-05

At iterate 1 f= -9.99960D+01 |proj g|= 6.82121D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 6.821D-05 -1.000D+02

F = -99.996022869797258

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99602286979726

True

[ 29.99993321 2800.00001279] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[30, 2900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99972D+01 |proj g|= 2.13163D-05

At iterate 1 f= -9.99972D+01 |proj g|= 2.41585D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.416D-05 -1.000D+02

F = -99.997180913636811

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99718091363681

True

[ 29.99997868 2900.00000995] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[30, 3000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99980D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 7.106D-06 -1.000D+02

F = -99.997984792553822

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99798479255382

True

[ 30. 3000.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 3100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99986D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 4.263D-06 -1.000D+02

F = -99.998553567302565

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99855356730257

True

[ 30. 3100.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 3200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99990D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 2.842D-06 -1.000D+02

F = -99.998959795461758

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99895979546176

True

[ 30. 3200.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 3300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99993D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 2.842D-06 -1.000D+02

F = -99.999251247174868

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99925124717487

True

[ 30. 3300.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 3400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99995D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 2.842D-06 -1.000D+02

F = -99.999460803692699

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9994608036927

True

[ 30. 3400.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 3500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99996D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 1.421D-06 -1.000D+02

F = -99.999611631198988

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99961163119899

True

[ 30. 3500.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 3600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99997D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999720241288884

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99972024128888

True

[ 30. 3600.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 3700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99998D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999798468691296

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9997984686913

True

[ 30. 3700.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 3800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999854818732459

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99985481873246

True

[ 30. 3800.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 3900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 1.421D-06 -1.000D+02

F = -99.999895411754494

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9998954117545

True

[ 30. 3900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 4000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999924654536812

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99992465453681

True

[ 30. 4000.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 4100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999945720954344

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99994572095434

True

[ 30. 4100.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 4200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 1.421D-06 -1.000D+02

F = -99.999960897216397

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999608972164

True

[ 30. 4200.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 4300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999971830230237

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997183023024

True

[ 30. 4300.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 4400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999979706405682

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997970640568

True

[ 30. 4400.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 4500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999985380427844

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998538042784

True

[ 30. 4500.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 4600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999989468012160

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998946801216

True

[ 30. 4600.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 4700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999992412721511

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999241272151

True

[ 30. 4700.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 4800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999994534099855

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999453409986

True

[ 30. 4800.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[30, 4900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999996062347805

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999960623478

True

[ 30. 4900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 0]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -3.50000D+01 |proj g|= 1.96763D-02

At iterate 1 f= -3.50004D+01 |proj g|= 1.96771D-02

ys=-1.398E-08 -gs= 3.872E-04 BFGS update SKIPPED

At iterate 2 f= -4.32973D+01 |proj g|= 1.60881D-02

At iterate 3 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 12 3 1 0 0.000D+00 -1.000D+02

F = -99.999997163300918

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999716330092

True

[ 40. 5000.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.70157D+01 |proj g|= 2.04651D-02

At iterate 1 f= -3.70162D+01 |proj g|= 2.04665D-02

ys=-2.908E-08 -gs= 4.188E-04 BFGS update SKIPPED

At iterate 2 f= -4.50098D+01 |proj g|= 1.30981D-02

At iterate 3 f= -4.95614D+01 |proj g|= 7.38041D-03

At iterate 4 f= -9.96803D+01 |proj g|= 1.04309D-03

At iterate 5 f= -9.97063D+01 |proj g|= 2.92033D-03

At iterate 6 f= -9.99243D+01 |proj g|= 2.47271D-04

At iterate 7 f= -9.99523D+01 |proj g|= 1.56321D-04

At iterate 8 f= -9.99784D+01 |proj g|= 7.10550D-05

At iterate 9 f= -9.99889D+01 |proj g|= 3.69486D-05

At iterate 10 f= -9.99946D+01 |proj g|= 1.70532D-05

At iterate 11 f= -9.99971D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 23 13 1 0 8.527D-06 -1.000D+02

F = -99.997067361938946

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99706736193895

True

[ 20.56036592 2883.46649766] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.90570D+01 |proj g|= 2.01787D-02

At iterate 1 f= -3.90574D+01 |proj g|= 2.01787D-02

ys= 0.000E+00 -gs= 4.072E-04 BFGS update SKIPPED

At iterate 2 f= -4.61256D+01 |proj g|= 1.07370D-02

At iterate 3 f= -4.91460D+01 |proj g|= 2.72780D-03

At iterate 4 f= -9.94630D+01 |proj g|= 1.40005D-02

At iterate 5 f= -9.94671D+01 |proj g|= 1.00229D-02

At iterate 6 f= -9.98097D+01 |proj g|= 5.86340D-03

At iterate 7 f= -9.98939D+01 |proj g|= 3.16618D-03

At iterate 8 f= -9.99490D+01 |proj g|= 1.48361D-03

At iterate 9 f= -9.99740D+01 |proj g|= 7.43228D-04

At iterate 10 f= -9.99871D+01 |proj g|= 3.63798D-04

At iterate 11 f= -9.99933D+01 |proj g|= 1.86162D-04

At iterate 12 f= -9.99968D+01 |proj g|= 8.81073D-05

At iterate 13 f= -9.99986D+01 |proj g|= 3.55271D-05

At iterate 14 f= -9.99992D+01 |proj g|= 2.13163D-05

At iterate 15 f= -9.99997D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 15 29 16 1 0 7.105D-06 -1.000D+02

F = -99.999709430091670

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99970943009167

True

[ 9.98627071 3593.45777907] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.10173D+01 |proj g|= 1.88741D-02

At iterate 1 f= -4.10176D+01 |proj g|= 1.88734D-02

At iterate 2 f= -4.75564D+01 |proj g|= 7.23119D-03

At iterate 3 f= -4.90632D+01 |proj g|= 2.98502D-03

At iterate 4 f= -9.94619D+01 |proj g|= 4.21494D-03

At iterate 5 f= -9.95259D+01 |proj g|= 1.53337D-03

At iterate 6 f= -9.97252D+01 |proj g|= 6.96048D-03

At iterate 7 f= -9.98750D+01 |proj g|= 6.87805D-04

At iterate 8 f= -9.99339D+01 |proj g|= 3.33955D-04

At iterate 9 f= -9.99679D+01 |proj g|= 1.53477D-04

At iterate 10 f= -9.99838D+01 |proj g|= 7.53175D-05

At iterate 11 f= -9.99916D+01 |proj g|= 3.69482D-05

At iterate 12 f= -9.99959D+01 |proj g|= 1.84741D-05

At iterate 13 f= -9.99981D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 20 15 0 0 7.106D-06 -1.000D+02

F = -99.998105997767695

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9981059977677

True

[ 30.44658702 3019.15715403] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.28061D+01 |proj g|= 1.68036D-02

At iterate 1 f= -4.28064D+01 |proj g|= 1.68029D-02

At iterate 2 f= -4.75276D+01 |proj g|= 7.30651D-03

At iterate 3 f= -4.90342D+01 |proj g|= 3.07313D-03

At iterate 4 f= -9.94479D+01 |proj g|= 4.59721D-03

At iterate 5 f= -9.95111D+01 |proj g|= 1.58026D-03

At iterate 6 f= -9.97252D+01 |proj g|= 7.60991D-03

At iterate 7 f= -9.98740D+01 |proj g|= 7.27596D-04

At iterate 8 f= -9.99338D+01 |proj g|= 3.51008D-04

At iterate 9 f= -9.99675D+01 |proj g|= 1.62004D-04

At iterate 10 f= -9.99837D+01 |proj g|= 7.81597D-05

At iterate 11 f= -9.99921D+01 |proj g|= 3.55271D-05

At iterate 12 f= -9.99963D+01 |proj g|= 1.70530D-05

At iterate 13 f= -9.99978D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 20 15 0 0 9.948D-06 -1.000D+02

F = -99.997794544442101

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9977945444421

True

[ 29.8723302 2972.79116795] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.43641D+01 |proj g|= 1.43153D-02

At iterate 1 f= -4.43643D+01 |proj g|= 1.43153D-02

ys= 0.000E+00 -gs= 2.049E-04 BFGS update SKIPPED

At iterate 2 f= -4.54045D+01 |proj g|= 1.22995D-02

At iterate 3 f= -4.88756D+01 |proj g|= 3.53072D-03

At iterate 4 f= -9.94195D+01 |proj g|= 3.49019D-03

At iterate 5 f= -9.94926D+01 |proj g|= 3.61240D-03

At iterate 6 f= -9.97887D+01 |proj g|= 8.47251D-03

At iterate 7 f= -9.98901D+01 |proj g|= 1.12834D-03

At iterate 8 f= -9.99435D+01 |proj g|= 4.81748D-04

At iterate 9 f= -9.99718D+01 |proj g|= 2.07478D-04

At iterate 10 f= -9.99863D+01 |proj g|= 9.09495D-05

At iterate 11 f= -9.99928D+01 |proj g|= 4.40536D-05

At iterate 12 f= -9.99966D+01 |proj g|= 1.98952D-05

At iterate 13 f= -9.99982D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 24 14 1 0 9.948D-06 -1.000D+02

F = -99.998213579366080

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99821357936608

True

[ 31.12736291 3037.64346173] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.56667D+01 |proj g|= 1.17481D-02

At iterate 1 f= -4.56669D+01 |proj g|= 1.17481D-02

ys= 0.000E+00 -gs= 1.380E-04 BFGS update SKIPPED

At iterate 2 f= -4.63696D+01 |proj g|= 1.01771D-02

At iterate 3 f= -4.89595D+01 |proj g|= 3.28487D-03

At iterate 4 f= -9.93928D+01 |proj g|= 6.55689D-03

At iterate 5 f= -9.94196D+01 |proj g|= 2.52527D-03

At iterate 6 f= -9.99439D+01 |proj g|= 5.30775D-03

At iterate 7 f= -9.99578D+01 |proj g|= 1.06866D-03

At iterate 8 f= -9.99774D+01 |proj g|= 2.06057D-04

At iterate 9 f= -9.99887D+01 |proj g|= 3.83693D-05

At iterate 10 f= -9.99940D+01 |proj g|= 1.84743D-05

At iterate 11 f= -9.99970D+01 |proj g|= 1.13688D-05

At iterate 12 f= -9.99990D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 26 12 1 0 2.842D-06 -1.000D+02

F = -99.998970797657336

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99897079765734

True

[ 12.47421175 3202.78850545] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.67193D+01 |proj g|= 9.34718D-03

At iterate 1 f= -4.67194D+01 |proj g|= 9.34647D-03

At iterate 2 f= -4.77083D+01 |proj g|= 6.82689D-03

At iterate 3 f= -4.92030D+01 |proj g|= 1.19378D-02

At iterate 4 f= -9.96502D+01 |proj g|= 1.13830D-03

At iterate 5 f= -9.97935D+01 |proj g|= 7.01306D-03

At iterate 6 f= -9.99474D+01 |proj g|= 3.92504D-03

At iterate 7 f= -9.99659D+01 |proj g|= 8.11440D-04

At iterate 8 f= -9.99812D+01 |proj g|= 2.87059D-04

At iterate 9 f= -9.99911D+01 |proj g|= 8.95284D-05

At iterate 10 f= -9.99955D+01 |proj g|= 3.12639D-05

At iterate 11 f= -9.99977D+01 |proj g|= 1.42109D-05

At iterate 12 f= -9.99997D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 17 13 0 0 1.421D-06 -1.000D+02

F = -99.999670483522905

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9996704835229

True

[ 36.01524074 3551.06881885] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.75466D+01 |proj g|= 7.25606D-03

At iterate 1 f= -4.75466D+01 |proj g|= 7.25677D-03

ys=-5.156E-09 -gs= 5.265E-05 BFGS update SKIPPED

At iterate 2 f= -4.78196D+01 |proj g|= 6.52704D-03

At iterate 3 f= -9.99289D+01 |proj g|= 2.61480D-04

At iterate 4 f= -9.99320D+01 |proj g|= 2.21692D-04

At iterate 5 f= -9.99380D+01 |proj g|= 2.03217D-04

At iterate 6 f= -9.99499D+01 |proj g|= 2.42153D-03

At iterate 7 f= -9.99986D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 20 8 1 0 4.263D-06 -1.000D+02

F = -99.998635258195563

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99863525819556

True

[ 24.01861107 3116.7433088 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.81828D+01 |proj g|= 5.52802D-03

At iterate 1 f= -4.81828D+01 |proj g|= 5.52731D-03

At iterate 2 f= -4.84068D+01 |proj g|= 4.89564D-03

At iterate 3 f= -9.92786D+01 |proj g|= 1.41355D-02

At iterate 4 f= -9.93662D+01 |proj g|= 2.06060D-03

At iterate 5 f= -9.98640D+01 |proj g|= 3.95545D-02

At iterate 6 f= -9.99613D+01 |proj g|= 2.87059D-04

At iterate 7 f= -9.99682D+01 |proj g|= 2.24531D-04

At iterate 8 f= -9.99866D+01 |proj g|= 7.38964D-05

At iterate 9 f= -9.99928D+01 |proj g|= 3.26850D-05

At iterate 10 f= -9.99969D+01 |proj g|= 1.13687D-05

At iterate 11 f= -9.99982D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 16 12 0 0 5.684D-06 -1.000D+02

F = -99.998239574793743

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99823957479374

True

[ 30.08952787 3040.73837591] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 1000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.86639D+01 |proj g|= 4.15241D-03

At iterate 1 f= -4.86639D+01 |proj g|= 4.15241D-03

ys= 0.000E+00 -gs= 1.727E-05 BFGS update SKIPPED

At iterate 2 f= -4.89993D+01 |proj g|= 3.22732D-03

At iterate 3 f= -9.98742D+01 |proj g|= 5.03064D-04

At iterate 4 f= -9.98796D+01 |proj g|= 4.39115D-04

At iterate 5 f= -9.99164D+01 |proj g|= 3.73745D-04

At iterate 6 f= -9.99635D+01 |proj g|= 1.20794D-04

At iterate 7 f= -9.99809D+01 |proj g|= 6.25284D-05

At iterate 8 f= -9.99905D+01 |proj g|= 3.12642D-05

At iterate 9 f= -9.99953D+01 |proj g|= 1.56321D-05

At iterate 10 f= -9.99976D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 27 10 1 0 8.527D-06 -1.000D+02

F = -99.997633094566623

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99763309456662

True

[ 29.01765752 2950.59100833] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 1100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.90235D+01 |proj g|= 3.08876D-03

At iterate 1 f= -4.90235D+01 |proj g|= 3.08947D-03

ys=-2.195E-09 -gs= 9.768E-06 BFGS update SKIPPED

At iterate 2 f= -9.95104D+01 |proj g|= 2.82512D-03

At iterate 3 f= -9.95128D+01 |proj g|= 1.57458D-03

At iterate 4 f= -9.98854D+01 |proj g|= 3.67208D-03

At iterate 5 f= -9.99276D+01 |proj g|= 1.09281D-03

At iterate 6 f= -9.99671D+01 |proj g|= 3.68061D-04

At iterate 7 f= -9.99831D+01 |proj g|= 1.57740D-04

At iterate 8 f= -9.99916D+01 |proj g|= 6.67910D-05

At iterate 9 f= -9.99956D+01 |proj g|= 2.84217D-05

At iterate 10 f= -9.99979D+01 |proj g|= 1.27898D-05

At iterate 11 f= -9.99993D+01 |proj g|= 4.26326D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 24 11 1 0 4.263D-06 -1.000D+02

F = -99.999299392740625

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99929939274062

True

[ 10.55199638 3320.88414272] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 1200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.92906D+01 |proj g|= 2.29508D-03

At iterate 1 f= -4.92907D+01 |proj g|= 2.29508D-03

ys=-1.992E-09 -gs= 7.233E-06 BFGS update SKIPPED

At iterate 2 f= -9.93981D+01 |proj g|= 5.51239D-03

At iterate 3 f= -9.93989D+01 |proj g|= 8.99263D-03

At iterate 4 f= -9.95616D+01 |proj g|= 2.21405D-03

At iterate 5 f= -9.98009D+01 |proj g|= 6.53706D-04

At iterate 6 f= -9.98976D+01 |proj g|= 3.36801D-04

At iterate 7 f= -9.99497D+01 |proj g|= 1.64848D-04

At iterate 8 f= -9.99746D+01 |proj g|= 8.38449D-05

At iterate 9 f= -9.99875D+01 |proj g|= 3.97908D-05

At iterate 10 f= -9.99934D+01 |proj g|= 2.27376D-05

At iterate 11 f= -9.99972D+01 |proj g|= 1.13688D-05

At iterate 12 f= -9.99988D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 24 12 1 0 2.842D-06 -1.000D+02

F = -99.998813487273281

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99881348727328

True

[ 23.29801906 3159.40324187] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 1300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.94904D+01 |proj g|= 4.11262D-03

At iterate 1 f= -4.94904D+01 |proj g|= 4.12257D-03

ys=-4.215E-08 -gs= 1.994E-05 BFGS update SKIPPED

At iterate 2 f= -9.95024D+01 |proj g|= 1.62005D-03

At iterate 3 f= -9.95062D+01 |proj g|= 7.20775D-03

At iterate 4 f= -9.96435D+01 |proj g|= 1.40687D-03

At iterate 5 f= -9.98506D+01 |proj g|= 1.33724D-03

At iterate 6 f= -9.99205D+01 |proj g|= 7.81597D-04

At iterate 7 f= -9.99613D+01 |proj g|= 4.00746D-04

At iterate 8 f= -9.99805D+01 |proj g|= 2.10321D-04

At iterate 9 f= -9.99901D+01 |proj g|= 1.09424D-04

At iterate 10 f= -9.99953D+01 |proj g|= 5.40012D-05

At iterate 11 f= -9.99977D+01 |proj g|= 2.70006D-05

At iterate 12 f= -9.99987D+01 |proj g|= 1.56319D-05

At iterate 13 f= -9.99998D+01 |proj g|= 2.84217D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 28 14 1 0 2.842D-06 -1.000D+02

F = -99.999806618267655

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99980661826766

True

[ 10.69068234 3715.03815863] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 1400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.96470D+01 |proj g|= 1.20622D-02

At iterate 1 f= -4.96471D+01 |proj g|= 1.21446D-02

ys=-9.962E-07 -gs= 1.476E-04 BFGS update SKIPPED

At iterate 2 f= -9.96180D+01 |proj g|= 6.46025D-03

At iterate 3 f= -9.96300D+01 |proj g|= 1.21220D-03

At iterate 4 f= -9.96345D+01 |proj g|= 1.18804D-03

At iterate 5 f= -9.96407D+01 |proj g|= 3.27134D-03

At iterate 6 f= -9.96535D+01 |proj g|= 1.60838D-02

At iterate 7 f= -9.97301D+01 |proj g|= 1.43487D-02

At iterate 8 f= -9.98905D+01 |proj g|= 3.76588D-03

At iterate 9 f= -9.99412D+01 |proj g|= 2.21974D-03

At iterate 10 f= -9.99715D+01 |proj g|= 1.14113D-03

At iterate 11 f= -9.99857D+01 |proj g|= 5.99698D-04

At iterate 12 f= -9.99928D+01 |proj g|= 3.14060D-04

At iterate 13 f= -9.99964D+01 |proj g|= 1.63425D-04

At iterate 14 f= -9.99982D+01 |proj g|= 8.38440D-05

At iterate 15 f= -9.99991D+01 |proj g|= 4.54747D-05

At iterate 16 f= -9.99995D+01 |proj g|= 2.27374D-05

At iterate 17 f= -9.99998D+01 |proj g|= 1.13687D-05

At iterate 18 f= -9.99998D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 31 19 1 0 7.105D-06 -1.000D+02

F = -99.999773312609520

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99977331260952

True

[ 10.03354348 3670.12690872] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 1500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.97922D+01 |proj g|= 3.53410D-02

At iterate 1 f= -4.97934D+01 |proj g|= 3.60458D-02

ys=-2.493E-05 -gs= 1.251E-03 BFGS update SKIPPED

At iterate 2 f= -9.96721D+01 |proj g|= 3.23766D-02

At iterate 3 f= -9.97289D+01 |proj g|= 2.09184D-03

At iterate 4 f= -9.97413D+01 |proj g|= 8.46976D-04

At iterate 5 f= -9.97542D+01 |proj g|= 8.00080D-04

At iterate 6 f= -9.97605D+01 |proj g|= 6.64215D-03

At iterate 7 f= -9.97974D+01 |proj g|= 4.30020D-03

At iterate 8 f= -9.99194D+01 |proj g|= 7.77902D-03

At iterate 9 f= -9.99592D+01 |proj g|= 4.20641D-04

At iterate 10 f= -9.99788D+01 |proj g|= 1.70530D-04

At iterate 11 f= -9.99891D+01 |proj g|= 6.82121D-05

At iterate 12 f= -9.99947D+01 |proj g|= 2.55795D-05

At iterate 13 f= -9.99973D+01 |proj g|= 1.13687D-05

At iterate 14 f= -9.99989D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 14 26 15 1 0 2.842D-06 -1.000D+02

F = -99.998918371553373

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99891837155337

True

[ 10.53205401 3188.17558013] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 1600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99890D+01 |proj g|= 1.03207D-01

At iterate 1 f= -5.00000D+01 |proj g|= 1.09307D-01

ys=-6.299E-04 -gs= 1.066E-02 BFGS update SKIPPED

At iterate 2 f= -9.97796D+01 |proj g|= 1.39607D-02

At iterate 3 f= -9.98011D+01 |proj g|= 2.03499D-03

At iterate 4 f= -9.98023D+01 |proj g|= 1.45235D-03

At iterate 5 f= -9.98047D+01 |proj g|= 6.42337D-04

At iterate 6 f= -9.98071D+01 |proj g|= 6.29548D-04

At iterate 7 f= -9.98091D+01 |proj g|= 6.21021D-04

At iterate 8 f= -9.98103D+01 |proj g|= 1.76072D-03

At iterate 9 f= -9.98151D+01 |proj g|= 3.36939D-03

At iterate 10 f= -9.98759D+01 |proj g|= 1.43444D-02

At iterate 11 f= -9.99591D+01 |proj g|= 1.93268D-04

At iterate 12 f= -9.99748D+01 |proj g|= 8.38440D-05

At iterate 13 f= -9.99884D+01 |proj g|= 3.83697D-05

At iterate 14 f= -9.99941D+01 |proj g|= 1.84743D-05

At iterate 15 f= -9.99968D+01 |proj g|= 1.13688D-05

At iterate 16 f= -9.99988D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 16 24 16 1 0 4.263D-06 -1.000D+02

F = -99.998830681820195

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9988306818202

True

[ 11.69459576 3163.92170379] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 1700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.03972D+01 |proj g|= 2.98590D-01

At iterate 1 f= -5.04941D+01 |proj g|= 3.51618D-01

ys=-1.584E-02 -gs= 8.919E-02 BFGS update SKIPPED

At iterate 2 f= -9.98587D+01 |proj g|= 4.63279D-04

At iterate 3 f= -9.98641D+01 |proj g|= 1.28892D-03

At iterate 4 f= -9.98644D+01 |proj g|= 2.33911D-03

At iterate 5 f= -9.98702D+01 |proj g|= 3.83977D-03

At iterate 6 f= -9.99330D+01 |proj g|= 8.19114D-03

At iterate 7 f= -9.99691D+01 |proj g|= 8.76810D-04

At iterate 8 f= -9.99836D+01 |proj g|= 4.26326D-04

At iterate 9 f= -9.99922D+01 |proj g|= 1.87583D-04

At iterate 10 f= -9.99960D+01 |proj g|= 8.95284D-05

At iterate 11 f= -9.99979D+01 |proj g|= 4.26326D-05

At iterate 12 f= -9.99988D+01 |proj g|= 2.41585D-05

At iterate 13 f= -9.99998D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 23 13 1 0 5.684D-06 -1.000D+02

F = -99.999751933911824

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99975193391182

True

[ 10.33536733 3640.02100448] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 1800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.14463D+01 |proj g|= 8.40843D-01

At iterate 1 f= -5.23334D+01 |proj g|= 1.29834D+00

ys=-3.848E-01 -gs= 7.073E-01 BFGS update SKIPPED

At iterate 2 f= -9.98980D+01 |proj g|= 3.33959D-04

At iterate 3 f= -9.99012D+01 |proj g|= 3.24011D-04

At iterate 4 f= -9.99022D+01 |proj g|= 5.34328D-04

At iterate 5 f= -9.99039D+01 |proj g|= 1.83462D-03

At iterate 6 f= -9.99141D+01 |proj g|= 4.29736D-03

At iterate 7 f= -9.99704D+01 |proj g|= 6.11067D-04

At iterate 8 f= -9.99830D+01 |proj g|= 3.53850D-04

At iterate 9 f= -9.99918D+01 |proj g|= 1.73372D-04

At iterate 10 f= -9.99957D+01 |proj g|= 8.81073D-05

At iterate 11 f= -9.99978D+01 |proj g|= 4.54747D-05

At iterate 12 f= -9.99990D+01 |proj g|= 2.13163D-05

At iterate 13 f= -9.99997D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 24 13 1 0 5.684D-06 -1.000D+02

F = -99.999705718447331

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99970571844733

True

[ 10.10458688 3588.66341796] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 1900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.42135D+01 |proj g|= 2.19651D+00

At iterate 1 f= -6.20849D+01 |proj g|= 5.15684D+00

ys=-6.505E+00 -gs= 4.826E+00 BFGS update SKIPPED

At iterate 2 f= -9.25596D+01 |proj g|= 3.52020D+00

At iterate 3 f= -9.99093D+01 |proj g|= 9.64349D-03

At iterate 4 f= -9.99145D+01 |proj g|= 6.73737D-03

At iterate 5 f= -9.99213D+01 |proj g|= 2.92744D-03

At iterate 6 f= -9.99239D+01 |proj g|= 1.53761D-03

At iterate 7 f= -9.99254D+01 |proj g|= 7.40385D-04

At iterate 8 f= -9.99263D+01 |proj g|= 3.51008D-04

At iterate 9 f= -9.99271D+01 |proj g|= 2.40166D-04

At iterate 10 f= -9.99286D+01 |proj g|= 2.33060D-04

At iterate 11 f= -9.99304D+01 |proj g|= 2.27376D-04

At iterate 12 f= -9.99307D+01 |proj g|= 5.38591D-04

At iterate 13 f= -9.99334D+01 |proj g|= 1.39693D-03

At iterate 14 f= -9.99579D+01 |proj g|= 6.83826D-03

At iterate 15 f= -9.99881D+01 |proj g|= 3.83697D-05

At iterate 16 f= -9.99919D+01 |proj g|= 2.70009D-05

At iterate 17 f= -9.99968D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 23 17 1 0 9.948D-06 -1.000D+02

F = -99.996814175432064

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99681417543206

True

[ 10.99073614 2858.27913517] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 2000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -6.07379D+01 |proj g|= 4.74223D+00

At iterate 1 f= -8.98029D+01 |proj g|= 4.53151D+00

At iterate 2 f= -9.99468D+01 |proj g|= 2.11742D-04

At iterate 3 f= -9.99471D+01 |proj g|= 1.74795D-04

At iterate 4 f= -9.99481D+01 |proj g|= 1.71953D-04

At iterate 5 f= -9.99498D+01 |proj g|= 1.64848D-04

At iterate 6 f= -9.99501D+01 |proj g|= 4.56168D-04

At iterate 7 f= -9.99589D+01 |proj g|= 3.42055D-03

At iterate 8 f= -9.99924D+01 |proj g|= 2.55798D-05

At iterate 9 f= -9.99947D+01 |proj g|= 1.70532D-05

At iterate 10 f= -9.99974D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 23 11 0 0 8.527D-06 -1.000D+02

F = -99.997416255876203

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9974162558762

True

[ 11.64557534 2922.10842823] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 2100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -7.23017D+01 |proj g|= 6.92584D+00

At iterate 1 f= -9.87186D+01 |proj g|= 6.79392D-01

At iterate 2 f= -9.91398D+01 |proj g|= 4.53092D-01

At iterate 3 f= -9.96055D+01 |proj g|= 1.98227D-01

At iterate 4 f= -9.97766D+01 |proj g|= 1.03404D-01

At iterate 5 f= -9.98712D+01 |proj g|= 5.06660D-02

At iterate 6 f= -9.99163D+01 |proj g|= 2.54829D-02

At iterate 7 f= -9.99391D+01 |proj g|= 1.27002D-02

At iterate 8 f= -9.99505D+01 |proj g|= 6.35509D-03

At iterate 9 f= -9.99562D+01 |proj g|= 3.17328D-03

At iterate 10 f= -9.99590D+01 |proj g|= 1.58309D-03

At iterate 11 f= -9.99605D+01 |proj g|= 7.88702D-04

At iterate 12 f= -9.99612D+01 |proj g|= 3.89377D-04

At iterate 13 f= -9.99617D+01 |proj g|= 1.80478D-04

At iterate 14 f= -9.99621D+01 |proj g|= 1.25057D-04

At iterate 15 f= -9.99629D+01 |proj g|= 1.22215D-04

At iterate 16 f= -9.99644D+01 |proj g|= 1.15109D-04

At iterate 17 f= -9.99647D+01 |proj g|= 3.68061D-04

At iterate 18 f= -9.99669D+01 |proj g|= 6.73595D-04

At iterate 19 f= -9.99887D+01 |proj g|= 3.69486D-05

At iterate 20 f= -9.99934D+01 |proj g|= 2.13165D-05

At iterate 21 f= -9.99969D+01 |proj g|= 1.13688D-05

At iterate 22 f= -9.99986D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 22 28 22 0 0 2.842D-06 -1.000D+02

F = -99.998645453717472

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99864545371747

True

[ 12.14651113 3119.03320421] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 2200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -8.51365D+01 |proj g|= 5.84725D+00

At iterate 1 f= -9.91896D+01 |proj g|= 4.31852D-01

At iterate 2 f= -9.93675D+01 |proj g|= 3.34920D-01

At iterate 3 f= -9.97255D+01 |proj g|= 1.37703D-01

At iterate 4 f= -9.98407D+01 |proj g|= 7.36293D-02

At iterate 5 f= -9.99086D+01 |proj g|= 3.57673D-02

At iterate 6 f= -9.99402D+01 |proj g|= 1.80592D-02

At iterate 7 f= -9.99564D+01 |proj g|= 8.98979D-03

At iterate 8 f= -9.99644D+01 |proj g|= 4.49916D-03

At iterate 9 f= -9.99685D+01 |proj g|= 2.24674D-03

At iterate 10 f= -9.99705D+01 |proj g|= 1.12266D-03

At iterate 11 f= -9.99715D+01 |proj g|= 5.57065D-04

At iterate 12 f= -9.99721D+01 |proj g|= 2.72848D-04

At iterate 13 f= -9.99724D+01 |proj g|= 1.27898D-04

At iterate 14 f= -9.99727D+01 |proj g|= 8.95293D-05

At iterate 15 f= -9.99733D+01 |proj g|= 8.81082D-05

At iterate 16 f= -9.99746D+01 |proj g|= 8.52660D-05

At iterate 17 f= -9.99756D+01 |proj g|= 1.02176D-03

At iterate 18 f= -9.99939D+01 |proj g|= 1.98954D-05

At iterate 19 f= -9.99961D+01 |proj g|= 1.27899D-05

At iterate 20 f= -9.99982D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 20 25 20 0 0 5.684D-06 -1.000D+02

F = -99.998229553848972

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99822955384897

True

[ 10.71845319 3037.60039663] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 2300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.36953D+01 |proj g|= 3.07938D+00

At iterate 1 f= -9.87330D+01 |proj g|= 6.81479D-01

At iterate 2 f= -9.92091D+01 |proj g|= 4.25419D-01

At iterate 3 f= -9.96360D+01 |proj g|= 1.91559D-01

At iterate 4 f= -9.98030D+01 |proj g|= 9.89104D-02

At iterate 5 f= -9.98932D+01 |proj g|= 4.86665D-02

At iterate 6 f= -9.99365D+01 |proj g|= 2.44398D-02

At iterate 7 f= -9.99584D+01 |proj g|= 1.21886D-02

At iterate 8 f= -9.99693D+01 |proj g|= 6.09930D-03

At iterate 9 f= -9.99747D+01 |proj g|= 3.04681D-03

At iterate 10 f= -9.99775D+01 |proj g|= 1.52198D-03

At iterate 11 f= -9.99788D+01 |proj g|= 7.60281D-04

At iterate 12 f= -9.99795D+01 |proj g|= 3.76588D-04

At iterate 13 f= -9.99799D+01 |proj g|= 1.84741D-04

At iterate 14 f= -9.99801D+01 |proj g|= 8.52651D-05

At iterate 15 f= -9.99804D+01 |proj g|= 6.53706D-05

At iterate 16 f= -9.99808D+01 |proj g|= 6.39495D-05

At iterate 17 f= -9.99819D+01 |proj g|= 5.82651D-05

At iterate 18 f= -9.99821D+01 |proj g|= 9.52127D-05

At iterate 19 f= -9.99852D+01 |proj g|= 1.20224D-03

At iterate 20 f= -9.99982D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 20 27 20 0 0 7.106D-06 -1.000D+02

F = -99.998162870366102

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9981628703661

True

[ 10.90758783 3026.25196816] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 2400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.76506D+01 |proj g|= 1.24750D+00

At iterate 1 f= -9.87975D+01 |proj g|= 6.50070D-01

At iterate 2 f= -9.94234D+01 |proj g|= 3.11550D-01

At iterate 3 f= -9.97050D+01 |proj g|= 1.56422D-01

At iterate 4 f= -9.98468D+01 |proj g|= 7.76367D-02

At iterate 5 f= -9.99163D+01 |proj g|= 3.88184D-02

At iterate 6 f= -9.99511D+01 |proj g|= 1.93822D-02

At iterate 7 f= -9.99684D+01 |proj g|= 9.68896D-03

At iterate 8 f= -9.99771D+01 |proj g|= 4.84306D-03

At iterate 9 f= -9.99814D+01 |proj g|= 2.42153D-03

At iterate 10 f= -9.99835D+01 |proj g|= 1.20792D-03

At iterate 11 f= -9.99846D+01 |proj g|= 6.05382D-04

At iterate 12 f= -9.99852D+01 |proj g|= 2.99849D-04

At iterate 13 f= -9.99855D+01 |proj g|= 1.47793D-04

At iterate 14 f= -9.99857D+01 |proj g|= 6.82121D-05

At iterate 15 f= -9.99858D+01 |proj g|= 4.54752D-05

At iterate 16 f= -9.99861D+01 |proj g|= 4.83174D-05

At iterate 17 f= -9.99870D+01 |proj g|= 4.26330D-05

At iterate 18 f= -9.99873D+01 |proj g|= 8.66862D-05

At iterate 19 f= -9.99913D+01 |proj g|= 9.40759D-04

At iterate 20 f= -9.99993D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 20 27 20 0 0 2.842D-06 -1.000D+02

F = -99.999325179414171

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99932517941417

True

[ 19.78322616 3331.47497866] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 2500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.91687D+01 |proj g|= 4.52530D-01

At iterate 1 f= -9.93503D+01 |proj g|= 3.53728D-01

At iterate 2 f= -9.97299D+01 |proj g|= 1.44831D-01

At iterate 3 f= -9.98510D+01 |proj g|= 7.75330D-02

At iterate 4 f= -9.99224D+01 |proj g|= 3.76403D-02

At iterate 5 f= -9.99558D+01 |proj g|= 1.90084D-02

At iterate 6 f= -9.99728D+01 |proj g|= 9.46017D-03

At iterate 7 f= -9.99812D+01 |proj g|= 4.73790D-03

At iterate 8 f= -9.99855D+01 |proj g|= 2.36753D-03

At iterate 9 f= -9.99876D+01 |proj g|= 1.18234D-03

At iterate 10 f= -9.99886D+01 |proj g|= 5.91172D-04

At iterate 11 f= -9.99892D+01 |proj g|= 2.94165D-04

At iterate 12 f= -9.99895D+01 |proj g|= 1.47793D-04

At iterate 13 f= -9.99896D+01 |proj g|= 6.96332D-05

At iterate 14 f= -9.99897D+01 |proj g|= 3.41064D-05

At iterate 15 f= -9.99899D+01 |proj g|= 3.41064D-05

At iterate 16 f= -9.99903D+01 |proj g|= 3.12642D-05

At iterate 17 f= -9.99911D+01 |proj g|= 3.97904D-05

At iterate 18 f= -9.99915D+01 |proj g|= 1.87583D-04

At iterate 19 f= -9.99968D+01 |proj g|= 3.77867D-03

At iterate 20 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 20 26 20 0 0 0.000D+00 -1.000D+02

F = -99.999997163301970

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999716330197

True

[ 19.91122876 5000. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 2600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.97098D+01 |proj g|= 1.57596D-01

At iterate 1 f= -9.97335D+01 |proj g|= 1.44408D-01

At iterate 2 f= -9.98938D+01 |proj g|= 5.52347D-02

At iterate 3 f= -9.99383D+01 |proj g|= 3.03913D-02

At iterate 4 f= -9.99665D+01 |proj g|= 1.46173D-02

At iterate 5 f= -9.99793D+01 |proj g|= 7.41380D-03

At iterate 6 f= -9.99860D+01 |proj g|= 3.68630D-03

At iterate 7 f= -9.99893D+01 |proj g|= 1.84457D-03

At iterate 8 f= -9.99909D+01 |proj g|= 9.22284D-04

At iterate 9 f= -9.99918D+01 |proj g|= 4.60432D-04

At iterate 10 f= -9.99922D+01 |proj g|= 2.30216D-04

At iterate 11 f= -9.99924D+01 |proj g|= 1.15108D-04

At iterate 12 f= -9.99925D+01 |proj g|= 5.40012D-05

At iterate 13 f= -9.99926D+01 |proj g|= 2.55795D-05

At iterate 14 f= -9.99927D+01 |proj g|= 2.27376D-05

At iterate 15 f= -9.99929D+01 |proj g|= 2.27376D-05

At iterate 16 f= -9.99937D+01 |proj g|= 2.13165D-05

At iterate 17 f= -9.99948D+01 |proj g|= 3.51008D-04

At iterate 18 f= -1.00000D+02 |proj g|= 4.26326D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 23 18 0 0 4.263D-06 -1.000D+02

F = -99.999990446587631

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999044658763

True

[ 67.09518686 5000. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 2700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.98979D+01 |proj g|= 5.41050D-02

At iterate 1 f= -9.99008D+01 |proj g|= 5.24935D-02

At iterate 2 f= -9.99597D+01 |proj g|= 1.95882D-02

At iterate 3 f= -9.99752D+01 |proj g|= 1.08855D-02

At iterate 4 f= -9.99853D+01 |proj g|= 5.21823D-03

At iterate 5 f= -9.99899D+01 |proj g|= 2.65032D-03

At iterate 6 f= -9.99923D+01 |proj g|= 1.31593D-03

At iterate 7 f= -9.99935D+01 |proj g|= 6.60805D-04

At iterate 8 f= -9.99941D+01 |proj g|= 3.28271D-04

At iterate 9 f= -9.99944D+01 |proj g|= 1.64846D-04

At iterate 10 f= -9.99945D+01 |proj g|= 8.10019D-05

At iterate 11 f= -9.99946D+01 |proj g|= 3.83693D-05

At iterate 12 f= -9.99947D+01 |proj g|= 1.84743D-05

At iterate 13 f= -9.99947D+01 |proj g|= 1.70532D-05

At iterate 14 f= -9.99949D+01 |proj g|= 1.70532D-05

At iterate 15 f= -9.99953D+01 |proj g|= 1.42110D-05

At iterate 16 f= -9.99960D+01 |proj g|= 1.16529D-04

At iterate 17 f= -9.99988D+01 |proj g|= 5.62750D-04

At iterate 18 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 23 18 0 0 0.000D+00 -1.000D+02

F = -99.999969579928319

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99996957992832

True

[ 31.62140884 4276.56537264] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 2800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99631D+01 |proj g|= 1.84841D-02

At iterate 1 f= -9.99635D+01 |proj g|= 1.82936D-02

At iterate 2 f= -9.99841D+01 |proj g|= 6.76579D-03

At iterate 3 f= -9.99894D+01 |proj g|= 3.77156D-03

At iterate 4 f= -9.99929D+01 |proj g|= 1.80762D-03

At iterate 5 f= -9.99945D+01 |proj g|= 9.18021D-04

At iterate 6 f= -9.99953D+01 |proj g|= 4.54747D-04

At iterate 7 f= -9.99957D+01 |proj g|= 2.30216D-04

At iterate 8 f= -9.99959D+01 |proj g|= 1.13687D-04

At iterate 9 f= -9.99961D+01 |proj g|= 5.54223D-05

At iterate 10 f= -9.99961D+01 |proj g|= 2.84217D-05

At iterate 11 f= -9.99962D+01 |proj g|= 1.27899D-05

At iterate 12 f= -9.99962D+01 |proj g|= 1.42110D-05

At iterate 13 f= -9.99964D+01 |proj g|= 1.13688D-05

At iterate 14 f= -9.99966D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 14 20 14 0 0 9.948D-06 -1.000D+02

F = -99.996614250736684

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99661425073668

True

[ 10.32410337 2839.87600862] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 2900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99860D+01 |proj g|= 6.30251D-03

At iterate 1 f= -9.99860D+01 |proj g|= 6.28120D-03

At iterate 2 f= -9.99933D+01 |proj g|= 2.21405D-03

At iterate 3 f= -9.99950D+01 |proj g|= 1.25766D-03

At iterate 4 f= -9.99962D+01 |proj g|= 5.95435D-04

At iterate 5 f= -9.99967D+01 |proj g|= 3.04112D-04

At iterate 6 f= -9.99970D+01 |proj g|= 1.52056D-04

At iterate 7 f= -9.99971D+01 |proj g|= 7.38964D-05

At iterate 8 f= -9.99972D+01 |proj g|= 3.83693D-05

At iterate 9 f= -9.99972D+01 |proj g|= 1.84741D-05

At iterate 10 f= -9.99972D+01 |proj g|= 1.13688D-05

At iterate 11 f= -9.99973D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 12 11 0 0 8.527D-06 -1.000D+02

F = -99.997274212777739

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99727421277774

True

[ 25.65185245 2906.12700335] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 3000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99942D+01 |proj g|= 2.14868D-03

At iterate 1 f= -9.99942D+01 |proj g|= 2.14584D-03

At iterate 2 f= -9.99965D+01 |proj g|= 8.62599D-04

At iterate 3 f= -9.99972D+01 |proj g|= 4.68958D-04

At iterate 4 f= -9.99976D+01 |proj g|= 2.24531D-04

At iterate 5 f= -9.99978D+01 |proj g|= 1.13687D-04

At iterate 6 f= -9.99979D+01 |proj g|= 5.82645D-05

At iterate 7 f= -9.99980D+01 |proj g|= 2.70006D-05

At iterate 8 f= -9.99980D+01 |proj g|= 1.42109D-05

At iterate 9 f= -9.99980D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 10 9 0 0 7.106D-06 -1.000D+02

F = -99.998005280404897

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9980052804049

True

[ 29.51385933 3002.57501923] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 3100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99973D+01 |proj g|= 7.31859D-04

At iterate 1 f= -9.99973D+01 |proj g|= 7.31859D-04

At iterate 2 f= -9.99986D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 3 2 0 0 4.263D-06 -1.000D+02

F = -99.998560031096815

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99856003109682

True

[ 12.25048611 3100.37718188] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 3200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99985D+01 |proj g|= 2.50111D-04

At iterate 1 f= -9.99985D+01 |proj g|= 2.48690D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.487D-04 -1.000D+02

F = -99.998516224452729

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99851622445273

True

[ 39.99974989 3200.00000853] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[40, 3300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99991D+01 |proj g|= 8.52651D-05

At iterate 1 f= -9.99991D+01 |proj g|= 8.24230D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 8.242D-05 -1.000D+02

F = -99.999100082488013

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99910008248801

True

[ 39.99991473 3300.00000568] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[40, 3400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99994D+01 |proj g|= 2.84217D-05

At iterate 1 f= -9.99994D+01 |proj g|= 2.84217D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.842D-05 -1.000D+02

F = -99.999409291565641

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99940929156564

True

[ 39.99997158 3400.00000284] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[40, 3500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99996D+01 |proj g|= 1.13687D-05

At iterate 1 f= -9.99996D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 9.948D-06 -1.000D+02

F = -99.999594077915475

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99959407791548

True

[ 39.99998863 3500. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 3600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99997D+01 |proj g|= 2.84217D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 2.842D-06 -1.000D+02

F = -99.999714259850805

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9997142598508

True

[ 40. 3600.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 3700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99998D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 1.421D-06 -1.000D+02

F = -99.999796430476209

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99979643047621

True

[ 40. 3700.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 3800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 2.84217D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 2.842D-06 -1.000D+02

F = -99.999854124197071

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99985412419707

True

[ 40. 3800.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 3900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 2.842D-06 -1.000D+02

F = -99.999895175086920

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99989517508692

True

[ 40. 3900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 4000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999924573890752

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99992457389075

True

[ 40. 4000.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 4100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999945693473649

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99994569347365

True

[ 40. 4100.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 4200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999960887852183

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99996088785218

True

[ 40. 4200.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 4300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999971827039317

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997182703932

True

[ 40. 4300.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 4400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999979705318353

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997970531835

True

[ 40. 4400.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 4500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999985380057325

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998538005732

True

[ 40. 4500.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 4600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999989467885911

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998946788591

True

[ 40. 4600.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 4700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999992412678495

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999924126785

True

[ 40. 4700.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 4800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999994534085204

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999945340852

True

[ 40. 4800.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[40, 4900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999996062342802

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999960623428

True

[ 40. 4900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 0]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -3.50000D+01 |proj g|= 1.96763D-02

At iterate 1 f= -3.50004D+01 |proj g|= 1.96771D-02

ys=-1.398E-08 -gs= 3.872E-04 BFGS update SKIPPED

At iterate 2 f= -4.32973D+01 |proj g|= 1.60881D-02

At iterate 3 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 12 3 1 0 0.000D+00 -1.000D+02

F = -99.999997162838682

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999716283868

True

[ 50. 5000.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.70157D+01 |proj g|= 2.04651D-02

At iterate 1 f= -3.70162D+01 |proj g|= 2.04665D-02

ys=-2.908E-08 -gs= 4.188E-04 BFGS update SKIPPED

At iterate 2 f= -4.50098D+01 |proj g|= 1.30981D-02

At iterate 3 f= -4.95482D+01 |proj g|= 1.45592D-03

At iterate 4 f= -4.96726D+01 |proj g|= 1.06511D-03

At iterate 5 f= -9.98456D+01 |proj g|= 5.04491D-04

At iterate 6 f= -9.98698D+01 |proj g|= 6.22435D-04

At iterate 7 f= -9.99212D+01 |proj g|= 8.88178D-04

At iterate 8 f= -9.99644D+01 |proj g|= 1.19372D-04

At iterate 9 f= -9.99818D+01 |proj g|= 6.25284D-05

At iterate 10 f= -9.99913D+01 |proj g|= 2.84220D-05

At iterate 11 f= -9.99953D+01 |proj g|= 1.70532D-05

At iterate 12 f= -9.99981D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 25 14 1 0 5.684D-06 -1.000D+02

F = -99.998148699137630

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99814869913763

True

[ 27.07225864 3024.07386266] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.90570D+01 |proj g|= 2.01787D-02

At iterate 1 f= -3.90574D+01 |proj g|= 2.01787D-02

ys= 0.000E+00 -gs= 4.072E-04 BFGS update SKIPPED

At iterate 2 f= -4.61255D+01 |proj g|= 1.07370D-02

At iterate 3 f= -4.91444D+01 |proj g|= 2.71004D-03

At iterate 4 f= -4.95016D+01 |proj g|= 1.60229D-03

At iterate 5 f= -4.97943D+01 |proj g|= 1.12138D-02

At iterate 6 f= -9.99938D+01 |proj g|= 1.98954D-05

At iterate 7 f= -9.99947D+01 |proj g|= 1.70532D-05

At iterate 8 f= -9.99961D+01 |proj g|= 1.27899D-05

At iterate 9 f= -9.99985D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 20 10 1 0 5.684D-06 -1.000D+02

F = -99.998485985873813

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99848598587381

True

[ 26.28587945 3085.20039425] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.10173D+01 |proj g|= 1.88741D-02

At iterate 1 f= -4.10176D+01 |proj g|= 1.88734D-02

At iterate 2 f= -4.75564D+01 |proj g|= 7.23048D-03

At iterate 3 f= -4.90610D+01 |proj g|= 2.96299D-03

At iterate 4 f= -4.95289D+01 |proj g|= 1.51702D-03

At iterate 5 f= -9.99884D+01 |proj g|= 3.83697D-05

At iterate 6 f= -9.99894D+01 |proj g|= 3.41064D-05

At iterate 7 f= -9.99907D+01 |proj g|= 3.12642D-05

At iterate 8 f= -9.99944D+01 |proj g|= 1.98954D-05

At iterate 9 f= -9.99958D+01 |proj g|= 1.42110D-05

At iterate 10 f= -9.99967D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 19 12 0 1 9.948D-06 -1.000D+02

F = -99.996691821480908

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99669182148091

True

[ 16.8253802 2846.69754009] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.28061D+01 |proj g|= 1.68036D-02

At iterate 1 f= -4.28064D+01 |proj g|= 1.68029D-02

At iterate 2 f= -4.75275D+01 |proj g|= 7.30651D-03

At iterate 3 f= -4.90322D+01 |proj g|= 3.05039D-03

At iterate 4 f= -4.95188D+01 |proj g|= 1.54758D-03

At iterate 5 f= -4.97903D+01 |proj g|= 1.24054D-02

At iterate 6 f= -9.99992D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 6 9 6 0 0 1.421D-06 -1.000D+02

F = -99.999228283217221

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99922828321722

True

[ 21.19126824 3290.56228566] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.43641D+01 |proj g|= 1.43153D-02

At iterate 1 f= -4.43643D+01 |proj g|= 1.43153D-02

ys= 0.000E+00 -gs= 2.049E-04 BFGS update SKIPPED

At iterate 2 f= -4.54045D+01 |proj g|= 1.22995D-02

At iterate 3 f= -4.88749D+01 |proj g|= 3.52362D-03

At iterate 4 f= -4.93868D+01 |proj g|= 1.96112D-03

At iterate 5 f= -4.97183D+01 |proj g|= 9.25847D-04

At iterate 6 f= -9.98471D+01 |proj g|= 5.00227D-04

At iterate 7 f= -9.98739D+01 |proj g|= 8.27072D-04

At iterate 8 f= -9.99195D+01 |proj g|= 6.33804D-04

At iterate 9 f= -9.99621D+01 |proj g|= 1.23636D-04

At iterate 10 f= -9.99802D+01 |proj g|= 6.53706D-05

At iterate 11 f= -9.99904D+01 |proj g|= 3.12642D-05

At iterate 12 f= -9.99951D+01 |proj g|= 1.42110D-05

At iterate 13 f= -9.99972D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 28 15 1 0 8.527D-06 -1.000D+02

F = -99.997173204929524

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99717320492952

True

[ 27.34377623 2895.70932245] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.56667D+01 |proj g|= 1.17481D-02

At iterate 1 f= -4.56669D+01 |proj g|= 1.17481D-02

ys= 0.000E+00 -gs= 1.380E-04 BFGS update SKIPPED

At iterate 2 f= -4.63696D+01 |proj g|= 1.01771D-02

At iterate 3 f= -4.89584D+01 |proj g|= 3.27422D-03

At iterate 4 f= -4.94433D+01 |proj g|= 1.78490D-03

At iterate 5 f= -4.97426D+01 |proj g|= 1.24629D-03

At iterate 6 f= -9.98760D+01 |proj g|= 4.05014D-04

At iterate 7 f= -9.99393D+01 |proj g|= 5.69855D-04

At iterate 8 f= -9.99547D+01 |proj g|= 1.47794D-04

At iterate 9 f= -9.99800D+01 |proj g|= 6.53706D-05

At iterate 10 f= -9.99834D+01 |proj g|= 5.54229D-05

At iterate 11 f= -9.99872D+01 |proj g|= 7.53175D-05

At iterate 12 f= -9.99948D+01 |proj g|= 1.70532D-05

At iterate 13 f= -9.99972D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 26 16 1 0 8.527D-06 -1.000D+02

F = -99.997152053737068

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99715205373707

True

[ 13.2805345 2892.38043554] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.67193D+01 |proj g|= 9.34718D-03

At iterate 1 f= -4.67194D+01 |proj g|= 9.34647D-03

At iterate 2 f= -4.80947D+01 |proj g|= 5.77244D-03

At iterate 3 f= -4.91580D+01 |proj g|= 2.66812D-03

At iterate 4 f= -4.95913D+01 |proj g|= 1.31807D-03

At iterate 5 f= -4.98000D+01 |proj g|= 6.50153D-04

At iterate 6 f= -4.99006D+01 |proj g|= 3.25432D-04

At iterate 7 f= -4.99508D+01 |proj g|= 1.61295D-04

At iterate 8 f= -4.99754D+01 |proj g|= 8.02922D-05

At iterate 9 f= -4.99876D+01 |proj g|= 3.97908D-05

At iterate 10 f= -4.99937D+01 |proj g|= 2.06060D-05

At iterate 11 f= -4.99969D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 12 11 0 1 9.948D-06 -5.000D+01

F = -49.996943485665298

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.9969434856653

True

[ 100. 2870.8231871] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.75466D+01 |proj g|= 7.25606D-03

At iterate 1 f= -4.75466D+01 |proj g|= 7.25677D-03

ys=-5.156E-09 -gs= 5.265E-05 BFGS update SKIPPED

At iterate 2 f= -4.78195D+01 |proj g|= 6.52633D-03

At iterate 3 f= -4.92738D+01 |proj g|= 2.31284D-03

At iterate 4 f= -4.96108D+01 |proj g|= 1.25696D-03

At iterate 5 f= -9.98855D+01 |proj g|= 3.78013D-04

At iterate 6 f= -9.99018D+01 |proj g|= 3.21169D-04

At iterate 7 f= -9.99651D+01 |proj g|= 1.82041D-03

At iterate 8 f= -9.99787D+01 |proj g|= 6.96339D-05

At iterate 9 f= -9.99870D+01 |proj g|= 4.26330D-05

At iterate 10 f= -9.99940D+01 |proj g|= 1.84743D-05

At iterate 11 f= -9.99967D+01 |proj g|= 1.13688D-05

At iterate 12 f= -9.99987D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 23 13 1 0 4.263D-06 -1.000D+02

F = -99.998720059073150

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99872005907315

True

[ 21.80704153 3136.28242738] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.81827D+01 |proj g|= 5.52660D-03

At iterate 1 f= -4.81827D+01 |proj g|= 5.52660D-03

ys= 0.000E+00 -gs= 3.054E-05 BFGS update SKIPPED

At iterate 2 f= -4.87471D+01 |proj g|= 3.90301D-03

At iterate 3 f= -4.95010D+01 |proj g|= 1.60442D-03

At iterate 4 f= -4.97438D+01 |proj g|= 1.73372D-03

At iterate 5 f= -9.98946D+01 |proj g|= 3.46749D-04

At iterate 6 f= -9.99440D+01 |proj g|= 1.83322D-04

At iterate 7 f= -9.99543D+01 |proj g|= 1.50637D-04

At iterate 8 f= -9.99826D+01 |proj g|= 3.96483D-04

At iterate 9 f= -9.99875D+01 |proj g|= 4.12119D-05

At iterate 10 f= -9.99935D+01 |proj g|= 2.13165D-05

At iterate 11 f= -9.99968D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 24 13 1 0 9.948D-06 -1.000D+02

F = -99.996759700600848

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99675970060085

True

[ 18.50905439 2853.0262833 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 1000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.86636D+01 |proj g|= 4.14886D-03

At iterate 1 f= -4.86636D+01 |proj g|= 4.14815D-03

At iterate 2 f= -4.88066D+01 |proj g|= 3.72755D-03

At iterate 3 f= -4.95714D+01 |proj g|= 1.38131D-03

At iterate 4 f= -4.97639D+01 |proj g|= 7.67394D-04

At iterate 5 f= -4.98885D+01 |proj g|= 3.63802D-04

At iterate 6 f= -4.99434D+01 |proj g|= 1.85454D-04

At iterate 7 f= -4.99721D+01 |proj g|= 9.09504D-05

At iterate 8 f= -4.99859D+01 |proj g|= 4.54752D-05

At iterate 9 f= -4.99928D+01 |proj g|= 2.34482D-05

At iterate 10 f= -4.99965D+01 |proj g|= 1.13688D-05

At iterate 11 f= -4.99982D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 12 11 0 1 5.684D-06 -5.000D+01

F = -49.998248762709075

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.998248762709075

True

[ 100. 3040.67021534] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 1100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.90227D+01 |proj g|= 3.07952D-03

At iterate 1 f= -4.90227D+01 |proj g|= 3.07952D-03

ys= 0.000E+00 -gs= 9.483E-06 BFGS update SKIPPED

At iterate 2 f= -4.92101D+01 |proj g|= 2.50824D-03

At iterate 3 f= -4.96945D+01 |proj g|= 9.94060D-04

At iterate 4 f= -9.98181D+01 |proj g|= 5.96862D-04

At iterate 5 f= -9.98491D+01 |proj g|= 4.94538D-04

At iterate 6 f= -9.98790D+01 |proj g|= 8.39861D-04

At iterate 7 f= -9.99520D+01 |proj g|= 1.56321D-04

At iterate 8 f= -9.99735D+01 |proj g|= 8.66871D-05

At iterate 9 f= -9.99874D+01 |proj g|= 3.97908D-05

At iterate 10 f= -9.99933D+01 |proj g|= 1.98954D-05

At iterate 11 f= -9.99964D+01 |proj g|= 1.13688D-05

At iterate 12 f= -9.99985D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 29 13 1 0 5.684D-06 -1.000D+02

F = -99.998468548824945

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99846854882495

True

[ 25.47557828 3081.65900342] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 1200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.92882D+01 |proj g|= 2.26808D-03

At iterate 1 f= -4.92882D+01 |proj g|= 2.26808D-03

ys= 0.000E+00 -gs= 5.144E-06 BFGS update SKIPPED

At iterate 2 f= -4.93923D+01 |proj g|= 1.94478D-03

At iterate 3 f= -4.97798D+01 |proj g|= 6.67768D-03

At iterate 4 f= -9.99446D+01 |proj g|= 3.20881D-03

At iterate 5 f= -9.99556D+01 |proj g|= 1.46373D-04

At iterate 6 f= -9.99637D+01 |proj g|= 1.19372D-04

At iterate 7 f= -9.99850D+01 |proj g|= 4.83174D-05

At iterate 8 f= -9.99918D+01 |proj g|= 2.70009D-05

At iterate 9 f= -9.99962D+01 |proj g|= 1.27899D-05

At iterate 10 f= -9.99981D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 21 11 1 0 5.684D-06 -1.000D+02

F = -99.998085804839548

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99808580483955

True

[ 25.48035807 3013.69187615] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 1300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.94831D+01 |proj g|= 1.65985D-03

At iterate 1 f= -4.94831D+01 |proj g|= 1.65985D-03

At iterate 2 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 4 2 0 0 0.000D+00 -1.000D+02

F = -99.999997163302595

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999971633026

True

[ 32.57726779 5000. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 1400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.96255D+01 |proj g|= 1.21078D-03

At iterate 1 f= -4.96255D+01 |proj g|= 1.21007D-03

At iterate 2 f= -9.97428D+01 |proj g|= 8.35607D-04

At iterate 3 f= -9.98728D+01 |proj g|= 2.53095D-03

At iterate 4 f= -9.98740D+01 |proj g|= 1.84741D-03

At iterate 5 f= -9.99733D+01 |proj g|= 3.13491D-03

At iterate 6 f= -9.99829D+01 |proj g|= 6.90648D-04

At iterate 7 f= -9.99916D+01 |proj g|= 2.27374D-04

At iterate 8 f= -9.99961D+01 |proj g|= 7.67386D-05

At iterate 9 f= -9.99976D+01 |proj g|= 3.69482D-05

At iterate 10 f= -9.99990D+01 |proj g|= 1.13687D-05

At iterate 11 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 22 11 0 0 0.000D+00 -1.000D+02

F = -99.999935133607892

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99993513360789

True

[ 12.12010174 4046.41759858] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 1500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.97293D+01 |proj g|= 8.82503D-04

At iterate 1 f= -4.97293D+01 |proj g|= 8.81793D-04

At iterate 2 f= -4.98154D+01 |proj g|= 6.00415D-04

At iterate 3 f= -4.99310D+01 |proj g|= 2.25955D-04

At iterate 4 f= -4.99617D+01 |proj g|= 1.25767D-04

At iterate 5 f= -4.99817D+01 |proj g|= 5.96862D-05

At iterate 6 f= -4.99906D+01 |proj g|= 3.05537D-05

At iterate 7 f= -4.99953D+01 |proj g|= 1.56321D-05

At iterate 8 f= -4.99978D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 12 8 0 1 7.106D-06 -5.000D+01

F = -49.997756538753187

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99775653875319

True

[ 100. 2965.13417983] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 1600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98049D+01 |proj g|= 6.43759D-04

At iterate 1 f= -4.98049D+01 |proj g|= 6.43759D-04

ys= 0.000E+00 -gs= 5.611E-07 BFGS update SKIPPED

At iterate 2 f= -9.98415D+01 |proj g|= 5.20123D-04

At iterate 3 f= -9.98767D+01 |proj g|= 4.00750D-04

At iterate 4 f= -9.98975D+01 |proj g|= 3.39643D-04

At iterate 5 f= -9.99383D+01 |proj g|= 2.01796D-04

At iterate 6 f= -9.99715D+01 |proj g|= 9.23715D-05

At iterate 7 f= -9.99762D+01 |proj g|= 7.95816D-05

At iterate 8 f= -9.99818D+01 |proj g|= 2.95586D-04

At iterate 9 f= -9.99957D+01 |proj g|= 1.42110D-05

At iterate 10 f= -9.99970D+01 |proj g|= 1.13688D-05

At iterate 11 f= -9.99992D+01 |proj g|= 4.12115D-05

At iterate 12 f= -9.99994D+01 |proj g|= 2.41585D-05

At iterate 13 f= -9.99999D+01 |proj g|= 2.84217D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 35 15 1 0 2.842D-06 -1.000D+02

F = -99.999867262593824

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99986726259382

True

[ 43.10800277 3833.74269523] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 1700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98606D+01 |proj g|= 1.12337D-03

At iterate 1 f= -4.98606D+01 |proj g|= 1.12408D-03

ys=-1.484E-09 -gs= 1.495E-06 BFGS update SKIPPED

At iterate 2 f= -9.98653D+01 |proj g|= 4.44804D-04

At iterate 3 f= -9.98695D+01 |proj g|= 4.26330D-04

At iterate 4 f= -9.98846D+01 |proj g|= 1.26903D-03

At iterate 5 f= -9.99793D+01 |proj g|= 6.82128D-05

At iterate 6 f= -9.99854D+01 |proj g|= 4.83174D-05

At iterate 7 f= -9.99938D+01 |proj g|= 1.98954D-05

At iterate 8 f= -9.99966D+01 |proj g|= 1.13688D-05

At iterate 9 f= -9.99985D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 23 10 1 0 7.106D-06 -1.000D+02

F = -99.998450496522594

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9984504965226

True

[ 30.60333973 3079.65075087] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 1800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99039D+01 |proj g|= 3.29692D-03

At iterate 1 f= -4.99039D+01 |proj g|= 3.30331D-03

ys=-2.108E-08 -gs= 1.103E-05 BFGS update SKIPPED

At iterate 2 f= -9.98981D+01 |proj g|= 7.36122D-04

At iterate 3 f= -9.99000D+01 |proj g|= 3.28274D-04

At iterate 4 f= -9.99026D+01 |proj g|= 3.18327D-04

At iterate 5 f= -9.99034D+01 |proj g|= 2.24816D-03

At iterate 6 f= -9.99115D+01 |proj g|= 8.83915D-04

At iterate 7 f= -9.99642D+01 |proj g|= 2.18847D-04

At iterate 8 f= -9.99807D+01 |proj g|= 9.80549D-05

At iterate 9 f= -9.99905D+01 |proj g|= 3.97904D-05

At iterate 10 f= -9.99950D+01 |proj g|= 1.70530D-05

At iterate 11 f= -9.99976D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 24 11 1 0 8.527D-06 -1.000D+02

F = -99.997571782532191

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99757178253219

True

[ 9.99434118 2941.59231885] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 1900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99437D+01 |proj g|= 9.67049D-03

At iterate 1 f= -4.99438D+01 |proj g|= 9.72378D-03

ys=-5.156E-07 -gs= 9.370E-05 BFGS update SKIPPED

At iterate 2 f= -9.99268D+01 |proj g|= 2.38745D-04

At iterate 3 f= -9.99280D+01 |proj g|= 2.34482D-04

At iterate 4 f= -9.99346D+01 |proj g|= 8.52651D-04

At iterate 5 f= -9.99387D+01 |proj g|= 1.47082D-03

At iterate 6 f= -9.99828D+01 |proj g|= 9.09495D-05

At iterate 7 f= -9.99894D+01 |proj g|= 4.83169D-05

At iterate 8 f= -9.99947D+01 |proj g|= 1.98954D-05

At iterate 9 f= -9.99980D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 21 9 1 0 7.106D-06 -1.000D+02

F = -99.998004407490399

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9980044074904

True

[ 29.50875383 3002.4386564 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 2000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99976D+01 |proj g|= 2.83421D-02

At iterate 1 f= -4.99984D+01 |proj g|= 2.87955D-02

ys=-1.285E-05 -gs= 8.038E-04 BFGS update SKIPPED

At iterate 2 f= -9.99471D+01 |proj g|= 1.73374D-04

At iterate 3 f= -9.99593D+01 |proj g|= 1.33583D-04

At iterate 4 f= -9.99662D+01 |proj g|= 2.59632D-03

At iterate 5 f= -9.99803D+01 |proj g|= 9.00968D-04

At iterate 6 f= -9.99907D+01 |proj g|= 8.95284D-04

At iterate 7 f= -9.99953D+01 |proj g|= 2.10321D-04

At iterate 8 f= -9.99975D+01 |proj g|= 8.52651D-05

At iterate 9 f= -9.99990D+01 |proj g|= 2.70006D-05

At iterate 10 f= -9.99999D+01 |proj g|= 2.84217D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 22 10 1 0 2.842D-06 -1.000D+02

F = -99.999886988478835

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99988698847883

True

[ 11.00627025 3878.92934593] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 2100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.01100D+01 |proj g|= 8.28493D-02

At iterate 1 f= -5.01171D+01 |proj g|= 8.67637D-02

ys=-3.244E-04 -gs= 6.867E-03 BFGS update SKIPPED

At iterate 2 f= -9.99608D+01 |proj g|= 5.61329D-04

At iterate 3 f= -9.99613D+01 |proj g|= 3.25429D-04

At iterate 4 f= -9.99617D+01 |proj g|= 1.42109D-04

At iterate 5 f= -9.99621D+01 |proj g|= 1.25057D-04

At iterate 6 f= -9.99632D+01 |proj g|= 1.20794D-04

At iterate 7 f= -9.99646D+01 |proj g|= 1.16530D-04

At iterate 8 f= -9.99664D+01 |proj g|= 1.23350D-03

At iterate 9 f= -9.99886D+01 |proj g|= 3.69486D-05

At iterate 10 f= -9.99934D+01 |proj g|= 2.27376D-05

At iterate 11 f= -9.99972D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 19 11 1 0 9.948D-06 -1.000D+02

F = -99.997209372662297

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9972093726623

True

[ 9.84337051 2899.23232712] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 2200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.04051D+01 |proj g|= 2.40367D-01

At iterate 1 f= -5.04669D+01 |proj g|= 2.74355D-01

ys=-8.173E-03 -gs= 5.780E-02 BFGS update SKIPPED

At iterate 2 f= -9.99620D+01 |proj g|= 5.88756D-03

At iterate 3 f= -9.99646D+01 |proj g|= 4.41958D-03

At iterate 4 f= -9.99692D+01 |proj g|= 1.86446D-03

At iterate 5 f= -9.99707D+01 |proj g|= 9.89075D-04

At iterate 6 f= -9.99717D+01 |proj g|= 4.81748D-04

At iterate 7 f= -9.99721D+01 |proj g|= 2.37321D-04

At iterate 8 f= -9.99725D+01 |proj g|= 1.08002D-04

At iterate 9 f= -9.99728D+01 |proj g|= 9.09504D-05

At iterate 10 f= -9.99736D+01 |proj g|= 8.52660D-05

At iterate 11 f= -9.99748D+01 |proj g|= 1.08002D-04

At iterate 12 f= -9.99749D+01 |proj g|= 2.41585D-04

At iterate 13 f= -9.99771D+01 |proj g|= 1.61293D-03

At iterate 14 f= -9.99877D+01 |proj g|= 3.96483D-04

At iterate 15 f= -9.99942D+01 |proj g|= 2.75691D-04

At iterate 16 f= -9.99968D+01 |proj g|= 1.67688D-04

At iterate 17 f= -9.99986D+01 |proj g|= 8.24230D-05

At iterate 18 f= -9.99995D+01 |proj g|= 3.12639D-05

At iterate 19 f= -9.99999D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 19 29 19 1 0 5.684D-06 -1.000D+02

F = -99.999918781994424

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99991878199442

True

[ 10.11117554 3992.15084464] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 2300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.12289D+01 |proj g|= 6.82354D-01

At iterate 1 f= -5.17898D+01 |proj g|= 9.77450D-01

ys=-2.014E-01 -gs= 4.658E-01 BFGS update SKIPPED

At iterate 2 f= -9.99668D+01 |proj g|= 7.49765D-03

At iterate 3 f= -9.99716D+01 |proj g|= 4.80753D-03

At iterate 4 f= -9.99763D+01 |proj g|= 2.17000D-03

At iterate 5 f= -9.99782D+01 |proj g|= 1.12834D-03

At iterate 6 f= -9.99792D+01 |proj g|= 5.51381D-04

At iterate 7 f= -9.99797D+01 |proj g|= 2.78533D-04

At iterate 8 f= -9.99800D+01 |proj g|= 1.30740D-04

At iterate 9 f= -9.99802D+01 |proj g|= 6.53706D-05

At iterate 10 f= -9.99805D+01 |proj g|= 6.25284D-05

At iterate 11 f= -9.99813D+01 |proj g|= 6.11073D-05

At iterate 12 f= -9.99830D+01 |proj g|= 5.54229D-05

At iterate 13 f= -9.99871D+01 |proj g|= 4.51905D-04

At iterate 14 f= -9.99994D+01 |proj g|= 3.55272D-04

At iterate 15 f= -9.99999D+01 |proj g|= 5.54224D-05

At iterate 16 f= -9.99999D+01 |proj g|= 4.12115D-05

At iterate 17 f= -1.00000D+02 |proj g|= 1.42109D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 23 17 1 0 1.421D-06 -1.000D+02

F = -99.999992062197776

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999206219778

True

[ 60.78437965 4779.69052718] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 2400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.34815D+01 |proj g|= 1.82213D+00

At iterate 1 f= -5.86218D+01 |proj g|= 4.00384D+00

ys=-3.977E+00 -gs= 3.321E+00 BFGS update SKIPPED

At iterate 2 f= -9.99825D+01 |proj g|= 1.79341D-03

At iterate 3 f= -9.99828D+01 |proj g|= 1.61293D-03

At iterate 4 f= -9.99846D+01 |proj g|= 6.28120D-04

At iterate 5 f= -9.99851D+01 |proj g|= 3.41060D-04

At iterate 6 f= -9.99854D+01 |proj g|= 1.63425D-04

At iterate 7 f= -9.99856D+01 |proj g|= 7.95808D-05

At iterate 8 f= -9.99858D+01 |proj g|= 4.68963D-05

At iterate 9 f= -9.99860D+01 |proj g|= 4.54752D-05

At iterate 10 f= -9.99870D+01 |proj g|= 4.26330D-05

At iterate 11 f= -9.99879D+01 |proj g|= 3.92220D-04

At iterate 12 f= -9.99995D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 17 12 1 0 1.421D-06 -1.000D+02

F = -99.999530955994103

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9995309559941

True

[ 14.47611982 3442.3977082 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 2500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.90264D+01 |proj g|= 4.14897D+00

At iterate 1 f= -8.46442D+01 |proj g|= 5.96044D+00

ys=-7.519E+00 -gs= 1.722E+01 BFGS update SKIPPED

At iterate 2 f= -9.92184D+01 |proj g|= 4.25584D-01

At iterate 3 f= -9.93911D+01 |proj g|= 3.31468D-01

At iterate 4 f= -9.97458D+01 |proj g|= 1.36038D-01

At iterate 5 f= -9.98595D+01 |proj g|= 7.27908D-02

At iterate 6 f= -9.99265D+01 |proj g|= 3.53495D-02

At iterate 7 f= -9.99578D+01 |proj g|= 1.78503D-02

At iterate 8 f= -9.99738D+01 |proj g|= 8.88605D-03

At iterate 9 f= -9.99818D+01 |proj g|= 4.44800D-03

At iterate 10 f= -9.99857D+01 |proj g|= 2.22400D-03

At iterate 11 f= -9.99877D+01 |proj g|= 1.10987D-03

At iterate 12 f= -9.99887D+01 |proj g|= 5.55644D-04

At iterate 13 f= -9.99892D+01 |proj g|= 2.75691D-04

At iterate 14 f= -9.99895D+01 |proj g|= 1.37845D-04

At iterate 15 f= -9.99896D+01 |proj g|= 6.53699D-05

At iterate 16 f= -9.99897D+01 |proj g|= 3.41064D-05

At iterate 17 f= -9.99899D+01 |proj g|= 3.26853D-05

At iterate 18 f= -9.99903D+01 |proj g|= 3.12642D-05

At iterate 19 f= -9.99913D+01 |proj g|= 2.84220D-05

At iterate 20 f= -9.99931D+01 |proj g|= 2.48690D-04

At iterate 21 f= -1.00000D+02 |proj g|= 1.98952D-05

At iterate 22 f= -1.00000D+02 |proj g|= 1.42109D-05

At iterate 23 f= -1.00000D+02 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 23 26 23 1 0 8.527D-06 -1.000D+02

F = -99.999978378042670

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997837804267

True

[ 61.02863157 4629.76902733] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 2600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -6.96416D+01 |proj g|= 6.68422D+00

At iterate 1 f= -9.82353D+01 |proj g|= 9.50172D-01

At iterate 2 f= -9.90326D+01 |proj g|= 5.27669D-01

At iterate 3 f= -9.95459D+01 |proj g|= 2.48086D-01

At iterate 4 f= -9.97671D+01 |proj g|= 1.25780D-01

At iterate 5 f= -9.98812D+01 |proj g|= 6.22649D-02

At iterate 6 f= -9.99369D+01 |proj g|= 3.11829D-02

At iterate 7 f= -9.99648D+01 |proj g|= 1.55637D-02

At iterate 8 f= -9.99787D+01 |proj g|= 7.78186D-03

At iterate 9 f= -9.99856D+01 |proj g|= 3.89093D-03

At iterate 10 f= -9.99891D+01 |proj g|= 1.94404D-03

At iterate 11 f= -9.99908D+01 |proj g|= 9.70601D-04

At iterate 12 f= -9.99917D+01 |proj g|= 4.86011D-04

At iterate 13 f= -9.99922D+01 |proj g|= 2.43006D-04

At iterate 14 f= -9.99924D+01 |proj g|= 1.19371D-04

At iterate 15 f= -9.99925D+01 |proj g|= 6.11067D-05

At iterate 16 f= -9.99926D+01 |proj g|= 2.55798D-05

At iterate 17 f= -9.99927D+01 |proj g|= 2.55798D-05

At iterate 18 f= -9.99929D+01 |proj g|= 2.27376D-05

At iterate 19 f= -9.99935D+01 |proj g|= 3.83693D-05

At iterate 20 f= -9.99936D+01 |proj g|= 1.13687D-04

At iterate 21 f= -9.99947D+01 |proj g|= 1.59162D-04

At iterate 22 f= -9.99987D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 22 29 22 0 0 2.842D-06 -1.000D+02

F = -99.998708606533967

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99870860653397

True

[ 10.45972016 3134.08883638] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 2700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -8.27525D+01 |proj g|= 6.33059D+00

At iterate 1 f= -9.92492D+01 |proj g|= 4.11507D-01

At iterate 2 f= -9.94103D+01 |proj g|= 3.23635D-01

At iterate 3 f= -9.97575D+01 |proj g|= 1.32275D-01

At iterate 4 f= -9.98678D+01 |proj g|= 7.08923D-02

At iterate 5 f= -9.99332D+01 |proj g|= 3.44073D-02

At iterate 6 f= -9.99636D+01 |proj g|= 1.73799D-02

At iterate 7 f= -9.99792D+01 |proj g|= 8.65157D-03

At iterate 8 f= -9.99869D+01 |proj g|= 4.33147D-03

At iterate 9 f= -9.99908D+01 |proj g|= 2.16289D-03

At iterate 10 f= -9.99927D+01 |proj g|= 1.08145D-03

At iterate 11 f= -9.99937D+01 |proj g|= 5.40012D-04

At iterate 12 f= -9.99942D+01 |proj g|= 2.70006D-04

At iterate 13 f= -9.99944D+01 |proj g|= 1.35003D-04

At iterate 14 f= -9.99945D+01 |proj g|= 6.82121D-05

At iterate 15 f= -9.99946D+01 |proj g|= 3.12639D-05

At iterate 16 f= -9.99947D+01 |proj g|= 1.70532D-05

At iterate 17 f= -9.99948D+01 |proj g|= 1.70532D-05

At iterate 18 f= -9.99950D+01 |proj g|= 1.56321D-05

At iterate 19 f= -9.99957D+01 |proj g|= 1.42110D-05

At iterate 20 f= -9.99960D+01 |proj g|= 8.24230D-05

At iterate 21 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 21 27 21 0 0 0.000D+00 -1.000D+02

F = -99.999976858660858

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997685866086

True

[ 36.35695603 4359.96081353] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 2800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.23921D+01 |proj g|= 3.61332D+00

At iterate 1 f= -9.88406D+01 |proj g|= 6.32615D-01

At iterate 2 f= -9.92383D+01 |proj g|= 4.18281D-01

At iterate 3 f= -9.96658D+01 |proj g|= 1.83905D-01

At iterate 4 f= -9.98246D+01 |proj g|= 9.58181D-02

At iterate 5 f= -9.99122D+01 |proj g|= 4.69868D-02

At iterate 6 f= -9.99539D+01 |proj g|= 2.36270D-02

At iterate 7 f= -9.99751D+01 |proj g|= 1.17794D-02

At iterate 8 f= -9.99856D+01 |proj g|= 5.89324D-03

At iterate 9 f= -9.99909D+01 |proj g|= 2.94449D-03

At iterate 10 f= -9.99935D+01 |proj g|= 1.47367D-03

At iterate 11 f= -9.99948D+01 |proj g|= 7.34701D-04

At iterate 12 f= -9.99955D+01 |proj g|= 3.70903D-04

At iterate 13 f= -9.99958D+01 |proj g|= 1.81899D-04

At iterate 14 f= -9.99960D+01 |proj g|= 9.23705D-05

At iterate 15 f= -9.99961D+01 |proj g|= 4.40536D-05

At iterate 16 f= -9.99961D+01 |proj g|= 1.98952D-05

At iterate 17 f= -9.99962D+01 |proj g|= 1.42110D-05

At iterate 18 f= -9.99963D+01 |proj g|= 1.27899D-05

At iterate 19 f= -9.99965D+01 |proj g|= 1.13688D-05

At iterate 20 f= -9.99969D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 20 22 20 0 0 9.948D-06 -1.000D+02

F = -99.996880396082148

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99688039608215

True

[ 11.35753745 2864.64530754] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 2900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.71174D+01 |proj g|= 1.52095D+00

At iterate 1 f= -9.87277D+01 |proj g|= 6.93413D-01

At iterate 2 f= -9.93677D+01 |proj g|= 3.48362D-01

At iterate 3 f= -9.96892D+01 |proj g|= 1.71553D-01

At iterate 4 f= -9.98438D+01 |proj g|= 8.57312D-02

At iterate 5 f= -9.99208D+01 |proj g|= 4.27406D-02

At iterate 6 f= -9.99591D+01 |proj g|= 2.13632D-02

At iterate 7 f= -9.99782D+01 |proj g|= 1.06724D-02

At iterate 8 f= -9.99877D+01 |proj g|= 5.33618D-03

At iterate 9 f= -9.99925D+01 |proj g|= 2.66596D-03

At iterate 10 f= -9.99948D+01 |proj g|= 1.33582D-03

At iterate 11 f= -9.99960D+01 |proj g|= 6.66489D-04

At iterate 12 f= -9.99966D+01 |proj g|= 3.32534D-04

At iterate 13 f= -9.99969D+01 |proj g|= 1.64846D-04

At iterate 14 f= -9.99971D+01 |proj g|= 8.38440D-05

At iterate 15 f= -9.99972D+01 |proj g|= 3.97904D-05

At iterate 16 f= -9.99972D+01 |proj g|= 1.98952D-05

At iterate 17 f= -9.99972D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 18 17 0 0 8.527D-06 -1.000D+02

F = -99.997232247898381

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99723224789838

True

[ 28.3454318 2902.84514846] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 3000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.89779D+01 |proj g|= 5.59993D-01

At iterate 1 f= -9.92487D+01 |proj g|= 4.13644D-01

At iterate 2 f= -9.96867D+01 |proj g|= 1.73362D-01

At iterate 3 f= -9.98334D+01 |proj g|= 9.19329D-02

At iterate 4 f= -9.99180D+01 |proj g|= 4.47756D-02

At iterate 5 f= -9.99577D+01 |proj g|= 2.25782D-02

At iterate 6 f= -9.99779D+01 |proj g|= 1.12422D-02

At iterate 7 f= -9.99880D+01 |proj g|= 5.62892D-03

At iterate 8 f= -9.99930D+01 |proj g|= 2.81233D-03

At iterate 9 f= -9.99955D+01 |proj g|= 1.40545D-03

At iterate 10 f= -9.99967D+01 |proj g|= 7.03437D-04

At iterate 11 f= -9.99974D+01 |proj g|= 3.51008D-04

At iterate 12 f= -9.99977D+01 |proj g|= 1.74793D-04

At iterate 13 f= -9.99978D+01 |proj g|= 8.81073D-05

At iterate 14 f= -9.99979D+01 |proj g|= 4.54747D-05

At iterate 15 f= -9.99980D+01 |proj g|= 2.27374D-05

At iterate 16 f= -9.99980D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 16 17 16 0 0 9.948D-06 -1.000D+02

F = -99.997993634760846

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99799363476085

True

[ 30.29405344 3001.691933 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 3100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.96462D+01 |proj g|= 1.96059D-01

At iterate 1 f= -9.96827D+01 |proj g|= 1.75910D-01

At iterate 2 f= -9.98771D+01 |proj g|= 6.79080D-02

At iterate 3 f= -9.99320D+01 |proj g|= 3.72239D-02

At iterate 4 f= -9.99665D+01 |proj g|= 1.79284D-02

At iterate 5 f= -9.99823D+01 |proj g|= 9.08642D-03

At iterate 6 f= -9.99905D+01 |proj g|= 4.51905D-03

At iterate 7 f= -9.99945D+01 |proj g|= 2.26237D-03

At iterate 8 f= -9.99965D+01 |proj g|= 1.13261D-03

At iterate 9 f= -9.99976D+01 |proj g|= 5.64171D-04

At iterate 10 f= -9.99981D+01 |proj g|= 2.81375D-04

At iterate 11 f= -9.99983D+01 |proj g|= 1.42109D-04

At iterate 12 f= -9.99984D+01 |proj g|= 6.96332D-05

At iterate 13 f= -9.99985D+01 |proj g|= 3.69482D-05

At iterate 14 f= -9.99985D+01 |proj g|= 1.56319D-05

At iterate 15 f= -9.99986D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 15 16 15 0 0 8.527D-06 -1.000D+02

F = -99.998550264675970

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99855026467597

True

[ 32.12319384 3101.57680229] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 3200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.98783D+01 |proj g|= 6.74348D-02

At iterate 1 f= -9.98828D+01 |proj g|= 6.49436D-02

At iterate 2 f= -9.99555D+01 |proj g|= 2.43091D-02

At iterate 3 f= -9.99749D+01 |proj g|= 1.34904D-02

At iterate 4 f= -9.99874D+01 |proj g|= 6.47020D-03

At iterate 5 f= -9.99931D+01 |proj g|= 3.28697D-03

At iterate 6 f= -9.99960D+01 |proj g|= 1.63425D-03

At iterate 7 f= -9.99975D+01 |proj g|= 8.17124D-04

At iterate 8 f= -9.99982D+01 |proj g|= 4.07851D-04

At iterate 9 f= -9.99986D+01 |proj g|= 2.04636D-04

At iterate 10 f= -9.99988D+01 |proj g|= 1.02318D-04

At iterate 11 f= -9.99989D+01 |proj g|= 5.11591D-05

At iterate 12 f= -9.99989D+01 |proj g|= 2.55795D-05

At iterate 13 f= -9.99989D+01 |proj g|= 1.27898D-05

At iterate 14 f= -9.99990D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 14 15 14 0 0 7.105D-06 -1.000D+02

F = -99.998956043275740

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99895604327574

True

[ 33.34505082 3201.50837956] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 3300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99581D+01 |proj g|= 2.30528D-02

At iterate 1 f= -9.99586D+01 |proj g|= 2.27573D-02

At iterate 2 f= -9.99842D+01 |proj g|= 8.42419D-03

At iterate 3 f= -9.99909D+01 |proj g|= 4.69384D-03

At iterate 4 f= -9.99952D+01 |proj g|= 2.24816D-03

At iterate 5 f= -9.99972D+01 |proj g|= 1.14539D-03

At iterate 6 f= -9.99982D+01 |proj g|= 5.65592D-04

At iterate 7 f= -9.99987D+01 |proj g|= 2.87059D-04

At iterate 8 f= -9.99990D+01 |proj g|= 1.42109D-04

At iterate 9 f= -9.99991D+01 |proj g|= 7.10543D-05

At iterate 10 f= -9.99992D+01 |proj g|= 3.55271D-05

At iterate 11 f= -9.99992D+01 |proj g|= 1.84741D-05

At iterate 12 f= -9.99992D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 13 12 0 0 7.105D-06 -1.000D+02

F = -99.999239319338145

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99923931933814

True

[ 35.81372894 3300.78326786] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 3400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99854D+01 |proj g|= 7.86429D-03

At iterate 1 f= -9.99855D+01 |proj g|= 7.82876D-03

At iterate 2 f= -9.99942D+01 |proj g|= 2.96581D-03

At iterate 3 f= -9.99965D+01 |proj g|= 1.63851D-03

At iterate 4 f= -9.99981D+01 |proj g|= 7.88702D-04

At iterate 5 f= -9.99987D+01 |proj g|= 4.00746D-04

At iterate 6 f= -9.99991D+01 |proj g|= 1.98952D-04

At iterate 7 f= -9.99993D+01 |proj g|= 9.80549D-05

At iterate 8 f= -9.99994D+01 |proj g|= 5.11591D-05

At iterate 9 f= -9.99994D+01 |proj g|= 2.55795D-05

At iterate 10 f= -9.99994D+01 |proj g|= 1.13687D-05

At iterate 11 f= -9.99995D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 12 11 0 0 5.684D-06 -1.000D+02

F = -99.999450211012373

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99945021101237

True

[ 37.31146978 3400.3580723 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 3500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99948D+01 |proj g|= 2.68017D-03

At iterate 1 f= -9.99948D+01 |proj g|= 2.67590D-03

At iterate 2 f= -9.99978D+01 |proj g|= 1.04023D-03

At iterate 3 f= -9.99986D+01 |proj g|= 5.72697D-04

At iterate 4 f= -9.99991D+01 |proj g|= 2.72848D-04

At iterate 5 f= -9.99994D+01 |proj g|= 1.39266D-04

At iterate 6 f= -9.99995D+01 |proj g|= 6.96332D-05

At iterate 7 f= -9.99996D+01 |proj g|= 3.55271D-05

At iterate 8 f= -9.99996D+01 |proj g|= 1.56319D-05

At iterate 9 f= -9.99996D+01 |proj g|= 1.13687D-05

At iterate 10 f= -9.99996D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 11 10 0 0 1.421D-06 -1.000D+02

F = -99.999608760492507

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9996087604925

True

[ 37.07281262 3500.36700672] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 3600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99981D+01 |proj g|= 9.13758D-04

At iterate 1 f= -9.99981D+01 |proj g|= 9.13758D-04

ys= 0.000E+00 -gs= 8.353E-07 BFGS update SKIPPED

At iterate 2 f= -9.99984D+01 |proj g|= 7.67386D-04

At iterate 3 f= -9.99992D+01 |proj g|= 3.06954D-04

At iterate 4 f= -9.99994D+01 |proj g|= 1.66267D-04

At iterate 5 f= -9.99996D+01 |proj g|= 8.24230D-05

At iterate 6 f= -9.99996D+01 |proj g|= 3.97904D-05

At iterate 7 f= -9.99997D+01 |proj g|= 1.98952D-05

At iterate 8 f= -9.99997D+01 |proj g|= 1.13687D-05

At iterate 9 f= -9.99997D+01 |proj g|= 4.26326D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 14 9 1 0 4.263D-06 -1.000D+02

F = -99.999712582888421

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99971258288842

True

[ 40.46952427 3600.12989977] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 3700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99992D+01 |proj g|= 3.11218D-04

At iterate 1 f= -9.99992D+01 |proj g|= 3.11218D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 3.112D-04 -1.000D+02

F = -99.999243072077107

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.9992430720771

True

[ 49.99968878 3700.00000853] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[50, 3800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99997D+01 |proj g|= 1.06581D-04

At iterate 1 f= -9.99997D+01 |proj g|= 1.05160D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.052D-04 -1.000D+02

F = -99.999665540524489

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99966554052449

True

[ 49.99989342 3800.00000142] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[50, 3900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99998D+01 |proj g|= 3.41060D-05

At iterate 1 f= -9.99998D+01 |proj g|= 3.69482D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 3.695D-05 -1.000D+02

F = -99.999830911163684

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99983091116368

True

[ 49.99996589 3900.00000284] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[50, 4000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 1.13687D-05

At iterate 1 f= -9.99999D+01 |proj g|= 1.42109D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.421D-05 -1.000D+02

F = -99.999902675231198

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.9999026752312

True

[ 49.99998863 4000.00000142] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[50, 4100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 4.26326D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 4.263D-06 -1.000D+02

F = -99.999938231309216

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99993823130922

True

[ 50. 4100.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 4200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 1.421D-06 -1.000D+02

F = -99.999958345069629

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99995834506963

True

[ 50. 4200.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 4300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999970960569172

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997096056917

True

[ 50. 4300.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 4400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999979410062878

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997941006288

True

[ 50. 4400.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 4500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999985279447060

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998527944706

True

[ 50. 4500.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 4600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999989433602295

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999894336023

True

[ 50. 4600.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 4700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999992400996121

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999240099612

True

[ 50. 4700.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 4800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999994530104345

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999453010435

True

[ 50. 4800.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[50, 4900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999996060986305

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999960609863

True

[ 50. 4900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 0]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -3.50000D+01 |proj g|= 1.96763D-02

At iterate 1 f= -3.50004D+01 |proj g|= 1.96771D-02

ys=-1.398E-08 -gs= 3.872E-04 BFGS update SKIPPED

At iterate 2 f= -4.32973D+01 |proj g|= 1.60881D-02

At iterate 3 f= -4.99922D+01 |proj g|= 4.86651D-03

At iterate 4 f= -9.99850D+01 |proj g|= 4.97385D-05

At iterate 5 f= -9.99900D+01 |proj g|= 2.77112D-04

At iterate 6 f= -9.99947D+01 |proj g|= 1.71951D-04

At iterate 7 f= -9.99973D+01 |proj g|= 4.54747D-05

At iterate 8 f= -9.99987D+01 |proj g|= 3.69482D-05

At iterate 9 f= -9.99997D+01 |proj g|= 1.84741D-05

At iterate 10 f= -9.99998D+01 |proj g|= 1.27898D-05

At iterate 11 f= -9.99998D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 24 12 1 0 9.948D-06 -1.000D+02

F = -99.999789737357275

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99978973735728

True

[ 9.81701948 3696.2403591 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.70157D+01 |proj g|= 2.04651D-02

At iterate 1 f= -3.70162D+01 |proj g|= 2.04665D-02

ys=-2.908E-08 -gs= 4.188E-04 BFGS update SKIPPED

At iterate 2 f= -4.50098D+01 |proj g|= 1.30981D-02

At iterate 3 f= -4.95482D+01 |proj g|= 1.45521D-03

At iterate 4 f= -4.96722D+01 |proj g|= 1.06156D-03

At iterate 5 f= -4.98628D+01 |proj g|= 4.47647D-04

At iterate 6 f= -4.99277D+01 |proj g|= 2.38745D-04

At iterate 7 f= -9.99633D+01 |proj g|= 1.20794D-04

At iterate 8 f= -9.99709D+01 |proj g|= 1.93268D-04

At iterate 9 f= -9.99846D+01 |proj g|= 4.97385D-05

At iterate 10 f= -9.99923D+01 |proj g|= 2.55798D-05

At iterate 11 f= -9.99963D+01 |proj g|= 1.27899D-05

At iterate 12 f= -9.99982D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 25 13 1 0 5.684D-06 -1.000D+02

F = -99.998208437880180

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99820843788018

True

[ 26.33664003 3033.94248757] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.90570D+01 |proj g|= 2.01787D-02

At iterate 1 f= -3.90574D+01 |proj g|= 2.01787D-02

ys= 0.000E+00 -gs= 4.072E-04 BFGS update SKIPPED

At iterate 2 f= -4.61255D+01 |proj g|= 1.07370D-02

At iterate 3 f= -4.91444D+01 |proj g|= 2.71004D-03

At iterate 4 f= -4.95016D+01 |proj g|= 1.60158D-03

At iterate 5 f= -4.97740D+01 |proj g|= 7.34709D-04

At iterate 6 f= -4.98850D+01 |proj g|= 3.75171D-04

At iterate 7 f= -9.99863D+01 |proj g|= 1.59162D-04

At iterate 8 f= -9.99879D+01 |proj g|= 3.97908D-05

At iterate 9 f= -9.99910D+01 |proj g|= 2.84220D-05

At iterate 10 f= -9.99927D+01 |proj g|= 5.68434D-05

At iterate 11 f= -9.99954D+01 |proj g|= 1.60583D-03

At iterate 12 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 25 13 1 0 0.000D+00 -1.000D+02

F = -99.999997163302623

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999716330262

True

[ 24.69032086 5000. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.10173D+01 |proj g|= 1.88741D-02

At iterate 1 f= -4.10176D+01 |proj g|= 1.88734D-02

At iterate 2 f= -4.75564D+01 |proj g|= 7.23048D-03

At iterate 3 f= -4.90610D+01 |proj g|= 2.96299D-03

At iterate 4 f= -4.95289D+01 |proj g|= 1.51631D-03

At iterate 5 f= -4.97737D+01 |proj g|= 7.36841D-04

At iterate 6 f= -4.98874D+01 |proj g|= 3.68065D-04

At iterate 7 f= -9.99855D+01 |proj g|= 1.16529D-04

At iterate 8 f= -9.99871D+01 |proj g|= 4.12119D-05

At iterate 9 f= -9.99908D+01 |proj g|= 3.12642D-05

At iterate 10 f= -9.99968D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 15 11 0 0 9.948D-06 -1.000D+02

F = -99.996797341552167

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99679734155217

True

[ 14.30102623 2856.58079452] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.28061D+01 |proj g|= 1.68036D-02

At iterate 1 f= -4.28064D+01 |proj g|= 1.68029D-02

At iterate 2 f= -4.75275D+01 |proj g|= 7.30651D-03

At iterate 3 f= -4.90322D+01 |proj g|= 3.05110D-03

At iterate 4 f= -4.95189D+01 |proj g|= 1.54758D-03

At iterate 5 f= -4.97681D+01 |proj g|= 7.52473D-04

At iterate 6 f= -4.98844D+01 |proj g|= 3.78723D-04

At iterate 7 f= -9.99875D+01 |proj g|= 8.81073D-05

At iterate 8 f= -9.99887D+01 |proj g|= 3.69486D-05

At iterate 9 f= -9.99919D+01 |proj g|= 2.70009D-05

At iterate 10 f= -9.99938D+01 |proj g|= 6.82121D-05

At iterate 11 f= -9.99976D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 17 12 0 0 8.527D-06 -1.000D+02

F = -99.997615861456097

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9976158614561

True

[ 16.37288024 2946.58896423] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.43641D+01 |proj g|= 1.43153D-02

At iterate 1 f= -4.43643D+01 |proj g|= 1.43153D-02

ys= 0.000E+00 -gs= 2.049E-04 BFGS update SKIPPED

At iterate 2 f= -4.54045D+01 |proj g|= 1.22995D-02

At iterate 3 f= -4.88749D+01 |proj g|= 3.52362D-03

At iterate 4 f= -4.93867D+01 |proj g|= 1.96183D-03

At iterate 5 f= -4.97176D+01 |proj g|= 9.15189D-04

At iterate 6 f= -4.98575D+01 |proj g|= 4.63989D-04

At iterate 7 f= -4.99305D+01 |proj g|= 4.63984D-04

At iterate 8 f= -9.99716D+01 |proj g|= 9.37926D-05

At iterate 9 f= -9.99841D+01 |proj g|= 5.40018D-05

At iterate 10 f= -9.99927D+01 |proj g|= 2.55798D-05

At iterate 11 f= -9.99964D+01 |proj g|= 1.13688D-05

At iterate 12 f= -9.99980D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 22 13 1 0 5.684D-06 -1.000D+02

F = -99.997978225269549

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99797822526955

True

[ 17.61102031 2996.86534528] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.56667D+01 |proj g|= 1.17481D-02

At iterate 1 f= -4.56669D+01 |proj g|= 1.17481D-02

ys= 0.000E+00 -gs= 1.380E-04 BFGS update SKIPPED

At iterate 2 f= -4.63696D+01 |proj g|= 1.01771D-02

At iterate 3 f= -4.89584D+01 |proj g|= 3.27422D-03

At iterate 4 f= -4.94433D+01 |proj g|= 1.78490D-03

At iterate 5 f= -4.97404D+01 |proj g|= 8.42713D-04

At iterate 6 f= -4.98695D+01 |proj g|= 4.26330D-04

At iterate 7 f= -4.99403D+01 |proj g|= 2.61906D-03

At iterate 8 f= -9.99979D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 17 8 1 0 7.106D-06 -1.000D+02

F = -99.997925983427962

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99792598342796

True

[ 26.5234073 2989.41521392] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.67193D+01 |proj g|= 9.34718D-03

At iterate 1 f= -4.67194D+01 |proj g|= 9.34647D-03

At iterate 2 f= -4.77082D+01 |proj g|= 6.82689D-03

At iterate 3 f= -4.91815D+01 |proj g|= 2.59635D-03

At iterate 4 f= -4.95746D+01 |proj g|= 1.37065D-03

At iterate 5 f= -4.97972D+01 |proj g|= 6.60101D-04

At iterate 6 f= -4.98986D+01 |proj g|= 3.31116D-04

At iterate 7 f= -9.99673D+01 |proj g|= 1.08004D-04

At iterate 8 f= -9.99722D+01 |proj g|= 9.23715D-05

At iterate 9 f= -9.99768D+01 |proj g|= 1.32161D-04

At iterate 10 f= -9.99865D+01 |proj g|= 4.26330D-05

At iterate 11 f= -9.99931D+01 |proj g|= 2.27376D-05

At iterate 12 f= -9.99968D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 20 13 0 0 8.527D-06 -1.000D+02

F = -99.996826749611216

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99682674961122

True

[ 21.32597447 2859.44037319] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.75466D+01 |proj g|= 7.25606D-03

At iterate 1 f= -4.75466D+01 |proj g|= 7.25677D-03

ys=-5.156E-09 -gs= 5.265E-05 BFGS update SKIPPED

At iterate 2 f= -4.78195D+01 |proj g|= 6.52633D-03

At iterate 3 f= -4.92738D+01 |proj g|= 2.31284D-03

At iterate 4 f= -4.96107D+01 |proj g|= 1.25625D-03

At iterate 5 f= -4.98160D+01 |proj g|= 5.98994D-04

At iterate 6 f= -4.99075D+01 |proj g|= 3.02694D-04

At iterate 7 f= -9.99544D+01 |proj g|= 2.10321D-04

At iterate 8 f= -9.99621D+01 |proj g|= 1.25057D-04

At iterate 9 f= -9.99813D+01 |proj g|= 3.95062D-04

At iterate 10 f= -9.99928D+01 |proj g|= 2.98428D-05

At iterate 11 f= -9.99953D+01 |proj g|= 3.69482D-05

At iterate 12 f= -9.99983D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 21 13 1 0 5.684D-06 -1.000D+02

F = -99.998263984273393

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9982639842734

True

[ 17.03998664 3043.33394515] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.81827D+01 |proj g|= 5.52660D-03

At iterate 1 f= -4.81827D+01 |proj g|= 5.52660D-03

ys= 0.000E+00 -gs= 3.054E-05 BFGS update SKIPPED

At iterate 2 f= -4.87471D+01 |proj g|= 3.90301D-03

At iterate 3 f= -4.95009D+01 |proj g|= 1.60442D-03

At iterate 4 f= -4.97407D+01 |proj g|= 8.41291D-04

At iterate 5 f= -4.98747D+01 |proj g|= 4.09987D-04

At iterate 6 f= -9.99961D+01 |proj g|= 1.42110D-05

At iterate 7 f= -9.99966D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 16 7 1 0 9.948D-06 -1.000D+02

F = -99.996585569446665

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99658556944667

True

[ 19.0340022 2837.06789548] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 1000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.86636D+01 |proj g|= 4.14886D-03

At iterate 1 f= -4.86636D+01 |proj g|= 4.14815D-03

At iterate 2 f= -4.90856D+01 |proj g|= 2.88910D-03

At iterate 3 f= -4.96242D+01 |proj g|= 1.21433D-03

At iterate 4 f= -4.98045D+01 |proj g|= 6.35942D-04

At iterate 5 f= -4.99051D+01 |proj g|= 3.10510D-04

At iterate 6 f= -9.99590D+01 |proj g|= 1.35005D-04

At iterate 7 f= -9.99660D+01 |proj g|= 1.10846D-04

At iterate 8 f= -9.99718D+01 |proj g|= 2.24531D-04

At iterate 9 f= -9.99913D+01 |proj g|= 2.84220D-05

At iterate 10 f= -9.99947D+01 |proj g|= 1.70532D-05

At iterate 11 f= -9.99975D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 19 12 0 0 7.106D-06 -1.000D+02

F = -99.997515583565828

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99751558356583

True

[ 11.17518111 2934.11154485] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 1100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.90227D+01 |proj g|= 3.07952D-03

At iterate 1 f= -4.90227D+01 |proj g|= 3.07952D-03

ys= 0.000E+00 -gs= 9.483E-06 BFGS update SKIPPED

At iterate 2 f= -4.92100D+01 |proj g|= 2.50824D-03

At iterate 3 f= -4.96941D+01 |proj g|= 9.91218D-04

At iterate 4 f= -4.98366D+01 |proj g|= 5.32202D-04

At iterate 5 f= -4.99215D+01 |proj g|= 2.58640D-04

At iterate 6 f= -9.99582D+01 |proj g|= 1.36426D-04

At iterate 7 f= -9.99667D+01 |proj g|= 2.78533D-04

At iterate 8 f= -9.99849D+01 |proj g|= 4.97385D-05

At iterate 9 f= -9.99922D+01 |proj g|= 2.55798D-05

At iterate 10 f= -9.99961D+01 |proj g|= 1.27899D-05

At iterate 11 f= -9.99981D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 24 12 1 0 5.684D-06 -1.000D+02

F = -99.998074513068531

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99807451306853

True

[ 26.53262376 3012.02562111] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 1200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.92881D+01 |proj g|= 2.26808D-03

At iterate 1 f= -4.92881D+01 |proj g|= 2.26808D-03

ys= 0.000E+00 -gs= 5.144E-06 BFGS update SKIPPED

At iterate 2 f= -4.93923D+01 |proj g|= 1.94407D-03

At iterate 3 f= -4.97672D+01 |proj g|= 7.56025D-04

At iterate 4 f= -4.98743D+01 |proj g|= 4.09987D-04

At iterate 5 f= -9.99968D+01 |proj g|= 1.13688D-05

At iterate 6 f= -9.99971D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 6 15 6 1 0 8.527D-06 -1.000D+02

F = -99.997124680597238

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99712468059724

True

[ 17.24138728 2889.46399909] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 1300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.94831D+01 |proj g|= 1.65985D-03

At iterate 1 f= -4.94831D+01 |proj g|= 1.65985D-03

ys= 0.000E+00 -gs= 2.755E-06 BFGS update SKIPPED

At iterate 2 f= -4.95400D+01 |proj g|= 1.48079D-03

At iterate 3 f= -4.98259D+01 |proj g|= 5.67019D-04

At iterate 4 f= -4.99051D+01 |proj g|= 3.09089D-04

At iterate 5 f= -9.99876D+01 |proj g|= 6.25278D-05

At iterate 6 f= -9.99890D+01 |proj g|= 3.69486D-05

At iterate 7 f= -9.99931D+01 |proj g|= 2.27376D-05

At iterate 8 f= -9.99966D+01 |proj g|= 1.59162D-04

At iterate 9 f= -9.99985D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 21 10 1 0 5.684D-06 -1.000D+02

F = -99.998548605180275

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99854860518028

True

[ 16.53546365 3097.93996909] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 1400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.96254D+01 |proj g|= 1.21007D-03

At iterate 1 f= -4.96254D+01 |proj g|= 1.21007D-03

ys= 0.000E+00 -gs= 1.464E-06 BFGS update SKIPPED

At iterate 2 f= -4.97340D+01 |proj g|= 8.63319D-04

At iterate 3 f= -4.98871D+01 |proj g|= 3.68065D-04

At iterate 4 f= -4.99441D+01 |proj g|= 2.03428D-03

At iterate 5 f= -9.99980D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 5 16 5 1 0 7.106D-06 -1.000D+02

F = -99.998027089849174

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99802708984917

True

[ 26.9819837 3004.70684481] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 1500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.97290D+01 |proj g|= 8.79661D-04

At iterate 1 f= -4.97290D+01 |proj g|= 8.78240D-04

At iterate 2 f= -4.97668D+01 |proj g|= 7.58157D-04

At iterate 3 f= -4.99099D+01 |proj g|= 2.94878D-04

At iterate 4 f= -9.99608D+01 |proj g|= 1.66267D-04

At iterate 5 f= -9.99676D+01 |proj g|= 1.05161D-04

At iterate 6 f= -9.99863D+01 |proj g|= 1.76499D-03

At iterate 7 f= -9.99989D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 14 8 0 0 4.263D-06 -1.000D+02

F = -99.998860283118916

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99886028311892

True

[ 10.69215775 3172.0739794 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 1600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98042D+01 |proj g|= 6.36653D-04

At iterate 1 f= -4.98042D+01 |proj g|= 6.38074D-04

ys=-9.047E-10 -gs= 4.053E-07 BFGS update SKIPPED

At iterate 2 f= -4.98367D+01 |proj g|= 5.31492D-04

At iterate 3 f= -4.99367D+01 |proj g|= 1.42890D-03

At iterate 4 f= -9.99810D+01 |proj g|= 1.48361D-03

At iterate 5 f= -9.99869D+01 |proj g|= 4.26330D-05

At iterate 6 f= -9.99886D+01 |proj g|= 3.69486D-05

At iterate 7 f= -9.99913D+01 |proj g|= 2.84220D-05

At iterate 8 f= -9.99933D+01 |proj g|= 4.40536D-05

At iterate 9 f= -9.99944D+01 |proj g|= 1.70530D-04

At iterate 10 f= -9.99992D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 25 12 1 0 2.842D-06 -1.000D+02

F = -99.999224911502296

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9992249115023

True

[ 14.08472035 3289.23392598] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 1700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98586D+01 |proj g|= 4.61147D-04

At iterate 1 f= -4.98586D+01 |proj g|= 4.61858D-04

ys=-3.246E-10 -gs= 2.127E-07 BFGS update SKIPPED

At iterate 2 f= -4.98761D+01 |proj g|= 4.05014D-04

At iterate 3 f= -9.99685D+01 |proj g|= 1.05161D-04

At iterate 4 f= -9.99728D+01 |proj g|= 8.95293D-05

At iterate 5 f= -9.99832D+01 |proj g|= 1.30740D-04

At iterate 6 f= -9.99882D+01 |proj g|= 3.97908D-05

At iterate 7 f= -9.99948D+01 |proj g|= 1.70532D-05

At iterate 8 f= -9.99972D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 22 9 1 0 9.948D-06 -1.000D+02

F = -99.997150610090969

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99715061009097

True

[ 21.7596612 2892.27035946] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 1800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98980D+01 |proj g|= 3.33959D-04

At iterate 1 f= -4.98980D+01 |proj g|= 3.34669D-04

ys=-2.373E-10 -gs= 1.117E-07 BFGS update SKIPPED

At iterate 2 f= -4.99312D+01 |proj g|= 4.56168D-04

At iterate 3 f= -9.99920D+01 |proj g|= 2.55798D-05

At iterate 4 f= -9.99944D+01 |proj g|= 1.84743D-05

At iterate 5 f= -9.99958D+01 |proj g|= 1.27899D-05

At iterate 6 f= -9.99978D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 6 20 7 1 0 7.106D-06 -1.000D+02

F = -99.997835040968283

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99783504096828

True

[ 21.62225313 2976.01995605] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 1900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99265D+01 |proj g|= 2.41587D-04

At iterate 1 f= -4.99265D+01 |proj g|= 2.40877D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.409D-04 -4.993D+01

F = -49.926495736201488

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.92649573620149

True

[ 59.99996376 1900.00024159] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[60, 2000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99471D+01 |proj g|= 1.75506D-04

At iterate 1 f= -4.99471D+01 |proj g|= 1.75506D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.755D-04 -4.995D+01

F = -49.947144460279652

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.94714446027965

True

[ 59.99989555 2000.00017551] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[60, 2100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99623D+01 |proj g|= 3.06954D-04

At iterate 1 f= -4.99623D+01 |proj g|= 3.06954D-04

ys= 0.000E+00 -gs= 1.113E-07 BFGS update SKIPPED

At iterate 2 f= -9.99637D+01 |proj g|= 1.19372D-04

At iterate 3 f= -9.99653D+01 |proj g|= 1.13688D-04

At iterate 4 f= -9.99701D+01 |proj g|= 9.66348D-05

At iterate 5 f= -9.99769D+01 |proj g|= 9.90497D-04

At iterate 6 f= -9.99999D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 6 20 7 1 0 2.842D-06 -1.000D+02

F = -99.999935820622966

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99993582062297

True

[ 45.8424991 4054.60779923] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 2200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99741D+01 |proj g|= 9.00968D-04

At iterate 1 f= -4.99741D+01 |proj g|= 9.00968D-04

ys=-7.573E-11 -gs= 8.231E-07 BFGS update SKIPPED

At iterate 2 f= -9.99730D+01 |proj g|= 8.81082D-05

At iterate 3 f= -9.99750D+01 |proj g|= 8.10027D-05

At iterate 4 f= -9.99821D+01 |proj g|= 1.36424D-04

At iterate 5 f= -9.99913D+01 |proj g|= 4.83169D-05

At iterate 6 f= -9.99958D+01 |proj g|= 5.11591D-05

At iterate 7 f= -9.99981D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 20 7 1 0 8.527D-06 -1.000D+02

F = -99.998094524056114

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99809452405611

True

[ 27.08948213 3015.30524363] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 2300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99849D+01 |proj g|= 2.64322D-03

At iterate 1 f= -4.99849D+01 |proj g|= 2.64677D-03

ys=-9.308E-09 -gs= 7.000E-06 BFGS update SKIPPED

At iterate 2 f= -9.99801D+01 |proj g|= 9.37916D-05

At iterate 3 f= -9.99802D+01 |proj g|= 6.39495D-05

At iterate 4 f= -9.99805D+01 |proj g|= 6.39495D-05

At iterate 5 f= -9.99819D+01 |proj g|= 1.06581D-04

At iterate 6 f= -9.99821D+01 |proj g|= 3.42482D-04

At iterate 7 f= -9.99869D+01 |proj g|= 1.78488D-03

At iterate 8 f= -9.99975D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 18 8 1 0 8.527D-06 -1.000D+02

F = -99.997462798874778

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99746279887478

True

[ 10.63419733 2927.81630655] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 2400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99995D+01 |proj g|= 7.75273D-03

At iterate 1 f= -4.99996D+01 |proj g|= 7.78613D-03

ys=-2.592E-07 -gs= 6.014E-05 BFGS update SKIPPED

At iterate 2 f= -9.99857D+01 |proj g|= 4.54752D-05

At iterate 3 f= -9.99892D+01 |proj g|= 3.55275D-05

At iterate 4 f= -9.99901D+01 |proj g|= 1.15108D-03

At iterate 5 f= -9.99967D+01 |proj g|= 1.98952D-05

At iterate 6 f= -9.99981D+01 |proj g|= 1.27898D-05

At iterate 7 f= -9.99990D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 19 7 1 0 8.527D-06 -1.000D+02

F = -99.998953753826157

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99895375382616

True

[ 9.92088448 3199.29837096] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 2500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00303D+01 |proj g|= 2.27274D-02

At iterate 1 f= -5.00308D+01 |proj g|= 2.30187D-02

ys=-6.624E-06 -gs= 5.168E-04 BFGS update SKIPPED

At iterate 2 f= -9.99884D+01 |proj g|= 7.61702D-04

At iterate 3 f= -9.99890D+01 |proj g|= 4.16378D-04

At iterate 4 f= -9.99894D+01 |proj g|= 2.01794D-04

At iterate 5 f= -9.99896D+01 |proj g|= 9.94760D-05

At iterate 6 f= -9.99897D+01 |proj g|= 4.54747D-05

At iterate 7 f= -9.99898D+01 |proj g|= 3.26853D-05

At iterate 8 f= -9.99900D+01 |proj g|= 3.26853D-05

At iterate 9 f= -9.99908D+01 |proj g|= 3.83693D-05

At iterate 10 f= -9.99908D+01 |proj g|= 1.19371D-04

At iterate 11 f= -9.99917D+01 |proj g|= 1.46372D-04

At iterate 12 f= -9.99968D+01 |proj g|= 1.13688D-05

At iterate 13 f= -9.99985D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 25 13 1 0 4.263D-06 -1.000D+02

F = -99.998491117708255

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99849111770826

True

[ 10.7135643 3086.39722527] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 2600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.01115D+01 |proj g|= 6.64876D-02

At iterate 1 f= -5.01160D+01 |proj g|= 6.90001D-02

ys=-1.671E-04 -gs= 4.422E-03 BFGS update SKIPPED

At iterate 2 f= -9.99549D+01 |proj g|= 2.11145D-02

At iterate 3 f= -9.99925D+01 |proj g|= 6.39488D-05

At iterate 4 f= -9.99925D+01 |proj g|= 4.40536D-05

At iterate 5 f= -9.99926D+01 |proj g|= 2.55798D-05

At iterate 6 f= -9.99927D+01 |proj g|= 2.41587D-05

At iterate 7 f= -9.99931D+01 |proj g|= 2.27376D-05

At iterate 8 f= -9.99939D+01 |proj g|= 1.98954D-05

At iterate 9 f= -9.99953D+01 |proj g|= 1.27898D-04

At iterate 10 f= -9.99990D+01 |proj g|= 4.97380D-04

At iterate 11 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 22 11 1 0 0.000D+00 -1.000D+02

F = -99.999889386630770

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99988938663077

True

[ 38.06485415 3883.18375573] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 2700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.03420D+01 |proj g|= 1.93334D-01

At iterate 1 f= -5.03815D+01 |proj g|= 2.15124D-01

ys=-4.214E-03 -gs= 3.739E-02 BFGS update SKIPPED

At iterate 2 f= -9.97692D+01 |proj g|= 1.25760D-01

At iterate 3 f= -9.99947D+01 |proj g|= 1.70532D-05

At iterate 4 f= -9.99958D+01 |proj g|= 1.42110D-05

At iterate 5 f= -9.99988D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 5 16 5 1 0 4.263D-06 -1.000D+02

F = -99.998808937680721

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99880893768072

True

[ 15.68480749 3158.22129456] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 2800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.10021D+01 |proj g|= 5.52416D-01

At iterate 1 f= -5.13573D+01 |proj g|= 7.42067D-01

ys=-1.048E-01 -gs= 3.053E-01 BFGS update SKIPPED

At iterate 2 f= -9.97108D+01 |proj g|= 1.59005D-01

At iterate 3 f= -9.99697D+01 |proj g|= 1.48333D-02

At iterate 4 f= -9.99754D+01 |proj g|= 1.16117D-02

At iterate 5 f= -9.99876D+01 |proj g|= 4.80185D-03

At iterate 6 f= -9.99916D+01 |proj g|= 2.57501D-03

At iterate 7 f= -9.99939D+01 |proj g|= 1.25340D-03

At iterate 8 f= -9.99950D+01 |proj g|= 6.32383D-04

At iterate 9 f= -9.99956D+01 |proj g|= 3.15481D-04

At iterate 10 f= -9.99959D+01 |proj g|= 1.57740D-04

At iterate 11 f= -9.99960D+01 |proj g|= 7.81597D-05

At iterate 12 f= -9.99961D+01 |proj g|= 3.83693D-05

At iterate 13 f= -9.99961D+01 |proj g|= 1.84741D-05

At iterate 14 f= -9.99962D+01 |proj g|= 1.42110D-05

At iterate 15 f= -9.99963D+01 |proj g|= 1.42110D-05

At iterate 16 f= -9.99964D+01 |proj g|= 1.13688D-05

At iterate 17 f= -9.99967D+01 |proj g|= 1.13688D-05

At iterate 18 f= -9.99968D+01 |proj g|= 7.38964D-05

At iterate 19 f= -9.99992D+01 |proj g|= 3.12639D-04

At iterate 20 f= -9.99997D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 20 29 20 1 0 0.000D+00 -1.000D+02

F = -99.999656158416684

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99965615841668

True

[ 13.67685207 3537.09420374] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 2900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.28388D+01 |proj g|= 1.50195D+00

At iterate 1 f= -5.61320D+01 |proj g|= 3.01619D+00

ys=-2.275E+00 -gs= 2.257E+00 BFGS update SKIPPED

At iterate 2 f= -9.99212D+01 |proj g|= 4.25274D-02

At iterate 3 f= -9.99299D+01 |proj g|= 3.76971D-02

At iterate 4 f= -9.99710D+01 |proj g|= 1.46969D-02

At iterate 5 f= -9.99829D+01 |proj g|= 8.04476D-03

At iterate 6 f= -9.99903D+01 |proj g|= 3.88241D-03

At iterate 7 f= -9.99937D+01 |proj g|= 1.96394D-03

At iterate 8 f= -9.99955D+01 |proj g|= 9.80549D-04

At iterate 9 f= -9.99964D+01 |proj g|= 4.88853D-04

At iterate 10 f= -9.99968D+01 |proj g|= 2.44427D-04

At iterate 11 f= -9.99970D+01 |proj g|= 1.23634D-04

At iterate 12 f= -9.99971D+01 |proj g|= 6.11067D-05

At iterate 13 f= -9.99972D+01 |proj g|= 2.98428D-05

At iterate 14 f= -9.99972D+01 |proj g|= 1.27898D-05

At iterate 15 f= -9.99972D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 15 17 15 1 0 8.527D-06 -1.000D+02

F = -99.997246507271370

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99724650727137

True

[ 27.64511907 2903.84224416] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 3000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.75109D+01 |proj g|= 3.57770D+00

At iterate 1 f= -7.83914D+01 |proj g|= 6.87609D+00

ys=-1.180E+01 -gs= 1.280E+01 BFGS update SKIPPED

At iterate 2 f= -9.92050D+01 |proj g|= 4.37339D-01

At iterate 3 f= -9.93855D+01 |proj g|= 3.39065D-01

At iterate 4 f= -9.97480D+01 |proj g|= 1.39413D-01

At iterate 5 f= -9.98646D+01 |proj g|= 7.45388D-02

At iterate 6 f= -9.99333D+01 |proj g|= 3.62093D-02

At iterate 7 f= -9.99654D+01 |proj g|= 1.82808D-02

At iterate 8 f= -9.99818D+01 |proj g|= 9.10063D-03

At iterate 9 f= -9.99899D+01 |proj g|= 4.55600D-03

At iterate 10 f= -9.99939D+01 |proj g|= 2.27658D-03

At iterate 11 f= -9.99960D+01 |proj g|= 1.13971D-03

At iterate 12 f= -9.99970D+01 |proj g|= 5.68434D-04

At iterate 13 f= -9.99975D+01 |proj g|= 2.84217D-04

At iterate 14 f= -9.99977D+01 |proj g|= 1.42109D-04

At iterate 15 f= -9.99979D+01 |proj g|= 7.10543D-05

At iterate 16 f= -9.99979D+01 |proj g|= 3.69482D-05

At iterate 17 f= -9.99980D+01 |proj g|= 1.42109D-05

At iterate 18 f= -9.99980D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 19 18 1 0 8.527D-06 -1.000D+02

F = -99.997998429474904

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9979984294749

True

[ 30.19686222 3002.27945817] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 3100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -6.70807D+01 |proj g|= 6.30247D+00

At iterate 1 f= -9.73342D+01 |proj g|= 1.41358D+00

At iterate 2 f= -9.90055D+01 |proj g|= 5.45477D-01

At iterate 3 f= -9.94710D+01 |proj g|= 2.92546D-01

At iterate 4 f= -9.97461D+01 |proj g|= 1.40786D-01

At iterate 5 f= -9.98714D+01 |proj g|= 7.10557D-02

At iterate 6 f= -9.99355D+01 |proj g|= 3.53097D-02

At iterate 7 f= -9.99670D+01 |proj g|= 1.76740D-02

At iterate 8 f= -9.99828D+01 |proj g|= 8.82920D-03

At iterate 9 f= -9.99907D+01 |proj g|= 4.41389D-03

At iterate 10 f= -9.99946D+01 |proj g|= 2.20695D-03

At iterate 11 f= -9.99966D+01 |proj g|= 1.10276D-03

At iterate 12 f= -9.99976D+01 |proj g|= 5.51381D-04

At iterate 13 f= -9.99981D+01 |proj g|= 2.75691D-04

At iterate 14 f= -9.99983D+01 |proj g|= 1.37845D-04

At iterate 15 f= -9.99984D+01 |proj g|= 6.82121D-05

At iterate 16 f= -9.99985D+01 |proj g|= 3.41060D-05

At iterate 17 f= -9.99985D+01 |proj g|= 1.70530D-05

At iterate 18 f= -9.99986D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 19 18 0 0 7.105D-06 -1.000D+02

F = -99.998553893046292

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99855389304629

True

[ 31.9569256 3102.03951489] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 3200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -8.01803D+01 |proj g|= 6.70425D+00

At iterate 1 f= -9.92449D+01 |proj g|= 4.16203D-01

At iterate 2 f= -9.94090D+01 |proj g|= 3.26705D-01

At iterate 3 f= -9.97594D+01 |proj g|= 1.33629D-01

At iterate 4 f= -9.98709D+01 |proj g|= 7.15943D-02

At iterate 5 f= -9.99369D+01 |proj g|= 3.47541D-02

At iterate 6 f= -9.99676D+01 |proj g|= 1.75518D-02

At iterate 7 f= -9.99834D+01 |proj g|= 8.73683D-03

At iterate 8 f= -9.99912D+01 |proj g|= 4.37410D-03

At iterate 9 f= -9.99951D+01 |proj g|= 2.18847D-03

At iterate 10 f= -9.99970D+01 |proj g|= 1.09139D-03

At iterate 11 f= -9.99980D+01 |proj g|= 5.47118D-04

At iterate 12 f= -9.99985D+01 |proj g|= 2.72848D-04

At iterate 13 f= -9.99987D+01 |proj g|= 1.36424D-04

At iterate 14 f= -9.99988D+01 |proj g|= 6.82121D-05

At iterate 15 f= -9.99989D+01 |proj g|= 3.26850D-05

At iterate 16 f= -9.99989D+01 |proj g|= 1.84741D-05

At iterate 17 f= -9.99990D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 18 17 0 0 8.527D-06 -1.000D+02

F = -99.998953329032560

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99895332903256

True

[ 33.77503775 3201.55121295] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 3300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.08570D+01 |proj g|= 4.18664D+00

At iterate 1 f= -9.89516D+01 |proj g|= 5.74813D-01

At iterate 2 f= -9.92734D+01 |proj g|= 4.00863D-01

At iterate 3 f= -9.96898D+01 |proj g|= 1.72371D-01

At iterate 4 f= -9.98371D+01 |proj g|= 9.05757D-02

At iterate 5 f= -9.99201D+01 |proj g|= 4.42768D-02

At iterate 6 f= -9.99594D+01 |proj g|= 2.22940D-02

At iterate 7 f= -9.99794D+01 |proj g|= 1.11072D-02

At iterate 8 f= -9.99893D+01 |proj g|= 5.56213D-03

At iterate 9 f= -9.99943D+01 |proj g|= 2.77680D-03

At iterate 10 f= -9.99968D+01 |proj g|= 1.39124D-03

At iterate 11 f= -9.99980D+01 |proj g|= 6.92069D-04

At iterate 12 f= -9.99986D+01 |proj g|= 3.48166D-04

At iterate 13 f= -9.99989D+01 |proj g|= 1.71951D-04

At iterate 14 f= -9.99991D+01 |proj g|= 8.81073D-05

At iterate 15 f= -9.99992D+01 |proj g|= 4.12115D-05

At iterate 16 f= -9.99992D+01 |proj g|= 2.27374D-05

At iterate 17 f= -9.99992D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 18 17 0 0 9.948D-06 -1.000D+02

F = -99.999235910983202

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9992359109832

True

[ 36.25998145 3301.04218769] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 3400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.64572D+01 |proj g|= 1.84449D+00

At iterate 1 f= -9.86797D+01 |proj g|= 7.20078D-01

At iterate 2 f= -9.93100D+01 |proj g|= 3.81030D-01

At iterate 3 f= -9.96695D+01 |proj g|= 1.83680D-01

At iterate 4 f= -9.98339D+01 |proj g|= 9.24942D-02

At iterate 5 f= -9.99173D+01 |proj g|= 4.59664D-02

At iterate 6 f= -9.99584D+01 |proj g|= 2.29974D-02

At iterate 7 f= -9.99790D+01 |proj g|= 1.14881D-02

At iterate 8 f= -9.99892D+01 |proj g|= 5.74261D-03

At iterate 9 f= -9.99943D+01 |proj g|= 2.87059D-03

At iterate 10 f= -9.99969D+01 |proj g|= 1.43814D-03

At iterate 11 f= -9.99982D+01 |proj g|= 7.16227D-04

At iterate 12 f= -9.99988D+01 |proj g|= 3.59535D-04

At iterate 13 f= -9.99991D+01 |proj g|= 1.80478D-04

At iterate 14 f= -9.99993D+01 |proj g|= 8.81073D-05

At iterate 15 f= -9.99994D+01 |proj g|= 4.54747D-05

At iterate 16 f= -9.99994D+01 |proj g|= 2.27374D-05

At iterate 17 f= -9.99994D+01 |proj g|= 1.13687D-05

At iterate 18 f= -9.99995D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 19 18 0 0 5.684D-06 -1.000D+02

F = -99.999453875427974

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99945387542797

True

[ 36.94864582 3401.19762559] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 3500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.87334D+01 |proj g|= 6.91618D-01

At iterate 1 f= -9.91333D+01 |proj g|= 4.77061D-01

At iterate 2 f= -9.96301D+01 |proj g|= 2.05542D-01

At iterate 3 f= -9.98065D+01 |proj g|= 1.07782D-01

At iterate 4 f= -9.99054D+01 |proj g|= 5.26967D-02

At iterate 5 f= -9.99522D+01 |proj g|= 2.65246D-02

At iterate 6 f= -9.99760D+01 |proj g|= 1.32147D-02

At iterate 7 f= -9.99878D+01 |proj g|= 6.61373D-03

At iterate 8 f= -9.99937D+01 |proj g|= 3.30544D-03

At iterate 9 f= -9.99967D+01 |proj g|= 1.65130D-03

At iterate 10 f= -9.99981D+01 |proj g|= 8.27072D-04

At iterate 11 f= -9.99989D+01 |proj g|= 4.13536D-04

At iterate 12 f= -9.99992D+01 |proj g|= 2.06057D-04

At iterate 13 f= -9.99994D+01 |proj g|= 1.03739D-04

At iterate 14 f= -9.99995D+01 |proj g|= 5.25802D-05

At iterate 15 f= -9.99996D+01 |proj g|= 2.55795D-05

At iterate 16 f= -9.99996D+01 |proj g|= 1.42109D-05

At iterate 17 f= -9.99996D+01 |proj g|= 4.26326D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 18 17 0 0 4.263D-06 -1.000D+02

F = -99.999603359829948

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99960335982995

True

[ 38.91238759 3500.90336686] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 3600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.95609D+01 |proj g|= 2.43745D-01

At iterate 1 f= -9.96165D+01 |proj g|= 2.13090D-01

At iterate 2 f= -9.98508D+01 |proj g|= 8.32003D-02

At iterate 3 f= -9.99186D+01 |proj g|= 4.53994D-02

At iterate 4 f= -9.99606D+01 |proj g|= 2.18989D-02

At iterate 5 f= -9.99799D+01 |proj g|= 1.10930D-02

At iterate 6 f= -9.99899D+01 |proj g|= 5.51523D-03

At iterate 7 f= -9.99948D+01 |proj g|= 2.76401D-03

At iterate 8 f= -9.99973D+01 |proj g|= 1.37845D-03

At iterate 9 f= -9.99985D+01 |proj g|= 6.90647D-04

At iterate 10 f= -9.99991D+01 |proj g|= 3.45324D-04

At iterate 11 f= -9.99994D+01 |proj g|= 1.73372D-04

At iterate 12 f= -9.99996D+01 |proj g|= 8.66862D-05

At iterate 13 f= -9.99996D+01 |proj g|= 4.40536D-05

At iterate 14 f= -9.99997D+01 |proj g|= 1.98952D-05

At iterate 15 f= -9.99997D+01 |proj g|= 1.13687D-05

At iterate 16 f= -9.99997D+01 |proj g|= 2.84217D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 16 17 16 0 0 2.842D-06 -1.000D+02

F = -99.999713113088177

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99971311308818

True

[ 40.62853681 3601.37920334] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 3700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.98494D+01 |proj g|= 8.40259D-02

At iterate 1 f= -9.98563D+01 |proj g|= 8.01819D-02

At iterate 2 f= -9.99460D+01 |proj g|= 3.01242D-02

At iterate 3 f= -9.99700D+01 |proj g|= 1.66921D-02

At iterate 4 f= -9.99855D+01 |proj g|= 8.01208D-03

At iterate 5 f= -9.99925D+01 |proj g|= 4.06715D-03

At iterate 6 f= -9.99962D+01 |proj g|= 2.02078D-03

At iterate 7 f= -9.99980D+01 |proj g|= 1.01323D-03

At iterate 8 f= -9.99989D+01 |proj g|= 5.05906D-04

At iterate 9 f= -9.99993D+01 |proj g|= 2.52953D-04

At iterate 10 f= -9.99996D+01 |proj g|= 1.27898D-04

At iterate 11 f= -9.99997D+01 |proj g|= 6.11067D-05

At iterate 12 f= -9.99997D+01 |proj g|= 3.41060D-05

At iterate 13 f= -9.99998D+01 |proj g|= 1.42109D-05

At iterate 14 f= -9.99998D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 14 15 14 0 0 8.527D-06 -1.000D+02

F = -99.999784622303935

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99978462230393

True

[ 43.45808292 3700.43392826] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 3800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99485D+01 |proj g|= 2.87471D-02

At iterate 1 f= -9.99493D+01 |proj g|= 2.82881D-02

At iterate 2 f= -9.99811D+01 |proj g|= 1.04890D-02

At iterate 3 f= -9.99894D+01 |proj g|= 5.84208D-03

At iterate 4 f= -9.99949D+01 |proj g|= 2.80096D-03

At iterate 5 f= -9.99973D+01 |proj g|= 1.42251D-03

At iterate 6 f= -9.99986D+01 |proj g|= 7.04858D-04

At iterate 7 f= -9.99992D+01 |proj g|= 3.55271D-04

At iterate 8 f= -9.99995D+01 |proj g|= 1.76215D-04

At iterate 9 f= -9.99997D+01 |proj g|= 8.95284D-05

At iterate 10 f= -9.99998D+01 |proj g|= 4.40536D-05

At iterate 11 f= -9.99998D+01 |proj g|= 2.27374D-05

At iterate 12 f= -9.99998D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 13 12 0 0 8.527D-06 -1.000D+02

F = -99.999836175091701

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9998361750917

True

[ 45.88722338 3800.35397983] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 3900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99824D+01 |proj g|= 9.80833D-03

At iterate 1 f= -9.99825D+01 |proj g|= 9.75433D-03

At iterate 2 f= -9.99934D+01 |proj g|= 3.61098D-03

At iterate 3 f= -9.99963D+01 |proj g|= 2.01368D-03

At iterate 4 f= -9.99982D+01 |proj g|= 9.66338D-04

At iterate 5 f= -9.99990D+01 |proj g|= 4.88853D-04

At iterate 6 f= -9.99995D+01 |proj g|= 2.44427D-04

At iterate 7 f= -9.99997D+01 |proj g|= 1.20792D-04

At iterate 8 f= -9.99998D+01 |proj g|= 6.25278D-05

At iterate 9 f= -9.99998D+01 |proj g|= 3.12639D-05

At iterate 10 f= -9.99999D+01 |proj g|= 1.56319D-05

At iterate 11 f= -9.99999D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 12 11 0 0 7.105D-06 -1.000D+02

F = -99.999883460438468

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99988346043847

True

[ 47.03299615 3900.58806518] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 4000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99940D+01 |proj g|= 3.34381D-03

At iterate 1 f= -9.99940D+01 |proj g|= 3.33813D-03

At iterate 2 f= -9.99979D+01 |proj g|= 1.10987D-03

At iterate 3 f= -9.99988D+01 |proj g|= 6.42331D-04

At iterate 4 f= -9.99994D+01 |proj g|= 3.02691D-04

At iterate 5 f= -9.99996D+01 |proj g|= 1.53477D-04

At iterate 6 f= -9.99998D+01 |proj g|= 7.81597D-05

At iterate 7 f= -9.99999D+01 |proj g|= 3.83693D-05

At iterate 8 f= -9.99999D+01 |proj g|= 1.70530D-05

At iterate 9 f= -9.99999D+01 |proj g|= 1.13687D-05

At iterate 10 f= -9.99999D+01 |proj g|= 2.84217D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 11 10 0 0 2.842D-06 -1.000D+02

F = -99.999918851166427

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99991885116643

True

[ 47.70689031 4000.88663555] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 4100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99979D+01 |proj g|= 1.14113D-03

At iterate 1 f= -9.99979D+01 |proj g|= 1.13829D-03

At iterate 2 f= -9.99985D+01 |proj g|= 8.31335D-04

At iterate 3 f= -9.99993D+01 |proj g|= 3.55271D-04

At iterate 4 f= -9.99996D+01 |proj g|= 1.87583D-04

At iterate 5 f= -9.99998D+01 |proj g|= 9.23705D-05

At iterate 6 f= -9.99999D+01 |proj g|= 4.54747D-05

At iterate 7 f= -9.99999D+01 |proj g|= 2.27374D-05

At iterate 8 f= -9.99999D+01 |proj g|= 1.27898D-05

At iterate 9 f= -9.99999D+01 |proj g|= 4.26326D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 10 9 0 0 4.263D-06 -1.000D+02

F = -99.999937362675269

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99993736267527

True

[ 50.39030595 4103.49433099] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 4200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99993D+01 |proj g|= 3.89377D-04

At iterate 1 f= -9.99993D+01 |proj g|= 3.87956D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 3.880D-04 -1.000D+02

F = -99.999268033050541

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99926803305054

True

[ 59.99961062 4200.00000853] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[60, 4300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99997D+01 |proj g|= 1.33582D-04

At iterate 1 f= -9.99997D+01 |proj g|= 1.32161D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.322D-04 -1.000D+02

F = -99.999735696125455

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99973569612546

True

[ 59.99986642 4300.00000284] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[60, 4400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 4.54747D-05

At iterate 1 f= -9.99999D+01 |proj g|= 4.40536D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 4.405D-05 -1.000D+02

F = -99.999899237908252

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99989923790825

True

[ 59.99995453 4400. ] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[60, 4500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 1.42109D-05

At iterate 1 f= -1.00000D+02 |proj g|= 1.70530D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.705D-05 -1.000D+02

F = -99.999957959742090

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99995795974209

True

[ 59.99998579 4500.00000284] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[60, 4600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 5.684D-06 -1.000D+02

F = -99.999980124152472

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998012415247

True

[ 60. 4600.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 4700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 1.42109D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 1.421D-06 -1.000D+02

F = -99.999989228738599

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999892287386

True

[ 60. 4700.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 4800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999993449136397

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999934491364

True

[ 60. 4800.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[60, 4900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 0.000D+00 -1.000D+02

F = -99.999995692639260

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999569263926

True

[ 60. 4900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 0]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -3.50000D+01 |proj g|= 1.96763D-02

At iterate 1 f= -3.50004D+01 |proj g|= 1.96771D-02

ys=-1.398E-08 -gs= 3.872E-04 BFGS update SKIPPED

At iterate 2 f= -4.32973D+01 |proj g|= 1.60881D-02

At iterate 3 f= -4.99835D+01 |proj g|= 5.47124D-05

At iterate 4 f= -9.99903D+01 |proj g|= 3.12642D-05

At iterate 5 f= -9.99932D+01 |proj g|= 6.67910D-05

At iterate 6 f= -9.99975D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 6 20 6 1 0 8.527D-06 -1.000D+02

F = -99.997488756358081

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99748875635808

True

[ 18.44738202 2930.75328447] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.70157D+01 |proj g|= 2.04651D-02

At iterate 1 f= -3.70162D+01 |proj g|= 2.04665D-02

ys=-2.908E-08 -gs= 4.188E-04 BFGS update SKIPPED

At iterate 2 f= -4.50098D+01 |proj g|= 1.30981D-02

At iterate 3 f= -4.95482D+01 |proj g|= 1.45521D-03

At iterate 4 f= -4.96721D+01 |proj g|= 1.06085D-03

At iterate 5 f= -4.98625D+01 |proj g|= 4.49068D-04

At iterate 6 f= -4.99275D+01 |proj g|= 2.37324D-04

At iterate 7 f= -4.99647D+01 |proj g|= 1.15820D-04

At iterate 8 f= -9.99989D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 17 8 1 0 2.842D-06 -1.000D+02

F = -99.998866262816904

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9988662628169

True

[ 17.8640636 3173.26332772] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.90570D+01 |proj g|= 2.01787D-02

At iterate 1 f= -3.90574D+01 |proj g|= 2.01787D-02

ys= 0.000E+00 -gs= 4.072E-04 BFGS update SKIPPED

At iterate 2 f= -4.61255D+01 |proj g|= 1.07370D-02

At iterate 3 f= -4.91444D+01 |proj g|= 2.71004D-03

At iterate 4 f= -4.95016D+01 |proj g|= 1.60158D-03

At iterate 5 f= -4.97740D+01 |proj g|= 7.34709D-04

At iterate 6 f= -4.98849D+01 |proj g|= 3.75881D-04

At iterate 7 f= -4.99434D+01 |proj g|= 1.85454D-04

At iterate 8 f= -4.99717D+01 |proj g|= 9.30821D-05

At iterate 9 f= -9.99887D+01 |proj g|= 3.69486D-05

At iterate 10 f= -9.99906D+01 |proj g|= 3.41064D-05

At iterate 11 f= -9.99990D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 22 12 1 0 2.842D-06 -1.000D+02

F = -99.998964295740222

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99896429574022

True

[ 16.4622716 3200.84133773] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.10173D+01 |proj g|= 1.88741D-02

At iterate 1 f= -4.10176D+01 |proj g|= 1.88734D-02

At iterate 2 f= -4.75564D+01 |proj g|= 7.23048D-03

At iterate 3 f= -4.90610D+01 |proj g|= 2.96299D-03

At iterate 4 f= -4.95289D+01 |proj g|= 1.51631D-03

At iterate 5 f= -4.97737D+01 |proj g|= 7.36130D-04

At iterate 6 f= -4.98872D+01 |proj g|= 3.68065D-04

At iterate 7 f= -4.99439D+01 |proj g|= 1.83322D-04

At iterate 8 f= -4.99720D+01 |proj g|= 9.30821D-05

At iterate 9 f= -9.99888D+01 |proj g|= 3.69486D-05

At iterate 10 f= -9.99907D+01 |proj g|= 3.12642D-05

At iterate 11 f= -9.99927D+01 |proj g|= 2.55798D-05

At iterate 12 f= -9.99950D+01 |proj g|= 1.70532D-05

At iterate 13 f= -9.99977D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 22 15 0 0 5.684D-06 -1.000D+02

F = -99.997697495113698

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9976974951137

True

[ 26.91986366 2957.73734859] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.28061D+01 |proj g|= 1.68036D-02

At iterate 1 f= -4.28064D+01 |proj g|= 1.68029D-02

At iterate 2 f= -4.75275D+01 |proj g|= 7.30651D-03

At iterate 3 f= -4.90322D+01 |proj g|= 3.05110D-03

At iterate 4 f= -4.95189D+01 |proj g|= 1.54758D-03

At iterate 5 f= -4.97681D+01 |proj g|= 7.52473D-04

At iterate 6 f= -4.98843D+01 |proj g|= 3.77302D-04

At iterate 7 f= -4.99427D+01 |proj g|= 1.86875D-04

At iterate 8 f= -4.99713D+01 |proj g|= 9.37926D-05

At iterate 9 f= -9.99986D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 12 9 0 0 5.684D-06 -1.000D+02

F = -99.998627801577328

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99862780157733

True

[ 13.69743854 3115.05324719] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.43641D+01 |proj g|= 1.43153D-02

At iterate 1 f= -4.43643D+01 |proj g|= 1.43153D-02

ys= 0.000E+00 -gs= 2.049E-04 BFGS update SKIPPED

At iterate 2 f= -4.54045D+01 |proj g|= 1.22995D-02

At iterate 3 f= -4.88749D+01 |proj g|= 3.52362D-03

At iterate 4 f= -4.93867D+01 |proj g|= 1.96183D-03

At iterate 5 f= -4.97176D+01 |proj g|= 9.15189D-04

At iterate 6 f= -4.98575D+01 |proj g|= 4.63989D-04

At iterate 7 f= -4.99297D+01 |proj g|= 2.30218D-04

At iterate 8 f= -4.99650D+01 |proj g|= 1.15109D-04

At iterate 9 f= -9.99989D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 17 9 1 0 2.842D-06 -1.000D+02

F = -99.998938420790807

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99893842079081

True

[ 16.15330802 3193.31657925] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.56667D+01 |proj g|= 1.17481D-02

At iterate 1 f= -4.56669D+01 |proj g|= 1.17481D-02

ys= 0.000E+00 -gs= 1.380E-04 BFGS update SKIPPED

At iterate 2 f= -4.63696D+01 |proj g|= 1.01771D-02

At iterate 3 f= -4.89584D+01 |proj g|= 3.27422D-03

At iterate 4 f= -4.94433D+01 |proj g|= 1.78490D-03

At iterate 5 f= -4.97404D+01 |proj g|= 8.42713D-04

At iterate 6 f= -4.98695D+01 |proj g|= 4.25620D-04

At iterate 7 f= -4.99355D+01 |proj g|= 2.11744D-04

At iterate 8 f= -4.99679D+01 |proj g|= 1.05161D-04

At iterate 9 f= -9.99990D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 17 9 1 0 2.842D-06 -1.000D+02

F = -99.998986793636917

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99898679363692

True

[ 27.60475203 3207.65685727] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.67193D+01 |proj g|= 9.34718D-03

At iterate 1 f= -4.67194D+01 |proj g|= 9.34647D-03

At iterate 2 f= -4.77082D+01 |proj g|= 6.82689D-03

At iterate 3 f= -4.91815D+01 |proj g|= 2.59635D-03

At iterate 4 f= -4.95746D+01 |proj g|= 1.37065D-03

At iterate 5 f= -4.97972D+01 |proj g|= 6.60101D-04

At iterate 6 f= -4.98985D+01 |proj g|= 3.31827D-04

At iterate 7 f= -4.99497D+01 |proj g|= 1.64137D-04

At iterate 8 f= -4.99748D+01 |proj g|= 8.24238D-05

At iterate 9 f= -9.99862D+01 |proj g|= 4.54752D-05

At iterate 10 f= -9.99890D+01 |proj g|= 3.69486D-05

At iterate 11 f= -9.99906D+01 |proj g|= 3.12642D-05

At iterate 12 f= -9.99931D+01 |proj g|= 2.27376D-05

At iterate 13 f= -9.99942D+01 |proj g|= 1.98954D-05

At iterate 14 f= -9.99962D+01 |proj g|= 1.27899D-05

At iterate 15 f= -9.99982D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 15 30 17 0 0 5.684D-06 -1.000D+02

F = -99.998185441664191

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99818544166419

True

[ 27.19822428 3030.19579966] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.75466D+01 |proj g|= 7.25606D-03

At iterate 1 f= -4.75466D+01 |proj g|= 7.25677D-03

ys=-5.156E-09 -gs= 5.265E-05 BFGS update SKIPPED

At iterate 2 f= -4.78195D+01 |proj g|= 6.52633D-03

At iterate 3 f= -4.92738D+01 |proj g|= 2.31284D-03

At iterate 4 f= -4.96107D+01 |proj g|= 1.25625D-03

At iterate 5 f= -4.98160D+01 |proj g|= 5.98994D-04

At iterate 6 f= -4.99074D+01 |proj g|= 3.02694D-04

At iterate 7 f= -4.99542D+01 |proj g|= 1.49926D-04

At iterate 8 f= -4.99771D+01 |proj g|= 7.53183D-05

At iterate 9 f= -9.99878D+01 |proj g|= 3.97908D-05

At iterate 10 f= -9.99939D+01 |proj g|= 1.69109D-04

At iterate 11 f= -9.99968D+01 |proj g|= 1.13688D-05

At iterate 12 f= -9.99988D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 23 13 1 0 2.842D-06 -1.000D+02

F = -99.998829289392006

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.998829289392

True

[ 25.69035284 3163.53307923] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.81827D+01 |proj g|= 5.52660D-03

At iterate 1 f= -4.81827D+01 |proj g|= 5.52660D-03

ys= 0.000E+00 -gs= 3.054E-05 BFGS update SKIPPED

At iterate 2 f= -4.87471D+01 |proj g|= 3.90301D-03

At iterate 3 f= -4.95009D+01 |proj g|= 1.60442D-03

At iterate 4 f= -4.97407D+01 |proj g|= 8.41291D-04

At iterate 5 f= -4.98746D+01 |proj g|= 4.08566D-04

At iterate 6 f= -4.99371D+01 |proj g|= 2.05349D-04

At iterate 7 f= -4.99687D+01 |proj g|= 1.02319D-04

At iterate 8 f= -9.99954D+01 |proj g|= 1.42110D-05

At iterate 9 f= -9.99965D+01 |proj g|= 7.81597D-05

At iterate 10 f= -9.99988D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 21 10 1 0 4.263D-06 -1.000D+02

F = -99.998814745454155

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99881474545415

True

[ 17.91185145 3159.71227022] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 1000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.86636D+01 |proj g|= 4.14886D-03

At iterate 1 f= -4.86636D+01 |proj g|= 4.14815D-03

At iterate 2 f= -4.90856D+01 |proj g|= 2.88910D-03

At iterate 3 f= -4.96242D+01 |proj g|= 1.21433D-03

At iterate 4 f= -4.98045D+01 |proj g|= 6.35942D-04

At iterate 5 f= -4.99051D+01 |proj g|= 3.10510D-04

At iterate 6 f= -4.99525D+01 |proj g|= 1.56321D-04

At iterate 7 f= -4.99764D+01 |proj g|= 7.74500D-05

At iterate 8 f= -9.99923D+01 |proj g|= 2.41587D-05

At iterate 9 f= -9.99934D+01 |proj g|= 2.13165D-05

At iterate 10 f= -9.99949D+01 |proj g|= 1.70532D-05

At iterate 11 f= -9.99965D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 20 13 0 1 9.948D-06 -1.000D+02

F = -99.996528139227394

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9965281392274

True

[ 17.83770667 2831.97365571] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 1100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.90227D+01 |proj g|= 3.07952D-03

At iterate 1 f= -4.90227D+01 |proj g|= 3.07952D-03

ys= 0.000E+00 -gs= 9.483E-06 BFGS update SKIPPED

At iterate 2 f= -4.92100D+01 |proj g|= 2.50824D-03

At iterate 3 f= -4.96941D+01 |proj g|= 9.91218D-04

At iterate 4 f= -4.98366D+01 |proj g|= 5.32913D-04

At iterate 5 f= -4.99215D+01 |proj g|= 2.57219D-04

At iterate 6 f= -4.99604D+01 |proj g|= 1.29320D-04

At iterate 7 f= -4.99819D+01 |proj g|= 9.18021D-04

At iterate 8 f= -9.99998D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 18 8 1 0 0.000D+00 -1.000D+02

F = -99.999763506408897

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9997635064089

True

[ 30.94053426 3651.23441581] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 1200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.92881D+01 |proj g|= 2.26808D-03

At iterate 1 f= -4.92881D+01 |proj g|= 2.26808D-03

ys= 0.000E+00 -gs= 5.144E-06 BFGS update SKIPPED

At iterate 2 f= -4.93923D+01 |proj g|= 1.94407D-03

At iterate 3 f= -4.97672D+01 |proj g|= 7.56025D-04

At iterate 4 f= -4.98743D+01 |proj g|= 4.09987D-04

At iterate 5 f= -4.99396D+01 |proj g|= 1.97533D-04

At iterate 6 f= -4.99695D+01 |proj g|= 1.00188D-04

At iterate 7 f= -9.99990D+01 |proj g|= 1.06581D-04

At iterate 8 f= -9.99992D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 20 9 1 1 2.842D-06 -1.000D+02

F = -99.999154210177210

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99915421017721

True

[ 23.07404165 3262.61801696] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 1300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.94831D+01 |proj g|= 1.65985D-03

At iterate 1 f= -4.94831D+01 |proj g|= 1.65985D-03

ys= 0.000E+00 -gs= 2.755E-06 BFGS update SKIPPED

At iterate 2 f= -4.95400D+01 |proj g|= 1.48079D-03

At iterate 3 f= -4.98259D+01 |proj g|= 5.67730D-04

At iterate 4 f= -4.99052D+01 |proj g|= 3.09800D-04

At iterate 5 f= -4.99545D+01 |proj g|= 1.49216D-04

At iterate 6 f= -4.99770D+01 |proj g|= 7.60289D-05

At iterate 7 f= -9.99881D+01 |proj g|= 3.97908D-05

At iterate 8 f= -9.99915D+01 |proj g|= 2.84220D-05

At iterate 9 f= -9.99938D+01 |proj g|= 1.98954D-05

At iterate 10 f= -9.99959D+01 |proj g|= 1.70530D-05

At iterate 11 f= -9.99977D+01 |proj g|= 4.26326D-05

At iterate 12 f= -9.99995D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 26 14 1 0 1.421D-06 -1.000D+02

F = -99.999495967549009

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99949596754901

True

[ 17.37606387 3420.45701434] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 1400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.96254D+01 |proj g|= 1.21007D-03

At iterate 1 f= -4.96254D+01 |proj g|= 1.21007D-03

ys= 0.000E+00 -gs= 1.464E-06 BFGS update SKIPPED

At iterate 2 f= -4.97340D+01 |proj g|= 8.63319D-04

At iterate 3 f= -4.98871D+01 |proj g|= 3.68776D-04

At iterate 4 f= -4.99406D+01 |proj g|= 1.94691D-04

At iterate 5 f= -4.99710D+01 |proj g|= 9.52137D-05

At iterate 6 f= -9.99990D+01 |proj g|= 6.25278D-05

At iterate 7 f= -9.99991D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 20 8 1 1 2.842D-06 -1.000D+02

F = -99.999123297019224

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99912329701922

True

[ 23.28269704 3251.67282638] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 1500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.97290D+01 |proj g|= 8.79661D-04

At iterate 1 f= -4.97290D+01 |proj g|= 8.78240D-04

At iterate 2 f= -4.97668D+01 |proj g|= 7.57447D-04

At iterate 3 f= -4.99093D+01 |proj g|= 2.96299D-04

At iterate 4 f= -4.99507D+01 |proj g|= 1.62005D-04

At iterate 5 f= -4.99764D+01 |proj g|= 7.67394D-05

At iterate 6 f= -9.99869D+01 |proj g|= 4.26330D-05

At iterate 7 f= -9.99937D+01 |proj g|= 1.23634D-04

At iterate 8 f= -9.99961D+01 |proj g|= 1.42110D-05

At iterate 9 f= -9.99990D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 17 10 0 0 2.842D-06 -1.000D+02

F = -99.999025813768981

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99902581376898

True

[ 28.18404534 3219.6641695 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 1600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98042D+01 |proj g|= 6.36653D-04

At iterate 1 f= -4.98042D+01 |proj g|= 6.38074D-04

ys=-9.047E-10 -gs= 4.053E-07 BFGS update SKIPPED

At iterate 2 f= -4.98367D+01 |proj g|= 5.31492D-04

At iterate 3 f= -4.99341D+01 |proj g|= 2.14586D-04

At iterate 4 f= -4.99644D+01 |proj g|= 1.16530D-04

At iterate 5 f= -4.99837D+01 |proj g|= 4.52616D-04

At iterate 6 f= -9.99970D+01 |proj g|= 7.67386D-05

At iterate 7 f= -9.99981D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 18 7 1 0 7.106D-06 -1.000D+02

F = -99.998076784781858

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99807678478186

True

[ 25.4793768 3012.25982893] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 1700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98586D+01 |proj g|= 4.61147D-04

At iterate 1 f= -4.98586D+01 |proj g|= 4.61147D-04

ys= 0.000E+00 -gs= 2.127E-07 BFGS update SKIPPED

At iterate 2 f= -4.98760D+01 |proj g|= 4.04303D-04

At iterate 3 f= -4.99514D+01 |proj g|= 1.59163D-04

At iterate 4 f= -4.99736D+01 |proj g|= 8.66871D-05

At iterate 5 f= -9.99874D+01 |proj g|= 3.97908D-05

At iterate 6 f= -9.99896D+01 |proj g|= 3.41064D-05

At iterate 7 f= -9.99948D+01 |proj g|= 4.40536D-05

At iterate 8 f= -9.99961D+01 |proj g|= 1.13688D-05

At iterate 9 f= -9.99978D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 21 10 1 0 5.684D-06 -1.000D+02

F = -99.997842121717326

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99784212171733

True

[ 20.6563782 2977.00904449] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 1800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98980D+01 |proj g|= 3.33248D-04

At iterate 1 f= -4.98980D+01 |proj g|= 3.33248D-04

ys= 0.000E+00 -gs= 1.111E-07 BFGS update SKIPPED

At iterate 2 f= -4.99303D+01 |proj g|= 2.28797D-04

At iterate 3 f= -4.99698D+01 |proj g|= 9.87665D-05

At iterate 4 f= -9.99987D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 4 15 4 1 0 9.948D-06 -1.000D+02

F = -99.998721940077061

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99872194007706

True

[ 33.21181554 3141.21280422] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 1900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99264D+01 |proj g|= 2.40877D-04

At iterate 1 f= -4.99264D+01 |proj g|= 2.40166D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.402D-04 -4.993D+01

F = -49.926432375532862

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.92643237553286

True

[ 70. 1900.00024088] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[70, 2000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99470D+01 |proj g|= 1.73374D-04

At iterate 1 f= -4.99470D+01 |proj g|= 1.73374D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.734D-04 -4.995D+01

F = -49.946958512772660

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.94695851277266

True

[ 70. 2000.00017337] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[70, 2100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99618D+01 |proj g|= 1.25057D-04

At iterate 1 f= -4.99618D+01 |proj g|= 1.25057D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.251D-04 -4.996D+01

F = -49.961767577082554

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.961767577082554

True

[ 69.99999929 2100.00012506] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[70, 2200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99724D+01 |proj g|= 8.95293D-05

At iterate 1 f= -4.99724D+01 |proj g|= 8.95293D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 8.953D-05 -4.997D+01

F = -49.972449919557640

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.97244991955764

True

[ 69.99999645 2200.00008953] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[70, 2300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99802D+01 |proj g|= 6.53706D-05

At iterate 1 f= -4.99802D+01 |proj g|= 6.53706D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 6.537D-05 -4.998D+01

F = -49.980159818417533

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.98015981841753

True

[ 69.99999005 2300.00006537] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[70, 2400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99857D+01 |proj g|= 4.68963D-05

At iterate 1 f= -4.99857D+01 |proj g|= 4.76069D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 4.761D-05 -4.999D+01

F = -49.985742352866424

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.985742352866424

True

[ 69.99997087 2400.0000469 ] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[70, 2500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99898D+01 |proj g|= 8.38441D-05

At iterate 1 f= -4.99898D+01 |proj g|= 8.38441D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 8.384D-05 -4.999D+01

F = -49.989839970890920

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.98983997089092

True

[ 69.99991616 2500.00003553] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[70, 2600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99930D+01 |proj g|= 2.45848D-04

At iterate 1 f= -4.99930D+01 |proj g|= 2.45848D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.458D-04 -4.999D+01

F = -49.993011110427140

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.99301111042714

True

[ 69.99975415 2600.00002984] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[70, 2700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99959D+01 |proj g|= 7.21912D-04

At iterate 1 f= -4.99959D+01 |proj g|= 7.21912D-04

ys=-2.221E-11 -gs= 5.221E-07 BFGS update SKIPPED

At iterate 2 f= -9.99947D+01 |proj g|= 1.70532D-05

At iterate 3 f= -9.99951D+01 |proj g|= 1.56321D-05

At iterate 4 f= -9.99960D+01 |proj g|= 1.42110D-05

At iterate 5 f= -9.99968D+01 |proj g|= 6.53699D-04

At iterate 6 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 6 22 6 1 0 0.000D+00 -1.000D+02

F = -99.999997163301614

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999716330161

True

[ 39.05301425 5000. ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 2800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99999D+01 |proj g|= 2.11813D-03

At iterate 1 f= -4.99999D+01 |proj g|= 2.12097D-03

ys=-6.058E-09 -gs= 4.489E-06 BFGS update SKIPPED

At iterate 2 f= -9.99962D+01 |proj g|= 1.42110D-05

At iterate 3 f= -9.99962D+01 |proj g|= 1.13688D-05

At iterate 4 f= -9.99975D+01 |proj g|= 8.52651D-05

At iterate 5 f= -9.99975D+01 |proj g|= 1.98952D-05

At iterate 6 f= -9.99986D+01 |proj g|= 3.55271D-05

At iterate 7 f= -9.99998D+01 |proj g|= 3.41060D-05

At iterate 8 f= -1.00000D+02 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 22 8 1 0 0.000D+00 -1.000D+02

F = -99.999996297549288

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99999629754929

True

[ 11.44373574 4960.1466097 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 2900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00083D+01 |proj g|= 6.21512D-03

At iterate 1 f= -5.00084D+01 |proj g|= 6.23644D-03

ys=-1.327E-07 -gs= 3.864E-05 BFGS update SKIPPED

At iterate 2 f= -9.99961D+01 |proj g|= 6.42331D-04

At iterate 3 f= -9.99971D+01 |proj g|= 7.24754D-05

At iterate 4 f= -9.99971D+01 |proj g|= 5.40012D-05

At iterate 5 f= -9.99972D+01 |proj g|= 2.41585D-05

At iterate 6 f= -9.99972D+01 |proj g|= 1.13687D-05

At iterate 7 f= -9.99973D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 14 7 1 0 8.527D-06 -1.000D+02

F = -99.997253455781504

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9972534557815

True

[ 27.00220398 2904.25403009] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 3000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00305D+01 |proj g|= 1.82233D-02

At iterate 1 f= -5.00309D+01 |proj g|= 1.84102D-02

ys=-3.407E-06 -gs= 3.322E-04 BFGS update SKIPPED

At iterate 2 f= -9.99980D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 9 2 1 0 5.684D-06 -1.000D+02

F = -99.998004292781474

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99800429278147

True

[ 24.11466959 3000.89965197] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 3100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00939D+01 |proj g|= 5.33447D-02

At iterate 1 f= -5.00968D+01 |proj g|= 5.49577D-02

ys=-8.607E-05 -gs= 2.847E-03 BFGS update SKIPPED

At iterate 2 f= -9.99985D+01 |proj g|= 5.82645D-05

At iterate 3 f= -9.99985D+01 |proj g|= 5.25802D-05

At iterate 4 f= -9.99985D+01 |proj g|= 1.84741D-05

At iterate 5 f= -9.99985D+01 |proj g|= 1.13687D-05

At iterate 6 f= -9.99986D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 6 13 6 1 0 5.684D-06 -1.000D+02

F = -99.998554262392872

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99855426239287

True

[ 30.92213738 3100.82185936] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 3200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.02778D+01 |proj g|= 1.55399D-01

At iterate 1 f= -5.03030D+01 |proj g|= 1.69372D-01

ys=-2.172E-03 -gs= 2.416E-02 BFGS update SKIPPED

At iterate 2 f= -9.99990D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 7 2 1 0 2.842D-06 -1.000D+02

F = -99.998965052780250

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99896505278025

True

[ 12.08868858 3201.11368022] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 3300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.08088D+01 |proj g|= 4.46355D-01

At iterate 1 f= -5.10343D+01 |proj g|= 5.68024D-01

ys=-5.433E-02 -gs= 1.993E-01 BFGS update SKIPPED

At iterate 2 f= -9.99984D+01 |proj g|= 4.51905D-04

At iterate 3 f= -9.99986D+01 |proj g|= 3.51008D-04

At iterate 4 f= -9.99990D+01 |proj g|= 1.47793D-04

At iterate 5 f= -9.99991D+01 |proj g|= 7.95808D-05

At iterate 6 f= -9.99992D+01 |proj g|= 3.69482D-05

At iterate 7 f= -9.99992D+01 |proj g|= 1.98952D-05

At iterate 8 f= -9.99992D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 14 8 1 0 8.527D-06 -1.000D+02

F = -99.999238488373067

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99923848837307

True

[ 36.06489677 3301.29653023] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 3400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.23031D+01 |proj g|= 1.23153D+00

At iterate 1 f= -5.43930D+01 |proj g|= 2.24582D+00

ys=-1.250E+00 -gs= 1.517E+00 BFGS update SKIPPED

At iterate 2 f= -9.90598D+01 |proj g|= 5.16691D-01

At iterate 3 f= -9.98539D+01 |proj g|= 8.13245D-02

At iterate 4 f= -9.98970D+01 |proj g|= 5.73266D-02

At iterate 5 f= -9.99551D+01 |proj g|= 2.48221D-02

At iterate 6 f= -9.99761D+01 |proj g|= 1.30868D-02

At iterate 7 f= -9.99880D+01 |proj g|= 6.40767D-03

At iterate 8 f= -9.99937D+01 |proj g|= 3.22871D-03

At iterate 9 f= -9.99966D+01 |proj g|= 1.60867D-03

At iterate 10 f= -9.99980D+01 |proj g|= 8.05755D-04

At iterate 11 f= -9.99987D+01 |proj g|= 4.03588D-04

At iterate 12 f= -9.99991D+01 |proj g|= 2.00373D-04

At iterate 13 f= -9.99993D+01 |proj g|= 1.00897D-04

At iterate 14 f= -9.99994D+01 |proj g|= 4.83169D-05

At iterate 15 f= -9.99994D+01 |proj g|= 2.84217D-05

At iterate 16 f= -9.99994D+01 |proj g|= 1.13687D-05

At iterate 17 f= -9.99995D+01 |proj g|= 4.26326D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 19 17 1 0 4.263D-06 -1.000D+02

F = -99.999453486072767

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99945348607277

True

[ 37.06846744 3401.33254027] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 3500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.62068D+01 |proj g|= 3.04675D+00

At iterate 1 f= -7.19438D+01 |proj g|= 6.90049D+00

ys=-1.175E+01 -gs= 9.286E+00 BFGS update SKIPPED

At iterate 2 f= -9.86990D+01 |proj g|= 7.09909D-01

At iterate 3 f= -9.91572D+01 |proj g|= 4.64162D-01

At iterate 4 f= -9.96316D+01 |proj g|= 2.04697D-01

At iterate 5 f= -9.98089D+01 |proj g|= 1.06445D-01

At iterate 6 f= -9.99063D+01 |proj g|= 5.22135D-02

At iterate 7 f= -9.99527D+01 |proj g|= 2.62503D-02

At iterate 8 f= -9.99763D+01 |proj g|= 1.30839D-02

At iterate 9 f= -9.99879D+01 |proj g|= 6.54836D-03

At iterate 10 f= -9.99938D+01 |proj g|= 3.27134D-03

At iterate 11 f= -9.99967D+01 |proj g|= 1.63567D-03

At iterate 12 f= -9.99982D+01 |proj g|= 8.18545D-04

At iterate 13 f= -9.99989D+01 |proj g|= 4.07851D-04

At iterate 14 f= -9.99992D+01 |proj g|= 2.06057D-04

At iterate 15 f= -9.99994D+01 |proj g|= 1.00897D-04

At iterate 16 f= -9.99995D+01 |proj g|= 5.11591D-05

At iterate 17 f= -9.99996D+01 |proj g|= 2.55795D-05

At iterate 18 f= -9.99996D+01 |proj g|= 1.27898D-05

At iterate 19 f= -9.99996D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 19 20 19 1 0 5.684D-06 -1.000D+02

F = -99.999602812092562

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99960281209256

True

[ 39.15575424 3501.5085749 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 3600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -6.46879D+01 |proj g|= 5.81335D+00

At iterate 1 f= -9.57716D+01 |proj g|= 2.16914D+00

At iterate 2 f= -9.93446D+01 |proj g|= 3.62317D-01

At iterate 3 f= -9.95539D+01 |proj g|= 2.47641D-01

At iterate 4 f= -9.98063D+01 |proj g|= 1.07997D-01

At iterate 5 f= -9.98985D+01 |proj g|= 5.66061D-02

At iterate 6 f= -9.99502D+01 |proj g|= 2.77339D-02

At iterate 7 f= -9.99748D+01 |proj g|= 1.39593D-02

At iterate 8 f= -9.99873D+01 |proj g|= 6.96048D-03

At iterate 9 f= -9.99935D+01 |proj g|= 3.48308D-03

At iterate 10 f= -9.99966D+01 |proj g|= 1.73941D-03

At iterate 11 f= -9.99982D+01 |proj g|= 8.71125D-04

At iterate 12 f= -9.99989D+01 |proj g|= 4.34852D-04

At iterate 13 f= -9.99993D+01 |proj g|= 2.17426D-04

At iterate 14 f= -9.99995D+01 |proj g|= 1.08002D-04

At iterate 15 f= -9.99996D+01 |proj g|= 5.40012D-05

At iterate 16 f= -9.99997D+01 |proj g|= 2.84217D-05

At iterate 17 f= -9.99997D+01 |proj g|= 1.27898D-05

At iterate 18 f= -9.99997D+01 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 19 18 0 0 7.105D-06 -1.000D+02

F = -99.999708828489915

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99970882848991

True

[ 41.29754122 3600.94142474] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 3700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -7.74843D+01 |proj g|= 6.93596D+00

At iterate 1 f= -9.91749D+01 |proj g|= 4.54673D-01

At iterate 2 f= -9.93693D+01 |proj g|= 3.48867D-01

At iterate 3 f= -9.97414D+01 |proj g|= 1.44070D-01

At iterate 4 f= -9.98622D+01 |proj g|= 7.68949D-02

At iterate 5 f= -9.99330D+01 |proj g|= 3.73760D-02

At iterate 6 f= -9.99661D+01 |proj g|= 1.88663D-02

At iterate 7 f= -9.99830D+01 |proj g|= 9.39195D-03

At iterate 8 f= -9.99914D+01 |proj g|= 4.70237D-03

At iterate 9 f= -9.99956D+01 |proj g|= 2.35048D-03

At iterate 10 f= -9.99977D+01 |proj g|= 1.17382D-03

At iterate 11 f= -9.99987D+01 |proj g|= 5.88329D-04

At iterate 12 f= -9.99993D+01 |proj g|= 2.92744D-04

At iterate 13 f= -9.99995D+01 |proj g|= 1.47793D-04

At iterate 14 f= -9.99997D+01 |proj g|= 7.10543D-05

At iterate 15 f= -9.99997D+01 |proj g|= 3.83693D-05

At iterate 16 f= -9.99998D+01 |proj g|= 1.70530D-05

At iterate 17 f= -9.99998D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 18 17 0 0 9.948D-06 -1.000D+02

F = -99.999782261971973

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99978226197197

True

[ 43.77832192 3700.93254667] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 3800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -8.90883D+01 |proj g|= 4.78049D+00

At iterate 1 f= -9.90609D+01 |proj g|= 5.16329D-01

At iterate 2 f= -9.93175D+01 |proj g|= 3.77156D-01

At iterate 3 f= -9.97144D+01 |proj g|= 1.59058D-01

At iterate 4 f= -9.98491D+01 |proj g|= 8.42107D-02

At iterate 5 f= -9.99265D+01 |proj g|= 4.10523D-02

At iterate 6 f= -9.99629D+01 |proj g|= 2.06953D-02

At iterate 7 f= -9.99815D+01 |proj g|= 1.03071D-02

At iterate 8 f= -9.99906D+01 |proj g|= 5.15854D-03

At iterate 9 f= -9.99953D+01 |proj g|= 2.57785D-03

At iterate 10 f= -9.99976D+01 |proj g|= 1.28892D-03

At iterate 11 f= -9.99987D+01 |proj g|= 6.45173D-04

At iterate 12 f= -9.99993D+01 |proj g|= 3.21165D-04

At iterate 13 f= -9.99996D+01 |proj g|= 1.63425D-04

At iterate 14 f= -9.99997D+01 |proj g|= 7.95808D-05

At iterate 15 f= -9.99998D+01 |proj g|= 3.97904D-05

At iterate 16 f= -9.99998D+01 |proj g|= 1.98952D-05

At iterate 17 f= -9.99998D+01 |proj g|= 1.13687D-05

At iterate 18 f= -9.99998D+01 |proj g|= 4.26326D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 19 18 0 0 4.263D-06 -1.000D+02

F = -99.999847684535908

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99984768453591

True

[ 44.2253952 3800.54940749] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 3900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.56569D+01 |proj g|= 2.22247D+00

At iterate 1 f= -9.86682D+01 |proj g|= 7.26441D-01

At iterate 2 f= -9.92638D+01 |proj g|= 4.06455D-01

At iterate 3 f= -9.96558D+01 |proj g|= 1.91486D-01

At iterate 4 f= -9.98258D+01 |proj g|= 9.72307D-02

At iterate 5 f= -9.99138D+01 |proj g|= 4.81577D-02

At iterate 6 f= -9.99568D+01 |proj g|= 2.41229D-02

At iterate 7 f= -9.99784D+01 |proj g|= 1.20423D-02

At iterate 8 f= -9.99891D+01 |proj g|= 6.02398D-03

At iterate 9 f= -9.99945D+01 |proj g|= 3.01128D-03

At iterate 10 f= -9.99972D+01 |proj g|= 1.50351D-03

At iterate 11 f= -9.99986D+01 |proj g|= 7.54596D-04

At iterate 12 f= -9.99992D+01 |proj g|= 3.75167D-04

At iterate 13 f= -9.99996D+01 |proj g|= 1.87583D-04

At iterate 14 f= -9.99997D+01 |proj g|= 9.37916D-05

At iterate 15 f= -9.99998D+01 |proj g|= 4.83169D-05

At iterate 16 f= -9.99999D+01 |proj g|= 2.41585D-05

At iterate 17 f= -9.99999D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 18 17 0 0 9.948D-06 -1.000D+02

F = -99.999875984108627

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99987598410863

True

[ 47.87732223 3900.3665418 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 4000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.84301D+01 |proj g|= 8.52113D-01

At iterate 1 f= -9.90146D+01 |proj g|= 5.41313D-01

At iterate 2 f= -9.95663D+01 |proj g|= 2.40897D-01

At iterate 3 f= -9.97765D+01 |proj g|= 1.24669D-01

At iterate 4 f= -9.98904D+01 |proj g|= 6.12289D-02

At iterate 5 f= -9.99450D+01 |proj g|= 3.07566D-02

At iterate 6 f= -9.99725D+01 |proj g|= 1.53364D-02

At iterate 7 f= -9.99862D+01 |proj g|= 7.67102D-03

At iterate 8 f= -9.99931D+01 |proj g|= 3.83267D-03

At iterate 9 f= -9.99965D+01 |proj g|= 1.91704D-03

At iterate 10 f= -9.99982D+01 |proj g|= 9.59233D-04

At iterate 11 f= -9.99991D+01 |proj g|= 4.78906D-04

At iterate 12 f= -9.99995D+01 |proj g|= 2.38742D-04

At iterate 13 f= -9.99997D+01 |proj g|= 1.20792D-04

At iterate 14 f= -9.99998D+01 |proj g|= 5.82645D-05

At iterate 15 f= -9.99999D+01 |proj g|= 3.12639D-05

At iterate 16 f= -9.99999D+01 |proj g|= 1.42109D-05

At iterate 17 f= -9.99999D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 18 17 0 0 8.527D-06 -1.000D+02

F = -99.999911193784811

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99991119378481

True

[ 49.14250415 4000.33626898] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 4100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.94537D+01 |proj g|= 3.02767D-01

At iterate 1 f= -9.95382D+01 |proj g|= 2.56375D-01

At iterate 2 f= -9.98182D+01 |proj g|= 1.01484D-01

At iterate 3 f= -9.99015D+01 |proj g|= 5.50728D-02

At iterate 4 f= -9.99524D+01 |proj g|= 2.66127D-02

At iterate 5 f= -9.99759D+01 |proj g|= 1.34691D-02

At iterate 6 f= -9.99880D+01 |proj g|= 6.69900D-03

At iterate 7 f= -9.99940D+01 |proj g|= 3.35518D-03

At iterate 8 f= -9.99970D+01 |proj g|= 1.67688D-03

At iterate 9 f= -9.99984D+01 |proj g|= 8.38440D-04

At iterate 10 f= -9.99992D+01 |proj g|= 4.19220D-04

At iterate 11 f= -9.99996D+01 |proj g|= 2.10321D-04

At iterate 12 f= -9.99998D+01 |proj g|= 1.03739D-04

At iterate 13 f= -9.99999D+01 |proj g|= 5.11591D-05

At iterate 14 f= -9.99999D+01 |proj g|= 2.70006D-05

At iterate 15 f= -9.99999D+01 |proj g|= 1.42109D-05

At iterate 16 f= -9.99999D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 16 17 16 0 0 5.684D-06 -1.000D+02

F = -99.999935651745574

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99993565174557

True

[ 50.55239211 4100.47997019] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 4200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.98125D+01 |proj g|= 1.04674D-01

At iterate 1 f= -9.98231D+01 |proj g|= 9.87484D-02

At iterate 2 f= -9.99333D+01 |proj g|= 3.73049D-02

At iterate 3 f= -9.99631D+01 |proj g|= 2.06285D-02

At iterate 4 f= -9.99823D+01 |proj g|= 9.90355D-03

At iterate 5 f= -9.99910D+01 |proj g|= 5.02780D-03

At iterate 6 f= -9.99955D+01 |proj g|= 2.49827D-03

At iterate 7 f= -9.99977D+01 |proj g|= 1.25198D-03

At iterate 8 f= -9.99988D+01 |proj g|= 6.26699D-04

At iterate 9 f= -9.99994D+01 |proj g|= 3.12639D-04

At iterate 10 f= -9.99997D+01 |proj g|= 1.56319D-04

At iterate 11 f= -9.99998D+01 |proj g|= 7.95808D-05

At iterate 12 f= -9.99999D+01 |proj g|= 3.97904D-05

At iterate 13 f= -9.99999D+01 |proj g|= 1.98952D-05

At iterate 14 f= -9.99999D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 14 15 14 0 0 8.527D-06 -1.000D+02

F = -99.999944716980025

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99994471698002

True

[ 53.30108584 4200.16714249] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 4300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99359D+01 |proj g|= 3.58441D-02

At iterate 1 f= -9.99372D+01 |proj g|= 3.51335D-02

At iterate 2 f= -9.99767D+01 |proj g|= 1.30285D-02

At iterate 3 f= -9.99870D+01 |proj g|= 7.25749D-03

At iterate 4 f= -9.99938D+01 |proj g|= 3.47456D-03

At iterate 5 f= -9.99968D+01 |proj g|= 1.76641D-03

At iterate 6 f= -9.99984D+01 |proj g|= 8.78231D-04

At iterate 7 f= -9.99992D+01 |proj g|= 4.40536D-04

At iterate 8 f= -9.99996D+01 |proj g|= 2.18847D-04

At iterate 9 f= -9.99998D+01 |proj g|= 1.10845D-04

At iterate 10 f= -9.99999D+01 |proj g|= 5.40012D-05

At iterate 11 f= -9.99999D+01 |proj g|= 2.84217D-05

At iterate 12 f= -9.99999D+01 |proj g|= 1.27898D-05

At iterate 13 f= -1.00000D+02 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 14 13 0 0 5.684D-06 -1.000D+02

F = -99.999959109008302

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999591090083

True

[ 54.7965856 4300.28595853] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 4400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99781D+01 |proj g|= 1.22341D-02

At iterate 1 f= -9.99783D+01 |proj g|= 1.21503D-02

At iterate 2 f= -9.99919D+01 |proj g|= 4.49916D-03

At iterate 3 f= -9.99955D+01 |proj g|= 2.50964D-03

At iterate 4 f= -9.99978D+01 |proj g|= 1.20082D-03

At iterate 5 f= -9.99989D+01 |proj g|= 6.11067D-04

At iterate 6 f= -9.99994D+01 |proj g|= 3.01270D-04

At iterate 7 f= -9.99997D+01 |proj g|= 1.53477D-04

At iterate 8 f= -9.99998D+01 |proj g|= 7.53175D-05

At iterate 9 f= -9.99999D+01 |proj g|= 3.97904D-05

At iterate 10 f= -9.99999D+01 |proj g|= 1.84741D-05

At iterate 11 f= -1.00000D+02 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 12 11 0 0 9.948D-06 -1.000D+02

F = -99.999963368512482

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99996336851248

True

[ 57.1596238 4400.17692298] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 4500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99925D+01 |proj g|= 4.17089D-03

At iterate 1 f= -9.99926D+01 |proj g|= 4.16094D-03

At iterate 2 f= -9.99972D+01 |proj g|= 1.56462D-03

At iterate 3 f= -9.99984D+01 |proj g|= 8.66863D-04

At iterate 4 f= -9.99992D+01 |proj g|= 4.17799D-04

At iterate 5 f= -9.99996D+01 |proj g|= 2.10321D-04

At iterate 6 f= -9.99998D+01 |proj g|= 1.06581D-04

At iterate 7 f= -9.99999D+01 |proj g|= 5.25802D-05

At iterate 8 f= -9.99999D+01 |proj g|= 2.41585D-05

At iterate 9 f= -1.00000D+02 |proj g|= 1.42109D-05

At iterate 10 f= -1.00000D+02 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 11 10 0 0 5.684D-06 -1.000D+02

F = -99.999974403033406

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999744030334

True

[ 58.37743795 4500.407558 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 4600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99975D+01 |proj g|= 1.42109D-03

At iterate 1 f= -9.99975D+01 |proj g|= 1.42109D-03

ys= 0.000E+00 -gs= 2.020E-06 BFGS update SKIPPED

At iterate 2 f= -9.99981D+01 |proj g|= 1.08145D-03

At iterate 3 f= -9.99992D+01 |proj g|= 4.54748D-04

At iterate 4 f= -9.99996D+01 |proj g|= 2.43006D-04

At iterate 5 f= -9.99998D+01 |proj g|= 1.17950D-04

At iterate 6 f= -9.99999D+01 |proj g|= 5.96856D-05

At iterate 7 f= -9.99999D+01 |proj g|= 2.98428D-05

At iterate 8 f= -1.00000D+02 |proj g|= 1.42109D-05

At iterate 9 f= -1.00000D+02 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 14 9 1 0 7.105D-06 -1.000D+02

F = -99.999975520524728

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997552052473

True

[ 60.7241387 4600.39547112] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 4700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99991D+01 |proj g|= 4.83169D-04

At iterate 1 f= -9.99991D+01 |proj g|= 4.86012D-04

ys=-1.373E-09 -gs= 2.335E-07 BFGS update SKIPPED

At iterate 2 f= -9.99994D+01 |proj g|= 3.33955D-04

At iterate 3 f= -9.99997D+01 |proj g|= 1.47793D-04

At iterate 4 f= -9.99999D+01 |proj g|= 7.67387D-05

At iterate 5 f= -9.99999D+01 |proj g|= 3.69482D-05

At iterate 6 f= -1.00000D+02 |proj g|= 1.98952D-05

At iterate 7 f= -1.00000D+02 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 13 7 1 0 8.527D-06 -1.000D+02

F = -99.999975948338118

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997594833812

True

[ 62.93834976 4700.29480105] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[70, 4800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99997D+01 |proj g|= 1.66267D-04

At iterate 1 f= -9.99997D+01 |proj g|= 1.64846D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.648D-04 -1.000D+02

F = -99.999699949870916

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99969994987092

True

[ 69.99983373 4800.00000284] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[70, 4900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99999D+01 |proj g|= 5.68435D-05

At iterate 1 f= -9.99999D+01 |proj g|= 5.68435D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 5.684D-05 -1.000D+02

F = -99.999895674261211

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-99.99989567426121

True

[ 69.99994316 4900.00000284] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 0]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -3.50000D+01 |proj g|= 1.96763D-02

At iterate 1 f= -3.50004D+01 |proj g|= 1.96771D-02

ys=-1.398E-08 -gs= 3.872E-04 BFGS update SKIPPED

At iterate 2 f= -4.32973D+01 |proj g|= 1.60881D-02

At iterate 3 f= -4.99835D+01 |proj g|= 5.40018D-05

At iterate 4 f= -4.99852D+01 |proj g|= 4.83174D-05

At iterate 5 f= -4.99940D+01 |proj g|= 1.98954D-05

At iterate 6 f= -9.99977D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 6 17 6 1 0 7.106D-06 -1.000D+02

F = -99.997739499781417

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99773949978142

True

[ 26.69444918 2963.27103261] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.70157D+01 |proj g|= 2.04651D-02

At iterate 1 f= -3.70162D+01 |proj g|= 2.04665D-02

ys=-2.908E-08 -gs= 4.188E-04 BFGS update SKIPPED

At iterate 2 f= -4.50098D+01 |proj g|= 1.30981D-02

At iterate 3 f= -4.95482D+01 |proj g|= 1.45521D-03

At iterate 4 f= -4.96721D+01 |proj g|= 1.06085D-03

At iterate 5 f= -4.98625D+01 |proj g|= 4.49068D-04

At iterate 6 f= -4.99275D+01 |proj g|= 2.37324D-04

At iterate 7 f= -4.99647D+01 |proj g|= 1.15820D-04

At iterate 8 f= -4.99822D+01 |proj g|= 5.82651D-05

At iterate 9 f= -4.99911D+01 |proj g|= 2.84220D-05

At iterate 10 f= -9.99997D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 19 10 1 0 1.421D-06 -1.000D+02

F = -99.999678354068209

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99967835406821

True

[ 30.72086116 3557.48001366] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.90570D+01 |proj g|= 2.01787D-02

At iterate 1 f= -3.90574D+01 |proj g|= 2.01787D-02

ys= 0.000E+00 -gs= 4.072E-04 BFGS update SKIPPED

At iterate 2 f= -4.61255D+01 |proj g|= 1.07370D-02

At iterate 3 f= -4.91444D+01 |proj g|= 2.71004D-03

At iterate 4 f= -4.95016D+01 |proj g|= 1.60158D-03

At iterate 5 f= -4.97740D+01 |proj g|= 7.34709D-04

At iterate 6 f= -4.98849D+01 |proj g|= 3.75881D-04

At iterate 7 f= -4.99434D+01 |proj g|= 1.85454D-04

At iterate 8 f= -4.99717D+01 |proj g|= 9.23715D-05

At iterate 9 f= -4.99858D+01 |proj g|= 4.61858D-05

At iterate 10 f= -4.99928D+01 |proj g|= 2.41587D-05

At iterate 11 f= -9.99998D+01 |proj g|= 2.84217D-05

At iterate 12 f= -9.99998D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 24 13 1 1 1.421D-06 -1.000D+02

F = -99.999847048523336

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99984704852334

True

[ 28.20273535 3784.09840504] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.10173D+01 |proj g|= 1.88741D-02

At iterate 1 f= -4.10176D+01 |proj g|= 1.88734D-02

At iterate 2 f= -4.75564D+01 |proj g|= 7.23048D-03

At iterate 3 f= -4.90610D+01 |proj g|= 2.96299D-03

At iterate 4 f= -4.95289D+01 |proj g|= 1.51631D-03

At iterate 5 f= -4.97737D+01 |proj g|= 7.36130D-04

At iterate 6 f= -4.98872D+01 |proj g|= 3.68065D-04

At iterate 7 f= -4.99439D+01 |proj g|= 1.83322D-04

At iterate 8 f= -4.99720D+01 |proj g|= 9.16610D-05

At iterate 9 f= -4.99860D+01 |proj g|= 4.54752D-05

At iterate 10 f= -4.99930D+01 |proj g|= 2.34482D-05

At iterate 11 f= -9.99984D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 14 11 0 0 5.684D-06 -1.000D+02

F = -99.998358796226341

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99835879622634

True

[ 25.06635455 3060.54581939] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.28061D+01 |proj g|= 1.68036D-02

At iterate 1 f= -4.28064D+01 |proj g|= 1.68029D-02

At iterate 2 f= -4.75275D+01 |proj g|= 7.30651D-03

At iterate 3 f= -4.90322D+01 |proj g|= 3.05110D-03

At iterate 4 f= -4.95189D+01 |proj g|= 1.54758D-03

At iterate 5 f= -4.97681D+01 |proj g|= 7.52473D-04

At iterate 6 f= -4.98843D+01 |proj g|= 3.77302D-04

At iterate 7 f= -4.99427D+01 |proj g|= 1.86875D-04

At iterate 8 f= -4.99712D+01 |proj g|= 9.37926D-05

At iterate 9 f= -4.99857D+01 |proj g|= 4.68963D-05

At iterate 10 f= -4.99929D+01 |proj g|= 2.27376D-05

At iterate 11 f= -9.99988D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 15 11 0 0 2.842D-06 -1.000D+02

F = -99.998845142729664

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99884514272966

True

[ 13.25989265 3167.6411755 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.43641D+01 |proj g|= 1.43153D-02

At iterate 1 f= -4.43643D+01 |proj g|= 1.43153D-02

ys= 0.000E+00 -gs= 2.049E-04 BFGS update SKIPPED

At iterate 2 f= -4.54045D+01 |proj g|= 1.22995D-02

At iterate 3 f= -4.88749D+01 |proj g|= 3.52362D-03

At iterate 4 f= -4.93867D+01 |proj g|= 1.96183D-03

At iterate 5 f= -4.97176D+01 |proj g|= 9.15189D-04

At iterate 6 f= -4.98575D+01 |proj g|= 4.63989D-04

At iterate 7 f= -4.99297D+01 |proj g|= 2.30218D-04

At iterate 8 f= -4.99650D+01 |proj g|= 1.14399D-04

At iterate 9 f= -4.99824D+01 |proj g|= 5.68440D-05

At iterate 10 f= -4.99911D+01 |proj g|= 2.98431D-05

At iterate 11 f= -4.99958D+01 |proj g|= 1.42110D-05

At iterate 12 f= -9.99978D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 22 13 1 1 7.106D-06 -1.000D+02

F = -99.997790511734081

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99779051173408

True

[ 14.4754797 2969.78862479] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.56667D+01 |proj g|= 1.17481D-02

At iterate 1 f= -4.56669D+01 |proj g|= 1.17481D-02

ys= 0.000E+00 -gs= 1.380E-04 BFGS update SKIPPED

At iterate 2 f= -4.63696D+01 |proj g|= 1.01771D-02

At iterate 3 f= -4.89584D+01 |proj g|= 3.27422D-03

At iterate 4 f= -4.94433D+01 |proj g|= 1.78490D-03

At iterate 5 f= -4.97404D+01 |proj g|= 8.42713D-04

At iterate 6 f= -4.98695D+01 |proj g|= 4.25620D-04

At iterate 7 f= -4.99355D+01 |proj g|= 2.11744D-04

At iterate 8 f= -4.99679D+01 |proj g|= 1.05161D-04

At iterate 9 f= -4.99839D+01 |proj g|= 5.40018D-05

At iterate 10 f= -4.99922D+01 |proj g|= 2.48693D-05

At iterate 11 f= -9.99997D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 19 11 1 0 1.421D-06 -1.000D+02

F = -99.999655844390347

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99965584439035

True

[ 29.76863074 3536.83784341] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.67193D+01 |proj g|= 9.34718D-03

At iterate 1 f= -4.67194D+01 |proj g|= 9.34647D-03

At iterate 2 f= -4.77082D+01 |proj g|= 6.82689D-03

At iterate 3 f= -4.91815D+01 |proj g|= 2.59635D-03

At iterate 4 f= -4.95746D+01 |proj g|= 1.37065D-03

At iterate 5 f= -4.97972D+01 |proj g|= 6.60101D-04

At iterate 6 f= -4.98985D+01 |proj g|= 3.31827D-04

At iterate 7 f= -4.99497D+01 |proj g|= 1.64137D-04

At iterate 8 f= -4.99747D+01 |proj g|= 8.31344D-05

At iterate 9 f= -4.99875D+01 |proj g|= 4.12119D-05

At iterate 10 f= -4.99940D+01 |proj g|= 9.45022D-05

At iterate 11 f= -9.99983D+01 |proj g|= 1.08002D-04

At iterate 12 f= -9.99988D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 16 13 0 1 4.263D-06 -1.000D+02

F = -99.998824751458145

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99882475145814

True

[ 24.82038796 3162.33183829] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.75466D+01 |proj g|= 7.25606D-03

At iterate 1 f= -4.75466D+01 |proj g|= 7.25677D-03

ys=-5.156E-09 -gs= 5.265E-05 BFGS update SKIPPED

At iterate 2 f= -4.78195D+01 |proj g|= 6.52633D-03

At iterate 3 f= -4.92738D+01 |proj g|= 2.31284D-03

At iterate 4 f= -4.96107D+01 |proj g|= 1.25625D-03

At iterate 5 f= -4.98160D+01 |proj g|= 5.98994D-04

At iterate 6 f= -4.99074D+01 |proj g|= 3.02694D-04

At iterate 7 f= -4.99542D+01 |proj g|= 1.49926D-04

At iterate 8 f= -4.99771D+01 |proj g|= 7.53183D-05

At iterate 9 f= -4.99886D+01 |proj g|= 3.76592D-05

At iterate 10 f= -4.99943D+01 |proj g|= 1.91849D-05

At iterate 11 f= -9.99973D+01 |proj g|= 2.84217D-05

At iterate 12 f= -9.99977D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 20 13 1 1 7.106D-06 -1.000D+02

F = -99.997705412096977

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99770541209698

True

[ 20.93216777 2958.28086508] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.81827D+01 |proj g|= 5.52660D-03

At iterate 1 f= -4.81827D+01 |proj g|= 5.52660D-03

ys= 0.000E+00 -gs= 3.054E-05 BFGS update SKIPPED

At iterate 2 f= -4.87471D+01 |proj g|= 3.90301D-03

At iterate 3 f= -4.95009D+01 |proj g|= 1.60442D-03

At iterate 4 f= -4.97407D+01 |proj g|= 8.41291D-04

At iterate 5 f= -4.98746D+01 |proj g|= 4.08566D-04

At iterate 6 f= -4.99371D+01 |proj g|= 2.05349D-04

At iterate 7 f= -4.99687D+01 |proj g|= 1.02319D-04

At iterate 8 f= -4.99843D+01 |proj g|= 5.11596D-05

At iterate 9 f= -4.99922D+01 |proj g|= 2.62904D-05

At iterate 10 f= -9.99998D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 19 10 1 0 0.000D+00 -1.000D+02

F = -99.999801246007394

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9998012460074

True

[ 17.86686486 3704.22015672] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 1000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.86636D+01 |proj g|= 4.14886D-03

At iterate 1 f= -4.86636D+01 |proj g|= 4.14815D-03

At iterate 2 f= -4.90856D+01 |proj g|= 2.88910D-03

At iterate 3 f= -4.96242D+01 |proj g|= 1.21433D-03

At iterate 4 f= -4.98045D+01 |proj g|= 6.35942D-04

At iterate 5 f= -4.99051D+01 |proj g|= 3.10510D-04

At iterate 6 f= -4.99525D+01 |proj g|= 1.56321D-04

At iterate 7 f= -4.99764D+01 |proj g|= 7.74500D-05

At iterate 8 f= -4.99882D+01 |proj g|= 3.90803D-05

At iterate 9 f= -4.99941D+01 |proj g|= 1.84743D-05

At iterate 10 f= -9.99975D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 14 10 0 0 8.527D-06 -1.000D+02

F = -99.997455917722988

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99745591772299

True

[ 26.0709674 2927.19594192] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 1100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.90227D+01 |proj g|= 3.07952D-03

At iterate 1 f= -4.90227D+01 |proj g|= 3.07952D-03

ys= 0.000E+00 -gs= 9.483E-06 BFGS update SKIPPED

At iterate 2 f= -4.92100D+01 |proj g|= 2.50824D-03

At iterate 3 f= -4.96941D+01 |proj g|= 9.91218D-04

At iterate 4 f= -4.98366D+01 |proj g|= 5.32913D-04

At iterate 5 f= -4.99215D+01 |proj g|= 2.57219D-04

At iterate 6 f= -4.99604D+01 |proj g|= 1.29320D-04

At iterate 7 f= -4.99802D+01 |proj g|= 6.46601D-05

At iterate 8 f= -4.99901D+01 |proj g|= 3.19748D-05

At iterate 9 f= -4.99950D+01 |proj g|= 1.70532D-05

At iterate 10 f= -9.99975D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 21 10 1 0 8.527D-06 -1.000D+02

F = -99.997453051958033

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99745305195803

True

[ 14.47859428 2926.44344018] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 1200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.92881D+01 |proj g|= 2.26808D-03

At iterate 1 f= -4.92881D+01 |proj g|= 2.26808D-03

ys= 0.000E+00 -gs= 5.144E-06 BFGS update SKIPPED

At iterate 2 f= -4.93923D+01 |proj g|= 1.94407D-03

At iterate 3 f= -4.97672D+01 |proj g|= 7.56025D-04

At iterate 4 f= -4.98743D+01 |proj g|= 4.09987D-04

At iterate 5 f= -4.99396D+01 |proj g|= 1.97533D-04

At iterate 6 f= -4.99695D+01 |proj g|= 1.00188D-04

At iterate 7 f= -4.99849D+01 |proj g|= 4.90280D-05

At iterate 8 f= -4.99923D+01 |proj g|= 2.48693D-05

At iterate 9 f= -9.99998D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 18 9 1 0 1.421D-06 -1.000D+02

F = -99.999761239371097

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9997612393711

True

[ 18.71088415 3648.2974554 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 1300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.94831D+01 |proj g|= 1.65985D-03

At iterate 1 f= -4.94831D+01 |proj g|= 1.65985D-03

ys= 0.000E+00 -gs= 2.755E-06 BFGS update SKIPPED

At iterate 2 f= -4.95400D+01 |proj g|= 1.48079D-03

At iterate 3 f= -4.98259D+01 |proj g|= 5.67730D-04

At iterate 4 f= -4.99052D+01 |proj g|= 3.09800D-04

At iterate 5 f= -4.99544D+01 |proj g|= 1.49216D-04

At iterate 6 f= -4.99770D+01 |proj g|= 7.53183D-05

At iterate 7 f= -4.99885D+01 |proj g|= 3.69486D-05

At iterate 8 f= -4.99941D+01 |proj g|= 1.98954D-05

At iterate 9 f= -9.99974D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 17 9 1 0 8.527D-06 -1.000D+02

F = -99.997361602490855

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99736160249086

True

[ 25.53746097 2916.01539822] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 1400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.96254D+01 |proj g|= 1.21007D-03

At iterate 1 f= -4.96254D+01 |proj g|= 1.21007D-03

ys= 0.000E+00 -gs= 1.464E-06 BFGS update SKIPPED

At iterate 2 f= -4.97340D+01 |proj g|= 8.63319D-04

At iterate 3 f= -4.98871D+01 |proj g|= 3.68776D-04

At iterate 4 f= -4.99406D+01 |proj g|= 1.94691D-04

At iterate 5 f= -4.99710D+01 |proj g|= 9.52137D-05

At iterate 6 f= -4.99855D+01 |proj g|= 4.83174D-05

At iterate 7 f= -4.99928D+01 |proj g|= 2.34482D-05

At iterate 8 f= -9.99997D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 18 8 1 0 1.421D-06 -1.000D+02

F = -99.999749674561201

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9997496745612

True

[ 19.95852104 3633.87406164] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 1500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.97290D+01 |proj g|= 8.79661D-04

At iterate 1 f= -4.97290D+01 |proj g|= 8.78240D-04

At iterate 2 f= -4.97668D+01 |proj g|= 7.57447D-04

At iterate 3 f= -4.99093D+01 |proj g|= 2.96299D-04

At iterate 4 f= -4.99507D+01 |proj g|= 1.62005D-04

At iterate 5 f= -4.99764D+01 |proj g|= 7.67394D-05

At iterate 6 f= -4.99878D+01 |proj g|= 3.97908D-05

At iterate 7 f= -4.99943D+01 |proj g|= 1.70530D-04

At iterate 8 f= -9.99994D+01 |proj g|= 4.26326D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 14 8 0 0 4.263D-06 -1.000D+02

F = -99.999449964121993

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.999449964122

True

[ 35.9624621 3396.92219351] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 1600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98042D+01 |proj g|= 6.36653D-04

At iterate 1 f= -4.98042D+01 |proj g|= 6.38074D-04

ys=-9.047E-10 -gs= 4.053E-07 BFGS update SKIPPED

At iterate 2 f= -4.98367D+01 |proj g|= 5.31492D-04

At iterate 3 f= -4.99341D+01 |proj g|= 2.14586D-04

At iterate 4 f= -4.99644D+01 |proj g|= 1.16530D-04

At iterate 5 f= -4.99829D+01 |proj g|= 5.61335D-05

At iterate 6 f= -4.99914D+01 |proj g|= 2.84220D-05

At iterate 7 f= -4.99957D+01 |proj g|= 1.49216D-05

At iterate 8 f= -9.99979D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 20 9 1 1 7.106D-06 -1.000D+02

F = -99.997916346190379

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99791634619038

True

[ 14.47512565 2987.67059774] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 1700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98586D+01 |proj g|= 4.61147D-04

At iterate 1 f= -4.98586D+01 |proj g|= 4.61147D-04

ys= 0.000E+00 -gs= 2.127E-07 BFGS update SKIPPED

At iterate 2 f= -4.98760D+01 |proj g|= 4.04303D-04

At iterate 3 f= -4.99514D+01 |proj g|= 1.59163D-04

At iterate 4 f= -4.99736D+01 |proj g|= 8.59766D-05

At iterate 5 f= -4.99871D+01 |proj g|= 4.26330D-05

At iterate 6 f= -4.99936D+01 |proj g|= 2.13165D-05

At iterate 7 f= -9.99975D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 18 7 1 0 8.527D-06 -1.000D+02

F = -99.997459111957198

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9974591119572

True

[ 25.46511908 2927.46044959] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 1800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98980D+01 |proj g|= 3.33248D-04

At iterate 1 f= -4.98980D+01 |proj g|= 3.33248D-04

ys= 0.000E+00 -gs= 1.111E-07 BFGS update SKIPPED

At iterate 2 f= -4.99303D+01 |proj g|= 2.28797D-04

At iterate 3 f= -4.99698D+01 |proj g|= 9.87665D-05

At iterate 4 f= -4.99840D+01 |proj g|= 5.18702D-05

At iterate 5 f= -4.99921D+01 |proj g|= 2.70009D-05

At iterate 6 f= -9.99998D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 6 17 6 1 0 1.421D-06 -1.000D+02

F = -99.999826249930877

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99982624993088

True

[ 16.18465272 3745.21867909] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 1900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99264D+01 |proj g|= 2.40877D-04

At iterate 1 f= -4.99264D+01 |proj g|= 2.40166D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.402D-04 -4.993D+01

F = -49.926432142201620

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.92643214220162

True

[ 80. 1900.00024088] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 2000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99470D+01 |proj g|= 1.73374D-04

At iterate 1 f= -4.99470D+01 |proj g|= 1.73374D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.734D-04 -4.995D+01

F = -49.946957828028708

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.94695782802871

True

[ 80. 2000.00017337] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 2100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99618D+01 |proj g|= 1.25057D-04

At iterate 1 f= -4.99618D+01 |proj g|= 1.25057D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.251D-04 -4.996D+01

F = -49.961765567602157

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.96176556760216

True

[ 80. 2100.00012506] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 2200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99724D+01 |proj g|= 8.95293D-05

At iterate 1 f= -4.99724D+01 |proj g|= 8.95293D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 8.953D-05 -4.997D+01

F = -49.972444022438502

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.9724440224385

True

[ 80. 2200.00008953] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 2300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99801D+01 |proj g|= 6.53706D-05

At iterate 1 f= -4.99801D+01 |proj g|= 6.60812D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 6.608D-05 -4.998D+01

F = -49.980142512410097

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.9801425124101

True

[ 80. 2300.00006537] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 2400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99857D+01 |proj g|= 4.68963D-05

At iterate 1 f= -4.99857D+01 |proj g|= 4.68963D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 4.690D-05 -4.999D+01

F = -49.985691565367340

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.98569156536734

True

[ 80. 2400.0000469] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 2500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99897D+01 |proj g|= 3.41064D-05

At iterate 1 f= -4.99897D+01 |proj g|= 3.41064D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 3.411D-05 -4.999D+01

F = -49.989690923267986

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.989690923267986

True

[ 80. 2500.00003411] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 2600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99926D+01 |proj g|= 2.48693D-05

At iterate 1 f= -4.99926D+01 |proj g|= 2.48693D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.487D-05 -4.999D+01

F = -49.992573671232726

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.992573671232726

True

[ 79.99999929 2600.00002487] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 2700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99947D+01 |proj g|= 1.70532D-05

At iterate 1 f= -4.99947D+01 |proj g|= 1.77638D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.776D-05 -4.999D+01

F = -49.994653183996391

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.99465318399639

True

[ 79.99999787 2700.00001705] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 2800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99962D+01 |proj g|= 1.27899D-05

At iterate 1 f= -4.99962D+01 |proj g|= 1.27899D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.279D-05 -5.000D+01

F = -49.996158411125116

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.996158411125116

True

[ 79.99999218 2800.00001279] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 2900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99973D+01 |proj g|= 2.27374D-05

At iterate 1 f= -4.99973D+01 |proj g|= 2.34479D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.345D-05 -5.000D+01

F = -49.997263216930563

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.99726321693056

True

[ 79.99997726 2900.00000924] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 3000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99981D+01 |proj g|= 6.75016D-05

At iterate 1 f= -4.99981D+01 |proj g|= 6.75016D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 6.750D-05 -5.000D+01

F = -49.998118827272229

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.99811882727223

True

[ 79.9999325 3000.00000853] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 3100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99989D+01 |proj g|= 1.96820D-04

At iterate 1 f= -4.99989D+01 |proj g|= 1.97531D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.975D-04 -5.000D+01

F = -49.998910303851197

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.9989103038512

True

[ 79.99980318 3100.00000924] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[80, 3200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00000D+01 |proj g|= 5.79093D-04

At iterate 1 f= -5.00000D+01 |proj g|= 5.79093D-04

ys=-9.593E-12 -gs= 3.355E-07 BFGS update SKIPPED

At iterate 2 f= -9.99990D+01 |proj g|= 4.26330D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 11 2 1 0 4.263D-06 -1.000D+02

F = -99.998964501385359

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99896450138536

True

[ 29.39772228 3201.24178531] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 3300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00023D+01 |proj g|= 1.69820D-03

At iterate 1 f= -5.00023D+01 |proj g|= 1.69962D-03

ys=-2.413E-09 -gs= 2.885E-06 BFGS update SKIPPED

At iterate 2 f= -9.99985D+01 |proj g|= 4.20641D-04

At iterate 3 f= -9.99993D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 11 3 1 0 2.842D-06 -1.000D+02

F = -99.999253507557967

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99925350755797

True

[ 30.6590808 3301.0211167] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 3400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00084D+01 |proj g|= 4.98233D-03

At iterate 1 f= -5.00084D+01 |proj g|= 4.99583D-03

ys=-6.712E-08 -gs= 2.483E-05 BFGS update SKIPPED

At iterate 2 f= -9.99995D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 10 2 1 0 2.842D-06 -1.000D+02

F = -99.999462495278038

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99946249527804

True

[ 30.20358725 3400.97030127] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 3500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00257D+01 |proj g|= 1.46109D-02

At iterate 1 f= -5.00259D+01 |proj g|= 1.47310D-02

ys=-1.755E-06 -gs= 2.136E-04 BFGS update SKIPPED

At iterate 2 f= -9.99996D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 10 2 1 0 0.000D+00 -1.000D+02

F = -99.999612871945004

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.999612871945

True

[ 29.76706719 3500.96919555] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 3600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00762D+01 |proj g|= 4.27918D-02

At iterate 1 f= -5.00780D+01 |proj g|= 4.38270D-02

ys=-4.432E-05 -gs= 1.832E-03 BFGS update SKIPPED

At iterate 2 f= -9.99997D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 8 2 1 0 1.421D-06 -1.000D+02

F = -99.999721318214924

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99972131821492

True

[ 20.13333414 3601.15209612] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 3700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.02236D+01 |proj g|= 1.24839D-01

At iterate 1 f= -5.02397D+01 |proj g|= 1.33802D-01

ys=-1.119E-03 -gs= 1.559E-02 BFGS update SKIPPED

At iterate 2 f= -9.99998D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 7 2 1 0 0.000D+00 -1.000D+02

F = -99.999798975761706

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9997989757617

True

[ 34.24878959 3700.87927467] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 3800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.06509D+01 |proj g|= 3.60095D-01

At iterate 1 f= -5.07942D+01 |proj g|= 4.38092D-01

ys=-2.810E-02 -gs= 1.297E-01 BFGS update SKIPPED

At iterate 2 f= -9.99999D+01 |proj g|= 2.84217D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 6 2 1 0 2.842D-06 -1.000D+02

F = -99.999852506868336

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99985250686834

True

[ 42.40210207 3800.72243776] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 3900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.18635D+01 |proj g|= 1.00546D+00

At iterate 1 f= -5.31846D+01 |proj g|= 1.67107D+00

ys=-6.695E-01 -gs= 1.011E+00 BFGS update SKIPPED

At iterate 2 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 5 2 1 0 0.000D+00 -1.000D+02

F = -99.999893550292171

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99989355029217

True

[ 43.90207933 3900.69345725] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 4000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.51011D+01 |proj g|= 2.56710D+00

At iterate 1 f= -6.61963D+01 |proj g|= 6.13647D+00

ys=-9.166E+00 -gs= 6.592E+00 BFGS update SKIPPED

At iterate 2 f= -9.68643D+01 |proj g|= 1.64702D+00

At iterate 3 f= -9.90706D+01 |proj g|= 5.11134D-01

At iterate 4 f= -9.94690D+01 |proj g|= 2.94381D-01

At iterate 5 f= -9.97530D+01 |proj g|= 1.37692D-01

At iterate 6 f= -9.98743D+01 |proj g|= 7.02500D-02

At iterate 7 f= -9.99378D+01 |proj g|= 3.47640D-02

At iterate 8 f= -9.99688D+01 |proj g|= 1.74310D-02

At iterate 9 f= -9.99844D+01 |proj g|= 8.69846D-03

At iterate 10 f= -9.99922D+01 |proj g|= 4.35136D-03

At iterate 11 f= -9.99960D+01 |proj g|= 2.17710D-03

At iterate 12 f= -9.99980D+01 |proj g|= 1.08713D-03

At iterate 13 f= -9.99990D+01 |proj g|= 5.44276D-04

At iterate 14 f= -9.99994D+01 |proj g|= 2.72848D-04

At iterate 15 f= -9.99997D+01 |proj g|= 1.35003D-04

At iterate 16 f= -9.99998D+01 |proj g|= 6.67910D-05

At iterate 17 f= -9.99999D+01 |proj g|= 3.41060D-05

At iterate 18 f= -9.99999D+01 |proj g|= 1.70530D-05

At iterate 19 f= -9.99999D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 19 20 19 1 0 8.527D-06 -1.000D+02

F = -99.999909576923343

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99990957692334

True

[ 49.36037651 4000.68177017] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 4100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -6.25024D+01 |proj g|= 5.25454D+00

At iterate 1 f= -9.31912D+01 |proj g|= 3.29608D+00

At iterate 2 f= -9.99446D+01 |proj g|= 3.09783D-02

At iterate 3 f= -9.99562D+01 |proj g|= 2.44967D-02

At iterate 4 f= -9.99820D+01 |proj g|= 1.00812D-02

At iterate 5 f= -9.99903D+01 |proj g|= 5.41576D-03

At iterate 6 f= -9.99952D+01 |proj g|= 2.63185D-03

At iterate 7 f= -9.99976D+01 |proj g|= 1.33156D-03

At iterate 8 f= -9.99988D+01 |proj g|= 6.62226D-04

At iterate 9 f= -9.99994D+01 |proj g|= 3.32534D-04

At iterate 10 f= -9.99997D+01 |proj g|= 1.66267D-04

At iterate 11 f= -9.99998D+01 |proj g|= 8.24230D-05

At iterate 12 f= -9.99999D+01 |proj g|= 4.26326D-05

At iterate 13 f= -9.99999D+01 |proj g|= 1.98952D-05

At iterate 14 f= -9.99999D+01 |proj g|= 1.13687D-05

At iterate 15 f= -9.99999D+01 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 15 17 15 0 0 5.684D-06 -1.000D+02

F = -99.999937868678415

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99993786867842

True

[ 50.10743406 4100.38791754] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 4200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -7.47279D+01 |proj g|= 7.00432D+00

At iterate 1 f= -9.90128D+01 |proj g|= 5.42305D-01

At iterate 2 f= -9.92860D+01 |proj g|= 3.94414D-01

At iterate 3 f= -9.97010D+01 |proj g|= 1.66553D-01

At iterate 4 f= -9.98422D+01 |proj g|= 8.81102D-02

At iterate 5 f= -9.99232D+01 |proj g|= 4.29623D-02

At iterate 6 f= -9.99613D+01 |proj g|= 2.16545D-02

At iterate 7 f= -9.99807D+01 |proj g|= 1.07846D-02

At iterate 8 f= -9.99903D+01 |proj g|= 5.39871D-03

At iterate 9 f= -9.99951D+01 |proj g|= 2.69722D-03

At iterate 10 f= -9.99976D+01 |proj g|= 1.34861D-03

At iterate 11 f= -9.99988D+01 |proj g|= 6.76437D-04

At iterate 12 f= -9.99994D+01 |proj g|= 3.36797D-04

At iterate 13 f= -9.99997D+01 |proj g|= 1.69109D-04

At iterate 14 f= -9.99998D+01 |proj g|= 8.38440D-05

At iterate 15 f= -9.99999D+01 |proj g|= 4.26326D-05

At iterate 16 f= -9.99999D+01 |proj g|= 2.13163D-05

At iterate 17 f= -9.99999D+01 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 18 17 0 0 8.527D-06 -1.000D+02

F = -99.999942854369380

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99994285436938

True

[ 53.50829912 4200.57635389] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 4300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -8.70849D+01 |proj g|= 5.36823D+00

At iterate 1 f= -9.91558D+01 |proj g|= 4.65119D-01

At iterate 2 f= -9.93628D+01 |proj g|= 3.52554D-01

At iterate 3 f= -9.97374D+01 |proj g|= 1.46375D-01

At iterate 4 f= -9.98605D+01 |proj g|= 7.79693D-02

At iterate 5 f= -9.99322D+01 |proj g|= 3.79260D-02

At iterate 6 f= -9.99658D+01 |proj g|= 1.91392D-02

At iterate 7 f= -9.99830D+01 |proj g|= 9.52981D-03

At iterate 8 f= -9.99915D+01 |proj g|= 4.76917D-03

At iterate 9 f= -9.99957D+01 |proj g|= 2.38316D-03

At iterate 10 f= -9.99978D+01 |proj g|= 1.19087D-03

At iterate 11 f= -9.99989D+01 |proj g|= 5.96856D-04

At iterate 12 f= -9.99994D+01 |proj g|= 2.97007D-04

At iterate 13 f= -9.99997D+01 |proj g|= 1.49214D-04

At iterate 14 f= -9.99998D+01 |proj g|= 7.53175D-05

At iterate 15 f= -9.99999D+01 |proj g|= 3.69482D-05

At iterate 16 f= -9.99999D+01 |proj g|= 1.84741D-05

At iterate 17 f= -1.00000D+02 |proj g|= 1.13687D-05

At iterate 18 f= -1.00000D+02 |proj g|= 4.26326D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 19 18 0 0 4.263D-06 -1.000D+02

F = -99.999966413045968

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99996641304597

True

[ 53.28645933 4300.45253679] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 4400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.46959D+01 |proj g|= 2.65715D+00

At iterate 1 f= -9.86971D+01 |proj g|= 7.11120D-01

At iterate 2 f= -9.92357D+01 |proj g|= 4.21781D-01

At iterate 3 f= -9.96514D+01 |proj g|= 1.93985D-01

At iterate 4 f= -9.98220D+01 |proj g|= 9.93751D-02

At iterate 5 f= -9.99123D+01 |proj g|= 4.90474D-02

At iterate 6 f= -9.99560D+01 |proj g|= 2.46018D-02

At iterate 7 f= -9.99781D+01 |proj g|= 1.22725D-02

At iterate 8 f= -9.99890D+01 |proj g|= 6.14194D-03

At iterate 9 f= -9.99945D+01 |proj g|= 3.06813D-03

At iterate 10 f= -9.99972D+01 |proj g|= 1.53477D-03

At iterate 11 f= -9.99986D+01 |proj g|= 7.67387D-04

At iterate 12 f= -9.99993D+01 |proj g|= 3.83693D-04

At iterate 13 f= -9.99996D+01 |proj g|= 1.90425D-04

At iterate 14 f= -9.99998D+01 |proj g|= 9.66338D-05

At iterate 15 f= -9.99999D+01 |proj g|= 4.68958D-05

At iterate 16 f= -9.99999D+01 |proj g|= 2.55795D-05

At iterate 17 f= -1.00000D+02 |proj g|= 1.13687D-05

At iterate 18 f= -1.00000D+02 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 19 18 0 0 5.684D-06 -1.000D+02

F = -99.999969433612222

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99996943361222

True

[ 56.34686948 4400.64654186] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 4500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.80567D+01 |proj g|= 1.04672D+00

At iterate 1 f= -9.89003D+01 |proj g|= 6.02696D-01

At iterate 2 f= -9.94981D+01 |proj g|= 2.78442D-01

At iterate 3 f= -9.97455D+01 |proj g|= 1.41911D-01

At iterate 4 f= -9.98746D+01 |proj g|= 7.00681D-02

At iterate 5 f= -9.99372D+01 |proj g|= 3.51150D-02

At iterate 6 f= -9.99687D+01 |proj g|= 1.75177D-02

At iterate 7 f= -9.99843D+01 |proj g|= 8.76384D-03

At iterate 8 f= -9.99922D+01 |proj g|= 4.37837D-03

At iterate 9 f= -9.99961D+01 |proj g|= 2.19132D-03

At iterate 10 f= -9.99980D+01 |proj g|= 1.09424D-03

At iterate 11 f= -9.99990D+01 |proj g|= 5.45697D-04

At iterate 12 f= -9.99995D+01 |proj g|= 2.74270D-04

At iterate 13 f= -9.99997D+01 |proj g|= 1.36424D-04

At iterate 14 f= -9.99999D+01 |proj g|= 6.82121D-05

At iterate 15 f= -9.99999D+01 |proj g|= 3.41060D-05

At iterate 16 f= -1.00000D+02 |proj g|= 1.84741D-05

At iterate 17 f= -1.00000D+02 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 18 17 0 0 8.527D-06 -1.000D+02

F = -99.999971757908924

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997175790892

True

[ 58.76230122 4500.41740711] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 4600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.93204D+01 |proj g|= 3.75681D-01

At iterate 1 f= -9.94480D+01 |proj g|= 3.05914D-01

At iterate 2 f= -9.97793D+01 |proj g|= 1.23119D-01

At iterate 3 f= -9.98813D+01 |proj g|= 6.63690D-02

At iterate 4 f= -9.99426D+01 |proj g|= 3.21450D-02

At iterate 5 f= -9.99710D+01 |proj g|= 1.62515D-02

At iterate 6 f= -9.99856D+01 |proj g|= 8.08598D-03

At iterate 7 f= -9.99928D+01 |proj g|= 4.04725D-03

At iterate 8 f= -9.99964D+01 |proj g|= 2.02505D-03

At iterate 9 f= -9.99982D+01 |proj g|= 1.01181D-03

At iterate 10 f= -9.99991D+01 |proj g|= 5.05907D-04

At iterate 11 f= -9.99995D+01 |proj g|= 2.52953D-04

At iterate 12 f= -9.99998D+01 |proj g|= 1.25056D-04

At iterate 13 f= -9.99999D+01 |proj g|= 6.39489D-05

At iterate 14 f= -9.99999D+01 |proj g|= 3.26850D-05

At iterate 15 f= -1.00000D+02 |proj g|= 1.42109D-05

At iterate 16 f= -1.00000D+02 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 16 17 16 0 0 8.527D-06 -1.000D+02

F = -99.999974346241743

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997434624174

True

[ 60.86615244 4600.30547872] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 4700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.97663D+01 |proj g|= 1.30342D-01

At iterate 1 f= -9.97827D+01 |proj g|= 1.21237D-01

At iterate 2 f= -9.99176D+01 |proj g|= 4.60702D-02

At iterate 3 f= -9.99546D+01 |proj g|= 2.54119D-02

At iterate 4 f= -9.99782D+01 |proj g|= 1.22142D-02

At iterate 5 f= -9.99889D+01 |proj g|= 6.19594D-03

At iterate 6 f= -9.99945D+01 |proj g|= 3.08092D-03

At iterate 7 f= -9.99972D+01 |proj g|= 1.54330D-03

At iterate 8 f= -9.99986D+01 |proj g|= 7.70229D-04

At iterate 9 f= -9.99993D+01 |proj g|= 3.86535D-04

At iterate 10 f= -9.99996D+01 |proj g|= 1.93268D-04

At iterate 11 f= -9.99998D+01 |proj g|= 9.66339D-05

At iterate 12 f= -9.99999D+01 |proj g|= 4.83169D-05

At iterate 13 f= -9.99999D+01 |proj g|= 2.55796D-05

At iterate 14 f= -1.00000D+02 |proj g|= 1.13687D-05

At iterate 15 f= -1.00000D+02 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 15 16 15 0 0 5.684D-06 -1.000D+02

F = -99.999982034340889

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998203434089

True

[ 62.11296937 4700.19304304] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 4800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99201D+01 |proj g|= 4.46903D-02

At iterate 1 f= -9.99221D+01 |proj g|= 4.35876D-02

At iterate 2 f= -9.99710D+01 |proj g|= 1.62245D-02

At iterate 3 f= -9.99839D+01 |proj g|= 9.02390D-03

At iterate 4 f= -9.99923D+01 |proj g|= 4.32437D-03

At iterate 5 f= -9.99961D+01 |proj g|= 2.19842D-03

At iterate 6 f= -9.99980D+01 |proj g|= 1.09139D-03

At iterate 7 f= -9.99990D+01 |proj g|= 5.47118D-04

At iterate 8 f= -9.99995D+01 |proj g|= 2.72849D-04

At iterate 9 f= -9.99997D+01 |proj g|= 1.36424D-04

At iterate 10 f= -9.99999D+01 |proj g|= 6.82121D-05

At iterate 11 f= -9.99999D+01 |proj g|= 3.41061D-05

At iterate 12 f= -1.00000D+02 |proj g|= 1.84741D-05

At iterate 13 f= -1.00000D+02 |proj g|= 7.10543D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 13 14 13 0 0 7.105D-06 -1.000D+02

F = -99.999980954153429

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998095415343

True

[ 64.51448129 4800.24165046] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[80, 4900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.99728D+01 |proj g|= 1.52625D-02

At iterate 1 f= -9.99730D+01 |proj g|= 1.51289D-02

At iterate 2 f= -9.99897D+01 |proj g|= 5.74403D-03

At iterate 3 f= -9.99943D+01 |proj g|= 3.17186D-03

At iterate 4 f= -9.99973D+01 |proj g|= 1.52625D-03

At iterate 5 f= -9.99986D+01 |proj g|= 7.75913D-04

At iterate 6 f= -9.99993D+01 |proj g|= 3.83693D-04

At iterate 7 f= -9.99997D+01 |proj g|= 1.93268D-04

At iterate 8 f= -9.99998D+01 |proj g|= 9.66339D-05

At iterate 9 f= -9.99999D+01 |proj g|= 4.83169D-05

At iterate 10 f= -1.00000D+02 |proj g|= 2.41585D-05

At iterate 11 f= -1.00000D+02 |proj g|= 1.27898D-05

At iterate 12 f= -1.00000D+02 |proj g|= 5.68435D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 13 12 0 0 5.684D-06 -1.000D+02

F = -99.999986365980845

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998636598085

True

[ 65.83661984 4900.34048624] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 0]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 1 variables are exactly at the bounds

At iterate 0 f= -3.50000D+01 |proj g|= 1.96763D-02

At iterate 1 f= -3.50004D+01 |proj g|= 1.96771D-02

ys=-1.398E-08 -gs= 3.872E-04 BFGS update SKIPPED

At iterate 2 f= -4.32973D+01 |proj g|= 1.60881D-02

At iterate 3 f= -4.99835D+01 |proj g|= 5.40018D-05

At iterate 4 f= -4.99852D+01 |proj g|= 4.83174D-05

At iterate 5 f= -4.99940D+01 |proj g|= 1.98954D-05

At iterate 6 f= -4.99968D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 6 15 6 1 0 9.948D-06 -5.000D+01

F = -49.996812624513758

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99681262451376

True

[ 90. 2858.02898742] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.70157D+01 |proj g|= 2.04651D-02

At iterate 1 f= -3.70162D+01 |proj g|= 2.04665D-02

ys=-2.908E-08 -gs= 4.188E-04 BFGS update SKIPPED

At iterate 2 f= -4.50098D+01 |proj g|= 1.30981D-02

At iterate 3 f= -4.95482D+01 |proj g|= 1.45521D-03

At iterate 4 f= -4.96721D+01 |proj g|= 1.06085D-03

At iterate 5 f= -4.98625D+01 |proj g|= 4.49068D-04

At iterate 6 f= -4.99275D+01 |proj g|= 2.37324D-04

At iterate 7 f= -4.99647D+01 |proj g|= 1.15820D-04

At iterate 8 f= -4.99822D+01 |proj g|= 5.82651D-05

At iterate 9 f= -4.99911D+01 |proj g|= 2.84220D-05

At iterate 10 f= -4.99954D+01 |proj g|= 1.56321D-05

At iterate 11 f= -4.99980D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 19 11 1 0 7.106D-06 -5.000D+01

F = -49.997966803163415

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.997966803163415

True

[ 90. 2995.08239775] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -3.90570D+01 |proj g|= 2.01787D-02

At iterate 1 f= -3.90574D+01 |proj g|= 2.01787D-02

ys= 0.000E+00 -gs= 4.072E-04 BFGS update SKIPPED

At iterate 2 f= -4.61255D+01 |proj g|= 1.07370D-02

At iterate 3 f= -4.91444D+01 |proj g|= 2.71004D-03

At iterate 4 f= -4.95016D+01 |proj g|= 1.60158D-03

At iterate 5 f= -4.97740D+01 |proj g|= 7.34709D-04

At iterate 6 f= -4.98849D+01 |proj g|= 3.75881D-04

At iterate 7 f= -4.99434D+01 |proj g|= 1.85454D-04

At iterate 8 f= -4.99717D+01 |proj g|= 9.23715D-05

At iterate 9 f= -4.99858D+01 |proj g|= 4.61858D-05

At iterate 10 f= -4.99928D+01 |proj g|= 2.41587D-05

At iterate 11 f= -4.99966D+01 |proj g|= 1.13688D-05

At iterate 12 f= -4.99983D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 20 12 1 0 5.684D-06 -5.000D+01

F = -49.998279510874681

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99827951087468

True

[ 90. 3045.94421259] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.10173D+01 |proj g|= 1.88741D-02

At iterate 1 f= -4.10176D+01 |proj g|= 1.88734D-02

At iterate 2 f= -4.75564D+01 |proj g|= 7.23048D-03

At iterate 3 f= -4.90610D+01 |proj g|= 2.96299D-03

At iterate 4 f= -4.95289D+01 |proj g|= 1.51631D-03

At iterate 5 f= -4.97737D+01 |proj g|= 7.36130D-04

At iterate 6 f= -4.98872D+01 |proj g|= 3.68065D-04

At iterate 7 f= -4.99439D+01 |proj g|= 1.83322D-04

At iterate 8 f= -4.99720D+01 |proj g|= 9.16610D-05

At iterate 9 f= -4.99860D+01 |proj g|= 4.54752D-05

At iterate 10 f= -4.99930D+01 |proj g|= 2.34482D-05

At iterate 11 f= -4.99966D+01 |proj g|= 1.06583D-05

At iterate 12 f= -4.99981D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 13 12 0 0 5.684D-06 -5.000D+01

F = -49.998149509266568

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99814950926657

True

[ 90. 3023.7652014] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.28061D+01 |proj g|= 1.68036D-02

At iterate 1 f= -4.28064D+01 |proj g|= 1.68029D-02

At iterate 2 f= -4.75275D+01 |proj g|= 7.30651D-03

At iterate 3 f= -4.90322D+01 |proj g|= 3.05110D-03

At iterate 4 f= -4.95189D+01 |proj g|= 1.54758D-03

At iterate 5 f= -4.97681D+01 |proj g|= 7.52473D-04

At iterate 6 f= -4.98843D+01 |proj g|= 3.77302D-04

At iterate 7 f= -4.99427D+01 |proj g|= 1.86875D-04

At iterate 8 f= -4.99712D+01 |proj g|= 9.37926D-05

At iterate 9 f= -4.99857D+01 |proj g|= 4.68963D-05

At iterate 10 f= -4.99929D+01 |proj g|= 2.27376D-05

At iterate 11 f= -4.99963D+01 |proj g|= 1.20794D-05

At iterate 12 f= -4.99982D+01 |proj g|= 4.97385D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 13 12 0 0 4.974D-06 -5.000D+01

F = -49.998234462414864

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.998234462414864

True

[ 90. 3038.0756905] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.43641D+01 |proj g|= 1.43153D-02

At iterate 1 f= -4.43643D+01 |proj g|= 1.43153D-02

ys= 0.000E+00 -gs= 2.049E-04 BFGS update SKIPPED

At iterate 2 f= -4.54045D+01 |proj g|= 1.22995D-02

At iterate 3 f= -4.88749D+01 |proj g|= 3.52362D-03

At iterate 4 f= -4.93867D+01 |proj g|= 1.96183D-03

At iterate 5 f= -4.97176D+01 |proj g|= 9.15189D-04

At iterate 6 f= -4.98575D+01 |proj g|= 4.63989D-04

At iterate 7 f= -4.99297D+01 |proj g|= 2.30218D-04

At iterate 8 f= -4.99650D+01 |proj g|= 1.14399D-04

At iterate 9 f= -4.99824D+01 |proj g|= 5.68440D-05

At iterate 10 f= -4.99911D+01 |proj g|= 2.98431D-05

At iterate 11 f= -4.99958D+01 |proj g|= 1.42110D-05

At iterate 12 f= -4.99979D+01 |proj g|= 6.39495D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 19 12 1 0 6.395D-06 -5.000D+01

F = -49.997889733570382

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99788973357038

True

[ 90. 2983.74582939] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.56667D+01 |proj g|= 1.17481D-02

At iterate 1 f= -4.56669D+01 |proj g|= 1.17481D-02

ys= 0.000E+00 -gs= 1.380E-04 BFGS update SKIPPED

At iterate 2 f= -4.63696D+01 |proj g|= 1.01771D-02

At iterate 3 f= -4.89584D+01 |proj g|= 3.27422D-03

At iterate 4 f= -4.94433D+01 |proj g|= 1.78490D-03

At iterate 5 f= -4.97404D+01 |proj g|= 8.42713D-04

At iterate 6 f= -4.98695D+01 |proj g|= 4.25620D-04

At iterate 7 f= -4.99355D+01 |proj g|= 2.11744D-04

At iterate 8 f= -4.99679D+01 |proj g|= 1.05161D-04

At iterate 9 f= -4.99839D+01 |proj g|= 5.40018D-05

At iterate 10 f= -4.99922D+01 |proj g|= 2.48693D-05

At iterate 11 f= -4.99958D+01 |proj g|= 1.35005D-05

At iterate 12 f= -4.99980D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 12 19 12 1 0 7.106D-06 -5.000D+01

F = -49.998011065124544

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.998011065124544

True

[ 90. 3001.78826966] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.67193D+01 |proj g|= 9.34718D-03

At iterate 1 f= -4.67194D+01 |proj g|= 9.34647D-03

At iterate 2 f= -4.77082D+01 |proj g|= 6.82689D-03

At iterate 3 f= -4.91815D+01 |proj g|= 2.59635D-03

At iterate 4 f= -4.95746D+01 |proj g|= 1.37065D-03

At iterate 5 f= -4.97972D+01 |proj g|= 6.60101D-04

At iterate 6 f= -4.98985D+01 |proj g|= 3.31827D-04

At iterate 7 f= -4.99497D+01 |proj g|= 1.64137D-04

At iterate 8 f= -4.99747D+01 |proj g|= 8.31344D-05

At iterate 9 f= -4.99875D+01 |proj g|= 4.12119D-05

At iterate 10 f= -4.99938D+01 |proj g|= 2.06060D-05

At iterate 11 f= -4.99969D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 12 11 0 0 9.948D-06 -5.000D+01

F = -49.996896810287780

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99689681028778

True

[ 90. 2866.19105925] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.75466D+01 |proj g|= 7.25606D-03

At iterate 1 f= -4.75466D+01 |proj g|= 7.25677D-03

ys=-5.156E-09 -gs= 5.265E-05 BFGS update SKIPPED

At iterate 2 f= -4.78195D+01 |proj g|= 6.52633D-03

At iterate 3 f= -4.92738D+01 |proj g|= 2.31284D-03

At iterate 4 f= -4.96107D+01 |proj g|= 1.25625D-03

At iterate 5 f= -4.98160D+01 |proj g|= 5.98994D-04

At iterate 6 f= -4.99074D+01 |proj g|= 3.02694D-04

At iterate 7 f= -4.99542D+01 |proj g|= 1.49926D-04

At iterate 8 f= -4.99771D+01 |proj g|= 7.53183D-05

At iterate 9 f= -4.99886D+01 |proj g|= 3.76592D-05

At iterate 10 f= -4.99943D+01 |proj g|= 1.91849D-05

At iterate 11 f= -4.99973D+01 |proj g|= 9.23715D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 18 11 1 0 9.237D-06 -5.000D+01

F = -49.997256210263451

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99725621026345

True

[ 90. 2903.72226846] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.81827D+01 |proj g|= 5.52660D-03

At iterate 1 f= -4.81827D+01 |proj g|= 5.52660D-03

ys= 0.000E+00 -gs= 3.054E-05 BFGS update SKIPPED

At iterate 2 f= -4.87471D+01 |proj g|= 3.90301D-03

At iterate 3 f= -4.95009D+01 |proj g|= 1.60442D-03

At iterate 4 f= -4.97407D+01 |proj g|= 8.41291D-04

At iterate 5 f= -4.98746D+01 |proj g|= 4.08566D-04

At iterate 6 f= -4.99371D+01 |proj g|= 2.05349D-04

At iterate 7 f= -4.99687D+01 |proj g|= 1.02319D-04

At iterate 8 f= -4.99843D+01 |proj g|= 5.11596D-05

At iterate 9 f= -4.99922D+01 |proj g|= 2.62904D-05

At iterate 10 f= -4.99962D+01 |proj g|= 1.20794D-05

At iterate 11 f= -4.99980D+01 |proj g|= 6.39495D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 11 19 11 1 0 6.395D-06 -5.000D+01

F = -49.997984970911148

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99798497091115

True

[ 90. 2997.81712496] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 1000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.86636D+01 |proj g|= 4.14886D-03

At iterate 1 f= -4.86636D+01 |proj g|= 4.14815D-03

At iterate 2 f= -4.90856D+01 |proj g|= 2.88910D-03

At iterate 3 f= -4.96242D+01 |proj g|= 1.21433D-03

At iterate 4 f= -4.98045D+01 |proj g|= 6.35942D-04

At iterate 5 f= -4.99051D+01 |proj g|= 3.10510D-04

At iterate 6 f= -4.99525D+01 |proj g|= 1.56321D-04

At iterate 7 f= -4.99764D+01 |proj g|= 7.74500D-05

At iterate 8 f= -4.99882D+01 |proj g|= 3.90803D-05

At iterate 9 f= -4.99941D+01 |proj g|= 1.84743D-05

At iterate 10 f= -4.99969D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 12 10 0 0 9.948D-06 -5.000D+01

F = -49.996881702169496

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.996881702169496

True

[ 90. 2864.71011392] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 1100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.90227D+01 |proj g|= 3.07952D-03

At iterate 1 f= -4.90227D+01 |proj g|= 3.07952D-03

ys= 0.000E+00 -gs= 9.483E-06 BFGS update SKIPPED

At iterate 2 f= -4.92100D+01 |proj g|= 2.50824D-03

At iterate 3 f= -4.96941D+01 |proj g|= 9.91218D-04

At iterate 4 f= -4.98366D+01 |proj g|= 5.32913D-04

At iterate 5 f= -4.99215D+01 |proj g|= 2.57219D-04

At iterate 6 f= -4.99604D+01 |proj g|= 1.29320D-04

At iterate 7 f= -4.99802D+01 |proj g|= 6.46601D-05

At iterate 8 f= -4.99901D+01 |proj g|= 3.19748D-05

At iterate 9 f= -4.99950D+01 |proj g|= 1.63427D-05

At iterate 10 f= -4.99975D+01 |proj g|= 7.81605D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 18 10 1 0 7.816D-06 -5.000D+01

F = -49.997534947833358

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99753494783336

True

[ 90. 2936.38179656] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 1200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.92881D+01 |proj g|= 2.26808D-03

At iterate 1 f= -4.92881D+01 |proj g|= 2.26808D-03

ys= 0.000E+00 -gs= 5.144E-06 BFGS update SKIPPED

At iterate 2 f= -4.93923D+01 |proj g|= 1.94407D-03

At iterate 3 f= -4.97672D+01 |proj g|= 7.56025D-04

At iterate 4 f= -4.98743D+01 |proj g|= 4.09987D-04

At iterate 5 f= -4.99396D+01 |proj g|= 1.97533D-04

At iterate 6 f= -4.99695D+01 |proj g|= 1.00188D-04

At iterate 7 f= -4.99849D+01 |proj g|= 4.90280D-05

At iterate 8 f= -4.99923D+01 |proj g|= 2.48693D-05

At iterate 9 f= -4.99961D+01 |proj g|= 1.27899D-05

At iterate 10 f= -4.99982D+01 |proj g|= 6.39495D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 10 18 10 1 0 6.395D-06 -5.000D+01

F = -49.998152010742956

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.998152010742956

True

[ 90. 3024.17716683] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 1300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.94831D+01 |proj g|= 1.65985D-03

At iterate 1 f= -4.94831D+01 |proj g|= 1.65985D-03

ys= 0.000E+00 -gs= 2.755E-06 BFGS update SKIPPED

At iterate 2 f= -4.95400D+01 |proj g|= 1.48079D-03

At iterate 3 f= -4.98259D+01 |proj g|= 5.67730D-04

At iterate 4 f= -4.99052D+01 |proj g|= 3.09800D-04

At iterate 5 f= -4.99544D+01 |proj g|= 1.49216D-04

At iterate 6 f= -4.99770D+01 |proj g|= 7.53183D-05

At iterate 7 f= -4.99885D+01 |proj g|= 3.69486D-05

At iterate 8 f= -4.99941D+01 |proj g|= 1.98954D-05

At iterate 9 f= -4.99973D+01 |proj g|= 9.23715D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 17 9 1 0 9.237D-06 -5.000D+01

F = -49.997305134007732

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99730513400773

True

[ 90. 2909.20764856] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 1400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.96254D+01 |proj g|= 1.21007D-03

At iterate 1 f= -4.96254D+01 |proj g|= 1.21007D-03

ys= 0.000E+00 -gs= 1.464E-06 BFGS update SKIPPED

At iterate 2 f= -4.97340D+01 |proj g|= 8.63319D-04

At iterate 3 f= -4.98871D+01 |proj g|= 3.68776D-04

At iterate 4 f= -4.99406D+01 |proj g|= 1.94691D-04

At iterate 5 f= -4.99710D+01 |proj g|= 9.52137D-05

At iterate 6 f= -4.99855D+01 |proj g|= 4.83174D-05

At iterate 7 f= -4.99928D+01 |proj g|= 2.34482D-05

At iterate 8 f= -4.99963D+01 |proj g|= 1.20794D-05

At iterate 9 f= -4.99982D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 18 9 1 0 5.684D-06 -5.000D+01

F = -49.998201940068007

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99820194006801

True

[ 90. 3032.51802387] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 1500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.97290D+01 |proj g|= 8.79661D-04

At iterate 1 f= -4.97290D+01 |proj g|= 8.78240D-04

At iterate 2 f= -4.97668D+01 |proj g|= 7.57447D-04

At iterate 3 f= -4.99093D+01 |proj g|= 2.96299D-04

At iterate 4 f= -4.99507D+01 |proj g|= 1.62005D-04

At iterate 5 f= -4.99764D+01 |proj g|= 7.67394D-05

At iterate 6 f= -4.99878D+01 |proj g|= 3.97908D-05

At iterate 7 f= -4.99940D+01 |proj g|= 1.91849D-05

At iterate 8 f= -4.99969D+01 |proj g|= 9.94770D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 12 8 0 0 9.948D-06 -5.000D+01

F = -49.996927460496948

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99692746049695

True

[ 90. 2869.21775244] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 1600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98042D+01 |proj g|= 6.36653D-04

At iterate 1 f= -4.98042D+01 |proj g|= 6.38074D-04

ys=-9.047E-10 -gs= 4.053E-07 BFGS update SKIPPED

At iterate 2 f= -4.98367D+01 |proj g|= 5.31492D-04

At iterate 3 f= -4.99341D+01 |proj g|= 2.14586D-04

At iterate 4 f= -4.99644D+01 |proj g|= 1.16530D-04

At iterate 5 f= -4.99829D+01 |proj g|= 5.61335D-05

At iterate 6 f= -4.99914D+01 |proj g|= 2.84220D-05

At iterate 7 f= -4.99957D+01 |proj g|= 1.49216D-05

At iterate 8 f= -4.99980D+01 |proj g|= 6.39495D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 17 8 1 0 6.395D-06 -5.000D+01

F = -49.998017224547475

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.998017224547475

True

[ 90. 3002.73320854] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 1700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98586D+01 |proj g|= 4.61147D-04

At iterate 1 f= -4.98586D+01 |proj g|= 4.61147D-04

ys= 0.000E+00 -gs= 2.127E-07 BFGS update SKIPPED

At iterate 2 f= -4.98760D+01 |proj g|= 4.04303D-04

At iterate 3 f= -4.99514D+01 |proj g|= 1.59163D-04

At iterate 4 f= -4.99736D+01 |proj g|= 8.59766D-05

At iterate 5 f= -4.99871D+01 |proj g|= 4.26330D-05

At iterate 6 f= -4.99936D+01 |proj g|= 2.13165D-05

At iterate 7 f= -4.99968D+01 |proj g|= 1.06583D-05

At iterate 8 f= -4.99984D+01 |proj g|= 4.97385D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 8 17 8 1 0 4.974D-06 -5.000D+01

F = -49.998444622953208

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99844462295321

True

[ 90. 3076.64160733] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 1800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.98980D+01 |proj g|= 3.33248D-04

At iterate 1 f= -4.98980D+01 |proj g|= 3.33248D-04

ys= 0.000E+00 -gs= 1.111E-07 BFGS update SKIPPED

At iterate 2 f= -4.99303D+01 |proj g|= 2.28797D-04

At iterate 3 f= -4.99698D+01 |proj g|= 9.87665D-05

At iterate 4 f= -4.99840D+01 |proj g|= 5.18702D-05

At iterate 5 f= -4.99921D+01 |proj g|= 2.70009D-05

At iterate 6 f= -4.99963D+01 |proj g|= 1.20794D-05

At iterate 7 f= -4.99980D+01 |proj g|= 5.68440D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 17 7 1 0 5.684D-06 -5.000D+01

F = -49.998005209049118

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99800520904912

True

[ 90. 3000.89256674] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 1900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99264D+01 |proj g|= 2.40877D-04

At iterate 1 f= -4.99264D+01 |proj g|= 2.40166D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.402D-04 -4.993D+01

F = -49.926432141342339

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.92643214134234

True

[ 90. 1900.00024088] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 2000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99470D+01 |proj g|= 1.73374D-04

At iterate 1 f= -4.99470D+01 |proj g|= 1.73374D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.734D-04 -4.995D+01

F = -49.946957825507027

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.94695782550703

True

[ 90. 2000.00017337] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 2100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99618D+01 |proj g|= 1.25057D-04

At iterate 1 f= -4.99618D+01 |proj g|= 1.25057D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.251D-04 -4.996D+01

F = -49.961765560201911

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.96176556020191

True

[ 90. 2100.00012506] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 2200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99724D+01 |proj g|= 8.95293D-05

At iterate 1 f= -4.99724D+01 |proj g|= 8.95293D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 8.953D-05 -4.997D+01

F = -49.972444000721403

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.9724440007214

True

[ 90. 2200.00008953] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 2300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99801D+01 |proj g|= 6.53706D-05

At iterate 1 f= -4.99801D+01 |proj g|= 6.53706D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 6.537D-05 -4.998D+01

F = -49.980142448678151

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.98014244867815

True

[ 90. 2300.00006537] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 2400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99857D+01 |proj g|= 4.68963D-05

At iterate 1 f= -4.99857D+01 |proj g|= 4.68963D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 4.690D-05 -4.999D+01

F = -49.985691378336696

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.985691378336696

True

[ 90. 2400.0000469] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 2500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99897D+01 |proj g|= 3.41064D-05

At iterate 1 f= -4.99897D+01 |proj g|= 3.41064D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 3.411D-05 -4.999D+01

F = -49.989690374399444

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.989690374399444

True

[ 90. 2500.00003411] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 2600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99926D+01 |proj g|= 2.48693D-05

At iterate 1 f= -4.99926D+01 |proj g|= 2.48693D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 2.487D-05 -4.999D+01

F = -49.992572060497736

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.992572060497736

True

[ 90. 2600.00002487] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 2700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99946D+01 |proj g|= 1.70532D-05

At iterate 1 f= -4.99946D+01 |proj g|= 1.77638D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.776D-05 -4.999D+01

F = -49.994648457057259

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.99464845705726

True

[ 90. 2700.00001705] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 2800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99961D+01 |proj g|= 1.27899D-05

At iterate 1 f= -4.99961D+01 |proj g|= 1.20794D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.208D-05 -5.000D+01

F = -49.996144539193708

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.99614453919371

True

[ 90. 2800.00001279] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 2900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99972D+01 |proj g|= 8.52660D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 8.527D-06 -5.000D+01

F = -49.997222507328367

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99722250732837

True

[ 90. 2900.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 3000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99980D+01 |proj g|= 7.10550D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 7.106D-06 -5.000D+01

F = -49.997999356398033

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99799935639803

True

[ 90. 3000.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 3100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99986D+01 |proj g|= 4.97385D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 4.974D-06 -5.000D+01

F = -49.998559675444845

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.998559675444845

True

[ 90. 3100.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 3200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99990D+01 |proj g|= 2.84220D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 2.842D-06 -5.000D+01

F = -49.998965238236813

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99896523823681

True

[ 90. 3200.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 3300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99993D+01 |proj g|= 6.39489D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 0 1 0 0 0 6.395D-06 -5.000D+01

F = -49.999262966307533

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-49.99926296630753

True

[ 90. 3300.] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 3400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99995D+01 |proj g|= 1.84741D-05

At iterate 1 f= -4.99995D+01 |proj g|= 1.77636D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.776D-05 -5.000D+01

F = -49.999493746122170

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.99949374612217

True

[ 89.99998153 3400.00000355] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 3500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -4.99997D+01 |proj g|= 5.40013D-05

At iterate 1 f= -4.99997D+01 |proj g|= 5.32907D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 5.329D-05 -5.000D+01

F = -49.999707813428323

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-49.99970781342832

True

[ 89.999946 3500.00000142] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 3600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00000D+01 |proj g|= 1.58451D-04

At iterate 1 f= -5.00000D+01 |proj g|= 1.57741D-04

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 1 2 1 0 0 1.577D-04 -5.000D+01

F = -50.000002349199427

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

-50.00000234919943

True

[ 89.99984155 3600.00000426] CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

[90, 3700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00006D+01 |proj g|= 4.63985D-04

At iterate 1 f= -5.00006D+01 |proj g|= 4.63985D-04

At iterate 2 f= -9.99998D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 4 2 0 0 0.000D+00 -1.000D+02

F = -99.999798976368851

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99979897636885

True

[ 19.3110492 3700.75775586] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 3800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00023D+01 |proj g|= 1.36069D-03

At iterate 1 f= -5.00023D+01 |proj g|= 1.36282D-03

ys=-2.882E-09 -gs= 1.852E-06 BFGS update SKIPPED

At iterate 2 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 11 2 1 0 0.000D+00 -1.000D+02

F = -99.999855245242387

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99985524524239

True

[ 35.66647657 3801.01982677] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 3900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00070D+01 |proj g|= 3.99325D-03

At iterate 1 f= -5.00070D+01 |proj g|= 4.00249D-03

ys=-3.689E-08 -gs= 1.595E-05 BFGS update SKIPPED

At iterate 2 f= -9.99999D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 11 2 1 0 1.421D-06 -1.000D+02

F = -99.999895724954499

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9998957249545

True

[ 36.94586249 3901.03604016] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 4000]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00208D+01 |proj g|= 1.17140D-02

At iterate 1 f= -5.00210D+01 |proj g|= 1.17915D-02

ys=-9.076E-07 -gs= 1.373E-04 BFGS update SKIPPED

At iterate 2 f= -9.99999D+01 |proj g|= 0.00000D+00

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 9 2 1 0 0.000D+00 -1.000D+02

F = -99.999924960097758

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99992496009776

True

[ 25.59510052 4001.2380457 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 4100]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.00613D+01 |proj g|= 3.43214D-02

At iterate 1 f= -5.00625D+01 |proj g|= 3.49864D-02

ys=-2.284E-05 -gs= 1.178E-03 BFGS update SKIPPED

At iterate 2 f= -9.99999D+01 |proj g|= 1.42110D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 2 8 2 1 0 1.421D-06 -1.000D+02

F = -99.999945790404297

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.9999457904043

True

[ 42.20919386 4100.92012562] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 4200]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.01795D+01 |proj g|= 1.00245D-01

At iterate 1 f= -5.01898D+01 |proj g|= 1.05995D-01

ys=-5.767E-04 -gs= 1.005E-02 BFGS update SKIPPED

At iterate 2 f= -9.99999D+01 |proj g|= 1.27898D-05

At iterate 3 f= -9.99999D+01 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 3 8 3 1 0 9.948D-06 -1.000D+02

F = -99.999940256951376

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99994025695138

True

[ 53.75100312 4200.69635202] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 4300]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.05232D+01 |proj g|= 2.90138D-01

At iterate 1 f= -5.06144D+01 |proj g|= 3.40128D-01

ys=-1.451E-02 -gs= 8.421E-02 BFGS update SKIPPED

At iterate 2 f= -9.99996D+01 |proj g|= 2.04636D-04

At iterate 3 f= -9.99997D+01 |proj g|= 1.67688D-04

At iterate 4 f= -9.99999D+01 |proj g|= 6.67910D-05

At iterate 5 f= -9.99999D+01 |proj g|= 3.69482D-05

At iterate 6 f= -9.99999D+01 |proj g|= 1.70530D-05

At iterate 7 f= -1.00000D+02 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 13 7 1 0 9.948D-06 -1.000D+02

F = -99.999956491374476

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99995649137448

True

[ 55.13030864 4300.30136417] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 4400]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.15049D+01 |proj g|= 8.17998D-01

At iterate 1 f= -5.23396D+01 |proj g|= 1.24978D+00

ys=-3.533E-01 -gs= 6.694E-01 BFGS update SKIPPED

At iterate 2 f= -9.99996D+01 |proj g|= 2.31637D-04

At iterate 3 f= -9.99997D+01 |proj g|= 1.84741D-04

At iterate 4 f= -9.99998D+01 |proj g|= 7.38964D-05

At iterate 5 f= -9.99999D+01 |proj g|= 3.97904D-05

At iterate 6 f= -9.99999D+01 |proj g|= 1.98952D-05

At iterate 7 f= -1.00000D+02 |proj g|= 9.94760D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 7 13 7 1 0 9.948D-06 -1.000D+02

F = -99.999962462801037

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99996246280104

True

[ 57.26362219 4400.47559757] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 4500]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -5.41734D+01 |proj g|= 2.14362D+00

At iterate 1 f= -6.16239D+01 |proj g|= 4.99977D+00

ys=-6.125E+00 -gs= 4.597E+00 BFGS update SKIPPED

At iterate 2 f= -9.16608D+01 |proj g|= 3.89395D+00

At iterate 3 f= -9.99995D+01 |proj g|= 2.88481D-04

At iterate 4 f= -9.99996D+01 |proj g|= 2.27374D-04

At iterate 5 f= -9.99998D+01 |proj g|= 8.95284D-05

At iterate 6 f= -9.99999D+01 |proj g|= 4.83169D-05

At iterate 7 f= -9.99999D+01 |proj g|= 2.27374D-05

At iterate 8 f= -1.00000D+02 |proj g|= 1.42109D-05

At iterate 9 f= -1.00000D+02 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 9 14 9 1 0 5.684D-06 -1.000D+02

F = -99.999977351336014

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997735133601

True

[ 57.81634793 4500.26839668] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 4600]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -6.05447D+01 |proj g|= 4.66314D+00

At iterate 1 f= -8.92471D+01 |proj g|= 4.73010D+00

ys=-3.124E-01 -gs= 2.175E+01 BFGS update SKIPPED

At iterate 2 f= -9.90522D+01 |proj g|= 5.21095D-01

At iterate 3 f= -9.93138D+01 |proj g|= 3.79278D-01

At iterate 4 f= -9.97125D+01 |proj g|= 1.60191D-01

At iterate 5 f= -9.98483D+01 |proj g|= 8.47621D-02

At iterate 6 f= -9.99261D+01 |proj g|= 4.13280D-02

At iterate 7 f= -9.99628D+01 |proj g|= 2.08331D-02

At iterate 8 f= -9.99815D+01 |proj g|= 1.03754D-02

At iterate 9 f= -9.99907D+01 |proj g|= 5.19549D-03

At iterate 10 f= -9.99954D+01 |proj g|= 2.59490D-03

At iterate 11 f= -9.99977D+01 |proj g|= 1.29887D-03

At iterate 12 f= -9.99988D+01 |proj g|= 6.49436D-04

At iterate 13 f= -9.99994D+01 |proj g|= 3.25429D-04

At iterate 14 f= -9.99997D+01 |proj g|= 1.60583D-04

At iterate 15 f= -9.99998D+01 |proj g|= 8.24230D-05

At iterate 16 f= -9.99999D+01 |proj g|= 3.97904D-05

At iterate 17 f= -1.00000D+02 |proj g|= 1.98952D-05

At iterate 18 f= -1.00000D+02 |proj g|= 8.52651D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 19 18 1 0 8.527D-06 -1.000D+02

F = -99.999970818576742

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997081857674

True

[ 61.24492319 4600.52102815] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 4700]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -7.19779D+01 |proj g|= 6.90278D+00

At iterate 1 f= -9.87045D+01 |proj g|= 7.07201D-01

At iterate 2 f= -9.91593D+01 |proj g|= 4.63209D-01

At iterate 3 f= -9.96330D+01 |proj g|= 2.04131D-01

At iterate 4 f= -9.98098D+01 |proj g|= 1.06178D-01

At iterate 5 f= -9.99069D+01 |proj g|= 5.20814D-02

At iterate 6 f= -9.99532D+01 |proj g|= 2.61835D-02

At iterate 7 f= -9.99767D+01 |proj g|= 1.30527D-02

At iterate 8 f= -9.99883D+01 |proj g|= 6.52989D-03

At iterate 9 f= -9.99942D+01 |proj g|= 3.26281D-03

At iterate 10 f= -9.99971D+01 |proj g|= 1.63141D-03

At iterate 11 f= -9.99985D+01 |proj g|= 8.15704D-04

At iterate 12 f= -9.99993D+01 |proj g|= 4.07852D-04

At iterate 13 f= -9.99996D+01 |proj g|= 2.04636D-04

At iterate 14 f= -9.99998D+01 |proj g|= 1.00897D-04

At iterate 15 f= -9.99999D+01 |proj g|= 5.11591D-05

At iterate 16 f= -9.99999D+01 |proj g|= 2.55796D-05

At iterate 17 f= -1.00000D+02 |proj g|= 1.13687D-05

At iterate 18 f= -1.00000D+02 |proj g|= 5.68434D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 19 18 0 0 5.684D-06 -1.000D+02

F = -99.999979406439564

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997940643956

True

[ 62.5225222 4700.50103911] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 4800]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -8.48561D+01 |proj g|= 5.91634D+00

At iterate 1 f= -9.92243D+01 |proj g|= 4.27940D-01

At iterate 2 f= -9.93990D+01 |proj g|= 3.32769D-01

At iterate 3 f= -9.97549D+01 |proj g|= 1.36666D-01

At iterate 4 f= -9.98692D+01 |proj g|= 7.31078D-02

At iterate 5 f= -9.99366D+01 |proj g|= 3.55087D-02

At iterate 6 f= -9.99680D+01 |proj g|= 1.79284D-02

At iterate 7 f= -9.99841D+01 |proj g|= 8.92442D-03

At iterate 8 f= -9.99920D+01 |proj g|= 4.47074D-03

At iterate 9 f= -9.99960D+01 |proj g|= 2.23111D-03

At iterate 10 f= -9.99980D+01 |proj g|= 1.11697D-03

At iterate 11 f= -9.99990D+01 |proj g|= 5.58487D-04

At iterate 12 f= -9.99995D+01 |proj g|= 2.78533D-04

At iterate 13 f= -9.99997D+01 |proj g|= 1.39266D-04

At iterate 14 f= -9.99999D+01 |proj g|= 7.10543D-05

At iterate 15 f= -9.99999D+01 |proj g|= 3.41061D-05

At iterate 16 f= -1.00000D+02 |proj g|= 1.70530D-05

At iterate 17 f= -1.00000D+02 |proj g|= 8.52652D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 17 18 17 0 0 8.527D-06 -1.000D+02

F = -99.999978413194654

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99997841319465

True

[ 64.82520613 4800.4657432 ] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

[90, 4900]

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 2 M = 10

At X0 0 variables are exactly at the bounds

At iterate 0 f= -9.35522D+01 |proj g|= 3.14745D+00

At iterate 1 f= -9.87635D+01 |proj g|= 6.75783D-01

At iterate 2 f= -9.92295D+01 |proj g|= 4.25155D-01

At iterate 3 f= -9.96571D+01 |proj g|= 1.90826D-01

At iterate 4 f= -9.98233D+01 |proj g|= 9.86518D-02

At iterate 5 f= -9.99133D+01 |proj g|= 4.85173D-02

At iterate 6 f= -9.99565D+01 |proj g|= 2.43702D-02

At iterate 7 f= -9.99783D+01 |proj g|= 1.21531D-02

At iterate 8 f= -9.99891D+01 |proj g|= 6.07941D-03

At iterate 9 f= -9.99946D+01 |proj g|= 3.03686D-03

At iterate 10 f= -9.99973D+01 |proj g|= 1.52056D-03

At iterate 11 f= -9.99986D+01 |proj g|= 7.58860D-04

At iterate 12 f= -9.99993D+01 |proj g|= 3.80851D-04

At iterate 13 f= -9.99997D+01 |proj g|= 1.89004D-04

At iterate 14 f= -9.99998D+01 |proj g|= 9.66339D-05

At iterate 15 f= -9.99999D+01 |proj g|= 4.54748D-05

At iterate 16 f= -1.00000D+02 |proj g|= 2.55796D-05

At iterate 17 f= -1.00000D+02 |proj g|= 1.13687D-05

At iterate 18 f= -1.00000D+02 |proj g|= 5.68435D-06

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

2 18 19 18 0 0 5.684D-06 -1.000D+02

F = -99.999986205963879

CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL

-99.99998620596388

True

[ 65.86807471 4900.44542127] CONVERGENCE: NORM\_OF\_PROJECTED\_GRADIENT\_<=\_PGTOL