
```
************************************************************

   NEOS Server Version 5.0
   Job#     : 4072298
   Password : NJKoQLma
   Solver   : minco:Knitro:AMPL
   Start    : 2015-12-11 15:26:44
   End      : 2015-12-11 15:27:04
   Host     : NEOS HTCondor Pool

   Disclaimer:

   This information is provided without any express or
   implied warranty. In particular, there is no warranty
   of any kind concerning the fitness of this
   information  for any particular purpose.
************************************************************

amplin, line 41 (offset 1224):
        Caution: 0-dimensional slice
context:  sum {(b,p) in  >>> B2p} <<<

amplin, line 51 (offset 1424):
        C
Presolve eliminates 420 constraints and 150 variables.
Adjusted problem:
255 variables:
        15 binary variables
        240 nonlinear variables
226 constraints; 578 nonzeros
        195 nonlinear constraints
        31 linear constraints
        16 equality constraints
        210 inequality constraints
15 objectives, all nonlinear; 135 nonzeros.

KNITRO 9.1.1: KNITRO: Number of threads = 1

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             KNITRO 9.1.1
          Ziena Optimization
=====================================

KNITRO changing mip_method from AUTO to 1.
KNITRO changing mip_rootalg from AUTO to 1.
KNITRO changing mip_lpalg from AUTO to 3.
KNITRO changing mip_branchrule from AUTO to 2.
KNITRO changing mip_selectrule from AUTO to 2.
KNITRO changing mip_rounding from AUTO to 3.
KNITRO changing mip_heuristic from AUTO to 1.
KNITRO changing mip_pseudoinit from AUTO to 1.
```

```
Problem Characteristics
-----------------------
Objective goal:  Maximize
Number of variables:                  255
    bounded below:                     60
    bounded above:                      0
    bounded below and above:          195
    fixed:                              0
    free:                               0
Number of binary variables:            15
Number of integer variables:            0
Number of constraints:                226
    linear equalities:                 16
    nonlinear equalities:               0
    linear inequalities:               15
    nonlinear inequalities:           195
    range:                              0
Number of nonzeros in Jacobian:       578
Number of nonzeros in Hessian:        240

No start point provided -- KNITRO computing one.

KNITRO detected 0 GUB constraints
KNITRO derived 0 knapsack covers after examining 15 constraints
KNITRO solving root node relaxation
KNITRO MIP using Branch and Bound method

   Node    Left    Iinf     Objective         Best Relaxatn  Best Incumbent
  ------  ------  ------  --------------     --------------  --------------
       1       0      14    2.298760e+03       2.298760e+03
      10       5       6    2.298760e+03       2.298760e+03
*     13       8                         r                    2.298760e+03
      13      10       4    2.298760e+03       2.298760e+03    2.298760e+03

EXIT: Optimal solution found.

Final Statistics for MIP
------------------------
Final objective value               =   2.29876000313571e+03
Final integrality gap (abs / rel)   = -2.13e-09 /  -9.26e-13 (-0.00%)
# of nodes processed                =       13
# of subproblems processed          =       13
Total program time (secs)           =       0.28576 (     0.286 CPU time)
Time spent in evaluations (secs)    =       0.02043

=============================================================================

Locally optimal solution.
objective 2298.760003; integrality gap -2.13e-09
13 nodes; 13 subproblem solves

suffix incumbent OUT;
suffix relaxbnd OUT;
Objective = utility[1]
:            Xbmp          Ybmp       :=
1  1 1    57.3866        18.7392
1  1 2     0             11.5017
1  1 3     0             11.5017
1  2 1   176.375          4.93255
1  2 2     0              2.87543
1  2 3     0              2.87543
1  3 1   166.238          2.24619
1  3 2     0              1.15017
1  3 3     0              1.15017
1  4 1     2.95248e-18    0.79914
1  4 2     0              0.383391
1  4 3     0              0.383391
2  1 1     0              9.10554
2  1 2     0              9.10554
2  1 3     0              9.10554
```

```
2  2 1     0              2.27639
2  2 2     0              2.27639
2  2 3     0              2.27639
2  3 1     0              0.910554
2  3 2     0              0.910554
2  3 3     0              0.910554
2  4 1     0              0.301921
2  4 2     0              0.301921
2  4 3     0              0.301921
3  1 1     0              9.10554
3  1 2     0              9.10554
3  1 3    28.8879        10.2183
3  2 1     0              2.27639
3  2 2     0              2.27639
3  2 3    99.395          2.47216
3  3 1     0              0.910554
3  3 2     0              0.910554
3  3 3   140.283          0.9325
3  4 1     0              0.301921
3  4 2     0              0.301921
3  4 3    12.518          0.292614
4  1 1    30.244         11.5822
4  1 2     0             10.5433
4  1 3     0             10.5433
4  2 1   107.412          2.8753
4  2 2     0              2.63581
4  2 3     0              2.63581
4  3 1   147.099          1.0888
4  3 2     0              1.05433
4  3 3     0              1.05433
4  4 1    26.6434         0.335156
4  4 2     0              0.349844
4  4 3     0              0.349844
5  1 1     0             26.3582
5  1 2     2.59451       30.6995
5  1 3     0             26.3582
5  2 1     0              6.58954
5  2 2    12.1403         7.69456
5  2 3     0              6.58954
5  3 1     0              2.63581
5  3 2    25.9115         3.15734
5  3 3     0              2.63581
5  4 1     0              0.877007
5  4 2    10.5969         0.931929
5  4 3     0              0.877007
6  1 1     0             26.3582
6  1 2     0             26.3582
6  1 3     2.00951e-11   33.8043
6  2 1     0              6.58474
6  2 2     0              6.58474
6  2 3     2.02662e-11    6.12562
6  3 1     0              2.63581
6  3 2     0              2.63581
6  3 3     2.00893e-11    2.41458
6  4 1     0              0.877007
6  4 2     0              0.877007
6  4 3    22              1.60598
7  1 1     0             28.7543
7  1 2     0             28.7543
7  1 3     0             28.7543
7  2 1     0              7.18859
7  2 2     0              7.18859
7  2 3     0              7.18859
7  3 1     0              2.87543
7  3 2     0              2.87543
7  3 3     0              2.87543
7  4 1     0              0.958478
7  4 2     0              0.958478
7  4 3     0              0.958478
8  1 1     0             23.962
8  1 2    10.0491        28.1451
```

```
 8  1 3     0             23.962
 8  2 1     0              5.99049
 8  2 2    32.63           6.64396
 8  2 3     0              5.99049
 8  3 1     0              2.3962
 8  3 2    17.3209         2.31518
 8  3 3     0              2.3962
 8  4 1     0              0.800329
 8  4 2     2.07596e-11    0.799399
 8  4 3     0              0.800329
 9  1 1     0             26.3582
 9  1 2     0             26.3582
 9  1 3     9.81838       31.6167
 9  2 1     0              6.58954
 9  2 2     0              6.58954
 9  2 3    26.0087         7.24605
 9  3 1     0              2.63581
 9  3 2     0              2.63581
 9  3 3    14.1729         2.56485
 9  4 1     0              0.877007
 9  4 2     0              0.877007
 9  4 3     2.07072e-11    0.875081
10 1 1     0             26.5553
10 1 2     0             26.3582
10 1 3     0             26.3582
10 2 1     0              6.58611
10 2 2     0              6.58954
10 2 3     0              6.58954
10 3 1     0              2.63502
10 3 2     0              2.63581
10 3 3     0              2.63581
10 4 1     0              0.877005
10 4 2     0              0.877007
10 4 3     0              0.877007
11 1 1     0             45.5277
11 1 2     3.60039       51.7488
11 1 3     0             45.5277
11 2 1     0             11.3819
11 2 2    16.6418        13.2781
11 2 3     0             11.3819
11 3 1     0              4.55277
11 3 2    43.8669         5.55018
11 3 3     0              4.55277
11 4 1     0              1.51919
11 4 2     5.04646        1.4702
11 4 3     0              1.51919
12 1 1     0             47.4447
12 1 2     0             47.4447
12 1 3     2.47502       54.1329
12 2 1     0             11.8612
12 2 2     0             11.8612
12 2 3    15.246         13.7975
12 3 1     0              4.74447
12 3 2     0              4.74447
12 3 3    40.1988         5.97609
12 4 1     0              1.58149
12 4 2     0              1.58149
12 4 3    12.9211         1.72008
13 1 1     0             47.7689
13 1 2     0             47.9239
13 1 3     0             47.9239
13 2 1     0             11.2397
13 2 2     0             11.981
13 2 3     0             11.981
13 3 1     0              4.7874
13 3 2     0              4.79239
13 3 3     0              4.79239
13 4 1     0              1.63235
13 4 2     0              1.59587
13 4 3     0              1.59587
14 1 1     0             45.5277
```

```
14 1 2     9.51906       54.6588
14 1 3     0             45.5277
14 2 1     0             11.3819
14 2 2    25.7363        12.6229
14 2 3     0             11.3819
14 3 1     0              4.55277
14 3 2    14.7446         4.50825
14 3 3     0              4.55277
14 4 1     0              1.51919
14 4 2     2.07173e-11    1.51627
14 4 3     0              1.51919
15 1 1     0             67.0935
15 1 2     0             67.0935
15 1 3     3.94351       79.6295
15 2 1     0             16.7734
15 2 2     0             16.7734
15 2 3     9.59693       19.2839
15 3 1     0              6.70935
15 3 2     0              6.70935
15 3 3    23.7845         7.99256
15 4 1     0              2.23805
15 4 2     0              2.23805
15 4 3     4.4355         2.16557
;

deltabp [*,*]
:    1   2   3    :=
1    1   0   0
2    0   0   0
3    0   0   1
4    1   0   0
5    0   1   0
6    0   0   1
7    0   0   0
8    0   1   0
9    0   0   1
10   0   0   0
11   0   1   0
12   0   0   1
13   0   0   0
14   0   1   0
15   0   0   1
;
```