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

   NEOS Server Version 5.0
   Job#     : 4072303
   Password : mRUdvtNJ
   Solver   : minco:Knitro:AMPL
   Start    : 2015-12-11 15:29:08
   End      : 2015-12-11 15:29:23
   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 58 (offset 1645):
        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; 120 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.
```

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Problem Characteristics
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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    3.280000e+03       3.280000e+03
*      3       2                           r                    3.280000e+03
       3       4      13    3.280000e+03       3.280000e+03    3.280000e+03

EXIT: Optimal solution found.

Final Statistics for MIP
------------------------
Final objective value               =   3.28000000000890e+03
Final integrality gap (abs / rel)   = -8.89e-09 /  -2.71e-12 (-0.00%)
# of nodes processed                =        3
# of subproblems processed          =        3
Total program time (secs)           =       0.03840 (     0.039 CPU time)
Time spent in evaluations (secs)    =       0.00301

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

Locally optimal solution.
objective 3280; integrality gap -8.89e-09
3 nodes; 3 subproblem solves

suffix incumbent OUT;
suffix relaxbnd OUT;
Objective = utility[1]
:            Xbmp           Ybmp       :=
1  1 1    70              0.0635659
1  1 2     0              6.57733
1  1 3     0              7.17689
1  2 1   230              0.0335681
1  2 2     0              2.86987
1  2 3     0              2.95315
1  3 1   100              0.0782972
1  3 2     0              1.28925
1  3 3     0              1.48062
1  4 1     2.06411e-11    0.451599
1  4 2     0              0.390007
1  4 3     0              0.386969
2  1 1     0              6.27483
2  1 2    27.0504         7.8604
2  1 3     0              6.04767
2  2 1     0              2.50799
```

```
2  2 2    36.1873         2.44808
2  2 3     0              2.18938
2  3 1     0              1.05211
2  3 2    11.3971         0.912456
2  3 3     0              0.911931
2  4 1     0              0.309459
2  4 2     5.82359        0.303192
2  4 3     0              0.306954
3  1 1     0              6.09451
3  1 2     0              6.2854
3  1 3    31.7993         7.24391
3  2 1     0              2.38145
3  2 2     0              2.5451
3  2 3    97.9096         2.34458
3  3 1     0              0.874536
3  3 2     0              0.935646
3  3 3    91.7765         0.950917
3  4 1     0              0.311041
3  4 2     0              0.301305
3  4 3     7.27695        0.297497
4  1 1    31.3532         7.62776
4  1 2     0              6.54826
4  1 3     0              6.7889
4  2 1   107.164          2.77308
4  2 2     0              2.48753
4  2 3     0              2.79369
4  3 1    94.8006         1.06473
4  3 2     0              1.0064
4  3 3     0              1.1776
4  4 1     7.44646        0.344482
4  4 2     0              0.34934
4  4 3     0              0.350357
5  1 1     0              8.96073
5  1 2     5.65695e-17    7.86887
5  1 3     0              9.67235
5  2 1     0              5.1543
5  2 2     4.29855e-11    4.58079
5  2 3     0              5.22341
5  3 1     0              2.55709
5  3 2    21.3725         3.58162
5  3 3     0              2.78059
5  4 1     0              0.877986
5  4 2     7.07141        0.918378
5  4 3     0              0.889356
6  1 1     0              9.05983
6  1 2     0              9.17961
6  1 3     3.49238e-17    8.47041
6  2 1     0              5.12118
6  2 2     0              4.99942
6  2 3     5.02391e-11    4.5277
6  3 1     0              2.626
6  3 2     0              2.47834
6  3 3    11.5265         3.67193
6  4 1     0              0.875477
6  4 2     0              0.928642
6  4 3    14.1043         1.0485
7  1 1     3.83425e-17    8.75925
7  1 2     0              9.6909
7  1 3     0             10.5535
7  2 1     4.9587e-11     4.8297
7  2 2     0              5.49065
7  2 3     0              5.07871
7  3 1    12.0542         3.97865
7  3 2     0              3.13317
7  3 3     0              2.86022
7  4 1    13.526          1.1518
7  4 2     0              0.945876
7  4 3     0              0.956467
8  1 1     0              9.24728
8  1 2     4.69948        9.15721
8  1 3     0              9.04106
```

```
 8  2 1     0              4.88855
 8  2 2    39.3688         6.80422
 8  2 3     0              4.74592
 8  3 1     0              2.50588
 8  3 2     6.70578        2.40974
 8  3 3     0              2.35583
 8  4 1     0              0.810492
 8  4 2     2.44096        0.812844
 8  4 3     0              0.794302
 9  1 1     0             10.3837
 9  1 2     0             10.2241
 9  1 3     5.14562       14.635
 9  2 1     0              5.00935
 9  2 2     0              5.04384
 9  2 3    30.1149         6.90592
 9  3 1     0              2.90522
 9  3 2     0              2.59887
 9  3 3     6.10145        2.61976
 9  4 1     0              0.903088
 9  4 2     0              0.868449
 9  4 3     2.34754        0.897721
10 1 1    14.3967        13.5825
10 1 2     0             10.0632
10 1 3     0              9.98972
10 2 1    14.3926         5.99427
10 2 2     0              4.97168
10 2 3     0              4.78354
10 3 1    10.2314         2.76753
10 3 2     0              2.77234
10 3 3     0              2.49754
10 4 1     3.32245        0.864171
10 4 2     0              0.885523
10 4 3     0              0.918517
11 1 1     0             10.5924
11 1 2     7.05673e-17   10.4768
11 1 3     0             11.3056
11 2 1     0              7.28381
11 2 2     3.63964e-11    6.18765
11 2 3     0              6.87353
11 3 1     0              4.78157
11 3 2    44.1301         6.10634
11 3 3     0              4.48181
11 4 1     0              1.5318
11 4 2     4.95231        1.51888
11 4 3     0              1.52029
12 1 1     0             10.1079
12 1 2     0             10.8177
12 1 3     6.7973e-17    10.7431
12 2 1     0              6.71066
12 2 2     0              7.04066
12 2 3     3.76298e-11    6.2033
12 3 1     0              4.80446
12 3 2     0              4.69721
12 3 3    41.1827         6.42931
12 4 1     0              1.64526
12 4 2     0              1.55955
12 4 3     5.45448        1.6801
13 1 1     6.59275e-17   10.3195
13 1 2     0             11.6283
13 1 3     0             11.421
13 2 1     3.92168e-11    6.67992
13 2 2     0              7.189
13 2 3     0              6.89631
13 3 1    26.5192         6.85936
13 3 2     0              4.86045
13 3 3     0              4.91564
13 4 1     6.99336        1.76792
13 4 2     0              1.58535
13 4 3     0              1.5998
14 1 1     0             11.2149
14 1 2     5.10447       14.7596
```

```
14 1 3     0             11.4259
14 2 1     0              6.86437
14 2 2    32.3289        10.0766
14 2 3     0              6.56226
14 3 1     0              4.88154
14 3 2     5.89563        4.92787
14 3 3     0              4.77567
14 4 1     0              1.57815
14 4 2     2.01153        1.55486
14 4 3     0              1.55407
15 1 1     0             10.9757
15 1 2     0             12.4174
15 1 3     8.59333e-17   10.9017
15 2 1     0              8.90928
15 2 2     0              7.79567
15 2 3     2.57732e-11    7.25536
15 3 1     0              5.01564
15 3 2     0              4.9503
15 3 3    43.2149         7.71713
15 4 1     0              2.28604
15 4 2     0              2.26922
15 4 3     2.89818        2.19181
;

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

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