**for 6x6 theta=2 only 10 saa samples**

>> main

C =

0.9691 1.3936 1.2357 1.1715 1.1741 0.7858

1.1822 1.0006 0.5488 1.1942 1.3414 1.4124

0.6319 0.5767 0.8205 1.4535 1.3890 0.8696

0.9156 1.1394 0.5892 1.2778 0.5080 1.1138

1.0362 1.3324 0.6619 0.6218 1.1947 1.4051

0.5971 1.1508 1.4025 0.8393 1.1537 1.4325

D =

1 1 1 1 1 1

1 1 1 1 1 1

1 1 1 1 1 1

1 1 1 1 1 1

1 1 1 1 1 1

1 1 1 1 1 1

r =

2

2

2

2

2

2

yprobs =

0.3219 0.4702 0.3623 0.4724 0.2709 0.1678

0.4851 0.3664 0.4665 0.2497 0.2273 0.5305

0.1813 0.5917 0.5619 0.5938 0.5620 0.4052

0.5334 0.3082 0.5545 0.4113 0.2513 0.5151

0.4906 0.1532 0.2000 0.5301 0.4193 0.3101

0.3453 0.5481 0.4035 0.1582 0.5312 0.2962

x =

0 1 1 0 0 0

1 0 0 0 0 1

0 0 0 1 1 0

1 0 1 0 0 0

0 0 0 1 1 0

0 1 0 0 0 1

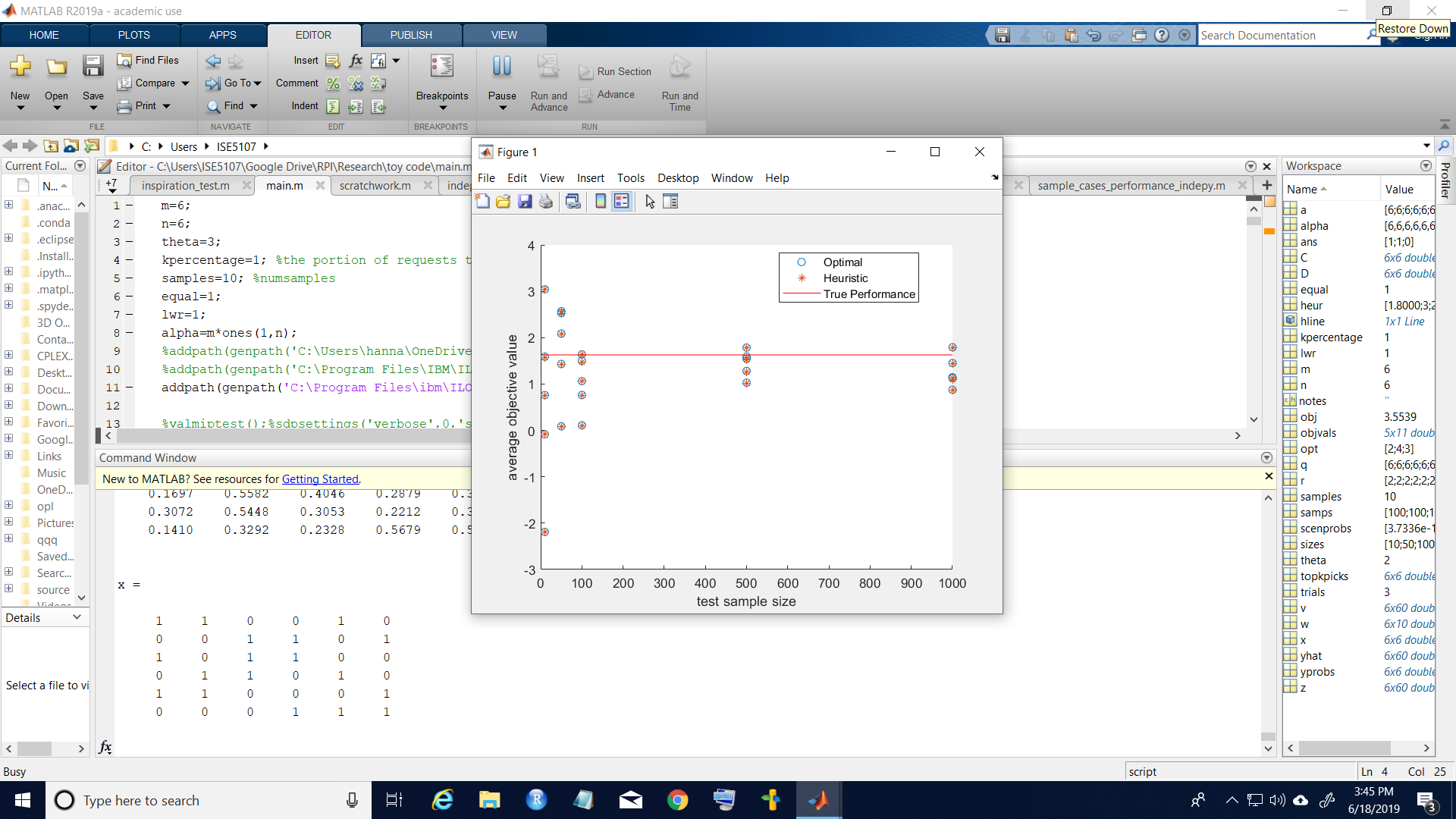
1.6277 -2.1895 0.0900 0.1108 1.0298 0.8771 -2.1895 0.0897 0.0958 1.0219 0.8643

0 -0.0846 1.4331 0.7629 1.2806 1.1264 -0.0846 1.4309 0.7498 1.2648 1.1020

0 0.7614 2.0887 1.0620 1.5455 1.1463 0.7614 2.0836 1.0587 1.5297 1.1267

0 1.5900 2.5308 1.5032 1.5951 1.4527 1.5760 2.5238 1.4739 1.5699 1.4452

0 3.0430 2.5701 1.6390 1.7867 1.7924 3.0430 2.5667 1.6367 1.7824 1.7774



**6x6 theta=3, runtime was about an hour, almost entirely used for the exhaustive**

>> main

C =

1.0966 0.9012 0.7835 1.0282 1.2141 1.3211

0.5803 1.0381 0.6432 0.8073 1.4013 1.4393

0.6758 0.5003 0.9675 0.7972 1.4749 0.9520

0.9439 0.5642 1.1245 1.0971 1.3735 0.8008

1.0587 1.4877 0.9913 0.5746 0.9126 1.2049

1.1112 1.0199 0.6468 1.1690 1.1582 1.0428

D =

1 1 1 1 1 1

1 1 1 1 1 1

1 1 1 1 1 1

1 1 1 1 1 1

1 1 1 1 1 1

1 1 1 1 1 1

r =

2

2

2

2

2

2

yprobs =

0.3356 0.1992 0.1661 0.5005 0.3318 0.3079

0.1434 0.2906 0.3735 0.3905 0.4449 0.3177

0.3744 0.5025 0.5858 0.4921 0.4823 0.5460

0.1697 0.5582 0.4046 0.2879 0.3866 0.4373

0.3072 0.5448 0.3053 0.2212 0.3822 0.4189

0.1410 0.3292 0.2328 0.5679 0.5495 0.5896

sizes=[10; 50; 100; 500; 1000]

x =

1 1 0 0 1 0

0 0 1 1 0 1

1 0 1 1 0 0

0 1 1 0 1 0

1 1 0 0 0 1

0 0 0 1 1 1

objvals =

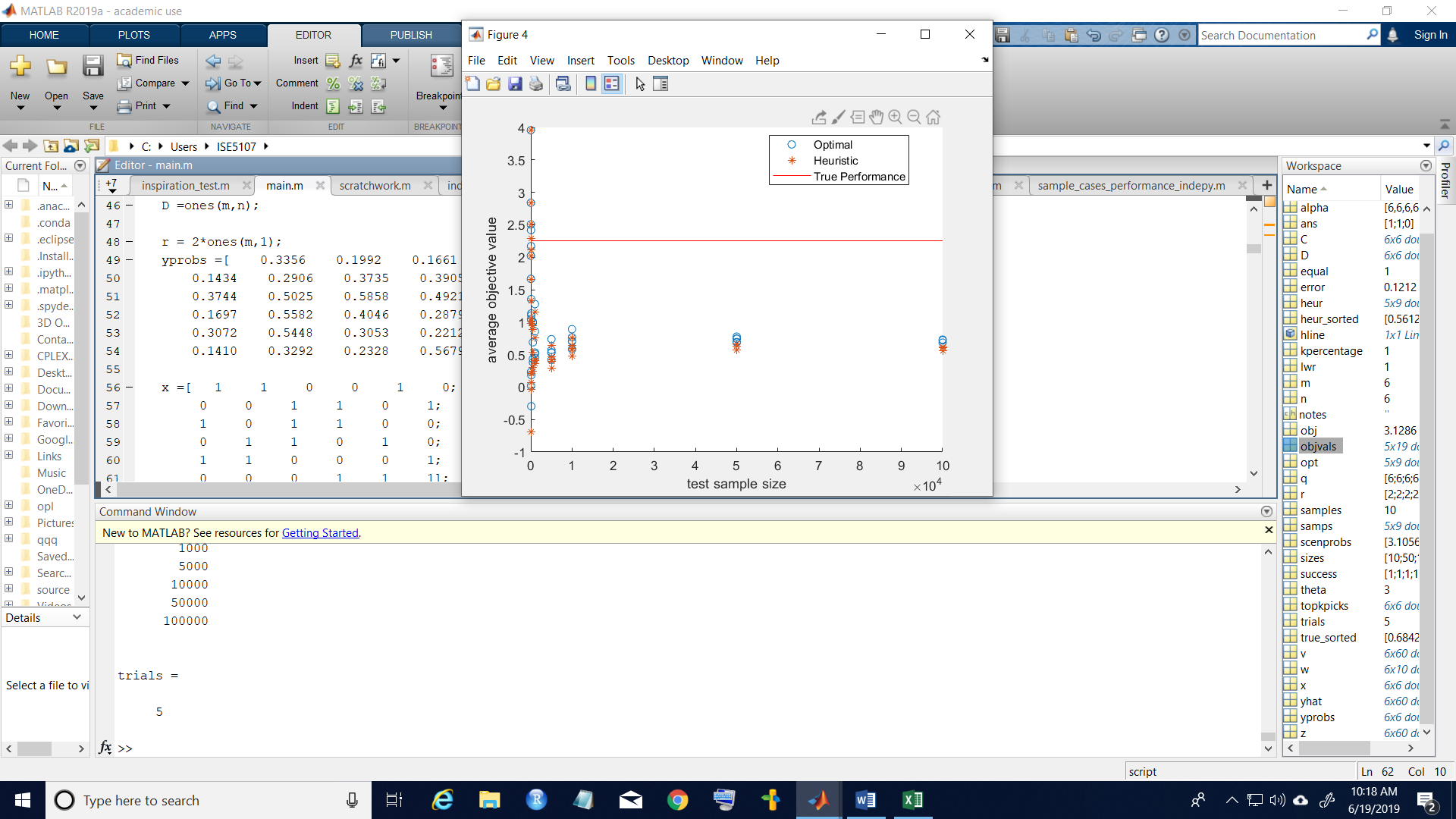
2.2531 1.6672 0.0185 -0.2957 0.3801 0.4510 1.6552 -0.0366 -0.6955 0.2973 0.3637

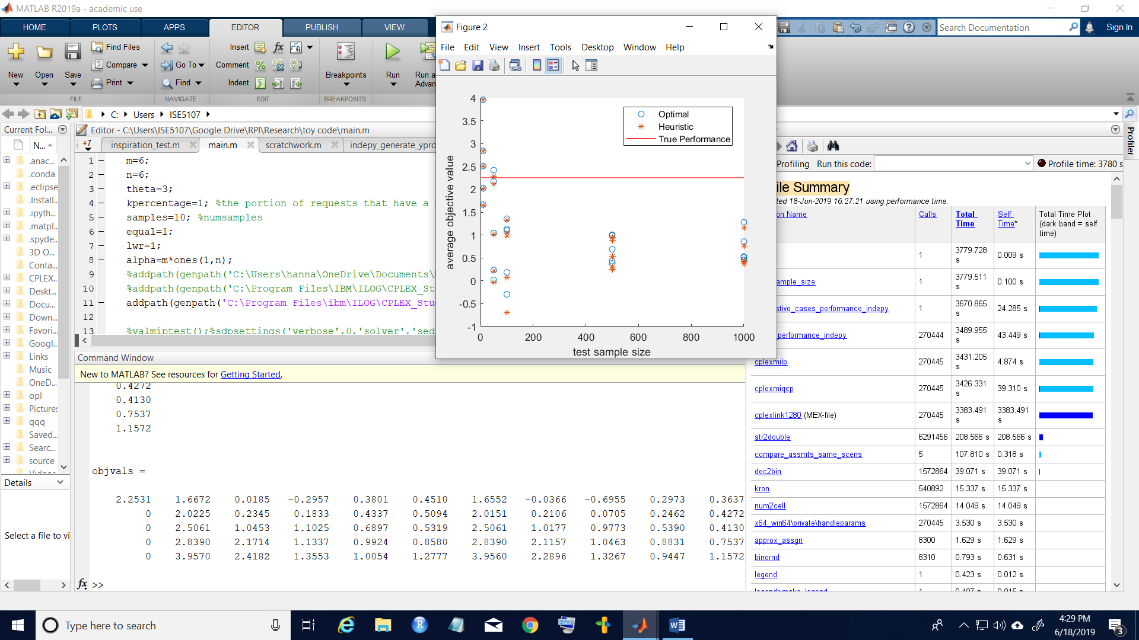
0 2.0225 0.2345 0.1833 0.4337 0.5094 2.0151 0.2106 0.0705 0.2462 0.4272

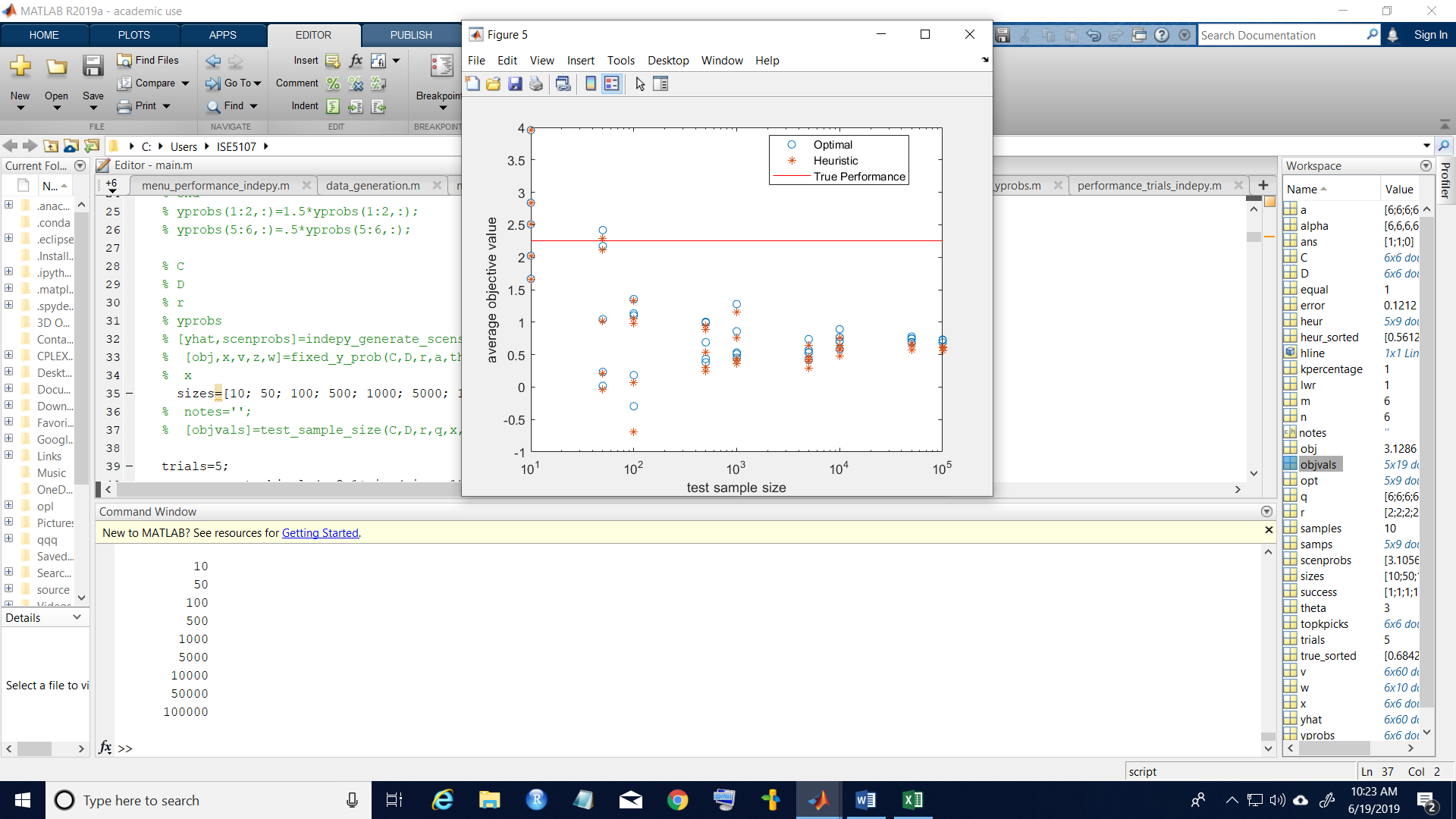
0 2.5061 1.0453 1.1025 0.6897 0.5319 2.5061 1.0177 0.9773 0.5390 0.4130

0 2.8390 2.1714 1.1337 0.9924 0.8580 2.8390 2.1157 1.0463 0.8831 0.7537

0 3.9570 2.4182 1.3553 1.0054 1.2777 3.9560 2.2896 1.3267 0.9447 1.1572







**6x6 theta=3, runtime was about 16,000 sec, almost entirely used for the exhaustive**

Objvals:

0.2130 -5.2137 -3.6509 -3.0247 -2.2620 -2.3297 -2.0548 -1.9138 -1.9208 -1.8710 -5.2137 -3.6576 -3.0454 -2.2720 -2.3416

0 -3.1983 -2.7086 -2.9432 -2.0103 -2.0865 -1.8843 -1.8620 -1.9105 -1.8569 -3.2041 -2.7103 -3.0065 -2.0437 -2.1190

0 -0.2771 -2.0754 -2.2156 -1.1066 -1.9827 -1.7952 -1.8324 -1.9042 -1.8450 -0.2771 -2.1757 -2.2197 -1.1301 -2.0075

0 -0.2321 -1.9428 -2.0806 -1.0440 -1.8870 -1.7527 -1.7273 -1.8025 -1.8141 -0.2321 -1.9481 -2.1027 -1.0655 -1.9091

0 0.6763 -1.1435 -1.2995 -1.0106 -1.5096 -1.6996 -1.6619 -1.7771 -1.7818 0.6763 -1.1443 -1.3040 -1.0487 -1.5365

Columns 16 through 19

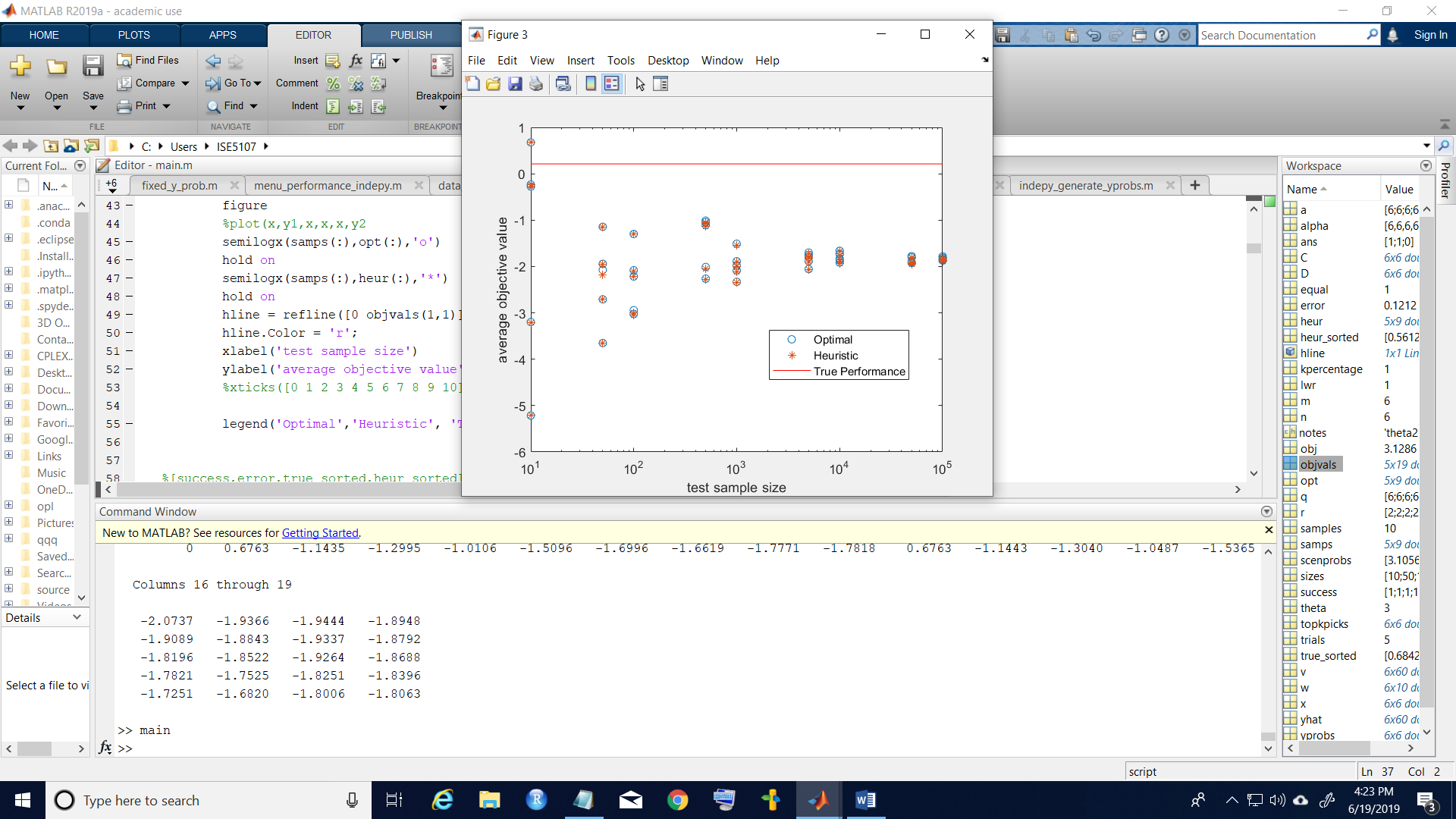
-2.0737 -1.9366 -1.9444 -1.8948

-1.9089 -1.8843 -1.9337 -1.8792

-1.8196 -1.8522 -1.9264 -1.8688

-1.7821 -1.7525 -1.8251 -1.8396

-1.7251 -1.6820 -1.8006 -1.8063



6x6 Theta=3, now using unique performance scenarios (like drawing w/o replacement)

The exhaustive only took around an hour or two (much less than the one before for some reason even though they had the same number of menu options)

\*\*\*The heuristic data overestimated the performance because I forgot to change the algorithm so that it can’t assign more than one task per driver

\*\*\* I terminated the code early because it had spent several hours on the same size trials, because it was trying to find around 80% of the total scenarios by drawing them randomly until all drawn scenarios are unique

\*\*\*Graph goes up to 10^5, total scens is about 2.5\*10^5, so about 40% were tested

\*\*\* Conclusion, we get a very good estimate with 10^3 (about 0.4%), and an extremely good estimate with 10^4 (about 4%)

\*\*\*It is kind of weird though that the largest sample size got the exact same obj value for each trial down to the decimal but it’s around 0.007 off from the true objective

C =

2.3327 1.0969 2.1782 1.2580 1.9386 1.7398

0.8726 2.9074 1.8187 2.6960 -0.1326 2.1569

4.6447 4.4291 4.5205 4.9907 3.3707 5.7435

4.5576 2.7847 3.6916 2.9458 3.8406 3.4729

4.2839 6.0416 5.2278 6.0650 3.2788 5.5683

3.8659 3.4281 4.3108 3.6202 3.1833 4.1887

D =

3.6227 3.4228 3.8714 3.0672 4.3832 2.3877

4.3753 4.1754 4.6241 3.8198 5.1359 3.1404

6.4024 6.2025 6.6512 5.8469 7.1629 5.1675

5.4787 5.2788 5.7275 4.9232 6.2393 4.2438

10.0939 9.8940 10.3427 9.5384 10.8545 8.8590

5.5067 5.3068 5.7555 4.9512 6.2673 4.2718

r =

9.0263

2.5821

0.4319

6.5425

2.5793

8.1218

q =

1

1

1

1

1

1

yprobs =

0.9782 0 0.1240 0 0.1743 0

0 0.3738 0 0.8277 0 0.0142

0.7256 0.5554 0.4416 0.7149 0.0888 0.6979

1.0000 0.2023 0.6901 0.1363 0.3281 0.2386

0.1683 0.3667 0.1810 0.5202 0.0390 0.2585

0.7806 0.5035 0.5189 0.2826 0.1542 0.6781

x =

1 0 0 0 1 0

0 1 0 1 0 0

0 0 0 1 0 1

1 0 1 0 1 0

0 1 1 1 0 1

1 1 1 0 1 1

objvals =

Columns 1 through 13

42.8374 43.6352 41.5443 42.4916 42.8307 42.8777 42.8404 0 0 48.7264 48.7080 49.5171 49.0140

0 45.6524 42.6669 42.5913 42.8620 42.8789 42.8404 0 0 50.5761 49.6618 49.1151 49.0150

0 45.6876 43.9969 43.0063 42.8690 42.8824 42.8404 0 0 52.3967 49.5793 49.5183 49.0731

Columns 14 through 17

48.4381 48.3098 0 0

48.4376 48.3098 0 0

48.4417 48.3098 0 0





10x10 Theta=2, (w/o replacement)

The

C=[2.19823248834400,3.09872632415200,0.595978079736001,2.36044808566400,2.32222785528000,2.82697204790400,0.492309044672000,0.416800316384000,1.95050873514400,4.23911916946400;5.40275544881600,5.17340615824000,4.57551048884800,5.95220290284000,3.73989122145600,6.45016119130400,1.02528913265600,1.42842961356000,5.45374554646400,5.60915495715200;5.57048518422400,4.36119467640000,4.33012035608800,6.36456386850400,3.90762095686400,6.86252215696800,0.914243688360004,0.843272923656002,5.73283625859200,5.46152066450400;-0.455083167832000,2.89045251337600,-1.24887226547200,-0.292867570512000,-1.07131491168000,0.173656391728000,-2.29130621243200,-0.387588138440000,-0.702806921031999,1.15044117026400;1.04159906700800,1.57517143461600,-0.684244339831999,1.20381466432800,0.453719015199999,1.67033862656800,-1.61428968840000,-1.72605054320000,0.793875313808000,3.19775754880000;6.77328618503200,9.90750440391200,5.81586178518400,6.93550178235200,6.28721858388000,7.40202574459200,5.06722728312800,6.23670175920000,6.52556243183200,8.63971130548000;7.52765673540000,7.09690451313600,6.94263007768800,8.32173541968000,5.86479250804000,8.81969370814400,3.09361792244800,3.35192796845600,7.69000780976800,7.64089489859200;2.25848237568000,3.48396482850400,1.22018188823200,2.42069797300000,0.769186498128000,2.88722193524000,-1.25727968778400,-0.447452552855999,2.01075862248000,3.34559242432000;2.14410202632000,4.91113761355200,0.879167434000000,2.30631762364000,1.89003343397600,2.77284158588000,1.84823484839200,4.76735746548800,1.89637827312000,4.02251075773600;0.524334960015999,3.57144798091200,-0.433089439832000,0.686550557336000,0.0105406641199992,1.15307451957600,-1.68167800012800,-0.442488991392000,0.276611206816000,2.39076008046400];

D=[5.36378887369915,5.05544399766474,5.98079964121385,3.57381589734661,3.59016999789866,5.80485032681277,3.79170427287795,5.69209090366908,5.73771551173746,3.22252734350944;7.71222174129915,7.40387686526474,8.32923250881385,5.92224876494661,5.93860286549866,8.15328319441277,6.14013714047795,8.04052377126908,8.08614837933746,5.57096021110944;7.35617816678715,7.04783329075274,7.97318893430185,5.56620519043461,5.58255929098666,7.79723961990077,5.78409356596595,7.68448019675708,7.73010480482546,5.21491663659744;3.78672823489915,3.47838335886474,4.40373900241385,1.99675525854661,2.01310935909866,4.22778968801277,2.21464363407795,4.11503026486908,4.16065487293746,1.64546670470944;3.69141355861915,3.38306868258474,4.30842432613385,1.90144058226661,1.91779468281866,4.13247501173277,2.11932895779795,4.01971558858908,4.06534019665746,1.55015202842944;10.8881777519791,10.5798328759447,11.5051885194939,9.09820477562661,9.11455887617866,11.3292392050928,9.31609315115795,11.2164797819491,11.2621043900175,8.74691622178944;9.84852346280315,9.54017858676874,10.4655342303179,8.05855048645061,8.07490458700266,10.2895849159168,8.27643886198195,10.1768254927731,10.2224501008415,7.70726193261344;5.24358705457915,4.93524217854474,5.86059782209385,3.45361407822661,3.46996817877866,5.68464850769277,3.67150245375795,5.57188908454908,5.61751369261746,3.10232552438944;7.24748386459515,6.93913898856074,7.86449463210985,5.45751088824261,5.47386498879466,7.68854531770877,5.67539926377395,7.57578589456508,7.62141050263346,5.10622233440544;4.38001772435515,4.07167284832074,4.99702849186985,2.59004474800261,2.60639884855466,4.82107917746877,2.80793312353395,4.70831975432508,4.75394436239346,2.23875619416544];

r=[10.1079729784818;12.7581987440579;2.49675170909247;5.67730847099705;1.18712592755254;14.0250154189851;14.6502817299643;11.0516849490451;8.22133204162503;11.5737810490682];

q=ones(10,1);

yprobs=[0.265234693728024,0.119960137848614,0,0.0117321195980824,1,0.206469447842786,0.246555911172199,0,0.0141502760718891,0.819681683171873;0.720162084228271,0.457960953255423,0.106615225709933,0.374853531268184,0.664817223045422,1,0.346510888932594,0,0.364553161844106,0.657831604685393;1,0.280837038970677,0.151636904696559,0.567072620277114,1,1,0.263597902087692,0,0.517256250759403,0.466363659654665;0,0.317454225228000,0,0,0,0,0.104579900782780,0,0,0;0.0560009356607658,0,0,0,0.512819005216358,0,0,0,0,1;0.287267433369929,0.680324698533825,0.0565520282660288,0.159529265277185,0.386297543704551,0.319256793450690,1,0.424361747356801,0.161013961524237,0.416429731205230;0.700540823195378,0.717112489300621,0.252632771460639,0.446342236279526,0.646087673235221,1,0.644995031345183,0.114158889765933,0.419677726023764,0.508421438724118;0.495867934599229,0.133751200674802,0,0.0551963153336493,0.466559117505193,0.430680616113428,0,0,0.0581872097177568,0.242991335003631;0.0334942222914043,0.380967211737605,0,0,0.131243682718710,0.0581061543261067,1,0.335518744102805,0,0.135935621052066;0,0.803027463287231,0,0,0.0145546093078154,0,0.0482554566576278,0,0,0];

x=

0 0 0 0 1 0 0 0 0 1

0 0 0 1 0 0 0 0 1 1

1 0 1 0 0 0 0 0 0 0

0 0 0 0 0 0 0 0 0 0

0 0 0 0 0 0 0 0 0 0

0 1 1 0 0 0 1 1 0 0

0 0 0 1 0 1 0 0 0 0

1 0 0 0 1 1 0 0 1 0

0 0 0 0 0 0 1 1 0 0

0 1 0 0 0 0 0 0 0 0

True performance objvals =102.5009

sizes=[10; 100; 1000; 10000; 100000; 250000; 500000];

objvals =

0 105.9608 104.3991 103.4855 102.7890 0 0 0

0 108.0220 102.1809 103.9692 102.7667 0 0 0

0 108.1457 100.8767 103.6285 102.7531 0 0 0

10,000 out of about 1 million🡪 pretty good at 1%

6x6 Theta=3, (w/o replacement), if sample size >=10% of total samples, all samples are generated then drawn from rather than generating unique samples

C= [2.17035029621600,2.45936998482400,4.14973853232800,3.90056389601600,3.35710379057600,1.35390469158400;2.18218760161600,2.36700958139200,1.63748922008800,1.43429159222400,2.80510929216800,1.17869320156800;3.02265039350400,2.10920900926400,0.568035461728000,0.649022359496000,1.94615972006400,2.93626259472000;3.72584607180800,3.33395252187200,1.51725325740800,1.45023691909600,2.97474179839200,2.35439647979200;4.30247690428000,3.65346862004800,2.11320401965600,2.27650807732800,3.49132827799200,3.52633760143200;0.994262721648000,1.28328241025600,2.49714071471200,2.24796607840000,2.06224785088000,0.0590487518879992];

D=[2.94456332000154,4.81751777107615,3.94955283629513,5.35174300587027,5.20781914451009,5.23306280759249;1.67059968128154,3.54355413235615,2.67558919757513,4.07777936715027,3.93385550579009,3.95909916887249;2.16426616759354,4.03722061866815,3.16925568388713,4.57144585346227,4.42752199210209,4.45276565518449;2.43712725920154,4.31008171027615,3.44211677549513,4.84430694507027,4.70038308371009,4.72562674679249;3.18760577704154,5.06056022811615,4.19259529333513,5.59478546291027,5.45086160155009,5.47610526463249;1.52589039660954,3.39884484768415,2.53087991290313,3.93307008247827,3.78914622111809,3.81438988420049];

r=[3.52053065208066;13.8220867768324;6.33494754520019;11.1360200824764;14.6190622245047;2.98670273982148]

q=ones(6,1);

yprobs=[0,0.00583939959014036,0.945346668939255,1,0.397255702325410,0.0558124941417819;0.0830194999165192,0.0623541972052962,0,1,0.450964303592688,0.156460632303767;0.788697890310198,0.0528551428608641,0,0.106381210284462,0,0.445409692392640;0.927230615564796,0.295918013857585,0,0.222499381309942,0.0512663790673005,0.150797867302866;0.800758350460855,0.235714941714605,0,0.278625812026712,0.0789279161408389,0.410056721767967;0,0,0.537159300401146,0.714657208001974,0.0434168822346904,0];

theta=3;

Oi=[190;157;14;85;11;152];

Di=[149;147;13;16;5;150];

Oj=[20;91;189;182;148;70];

Dj=[11;97;190;83;143;133];

drand=[0.0552837851055418,1.92823823618015,1.06027330139913,2.46246347097427,2.31853960961409,2.34378327269649];

x=[0,0,1,0,1,0;0,0,0,1,1,0;1,1,0,0,0,1;1,1,0,1,1,1;1,1,0,0,0,1;0,0,1,1,0,0];

sizes=[10; 50; 100; 500; 1000; 5000; 10000; 50000; 100000];

notes='theta3citycenter';

[objvals,runtimes]=test\_sample\_size(C,D,r,q,x,yprobs,Oi,Di,Oj,Dj,drand,sizes,3,notes,1,0,1,1)

yprobs =

0 0.0058 0.9453 1.0000 0.3973 0.0558

0.0830 0.0624 0 1.0000 0.4510 0.1565

0.7887 0.0529 0 0.1064 0 0.4454

0.9272 0.2959 0 0.2225 0.0513 0.1508

0.8008 0.2357 0 0.2786 0.0789 0.4101

0 0 0.5372 0.7147 0.0434 0

x =

0 0 1 0 1 0

0 0 0 1 1 0

1 1 0 0 0 1

1 1 0 1 1 1

1 1 0 0 0 1

0 0 1 1 0 0

Took about an hour to run, didn’t run to completion because I mistook the total number of trials and had it sample too many.

Time taken per size is shown below, includes all three trials in the time, time includes yhat generation.

Pretty good estimate at 1.5%, extremely good at 10.5%

sizes=[10; 50; 100; 500; 1000; 5000; 10000; 50000; 100000];

objvals =

57.0278 53.2475 53.6001 52.9431 55.0326 56.0054 56.7988 56.9695 57.0277 0

0 45.8315 54.7930 52.5446 55.5724 56.1427 56.8771 56.9691 57.0277 0

0 49.6572 55.5644 53.7291 55.4668 55.8187 56.8793 56.9753 57.0277 0

Elapsed time is 1459.874433 seconds.

Elapsed time is 0.333186 seconds.

Elapsed time is 1.607832 seconds.

Elapsed time is 3.021909 seconds.

Elapsed time is 15.325275 seconds.

Elapsed time is 30.631744 seconds.

Elapsed time is 155.091979 seconds.

Elapsed time is 335.644548 seconds.

Elapsed time is 1695.579521 seconds.

Testing fixed performance analysis sizes

* Total time was approx. 45 hours
* Error seems somewhat dependent on the problem itself, not just totscen. Variability of performance across the three trials was surprisingly small even for the largest problem. Would need more experiments to determine if this difference is caused by the difference in problem dimensions or if it’s due to some properties of the input parameters
* For the smaller problems where 5k is a significant portion of the total scenarios, the error is several times worse than for 10k but all the errors are small
* For larger problems, the difference between 5k, 10k, and 20k is fairly small and doesn’t go much above 5%. This could be promising if we test more problems that are perhaps even larger (and more of similar sizes) and continue observing this result.
* Parameters were generated 135 times and generate params took almost 20 hrs

>> main

notes =

'init'

attempts =

1

yprobs =

0.4633 0.4172 0.5137 0.4674 0.5887 0.4699

0 0 0 0 0.0621 0.1102

1.0000 0.5034 1.0000 1.0000 0.0699 1.0000

0.3308 0.5751 0.2325 0.2245 0.4929 0.2296

0 0 0 0 0 0.4543

0.5897 0.2743 0.3137 0.1787 0.4310 0.0988

x =

1 1 1 1 0 0

0 0 0 0 1 1

0 1 0 1 0 0

1 1 0 0 1 1

0 0 0 0 0 1

1 0 1 1 1 0

Elapsed time is 3486.656230 seconds.

attempts =

1

yprobs =

0 0.4793 0.5122 0.0492 0.8626 0.1532 0.5736 0.4945 0 0.8618

0 0 0 0 0.5319 0 0 0 0 0

0 0.0909 0.1864 0 0.2281 0.0306 1.0000 0.0691 0 0.7883

0 0.2798 0.2623 0 0.2927 0.0576 1.0000 0.1569 0 0.7327

0.5109 0.4777 0.4348 0.4627 1.0000 0.4632 0.5425 0.4583 0.4652 0.5258

0.4992 0.1904 0.5759 0.3558 1.0000 0.4505 0.6477 0.6141 0.6327 0.6205

0.9305 0 0.1736 0.4299 0.9077 0.7005 0.1687 0.1462 0.7455 0.5652

0 0.4276 0 0 0 0 0.1259 0 0 0

0 0 0 0 0.7458 0 0 0 0.0422 0

0.2372 0.3329 0.5214 0.5207 1.0000 0.7403 0.5497 0.4831 0.2289 1.0000

x =

0 0 1 0 0 0 0 1 0 1

0 0 0 0 1 0 0 0 0 0

0 0 0 0 0 0 1 0 0 0

0 1 0 0 0 0 0 0 0 1

1 0 0 1 0 0 1 0 0 0

1 0 1 0 0 0 0 0 1 0

0 0 0 0 0 1 0 0 1 0

0 1 0 0 0 0 0 0 0 0

0 0 0 0 1 0 0 0 0 0

0 0 0 1 0 1 0 1 0 0

Elapsed time is 24861.112407 seconds.

attempts =

103

yprobs =

0.2638 0.5991 0.1657 0.6867 0.5417 0.6128 0.0614 0.3295

0 0.1133 0 0.1136 0.0337 0.3192 0.1908 0.4282

0.0722 0.2934 0.0340 0.2928 0.1929 0.4674 0.4209 0.3562

0 0.7011 0 0.6838 0.2126 1.0000 0 0

0 0.0652 0 0.0704 0 0.3944 0.4471 0.5869

x =

0 1 0 1 1 0 0 0

0 0 0 0 1 1 0 1

1 0 1 0 0 1 1 1

0 1 0 1 0 0 0 0

0 0 0 0 0 0 1 0

Elapsed time is 412.881708 seconds.

attempts =

2

yprobs =

0 0.0591 0 0 0 0 0 0

0.2914 0.2470 0.3279 0.1162 0.2028 0.1384 0.3981 0.1271

0.1270 0 0.8278 0 0.2733 0.0426 0.3178 0

0.1824 0.2179 0.0131 0.0262 0.0852 0 0.1539 0.1012

0.4556 1.0000 0.5548 0.4968 0.6601 0.5801 0.3736 0.4622

0.1236 0.0843 0 0 0 0 0.0848 0.0289

0.2037 0.5610 0 0.0487 0.0622 0 0 0.1789

0.2923 0.3703 0.1015 0.1173 0.1892 0.0742 0.2760 0.2089

0.5058 0.1811 0.2640 0.0472 0.1748 0.0848 0.5319 0.0657

0 0 0 0 0 0 0 0

x =

0 0 0 0 0 0 0 0

1 1 1 0 0 0 0 1

0 0 1 0 1 0 0 0

0 0 0 1 0 0 0 0

0 0 0 0 0 1 1 0

0 0 0 0 0 0 0 0

0 1 0 0 0 0 0 0

1 0 0 1 1 1 0 1

0 0 0 0 0 0 1 0

0 0 0 0 0 0 0 0

Elapsed time is 1839.956282 seconds.

attempts =

14

yprobs =

0.3243 0.1767 0.1379 0.3006 0.3092 0.0990 0.1791 0.1937

0.3396 0.3040 0.3288 0.2475 0.1441 0.4266 0.4799 0.0089

0.0104 0 0 1.0000 0 0 0 0

0 0 0.9591 0 0.2369 0.2540 0.2966 0.3722

0 0 0.6636 0 0 0.9992 0 0

0 0 0.6302 0 0 1.0000 0.2843 0

0.7312 0.1051 0.0826 0 0 0.1591 0.3236 0

0.0957 0 0 0.3238 0 0 0 0

x =

0 1 0 0 1 0 0 1

1 1 0 0 0 0 1 0

0 0 0 1 0 0 0 0

0 0 0 0 1 0 1 1

0 0 1 0 0 1 0 0

0 0 1 0 0 1 0 0

1 0 0 0 0 0 0 0

0 0 0 1 0 0 0 0

Elapsed time is 2197.950519 seconds.

attempts =

13

yprobs =

0 0 0 0 0 0 0 0.0457 0.0743

0.0942 0.0281 0 0.1232 0.3582 0.3156 0.3431 0 0

0.2660 0.1852 0.2595 0.1718 0.2594 0 0.0303 0.0595 0

0.3802 0.2018 0.2371 0.2501 0.2478 0 0.2109 0 0

0 0 0.3475 0 0 0 0 0.8117 0.9828

x =

0 0 0 0 0 0 0 1 1

0 0 0 0 0 1 1 0 0

1 1 1 0 1 0 0 1 0

1 1 1 0 1 0 1 0 0

0 0 0 0 0 0 0 0 1

Elapsed time is 1127.144065 seconds.

attempts =

1

yprobs =

0 0.1261 0.0626 0.7172 0 1.0000 0 0

0.4698 0.2701 0.4640 0.4316 0.3871 0.4864 0.5093 0.2466

0 0 0.3995 0.2338 0 0.3623 0.1767 0

0 1.0000 0 0.2709 0 0 0.0401 0.1865

0 0.4978 0.2908 0.8100 0 0.6033 0.0292 0.4312

0 0.0935 0 0.3156 0 0.1235 0 0

0 1.0000 0 0.4791 0 0 0 0.1517

0.3256 0 0 0 0.7544 0 0 0

x =

0 0 0 1 0 1 0 0

0 1 1 0 1 0 1 0

0 0 1 0 0 1 1 0

0 1 0 0 0 0 1 1

0 0 1 0 0 1 0 1

0 0 0 1 0 0 0 0

0 1 0 1 0 0 0 1

0 0 0 0 1 0 0 0

Elapsed time is 42114.086520 seconds.

optval =

6.0000 6.0000 3.0000 16.0000 54.8265

10.0000 10.0000 2.0000 19.0000 86.6975

5.0000 8.0000 2.0000 14.0000 38.8090

10.0000 8.0000 2.0000 16.0000 39.0442

8.0000 8.0000 2.0000 14.0000 57.3616

5.0000 9.0000 2.0000 15.0000 25.9712

8.0000 8.0000 3.0000 17.0000 62.5266

opttime =

1.0e+04 \*

0.0006 0.0006 0.0003 0.0016 0.3487

0.0010 0.0010 0.0002 0.0019 2.4861

0.0005 0.0008 0.0002 0.0014 0.0413

0.0010 0.0008 0.0002 0.0016 0.1840

0.0008 0.0008 0.0002 0.0014 0.2198

0.0005 0.0009 0.0002 0.0015 0.1127

0.0008 0.0008 0.0003 0.0017 4.2114

k5percent =

6.0000 6.0000 3.0000 16.0000 -0.0338 -0.0303 -0.0312

10.0000 10.0000 2.0000 19.0000 0.0405 0.0416 0.0362

5.0000 8.0000 2.0000 14.0000 -0.0038 -0.0036 -0.0037

10.0000 8.0000 2.0000 16.0000 -0.0191 -0.0202 -0.0185

8.0000 8.0000 2.0000 14.0000 -0.0028 -0.0037 -0.0032

5.0000 9.0000 2.0000 15.0000 -0.0078 -0.0077 -0.0081

8.0000 8.0000 3.0000 17.0000 -0.0514 -0.0498 -0.0512

k10percent =

6.0000 6.0000 3.0000 16.0000 -0.0241 -0.0245 -0.0237

10.0000 10.0000 2.0000 19.0000 0.0384 0.0355 0.0371

5.0000 8.0000 2.0000 14.0000 -0.0001 -0.0002 -0.0001

10.0000 8.0000 2.0000 16.0000 -0.0077 -0.0070 -0.0069

8.0000 8.0000 2.0000 14.0000 0.0000 0.0000 0.0000

5.0000 9.0000 2.0000 15.0000 -0.0016 -0.0015 -0.0015

8.0000 8.0000 3.0000 17.0000 -0.0375 -0.0376 -0.0358

k20percent =

6.0000 6.0000 3.0000 16.0000 -0.0138 -0.0134 -0.0133

10.0000 10.0000 2.0000 19.0000 0.0356 0.0349 0.0340

5.0000 8.0000 2.0000 14.0000 0 0 0

10.0000 8.0000 2.0000 16.0000 -0.0018 -0.0019 -0.0018

8.0000 8.0000 2.0000 14.0000 0 0 0

5.0000 9.0000 2.0000 15.0000 -0.0001 -0.0001 -0.0001

8.0000 8.0000 3.0000 17.0000 -0.0222 -0.0225 -0.0225

k5time =

6.0000 6.0000 3.0000 16.0000 128.0750 124.9871 129.8026

10.0000 10.0000 2.0000 19.0000 135.2615 135.4130 136.6881

5.0000 8.0000 2.0000 14.0000 127.1459 127.5213 126.9703

10.0000 8.0000 2.0000 16.0000 108.8185 109.4142 108.4937

8.0000 8.0000 2.0000 14.0000 246.8797 222.5641 243.0539

5.0000 9.0000 2.0000 15.0000 145.5617 148.6480 150.1097

8.0000 8.0000 3.0000 17.0000 162.9096 159.9135 161.5034

k10time =

6.0000 6.0000 3.0000 16.0000 283.1136 279.5622 277.7897

10.0000 10.0000 2.0000 19.0000 277.5616 275.4568 274.8299

5.0000 8.0000 2.0000 14.0000 261.0333 261.1616 260.9812

10.0000 8.0000 2.0000 16.0000 280.5871 280.8098 280.1487

8.0000 8.0000 2.0000 14.0000 477.1092 432.6390 422.7053

5.0000 9.0000 2.0000 15.0000 318.9647 318.3847 318.0293

8.0000 8.0000 3.0000 17.0000 334.1266 332.2070 336.0176

k20time =

6.0000 6.0000 3.0000 16.0000 563.0151 566.4957 566.9474

10.0000 10.0000 2.0000 19.0000 547.8099 550.8146 554.5643

5.0000 8.0000 2.0000 14.0000 0 0 0

10.0000 8.0000 2.0000 16.0000 571.7906 574.7919 576.5847

8.0000 8.0000 2.0000 14.0000 0 0 0

5.0000 9.0000 2.0000 15.0000 696.3479 699.8242 699.9865

8.0000 8.0000 3.0000 17.0000 781.9584 803.2108 801.3738

>>

Testing fixed performance analysis sizes (Round 2)

Ran for 102 hours and only completed two tests. The third one it started was left likely for48+ hours but would not complete so it was terminated. This problem appeared to only have 2^20 cases so it should have taken around 12 hours based on the time needed for the 2^19 cases menu.

>> main

notes =

'incl1k'

attempts =

1

yprobs =

0 0 0.0518 0 0 0.0413 0.0598 0.5463 0.4963 0

0.2459 0.3585 1.0000 0.3855 0.5679 0.5034 0.4161 0.4314 0.2594 0.6948

0 0.5432 0.8427 0.2124 0.6653 1.0000 0.5702 0.7264 0.3563 0.5926

0.0926 0 0.1920 0 0 0 0 0.3843 0 0.2311

0.3233 0.3438 1.0000 0.4886 0.5443 0.4888 0.3833 0.4168 0.3957 0.6674

0 0.1820 0.5920 0.6170 0.6242 0.4424 0.1612 0.2052 0 0.3908

0 0.0095 0.7677 0 0.7066 0.5220 0.0131 0.0485 0 0.2459

0.2629 0.0921 0.6158 0.5165 0.3417 0.2599 0.0761 0.4215 0.0265 0.7386

0.2103 0.0845 0.7976 0.7498 0.3052 0.2389 0.0676 0.1157 0 0.4998

0 0 1.0000 0.4787 0 0 0 0 0 0.1636

x =

0 0 0 0 0 0 1 0 1 0

0 1 0 0 0 0 1 0 0 1

0 1 0 0 0 1 0 0 0 0

1 0 0 0 0 0 0 1 0 0

1 0 0 1 0 1 0 1 0 0

0 0 1 0 1 0 0 0 0 0

0 0 0 0 1 0 0 0 0 0

0 0 0 0 0 0 0 0 0 1

0 0 0 1 0 0 0 0 0 0

0 0 1 0 0 0 0 0 0 0

Elapsed time is 5541.719640 seconds.

optval =

6.0000 6.0000 3.0000 0 0

10.0000 10.0000 2.0000 17.0000 83.2197

7.0000 10.0000 2.0000 0 0

10.0000 8.0000 3.0000 0 0

7.0000 8.0000 3.0000 0 0

5.0000 9.0000 2.0000 0 0

8.0000 8.0000 3.0000 0 0

opttime =

1.0e+03 \*

0.0060 0.0060 0.0030 0 0

0.0100 0.0100 0.0020 0.0170 5.5417

0.0070 0.0100 0.0020 0 0

0.0100 0.0080 0.0030 0 0

0.0070 0.0080 0.0030 0 0

0.0050 0.0090 0.0020 0 0

0.0080 0.0080 0.0030 0 0

Elapsed time is 11.064223 seconds.

Elapsed time is 10.563925 seconds.

Elapsed time is 10.632692 seconds.

k1percent =

6.0000 6.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 17.0000 0.0119 -0.0061 0.0053

7.0000 10.0000 2.0000 0 0 0 0

10.0000 8.0000 3.0000 0 0 0 0

7.0000 8.0000 3.0000 0 0 0 0

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

Elapsed time is 53.375469 seconds.

objave =

82.9156

opt =

83.2197

Elapsed time is 52.924403 seconds.

objave =

82.9999

opt =

83.2197

Elapsed time is 54.074236 seconds.

objave =

82.9396

opt =

83.2197

k5percent =

6.0000 6.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 17.0000 -0.0037 -0.0026 -0.0034

7.0000 10.0000 2.0000 0 0 0 0

10.0000 8.0000 3.0000 0 0 0 0

7.0000 8.0000 3.0000 0 0 0 0

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

Elapsed time is 108.254502 seconds.

Elapsed time is 107.893402 seconds.

Elapsed time is 107.817506 seconds.

k10percent =

6.0000 6.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 17.0000 -0.0009 -0.0024 -0.0008

7.0000 10.0000 2.0000 0 0 0 0

10.0000 8.0000 3.0000 0 0 0 0

7.0000 8.0000 3.0000 0 0 0 0

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

Elapsed time is 218.059170 seconds.

Elapsed time is 217.961193 seconds.

Elapsed time is 219.622835 seconds.

k20percent =

6.0000 6.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 17.0000 -0.0019 -0.0007 -0.0005

7.0000 10.0000 2.0000 0 0 0 0

10.0000 8.0000 3.0000 0 0 0 0

7.0000 8.0000 3.0000 0 0 0 0

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

attempts =

8

yprobs =

0 0.0290 0.1962 0 0.3556 0.6991 0.2760 0 0.1892 0.0274

0.3949 0.5545 1.0000 0.3219 0 0 1.0000 0.6084 0.1990 0.3742

0.4916 0.3140 0.8215 0.5255 0 0 0.4179 0.4915 0.1165 0.1883

0 0.0886 0.5437 0.2402 0 0 0.0408 0.0019 0 0

0.2786 0.7413 0.3487 0.2706 0.3873 0.3168 0.3134 0.2525 0.5115 0.4370

0.4113 0.7443 0.3272 0.2359 0.0337 0 0.2791 0.1821 0.1538 0.4081

0.7922 1.0000 0.6948 0.0203 0.0083 0.0444 0.3953 0.0543 0.1459 0.3963

x =

0 0 0 0 1 1 0 0 0 0

0 0 0 0 0 0 0 1 0 0

0 0 1 0 0 0 1 0 0 1

0 0 1 1 0 0 0 0 0 0

1 1 0 1 1 0 0 0 0 0

0 1 0 0 0 0 1 1 0 0

1 0 0 0 0 0 0 0 0 1

Elapsed time is 1492.965320 seconds.

optval =

6.0000 6.0000 3.0000 0 0

10.0000 10.0000 2.0000 17.0000 83.2197

7.0000 10.0000 2.0000 17.0000 58.8222

10.0000 8.0000 3.0000 0 0

7.0000 8.0000 3.0000 0 0

5.0000 9.0000 2.0000 0 0

8.0000 8.0000 3.0000 0 0

opttime =

1.0e+03 \*

0.0060 0.0060 0.0030 0 0

0.0100 0.0100 0.0020 0.0170 5.5417

0.0070 0.0100 0.0020 0.0170 1.4930

0.0100 0.0080 0.0030 0 0

0.0070 0.0080 0.0030 0 0

0.0050 0.0090 0.0020 0 0

0.0080 0.0080 0.0030 0 0

Elapsed time is 11.024886 seconds.

Elapsed time is 10.922403 seconds.

Elapsed time is 10.907993 seconds.

k1percent =

6.0000 6.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 17.0000 0.0119 -0.0061 0.0053

7.0000 10.0000 2.0000 17.0000 0.0212 0.0274 0.0272

10.0000 8.0000 3.0000 0 0 0 0

7.0000 8.0000 3.0000 0 0 0 0

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

Elapsed time is 55.792642 seconds.

objave =

59.9936

opt =

58.8222

Elapsed time is 55.702658 seconds.

objave =

59.8291

opt =

58.8222

Elapsed time is 55.605995 seconds.

objave =

59.9062

opt =

58.8222

k5percent =

6.0000 6.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 17.0000 -0.0037 -0.0026 -0.0034

7.0000 10.0000 2.0000 17.0000 0.0199 0.0171 0.0184

10.0000 8.0000 3.0000 0 0 0 0

7.0000 8.0000 3.0000 0 0 0 0

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

Elapsed time is 112.661034 seconds.

Elapsed time is 112.460586 seconds.

Elapsed time is 112.604336 seconds.

k10percent =

6.0000 6.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 17.0000 -0.0009 -0.0024 -0.0008

7.0000 10.0000 2.0000 17.0000 0.0169 0.0145 0.0153

10.0000 8.0000 3.0000 0 0 0 0

7.0000 8.0000 3.0000 0 0 0 0

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

Elapsed time is 227.295045 seconds.

Elapsed time is 228.981524 seconds.

Elapsed time is 230.531874 seconds.

k20percent =

6.0000 6.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 17.0000 -0.0019 -0.0007 -0.0005

7.0000 10.0000 2.0000 17.0000 0.0094 0.0099 0.0098

10.0000 8.0000 3.0000 0 0 0 0

7.0000 8.0000 3.0000 0 0 0 0

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

attempts =

4

yprobs =

0.6024 0.9225 0.6365 0.4232 0.6365 0.6365 1.0000 0.7094

1.0000 0.7477 0.4134 0.0717 1.0000 1.0000 0.8272 0.2440

0.6913 0.7392 0.4136 0.3829 0.8676 1.0000 1.0000 0.3455

0.1810 0.5350 0.0079 0.2633 0.2286 0.2463 0.5322 0

0.2449 0.3765 0 0 0.6809 1.0000 1.0000 0

0.0865 0.1066 0 0 0.3585 0.7220 0.1256 0

0.7736 0.9924 0.2874 0.1160 1.0000 1.0000 0.3762 0.1308

0.2867 0.4463 0.1183 0.2656 0.3352 0.3294 0.3877 0.0623

0.5734 0.7210 0.3282 0.1642 0.6493 0.6396 0.3798 0.2319

0 0 0 0 0.0928 0.3216 0.2997 0

x =

0 0 0 1 0 0 0 1

0 0 1 0 1 0 0 0

1 0 1 0 0 0 1 1

0 1 0 1 0 0 0 0

0 0 0 0 0 1 1 0

0 0 0 0 0 1 0 0

1 0 0 0 0 0 0 0

0 1 0 1 1 0 0 0

1 1 1 0 0 0 0 1

0 0 0 0 1 1 1 0

Testing fixed performance analysis sizes (Round 3)

Ran for 13 hours and only completed two tests. The third one it started was left likely for48+ hours but would not

>> main

notes =

'incl1k'

nontrivial =

17

attempts =

2

yprobs =

0.8447 0 0.2166 0 0 0 0.1963 0.0770

0.4922 0.5433 0.0034 0.6233 0.7258 0.3481 0.5242 0.5630

0 0 0.1066 0 0 0 0 0

0.6077 0.5746 0.3941 0.4110 0.6323 0.2059 0.8440 0.7841

0 0 0 0.1758 0 0.3309 1.0000 0

0.7393 0.5555 0.6096 0.7371 0.4348 0.5388 0.5840 0.5396

0.6182 0.4960 0.2944 0.5809 0.5343 0.3003 1.0000 0.6322

x =

1 0 0 0 0 0 0 0

1 1 0 1 0 0 1 1

0 0 1 0 0 0 0 0

0 1 0 0 1 0 0 1

0 0 0 0 0 0 1 0

1 1 0 1 1 0 0 0

0 0 0 1 1 0 1 1

Elapsed time is 5432.185645 seconds.

optval =

7.0000 8.0000 3.0000 17.0000 50.2060

5.0000 9.0000 2.0000 0 0

8.0000 8.0000 3.0000 0 0

10.0000 10.0000 2.0000 0 0

7.0000 10.0000 2.0000 0 0

opttime =

1.0e+03 \*

0.0070 0.0080 0.0030 0.0170 5.4322

0.0050 0.0090 0.0020 0 0

0.0080 0.0080 0.0030 0 0

0.0100 0.0100 0.0020 0 0

0.0070 0.0100 0.0020 0 0

Elapsed time is 11.917670 seconds.

Elapsed time is 11.665091 seconds.

Elapsed time is 11.458770 seconds.

k1percent =

7.0000 8.0000 3.0000 17.0000 0.0263 0.0363 0.0258

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 0 0 0 0

7.0000 10.0000 2.0000 0 0 0 0

Elapsed time is 56.792032 seconds.

objave =

51.3548

opt =

50.2060

Elapsed time is 56.457375 seconds.

objave =

51.4512

opt =

50.2060

Elapsed time is 56.656713 seconds.

objave =

51.3886

opt =

50.2060

k5percent =

7.0000 8.0000 3.0000 17.0000 0.0229 0.0248 0.0236

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 0 0 0 0

7.0000 10.0000 2.0000 0 0 0 0

Elapsed time is 113.017073 seconds.

Elapsed time is 113.421850 seconds.

Elapsed time is 113.299293 seconds.

k10percent =

7.0000 8.0000 3.0000 17.0000 0.0186 0.0194 0.0181

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 0 0 0 0

7.0000 10.0000 2.0000 0 0 0 0

Elapsed time is 226.893807 seconds.

Elapsed time is 226.432058 seconds.

Elapsed time is 226.206450 seconds.

k20percent =

7.0000 8.0000 3.0000 17.0000 0.0105 0.0104 0.0102

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 0 0 0 0

7.0000 10.0000 2.0000 0 0 0 0

nontrivial =

17

attempts =

2

yprobs =

0 0.3558 0.0262 0.3424 0.6063 0 0.4112 0

0.0183 0.8435 0.6068 0.4396 0.2116 0 0.5845 0.7796

0.3287 1.0000 0.2327 0.2416 0.4330 0.0853 0.3165 0.7848

0.7828 0.6877 0.7225 1.0000 0.9514 0.3259 1.0000 0.3341

0.3874 0.4787 0.6548 0.4291 0.2523 0 1.0000 0.5075

0 0.0064 0 0 0 0 0 0.4957

0 0.9609 1.0000 1.0000 0.2492 0 1.0000 0

1.0000 0.8619 0.7500 1.0000 0.8927 0.2347 1.0000 0.5367

x =

0 1 0 1 1 0 0 0

0 0 1 1 0 0 1 1

0 1 0 0 1 0 0 1

1 0 1 0 0 1 1 0

1 0 0 0 1 0 1 0

0 0 0 0 0 0 0 1

0 1 0 1 0 0 0 0

1 0 1 0 0 0 0 0

87 soln = cplexmilp(obj,A,b,Aeq,beq,sostype,sosind,soswt,lb,ub,ctype);

K>>

Testing fixed performance analysis sizes (Round 4)

Ran for 40ish hours

>> main

notes =

'fixedexh'

nontrivial =

20

attempts =

1

yprobs =

0 1.0000 0 0 1.0000 0 1.0000 1.0000

0.3986 0.0520 0 0 0.5997 0.3594 0.3307 0.2251

0.4786 1.0000 0.3773 0.1577 0.7925 0.3863 0.4584 0.3898

0.0161 0.4254 0.5344 0.4928 0.1724 0.1389 0.1951 0.8643

0 0.3734 0.8932 0 0.1395 0.0719 0.2733 0.4843

0 0.8493 0 0 0.7043 0 0.7191 1.0000

0 0.1535 0.8190 0.2145 0 0 0 0.5319

0 0.1674 0.9393 0.9799 0.1075 0.0768 0.0818 0.4281

0.3683 0.4894 0.5235 0.1192 1.0000 0.9562 1.0000 1.0000

0.2433 0 0 0 0.1408 0 0 0

x =

0 0 0 0 0 0 1 1

1 0 0 0 1 1 0 0

1 1 0 0 1 0 0 0

0 0 0 1 0 1 0 1

0 1 1 0 0 0 0 0

0 1 0 0 0 0 1 0

0 0 1 1 0 0 0 1

0 0 1 1 0 0 0 0

1 0 0 0 0 1 1 0

0 0 0 0 1 0 0 0

nontrivial =

18

attempts =

1

yprobs =

0.0079 0.0785 0.1112 0.3468 0 0.1608 1.0000 0

0 0 0 0.1352 0 0 0.9350 0

0.3071 0.3968 0.3968 0.5620 0.0634 0.4739 1.0000 0.1706

1.0000 0.0599 0.0795 0 0.6093 0.0714 0 0.8947

0.6548 0.4042 0.4311 0.0407 0.5311 0.4217 0.2125 0.1774

0.2609 0.1895 0.1931 0.3295 0.2186 0.1951 0.3432 0.2936

0.3923 0.2935 0.2986 0.6755 0.2740 0.3015 0.4625 0.3690

x =

0 0 0 1 0 0 1 0

0 0 0 0 0 0 0 0

0 1 0 1 0 0 1 0

1 0 0 0 1 1 0 0

1 0 1 0 1 0 0 1

1 1 1 0 1 0 1 1

0 1 1 1 0 0 0 0

nontrivial =

20

attempts =

1

yprobs =

0 0 0 0 0 0.1210 0 0.2945

0 0 0 0 0 0 0 0

0.4128 0.1198 0.0827 0.3121 0.1042 0.1128 0 0.2712

0.7419 0.5456 0.3988 0.4101 0.2745 0.3472 0 0.5741

0.2304 0.2767 0.4390 0.2371 0.3257 0.5797 0.1868 1.0000

0.7299 0.5350 0.6570 0.4336 0.3541 0.4358 0 0.5492

0.4164 0.3735 0.4338 0.3438 0.3231 0.3571 0.2176 0.6600

0.4097 0.4124 0.6864 0.3692 0.3285 0.6015 0.6022 0.4313

x =

0 0 0 0 0 0 0 1

0 0 0 0 0 0 0 0

1 1 0 1 0 0 0 0

1 1 1 0 0 0 0 0

0 0 0 1 1 0 0 1

1 0 1 0 1 1 0 0

0 1 0 0 1 1 0 1

0 0 1 1 0 1 0 0

nontrivial =

17

attempts =

3

yprobs =

0.2553 0.4643 0.1095 0.2582 0.1732 0.4751 0.5182 0 0.0673 0.4233

0 0.1274 0 0 0.1645 0.3163 0.5198 0 0 0.3294

0.0609 0 0.3486 0.1198 0.6396 0.3564 0.7436 0 0 0.2327

0.0630 0.3254 0.0538 0.1105 0.2468 0.1679 0.3985 0 0 0.3543

0.5804 0.3818 0.5676 0.5801 0.6137 1.0000 0.6747 0.5600 0.5115 0.6649

0.6151 0.3482 0.4255 0.5689 0.4945 1.0000 0.5343 0.3049 0.5045 0.6912

0 0 0.0651 0 0.2585 0.6360 0.2693 0 0 0.2924

0.1823 0.0766 0.6330 0.2109 0.6889 1.0000 0.7929 0 0 0.6218

0.0724 0.2663 0.0768 0.1641 0.3948 0.1829 1.0000 0 0 0.2797

0.3139 0 0 0 0.2888 0.1692 0 1.0000 0.3749 0

x =

1 1 0 0 0 0 0 0 0 0

0 0 0 0 0 1 1 0 0 0

0 0 1 0 1 0 0 0 0 0

0 0 0 0 0 0 1 0 0 1

1 0 0 1 0 0 0 1 0 0

0 0 0 1 0 0 0 0 0 1

0 0 0 0 0 1 0 0 0 0

0 0 1 0 0 0 0 0 0 0

0 1 0 0 1 0 0 0 0 0

0 0 0 0 0 0 0 1 0 0

nontrivial =

17

attempts =

3

yprobs =

0.1626 0 0 0 0 1.0000 0 0.3661 0 0

0.4770 0.0480 0 0 0.1765 0.7868 0.0778 0.4363 0.1731 0.1419

0.4112 0.0137 0 0 0.1264 0.5484 0.2144 0.3564 0.2288 0.1073

0.0538 0 0.4832 0.0728 0 0 0.0714 0.2720 0.4598 0.0171

0 0 0.7677 0 0 0 0 1.0000 0.7076 0.1638

0.8368 0.3815 0.5052 0.2997 0.4770 0.6752 0.4578 0.5326 0.9979 0.4992

0.6083 0.4831 0.2258 0.3850 0.5010 0.5506 0.3936 0.9819 0.5634 0.5373

x =

0 0 0 0 0 1 0 1 0 0

1 0 0 0 0 1 0 0 0 1

0 0 0 0 0 0 1 1 0 1

0 0 1 1 0 0 0 0 1 0

0 0 1 0 0 0 0 0 1 0

0 0 0 0 1 0 0 0 0 0

1 0 0 1 1 0 1 0 0 0

optvals =

10.0000 8.0000 3.0000 20.0000 99.8864

7.0000 8.0000 3.0000 18.0000 62.6126

5.0000 9.0000 2.0000 0 0

8.0000 8.0000 3.0000 20.0000 60.6646

10.0000 10.0000 2.0000 17.0000 69.4954

7.0000 10.0000 2.0000 17.0000 56.1189

opttimes =

1.0e+04 \*

0.0010 0.0008 0.0003 0.0020 8.2193

0.0007 0.0008 0.0003 0.0018 0.7753

0.0005 0.0009 0.0002 0 0

0.0008 0.0008 0.0003 0.0020 7.1898

0.0010 0.0010 0.0002 0.0017 0.2488

0.0007 0.0010 0.0002 0.0017 0.3020

k1percent =

10.0000 8.0000 3.0000 20.0000 0.0055 0.0090 0.0112

7.0000 8.0000 3.0000 18.0000 -0.0498 -0.0610 -0.0455

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 20.0000 -0.0426 -0.0596 -0.0440

10.0000 10.0000 2.0000 17.0000 -0.0308 -0.0317 -0.0205

7.0000 10.0000 2.0000 17.0000 -0.0341 -0.0181 -0.0278

k1time =

10.0000 8.0000 3.0000 20.0000 12.5505 12.0735 12.0263

7.0000 8.0000 3.0000 18.0000 14.3245 13.7208 14.8446

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 20.0000 18.8000 18.6307 18.6716

10.0000 10.0000 2.0000 17.0000 12.6062 12.2561 12.7792

7.0000 10.0000 2.0000 17.0000 15.6843 15.7842 16.1659

k5percent =

10.0000 8.0000 3.0000 20.0000 0.0057 0.0075 0.0060

7.0000 8.0000 3.0000 18.0000 -0.0409 -0.0416 -0.0459

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 20.0000 -0.0450 -0.0468 -0.0508

10.0000 10.0000 2.0000 17.0000 -0.0310 -0.0322 -0.0298

7.0000 10.0000 2.0000 17.0000 -0.0181 -0.0169 -0.0133

k5time =

10.0000 8.0000 3.0000 20.0000 61.1439 60.9037 61.2940

7.0000 8.0000 3.0000 18.0000 73.8914 71.4455 70.7739

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 20.0000 96.0680 92.7865 93.9376

10.0000 10.0000 2.0000 17.0000 64.4095 66.6443 67.6293

7.0000 10.0000 2.0000 17.0000 78.0655 78.0340 79.0585

k10percent =

10.0000 8.0000 3.0000 20.0000 0.0053 0.0055 0.0048

7.0000 8.0000 3.0000 18.0000 -0.0315 -0.0301 -0.0312

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 20.0000 -0.0466 -0.0449 -0.0462

10.0000 10.0000 2.0000 17.0000 -0.0301 -0.0263 -0.0275

7.0000 10.0000 2.0000 17.0000 -0.0086 -0.0095 -0.0101

k10time =

10.0000 8.0000 3.0000 20.0000 123.4378 124.1129 124.6623

7.0000 8.0000 3.0000 18.0000 143.8553 146.0033 146.0931

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 20.0000 191.6019 191.6841 187.4279

10.0000 10.0000 2.0000 17.0000 133.9662 131.4111 130.6121

7.0000 10.0000 2.0000 17.0000 155.8966 157.1865 156.2299

k20percent =

10.0000 8.0000 3.0000 20.0000 0.0039 0.0038 0.0038

7.0000 8.0000 3.0000 18.0000 -0.0208 -0.0206 -0.0200

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 20.0000 -0.0412 -0.0417 -0.0403

10.0000 10.0000 2.0000 17.0000 -0.0238 -0.0249 -0.0240

7.0000 10.0000 2.0000 17.0000 -0.0054 -0.0056 -0.0051

k20time =

10.0000 8.0000 3.0000 20.0000 253.6717 255.8862 258.9463

7.0000 8.0000 3.0000 18.0000 287.2856 291.2719 293.9234

5.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 20.0000 380.9934 385.1223 385.1246

10.0000 10.0000 2.0000 17.0000 274.1921 265.3373 267.4198

7.0000 10.0000 2.0000 17.0000 314.1916 317.7041 317.9786

>>

Testing fixed performance analysis sizes (Round 5)

After changing the exhaustive scens format from sparse to zeros type matrix

notes =

'fixedexh'

nontrivial =

19

attempts =

1

yprobs =

0.6674 0.6466 0.2688 0.2713 0.4107 0.4750 0.2584 0.5540

0.9292 0.4707 0.5177 0.6413 0.3196 0.5450 0.5630 0.9778

0.5212 0.4587 0.1897 0.2251 0.6194 0.3962 0.2175 0.5986

0.6904 0.5022 0.3136 0.3025 0.3650 0.5793 0.2576 0.8081

0.0799 0.0732 0 0 0.3407 0 0 0

0.3282 0 0 0 0 0 0 0.4148

1.0000 0.8105 0 0 0 0 0 0

0.4323 0 0 0 0.2573 0 0 0.0466

0.3118 0.3494 0 0 1.0000 0.1028 0.0967 0.2172

0.2793 0.1009 0 0 0.6326 0 0 0

x =

0 1 1 1 0 1 0 0

0 0 0 1 0 0 0 0

0 0 1 1 0 1 0 1

0 0 1 0 0 1 0 1

0 0 0 0 1 0 0 0

1 0 0 0 0 0 0 1

1 1 0 0 0 0 0 0

1 0 0 0 0 0 0 0

0 1 0 0 1 0 0 0

0 0 0 0 1 0 0 0

optval =

10.0000 8.0000 3.0000 19.0000 62.1172

7.0000 8.0000 3.0000 0 0

6.0000 9.0000 2.0000 0 0

8.0000 8.0000 3.0000 0 0

10.0000 10.0000 2.0000 0 0

7.0000 10.0000 2.0000 0 0

opttime =

1.0e+04 \*

0.0010 0.0008 0.0003 0.0019 1.0828

0.0007 0.0008 0.0003 0 0

0.0006 0.0009 0.0002 0 0

0.0008 0.0008 0.0003 0 0

0.0010 0.0010 0.0002 0 0

0.0007 0.0010 0.0002 0 0

Elapsed time is 17.607466 seconds.

Elapsed time is 17.394758 seconds.

Elapsed time is 17.088276 seconds.

k1percent =

10.0000 8.0000 3.0000 19.0000 -0.0498 -0.0349 -0.0474

7.0000 8.0000 3.0000 0 0 0 0

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 0 0 0 0

7.0000 10.0000 2.0000 0 0 0 0

Elapsed time is 89.481806 seconds.

Elapsed time is 88.988501 seconds.

Elapsed time is 90.200319 seconds.

k5percent =

10.0000 8.0000 3.0000 19.0000 -0.0365 -0.0435 -0.0416

7.0000 8.0000 3.0000 0 0 0 0

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 0 0 0 0

7.0000 10.0000 2.0000 0 0 0 0

Elapsed time is 177.038157 seconds.

Elapsed time is 173.804760 seconds.

Elapsed time is 170.770167 seconds.

k10percent =

10.0000 8.0000 3.0000 19.0000 -0.0395 -0.0371 -0.0411

7.0000 8.0000 3.0000 0 0 0 0

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 0 0 0 0

7.0000 10.0000 2.0000 0 0 0 0

Elapsed time is 344.868175 seconds.

Elapsed time is 343.648435 seconds.

Elapsed time is 347.085953 seconds.

k20percent =

10.0000 8.0000 3.0000 19.0000 -0.0337 -0.0332 -0.0326

7.0000 8.0000 3.0000 0 0 0 0

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 0 0 0 0

10.0000 10.0000 2.0000 0 0 0 0

7.0000 10.0000 2.0000 0 0 0 0

Testing fixed performance analysis sizes (Round 6)

After changing the exhaustive scens format from sparse to zeros type matrix, now includes sample size 500. In total took about 53 hrs

>> main

notes =

'incl500'

nontrivial =

18

attempts =

1

yprobs =

0 0 0 0 0.0862 0 0 0.7050

0.8132 0.6820 0.6171 1.0000 1.0000 1.0000 0.7070 0.3113

0.0203 0.1372 0 0 0 0.5455 0.2773 0

0.0665 1.0000 0.7403 1.0000 0.8276 0.9947 1.0000 0.0092

0 0.0005 0.1076 0.1784 0.9123 0 0.0113 0.5779

0 0.4618 1.0000 1.0000 1.0000 0.4452 0.7715 0

0 0 0.2131 0 0.4890 0 0 0.6147

0 0 0.0560 0 0.2147 0 0 0.5609

0.2846 0.2865 0.8993 0.3460 0.4394 0.2429 0.2881 1.0000

0.3822 0.6243 0 0.3545 0.0005 0.3597 0.5684 0

x =

0 0 0 0 0 0 0 1

1 1 0 0 1 0 0 0

0 0 0 0 0 1 1 0

0 1 0 1 0 0 1 0

0 0 0 0 1 0 0 1

0 0 1 1 0 1 0 0

0 0 1 0 1 0 0 1

0 0 0 0 0 0 0 0

1 0 1 0 0 0 0 0

1 1 0 1 0 1 1 0

Elapsed time is 13183.169056 seconds.

Elapsed time is 24.248920 seconds.

Elapsed time is 24.333421 seconds.

Elapsed time is 23.891102 seconds.

h5percent =

Elapsed time is 47.967199 seconds.

Elapsed time is 47.188791 seconds.

Elapsed time is 47.763518 seconds.

k1percent =

Elapsed time is 241.276176 seconds.

Elapsed time is 245.202653 seconds.

Elapsed time is 242.268512 seconds.

k5percent =

Elapsed time is 487.342387 seconds.

Elapsed time is 485.259674 seconds.

Elapsed time is 488.955967 seconds.

k10percent =

Elapsed time is 985.807301 seconds.

Elapsed time is 987.316567 seconds.

Elapsed time is 983.369118 seconds.

k20percent =

nontrivial =

18

attempts =

13

yprobs =

0.6120 0.5549 0 0.1890 1.0000 1.0000 0.1976 0.3840

0.1857 0 0 0.5072 0 0 0 0

0.5220 0.1209 0.3776 0.1382 0.2636 0.4780 0.4811 0.1034

0 0.0818 0 0 0 0 0 0

0.7225 0 0.4383 0.1975 0.0719 0.1313 0.4471 0

0.3835 0.0377 0 0 0.4429 1.0000 0.1656 0

0.8698 0.3378 0.3305 1.0000 0.5503 0.6659 0.7614 0.3992

x =

0 1 0 0 1 0 0 0

0 0 0 1 0 0 0 0

1 1 1 0 0 1 1 1

0 0 0 0 0 0 0 0

1 0 1 1 0 0 1 0

0 1 0 0 1 1 1 0

1 0 0 0 1 1 0 0

nontrivial =

18

Elapsed time is 12128.053823 seconds.

optval =

Elapsed time is 18.804058 seconds.

Elapsed time is 19.166975 seconds.

Elapsed time is 20.408017 seconds.

h5percent =

Elapsed time is 38.496590 seconds.

Elapsed time is 42.456435 seconds.

Elapsed time is 38.748275 seconds.

k1percent =

Elapsed time is 202.132661 seconds.

Elapsed time is 198.545643 seconds.

Elapsed time is 200.933398 seconds.

k5percent =

Elapsed time is 402.286502 seconds.

Elapsed time is 402.341421 seconds.

Elapsed time is 401.354596 seconds.

k10percent =

Elapsed time is 813.076464 seconds.

Elapsed time is 814.249826 seconds.

Elapsed time is 820.115396 seconds.

k20percent =

nontrivial =

21

attempts =

1

yprobs =

0.5142 0.6052 0.7142 1.0000 1.0000 0.4012 1.0000 0.3919

0.6578 1.0000 0.7075 0.4315 0.6522 0.4622 0.4594 0.4698

0.1199 0.4105 0.0569 0.9292 1.0000 0.5142 0.2059 0.3455

0.1977 0.4987 0 0 0.6173 0 0.0255 0.0836

0.2138 1.0000 0.2280 0.2630 0.5655 0.0350 0.7635 0.2196

0.5190 0.8763 0.3165 0.5193 0.7947 0.3967 0.7123 0.7370

0.6594 0.5445 0.5412 0.8957 1.0000 0.4418 0.9737 0.5097

0.2554 0.3206 0 0 0.6996 0 0 0

x =

0 0 1 1 0 0 1 1

1 0 1 0 1 1 0 0

0 0 0 1 0 1 0 1

0 1 0 0 1 0 0 0

0 1 0 0 0 0 1 0

1 0 0 1 0 0 0 1

0 0 1 0 0 1 1 0

1 1 0 0 1 0 0 0

Elapsed time is 114645.599448 seconds.

optval =

Elapsed time is 34.121239 seconds.

Elapsed time is 34.437945 seconds.

Elapsed time is 35.839766 seconds.

h5percent =

Elapsed time is 72.776072 seconds.

Elapsed time is 68.757445 seconds.

Elapsed time is 68.870128 seconds.

k1percent =

Elapsed time is 360.203198 seconds.

Elapsed time is 353.744182 seconds.

Elapsed time is 361.664324 seconds.

k5percent =

Elapsed time is 727.438723 seconds.

Elapsed time is 691.897866 seconds.

Elapsed time is 700.137889 seconds.

k10percent =

Elapsed time is 1388.079783 seconds.

Elapsed time is 1390.355231 seconds.

Elapsed time is 1401.024206 seconds.

k20percent =

nontrivial =

18

attempts =

15

yprobs =

0.1556 1.0000 0.0535 0 1.0000 0.0557 0.8361 0 0.2909 0.0696

0.0871 0.9341 0.1686 0.3369 0.2752 0.2976 0.2893 0.3248 0.4204 0.3092

0 0.6627 0.1109 0.4670 0.1559 1.0000 0.2338 0.4080 0.4692 0.7085

0 0.5596 0 0.4034 0 0.4472 0 0.2690 0.2191 0.4098

0 0.9636 0.1212 0.6325 0.1604 0.5285 0.2383 0.4087 0.4512 0.6270

0.2719 0.5843 0.5367 0 0.3590 0.5172 0.8832 0.5379 0.3428 0.2583

0 0.9127 0 0.6242 0 0.3859 0.1833 0.8279 0.1415 0.2821

0.2878 1.0000 0.4180 0.1356 0.4688 1.0000 1.0000 0.3955 0.4903 0.5126

0 0.4212 0 0.1640 0 0.0745 0.0474 0.6757 0 0.0082

0.3182 1.0000 0.2554 0.3762 0.5707 0.5048 0.6535 0.5537 0.7190 0.5205

x =

0 0 0 0 1 0 0 0 0 0

0 0 0 0 0 0 0 1 1 0

0 1 0 0 0 0 0 0 0 1

0 0 0 0 0 1 0 0 0 0

0 1 0 1 0 0 0 0 0 0

0 0 1 0 0 0 1 0 0 0

0 0 0 1 0 0 0 0 0 0

1 0 1 0 1 0 1 0 0 1

0 0 0 0 0 0 0 1 0 0

1 0 0 0 0 1 0 0 1 0

nontrivial =

18

Elapsed time is 9709.670874 seconds.

optval =

opttime =

1.0e+05 \*

Elapsed time is 21.458205 seconds.

Elapsed time is 21.191590 seconds.

Elapsed time is 21.338336 seconds.

h5percent =

Elapsed time is 45.581972 seconds.

Elapsed time is 42.713793 seconds.

Elapsed time is 43.801255 seconds.

k1percent =

Elapsed time is 216.144178 seconds.

Elapsed time is 217.385493 seconds.

Elapsed time is 223.770850 seconds.

k5percent =

Elapsed time is 441.260118 seconds.

Elapsed time is 443.063370 seconds.

Elapsed time is 437.130973 seconds.

k10percent =

Elapsed time is 878.653069 seconds.

Elapsed time is 877.669169 seconds.

Elapsed time is 884.380019 seconds.

k20percent =

nontrivial =

18

attempts =

72

yprobs =

0 1.0000 0 0.2545 0 0 0 0 0.1655 0.3548

0 0.9649 0 0 0 0.0919 0 0 0.0908 0

0.3134 1.0000 0.3292 0.4355 0.3688 0.8867 0.3763 0.2477 0.5646 0.3393

0 0.4792 0 0 0 0 0 0 0 0.1964

0.1091 1.0000 0 0.3349 0 0 0.0051 0 0.3305 0.6507

0.2177 1.0000 0 1.0000 0.2501 0.1982 0.3849 0 0.2448 0.5738

0.3712 0.7483 0.2140 1.0000 0.3380 0.6698 0.1421 0.0636 0.3377 0.3980

x =

0 1 0 0 0 0 0 0 1 1

0 1 0 0 0 0 0 0 0 0

0 0 1 0 0 1 0 1 0 0

0 0 0 0 0 0 0 0 0 0

1 0 0 1 0 0 1 0 1 1

0 0 0 1 1 0 0 0 0 0

1 0 1 0 1 1 1 1 0 0

nontrivial =

18

Elapsed time is 14309.414611 seconds.

optval =

Elapsed time is 17.074533 seconds.

Elapsed time is 16.329204 seconds.

Elapsed time is 15.868088 seconds.

h5percent =

Elapsed time is 34.517412 seconds.

Elapsed time is 32.505032 seconds.

Elapsed time is 34.133635 seconds.

k1percent =

Elapsed time is 179.010247 seconds.

Elapsed time is 176.394214 seconds.

Elapsed time is 176.153379 seconds.

k5percent =

Elapsed time is 371.751589 seconds.

Elapsed time is 372.980644 seconds.

Elapsed time is 374.859928 seconds.

k10percent =

Elapsed time is 798.729563 seconds.

Elapsed time is 817.105574 seconds.

Elapsed time is 806.009854 seconds.

k20percent =

optvals =

10.0000 8.0000 3.0000 18.0000 70.5569

7.0000 8.0000 3.0000 18.0000 53.3363

6.0000 9.0000 2.0000 0 0

8.0000 8.0000 3.0000 21.0000 93.0966

10.0000 10.0000 2.0000 18.0000 85.0682

7.0000 10.0000 2.0000 18.0000 55.2684

opttimes =

1.0e+05 \*

0.0001 0.0001 0.0000 0.0002 0.1318

0.0001 0.0001 0.0000 0.0002 0.1213

0.0001 0.0001 0.0000 0 0

0.0001 0.0001 0.0000 0.0002 1.1465

0.0001 0.0001 0.0000 0.0002 0.0971

0.0001 0.0001 0.0000 0.0002 0.1431

h5percent =

10.0000 8.0000 3.0000 18.0000 0.0362 0.0372 0.0417

7.0000 8.0000 3.0000 18.0000 0.0044 -0.0098 -0.0096

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 21.0000 0.0184 0.0296 0.0350

10.0000 10.0000 2.0000 18.0000 0.0656 0.0504 0.0540

7.0000 10.0000 2.0000 18.0000 -0.0048 0.0067 -0.0037

h5time =

10.0000 8.0000 3.0000 18.0000 24.2492 24.3338 23.8913

7.0000 8.0000 3.0000 18.0000 18.8044 19.1673 20.4082

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 21.0000 34.1213 34.4381 35.8399

10.0000 10.0000 2.0000 18.0000 21.4583 21.1917 21.3384

7.0000 10.0000 2.0000 18.0000 17.0746 16.3293 15.8682

k1percent =

10.0000 8.0000 3.0000 18.0000 0.0332 0.0355 0.0278

7.0000 8.0000 3.0000 18.0000 -0.0014 -0.0097 0.0059

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 21.0000 0.0227 0.0203 0.0159

10.0000 10.0000 2.0000 18.0000 0.0393 0.0408 0.0469

7.0000 10.0000 2.0000 18.0000 0.0078 0.0049 0.0113

k1time =

10.0000 8.0000 3.0000 18.0000 47.9674 47.1890 47.7637

7.0000 8.0000 3.0000 18.0000 38.4968 42.4568 38.7484

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 21.0000 72.7762 68.7576 68.8703

10.0000 10.0000 2.0000 18.0000 45.5821 42.7139 43.8014

7.0000 10.0000 2.0000 18.0000 34.5175 32.5051 34.1337

k5percent =

10.0000 8.0000 3.0000 18.0000 0.0314 0.0293 0.0318

7.0000 8.0000 3.0000 18.0000 -0.0026 -0.0024 -0.0003

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 21.0000 0.0208 0.0229 0.0236

10.0000 10.0000 2.0000 18.0000 0.0460 0.0495 0.0462

7.0000 10.0000 2.0000 18.0000 0.0040 0.0031 0.0025

k5time =

10.0000 8.0000 3.0000 18.0000 241.2764 245.2028 242.2687

7.0000 8.0000 3.0000 18.0000 202.1328 198.5460 200.9335

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 21.0000 360.2033 353.7443 361.6644

10.0000 10.0000 2.0000 18.0000 216.1443 217.3856 223.7710

7.0000 10.0000 2.0000 18.0000 179.0104 176.3943 176.1535

k10percent =

10.0000 8.0000 3.0000 18.0000 0.0272 0.0269 0.0256

7.0000 8.0000 3.0000 18.0000 0.0005 0.0005 -0.0011

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 21.0000 0.0213 0.0228 0.0244

10.0000 10.0000 2.0000 18.0000 0.0400 0.0413 0.0411

7.0000 10.0000 2.0000 18.0000 0.0028 0.0027 0.0030

k10time =

10.0000 8.0000 3.0000 18.0000 487.3426 485.2599 488.9562

7.0000 8.0000 3.0000 18.0000 402.2867 402.3418 401.3547

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 21.0000 727.4389 691.8980 700.1381

10.0000 10.0000 2.0000 18.0000 441.2603 443.0635 437.1311

7.0000 10.0000 2.0000 18.0000 371.7517 372.9808 374.8600

k20percent =

10.0000 8.0000 3.0000 18.0000 0.0212 0.0219 0.0217

7.0000 8.0000 3.0000 18.0000 0.0025 0.0024 0.0020

6.0000 9.0000 2.0000 0 0 0 0

8.0000 8.0000 3.0000 21.0000 0.0219 0.0229 0.0225

10.0000 10.0000 2.0000 18.0000 0.0331 0.0320 0.0336

7.0000 10.0000 2.0000 18.0000 0.0016 0.0017 0.0018

k20time =

1.0e+03 \*

0.0100 0.0080 0.0030 0.0180 0.9858 0.9873 0.9834

0.0070 0.0080 0.0030 0.0180 0.8131 0.8143 0.8201

0.0060 0.0090 0.0020 0 0 0 0

0.0080 0.0080 0.0030 0.0210 1.3881 1.3904 1.4010

0.0100 0.0100 0.0020 0.0180 0.8787 0.8777 0.8844

0.0070 0.0100 0.0020 0.0180 0.7987 0.8171 0.8060

>>

Testing fixed perf analysis no exhaustive (Round 1)

The ‘exhaustive’ is approximated by using 200,000 scenarios, so each menu only takes like an hour

>> main

notes =

'initnoexh'

nontrivial =

22

attempts = 1

yprobs =

0 1.0000 0 0 1.0000 0 1.0000 1.0000 0 1.0000

0.3986 0.0520 0 0 0.5997 0.3594 0.3307 0.2251 0.3986 0.1257

0.4786 1.0000 0.3773 0.1577 0.7925 0.3863 0.4584 0.3898 0.4114 0.3305

0.0161 0.4254 0.5344 0.4928 0.1724 0.1389 0.1951 0.8643 0 0.1455

0 0.3734 0.8932 0 0.1395 0.0719 0.2733 0.4843 0 0

0 0.8493 0 0 0.7043 0 0.7191 1.0000 0 1.0000

0 0.1535 0.8190 0.2145 0 0 0 0.5319 0 0

0 0.1674 0.9393 0.9799 0.1075 0.0768 0.0818 0.4281 0 0

0.3683 0.4894 0.5235 0.1192 1.0000 0.9562 1.0000 1.0000 0.3133 0.7357

0.2433 0 0 0 0.1408 0 0 0 0.2310 0

x =

0 1 0 0 0 0 1 0 0 1

1 0 0 0 1 1 0 0 0 0

1 0 0 0 1 1 0 0 0 0

0 1 0 1 0 0 0 1 0 0

0 1 1 0 0 0 1 0 0 0

0 0 0 0 0 0 0 0 0 1

0 0 1 1 0 0 0 1 0 0

0 0 1 1 0 0 0 0 0 0

0 0 0 0 0 1 1 1 0 1

1 0 0 0 1 0 0 0 1 0

Elapsed time is 2151.005152 seconds.

optval =

nontrivial =

28

attempts =

4

yprobs =

Columns 1 through 11

0.1576 0.7588 0.8063 1.0000 0.4531 0.4151 0.0432 0 0.6123 0.6115 0.1593

0.0844 1.0000 0.4041 0.6350 0.2676 0.1506 0.0984 0.0534 0.4284 0.4350 0.0947

0.1464 0.5947 0.2062 0.7817 0.7576 0.0542 0.4387 0.2375 0.6687 0.5314 0.2349

0.6649 0.6398 0 1.0000 0.3516 0 0.0435 0 0.0619 0.6744 0.5216

0 0.8581 0.4154 0.2221 0 0.2830 0 0 0.0638 0 0

0.2357 0.1381 0 0.1511 0.3500 0 0.5873 0.6083 0.0839 0.1817 0.4882

0.5631 0.9038 0.7091 0.6623 0.5002 0.4542 0.5517 0.4375 0.5031 0.5622 0.5789

0 0.3575 0.3373 0.1341 0 0.4423 0 0 0.0420 0 0

0.1648 0.0424 0 0.0526 0.2897 0 0.4488 0.3894 0 0.0600 0.5569

Column 12

1.0000

0.2680

0.3581

0.5919

0.5646

0.0992

0.5733

0.4063

0

x =

0 0 1 1 0 0 0 0 0 1 0 0

0 1 0 1 0 1 0 0 0 0 0 0

0 1 0 1 0 0 0 0 0 1 0 1

1 0 0 0 1 0 0 0 0 1 1 0

0 1 1 0 0 1 0 0 0 0 0 0

1 0 0 0 0 0 1 1 0 0 0 0

1 0 0 0 0 0 1 1 0 0 1 0

0 0 1 0 0 1 0 0 1 0 0 0

0 0 0 0 0 0 1 1 0 0 1 0

Elapsed time is 2268.449331 seconds.

optval =

nontrivial =

25

attempts =

2

yprobs =

Columns 1 through 11

0 0.4498 1.0000 0 0.6558 0.6308 0.3633 0 0 0 0

0.5249 1.0000 0.1628 0.3275 0.3089 0.1215 0.0997 0.5074 0.1286 0.7476 0.4758

0.4595 1.0000 0.0456 0.6444 0.1417 0 0.1773 0.7046 0.1594 0.5522 0.2888

0.4800 1.0000 0.3442 0.4055 0.3461 0.2513 0.2409 0.4442 0.2630 0.6250 0.4570

0.3880 0.4976 0 0.3200 0 0.0009 0 0.3928 0.4112 0.3004 0.3004

0.6279 0.2556 0 0.6456 0 0 0 1.0000 1.0000 0.5086 0.4864

0.5551 0.6038 0.0307 0.6618 0.0898 0.0094 0.0703 0.5818 0.5259 0.7004 0.5885

0.6050 0.6185 0.3343 0.4772 0.8536 0.5290 0.4244 0.9751 0.1840 0.9117 0.5996

0.7310 0.5899 0.3975 0.5272 0.6447 0.5695 0.4585 1.0000 0.2577 1.0000 0.7815

1.0000 0.4008 0 1.0000 0 0 0 1.0000 0.3457 0.7720 0.7720

Column 12

0.0895

0.2505

0.1228

0.4138

0.2872

0

0.2568

0.6249

1.0000

0.0773

x =

0 0 1 0 1 0 0 0 0 0 0 0

1 1 0 0 1 1 0 1 0 0 1 0

0 1 0 0 0 0 0 0 0 1 0 1

0 1 1 0 0 0 1 0 0 1 0 0

1 0 0 1 0 0 0 1 1 0 1 0

0 0 0 0 0 0 0 0 1 0 0 0

1 0 0 1 0 0 1 0 0 1 0 0

0 0 0 0 1 0 0 0 1 0 1 1

0 0 1 0 0 0 0 0 0 0 0 1

0 0 0 1 0 0 0 1 0 0 0 0

Elapsed time is 2465.272604 seconds.

optval =

nontrivial =

24

attempts =

7

yprobs =

0 0 0.3077 0.3866 0 0.4708 0 0.0429 0 0

0 0 0.7614 0.7041 0.6421 0.8259 0.0331 0.2424 0 0

0 0.0832 0.6541 0.6300 0.2954 1.0000 0.0558 0.2268 0 0

0.0420 0.0903 0.2970 0.3131 1.0000 0 1.0000 1.0000 0.2643 0.2898

0.0990 0.0224 0.3155 0.2098 1.0000 0.0128 0.9529 0.6330 0.1348 0.6596

0 0 0 0 0.9174 0 0.6053 1.0000 0 0

0.1907 0.4790 0.8569 0.6868 0.2055 0.3030 0.2085 0.4999 0.2302 0.0792

0.1507 0.2032 1.0000 0.4454 0.4628 0.4238 0.4722 0.5288 0.2459 0.7034

0.4389 0.4101 0.5059 0.8075 1.0000 0.0456 1.0000 1.0000 0.8974 0.2932

0 0 0 0 1.0000 0 0.4250 0 0 0.9305

x =

0 0 0 0 0 1 0 0 0 0

0 0 1 1 1 1 0 0 0 0

0 1 0 1 0 1 0 0 0 0

1 0 0 0 0 0 1 1 1 0

0 0 0 0 1 0 0 0 1 0

0 0 0 0 1 0 1 1 0 0

0 1 1 1 0 0 0 0 0 0

1 1 1 0 0 0 1 1 0 1

1 0 0 0 0 0 0 0 1 1

0 0 0 0 0 0 0 0 0 1

Elapsed time is 2677.755125 seconds.

optval =

nontrivial =

31

attempts =

1

yprobs =

0 1.0000 1.0000 0.6196 0 1.0000 0.4152 0.2377 0 1.0000

0.4325 0.0863 0.5047 0 0.0855 0.2761 0.2475 0 0 0.1889

0.4378 0 0.0062 0 0 0 0 0 0.4766 0

1.0000 0.1726 0.8860 0.0821 0.4275 0.2544 0.2546 0.2792 0.6498 0.2084

0.2725 0 1.0000 0 0.0564 0.2755 0.0039 0.0464 0.3567 0.0471

0.5208 0 1.0000 0 0 0.0166 0 0.0220 0.1679 0

0.2579 0 0.8433 0 0.0829 0.2855 0.0435 0.0767 0.5309 0.0745

0.3608 0.3277 0.3375 0.5374 0.0740 0.6597 0.1988 0.3384 0.2391 0.3496

0.1007 0 0.6855 0 0 0 0 0 0 0

0.7143 0.6599 0.4795 0.4983 0.5512 0.5133 0.5096 0.3065 0.2274 0.4937

0.4117 0 1.0000 0 0.0222 0.1101 0 0.0943 0.0986 0.0338

0.0949 1.0000 0.5442 1.0000 0 1.0000 0.7211 0.2426 0 0.9058

x =

0 0 0 1 0 0 1 0 0 1

1 0 1 0 1 1 1 0 0 0

1 0 0 0 0 0 0 0 1 0

1 1 0 0 1 0 0 0 0 0

0 0 1 0 1 1 0 1 1 0

0 0 0 0 0 0 0 0 1 0

0 0 0 0 0 0 1 1 1 1

0 1 0 1 0 1 0 1 0 1

0 0 1 0 0 0 0 0 0 0

0 1 0 1 0 0 0 0 0 1

1 0 1 0 0 0 0 1 0 0

0 1 0 1 0 1 0 0 0 0

Elapsed time is 2822.328770 seconds.

optval =

nontrivial =

24

attempts =

4

yprobs =

Columns 1 through 11

0 0.8092 0 1.0000 0 0 0 0 0 0 0.3346

0 0.8711 0 0.8697 0 0 0 0 0 0.0470 0.1871

0.1814 0.9497 0.4576 1.0000 0.1499 0.5598 0.0582 0.2576 0.1525 0.2488 0.6068

0 0.3740 0.4684 0.7774 0 0.2081 0 0.0098 0 0 0.0082

0 0.7130 0.2988 0.4043 0 0 0 0.0231 0 0 0

0.1216 0.0878 0 0 0 0 0 0 0 0.2121 0

0 0.9589 1.0000 0.5462 0 0 0 0.0704 0 0.0172 0.0370

0 0.4914 0.1112 0.2705 0 0.2645 0 0 0 0 0

0 0.3092 0 1.0000 0 0 0 0 0 0 0

0 1.0000 0.2469 0.6455 0 0 0 0 0 0 0.0101

Columns 12 through 15

0.2096 0 0.8204 0.6603

0.4837 0.3491 0.5530 0.9010

0.5728 0.5684 1.0000 1.0000

0.8253 0.2193 0.3881 0.3416

0.3588 0.3507 0.4713 0.3666

0 0.9460 0 1.0000

0.6121 0.3894 0.6793 0.5037

1.0000 0 0.1230 0.0232

0.2047 0.0025 0.5555 0.5946

0.5346 0.4764 1.0000 0.6214

x =

0 1 0 0 0 0 0 0 0 0 1 0 0 1 0

0 1 0 0 0 0 0 0 0 0 1 0 1 0 1

0 0 0 1 0 0 0 1 0 1 1 0 0 0 1

0 0 0 0 0 1 0 0 0 0 0 0 0 0 0

0 1 1 0 0 0 0 0 0 0 0 1 1 1 0

1 0 0 0 0 0 0 0 0 1 0 0 1 0 1

0 0 1 1 0 0 0 0 0 1 0 0 0 0 0

0 0 0 0 0 1 0 0 0 0 0 1 0 0 0

0 0 0 1 0 0 0 0 0 0 0 0 0 0 0

0 0 1 0 0 0 0 0 0 0 0 1 0 1 0

Elapsed time is 3115.494897 seconds.

optval =

optvals =

10.0000 10.0000 3.0000 22.0000 110.2168

9.0000 12.0000 3.0000 28.0000 101.3785

10.0000 12.0000 3.0000 25.0000 112.3341

10.0000 10.0000 3.0000 24.0000 95.1599

12.0000 10.0000 4.0000 31.0000 77.1911

10.0000 15.0000 3.0000 24.0000 101.4639

opttimes =

1.0e+03 \*

0.0100 0.0100 0.0030 0.0220 2.1510

0.0090 0.0120 0.0030 0.0280 2.2685

0.0100 0.0120 0.0030 0.0250 2.4653

0.0100 0.0100 0.0030 0.0240 2.6778

0.0120 0.0100 0.0040 0.0310 2.8223

0.0100 0.0150 0.0030 0.0240 3.1155

h5percent =

10.0000 10.0000 3.0000 22.0000 -0.0330 -0.0524 -0.0325

9.0000 12.0000 3.0000 28.0000 0.0010 -0.0030 -0.0051

10.0000 12.0000 3.0000 25.0000 -0.0048 -0.0175 -0.0033

10.0000 10.0000 3.0000 24.0000 0.0066 0.0015 0.0041

12.0000 10.0000 4.0000 31.0000 -0.0079 -0.0116 -0.0038

10.0000 15.0000 3.0000 24.0000 -0.0021 -0.0006 -0.0052

h5time =

10.0000 10.0000 3.0000 22.0000 5.4492 5.4395 5.6433

9.0000 12.0000 3.0000 28.0000 5.5942 5.6666 5.6144

10.0000 12.0000 3.0000 25.0000 6.5003 6.6998 6.4317

10.0000 10.0000 3.0000 24.0000 7.2375 7.0578 6.7254

12.0000 10.0000 4.0000 31.0000 7.2724 7.3905 7.7289

10.0000 15.0000 3.0000 24.0000 8.1142 8.1357 8.0776

k1percent =

10.0000 10.0000 3.0000 22.0000 -0.0291 -0.0424 -0.0372

9.0000 12.0000 3.0000 28.0000 0.0077 -0.0132 -0.0270

10.0000 12.0000 3.0000 25.0000 0.0006 -0.0073 -0.0017

10.0000 10.0000 3.0000 24.0000 0.0077 0.0064 0.0038

12.0000 10.0000 4.0000 31.0000 0.0208 0.0020 -0.0104

10.0000 15.0000 3.0000 24.0000 -0.0066 -0.0039 -0.0063

k1time =

10.0000 10.0000 3.0000 22.0000 11.0396 10.9635 11.1036

9.0000 12.0000 3.0000 28.0000 11.4172 11.3761 11.3319

10.0000 12.0000 3.0000 25.0000 13.0455 12.8184 12.9300

10.0000 10.0000 3.0000 24.0000 13.4198 13.7238 13.4460

12.0000 10.0000 4.0000 31.0000 14.8656 14.6835 14.9534

10.0000 15.0000 3.0000 24.0000 16.2687 16.2662 15.9784

k5percent =

10.0000 10.0000 3.0000 22.0000 -0.0253 -0.0240 -0.0239

9.0000 12.0000 3.0000 28.0000 0.0052 -0.0032 -0.0064

10.0000 12.0000 3.0000 25.0000 -0.0054 -0.0043 -0.0077

10.0000 10.0000 3.0000 24.0000 0.0028 0.0048 0.0041

12.0000 10.0000 4.0000 31.0000 0.0025 0.0031 -0.0017

10.0000 15.0000 3.0000 24.0000 -0.0044 -0.0053 -0.0019

k5time =

10.0000 10.0000 3.0000 22.0000 55.3096 63.3923 54.0068

9.0000 12.0000 3.0000 28.0000 58.6714 58.2092 58.8739

10.0000 12.0000 3.0000 25.0000 64.3553 63.6237 62.8593

10.0000 10.0000 3.0000 24.0000 69.4117 68.8559 71.4088

12.0000 10.0000 4.0000 31.0000 75.0048 74.2197 73.7014

10.0000 15.0000 3.0000 24.0000 80.6424 80.8508 80.7336

k10percent =

10.0000 10.0000 3.0000 22.0000 -0.0188 -0.0188 -0.0187

9.0000 12.0000 3.0000 28.0000 0.0010 -0.0015 -0.0013

10.0000 12.0000 3.0000 25.0000 -0.0065 -0.0056 -0.0038

10.0000 10.0000 3.0000 24.0000 0.0040 0.0050 0.0049

12.0000 10.0000 4.0000 31.0000 0.0002 -0.0047 -0.0023

10.0000 15.0000 3.0000 24.0000 -0.0038 -0.0044 -0.0043

k10time =

10.0000 10.0000 3.0000 22.0000 108.6902 109.8489 111.1258

9.0000 12.0000 3.0000 28.0000 117.1625 117.6533 119.1814

10.0000 12.0000 3.0000 25.0000 128.2992 126.6360 125.9780

10.0000 10.0000 3.0000 24.0000 138.0126 136.8128 136.5748

12.0000 10.0000 4.0000 31.0000 148.9871 150.0883 149.2571

10.0000 15.0000 3.0000 24.0000 162.2933 163.4536 164.9593

k20percent =

10.0000 10.0000 3.0000 22.0000 -0.0140 -0.0133 -0.0130

9.0000 12.0000 3.0000 28.0000 0.0008 0.0025 0.0014

10.0000 12.0000 3.0000 25.0000 -0.0037 -0.0059 -0.0037

10.0000 10.0000 3.0000 24.0000 0.0036 0.0038 0.0042

12.0000 10.0000 4.0000 31.0000 -0.0021 -0.0035 -0.0039

10.0000 15.0000 3.0000 24.0000 -0.0032 -0.0036 -0.0032

k20time =

10.0000 10.0000 3.0000 22.0000 214.4778 219.0464 223.2043

9.0000 12.0000 3.0000 28.0000 238.8585 237.3461 237.7068

10.0000 12.0000 3.0000 25.0000 252.5124 251.0307 257.8247

10.0000 10.0000 3.0000 24.0000 274.5464 276.8394 281.9702

12.0000 10.0000 4.0000 31.0000 300.2124 302.1812 302.4967

10.0000 15.0000 3.0000 24.0000 333.8468 336.2320 340.4364

Testing fixed perf analysis no exhaustive (Round 2)

The ‘exhaustive’ is approximated by using 200,000 scenarios, so each menu only takes like an hour

>> main

notes =

'noexh2'

nontrivial =

23

attempts =

5

yprobs =

0 0.5667 0.7323 1.0000 0 1.0000 0.2941 0.4842 0.3602 0

0 0.9859 0.3984 0.5585 0 0.5168 0.1588 0.1572 0.0902 0

0.6438 0.2142 1.0000 1.0000 0.3997 0.8740 0.2120 0.2797 0.3356 0.2827

0.4915 0 0 0 0.3560 0 0 0 0 1.0000

1.0000 0.0849 0.3141 0.2960 0.3580 0.2725 0 0 0 0.6961

0 0.8631 0.3500 0.0618 0 0.4892 0.3059 0 0.0358 0

0.1347 1.0000 1.0000 1.0000 0 1.0000 0.6174 0.4410 0.3939 0

0 0 0.0511 0 0 0 0.5406 0 0.0726 0

0.0505 0 0.5367 0.3995 0 0.8902 0 0 0 0

1.0000 0.4387 1.0000 1.0000 0.4095 1.0000 0.1903 0.4021 0.4136 0.2276

x =

0 0 1 0 0 0 0 1 1 0

0 1 0 1 0 0 1 0 1 0

1 0 0 1 1 0 0 0 0 0

0 0 0 0 1 0 0 0 0 1

1 1 0 0 0 0 0 0 0 1

0 1 1 0 0 1 1 0 0 0

0 0 1 0 0 0 0 1 1 0

0 0 0 0 0 0 1 0 0 0

0 0 0 0 0 1 0 0 0 0

1 0 0 1 1 0 0 1 0 1

Elapsed time is 3678.477114 seconds.

nontrivial =

22

attempts =

2

yprobs =

Columns 1 through 11

0.9532 0.2313 0.1587 0 0.3135 0 0.0905 0.1658 0 0.9759 1.0000

0 0 0 1.0000 0 0 0 0.0410 0 0.4568 0.4105

1.0000 0.3517 0.2995 0 0.3339 0 0.2719 0 0.3311 0.1482 0.5325

0 0 0 0.2122 0 1.0000 0 0.3721 0 0.8892 0.3278

1.0000 1.0000 1.0000 0 1.0000 0 1.0000 0 0 0 1.0000

0 0 0 0.0741 0 0.5245 0 0.1762 0 0.7099 0.1614

0.0239 0 0 0 0 0 0 0.1494 0 1.0000 0.8163

0.2233 1.0000 0.7629 0 1.0000 0 0.5534 0 0.2875 0 0.2380

0.9723 0.6457 0.6019 0.4147 0.5661 0.0087 0.6835 0.2740 0.0388 0.4043 1.0000

Column 12

0

0

0.2760

0

0.1695

0

0

0.5302

0.3230

x =

1 0 0 0 1 0 1 1 0 1 0 0

0 0 0 1 0 0 0 0 0 0 0 0

1 1 1 0 1 0 0 0 1 0 0 0

0 0 0 0 0 1 0 0 0 0 1 0

0 0 1 0 0 0 1 0 0 0 0 0

0 0 0 1 0 1 0 1 0 1 1 0

0 0 0 0 0 0 0 0 0 1 1 0

0 1 0 0 0 0 0 0 1 0 0 0

1 1 1 0 0 0 1 1 0 0 0 0

Elapsed time is 4251.782870 seconds.

nontrivial =

28

attempts =

2

yprobs =

Columns 1 through 11

0.2673 0.0116 0.7839 0 0 0.1753 0.3285 0 0.0539 0.3802 0

0.4539 0 0.2475 0.0851 0.6209 0.3180 0 0.1693 1.0000 0 0.4767

0.4237 0 0.2628 0.3585 0.0368 0.0976 0 0.3320 0.3936 0 0.3832

1.0000 0 1.0000 0.1458 0 0.5682 0.1311 0.3982 0.3688 0 0.5573

1.0000 0 1.0000 0.0803 0.0505 0.5121 0.3013 0.2258 0.5693 0.0949 0.6201

0.3138 0 0.1037 0 0.9364 0.0392 0 0 0.2673 0 0.2881

0.6312 0 0.6491 0.3869 0.0191 0.1835 0.2785 0.3446 0.3150 0.0073 0.4200

1.0000 0 0.9933 0.2622 0.0973 0.2839 0.2862 0.3507 0.4225 0.0695 0.7000

0.5971 0 0.6318 0.2635 0.4886 0.5098 0.1180 0.4225 0.6851 0.0081 0.6067

0.4590 0 1.0000 0 0 0.4324 0.3088 0 0 0 0

Column 12

0.5594

0.0084

0

0.3240

0.3399

0

0.2106

0.3488

0.1189

0

x =

0 0 1 0 0 0 0 0 0 1 0 1

0 0 0 0 1 0 0 0 1 0 0 0

0 0 0 1 0 0 0 1 0 0 1 0

1 0 0 0 0 1 0 1 0 0 0 0

0 0 0 0 0 1 0 0 0 0 1 1

0 0 0 0 1 0 0 0 0 0 0 0

1 0 0 1 0 0 1 0 1 0 0 1

0 0 1 0 0 0 0 1 0 0 1 0

1 0 0 1 1 1 1 0 1 0 0 0

0 0 1 0 0 0 1 0 0 0 0 0

Elapsed time is 3767.884338 seconds.

nontrivial =

23

attempts =

3

yprobs =

0.4584 0 0 0.7750 0 0 0 0 0 1.0000

0.0128 0 0.4356 0 0 0 0.1713 0.6807 0.0634 0

0.2917 0 0.0975 0 0.4359 0.1755 0.1021 0 0.2347 0

0.5393 0 0 0.3334 0 0.1111 0.3497 0 0.2162 1.0000

0.6775 0 0 0.5283 0 0 0.0580 0 0.1217 1.0000

0.3137 0.1421 0.5461 0.1021 0.1807 0.3352 1.0000 0.2619 0.3412 0.5481

1.0000 0 0 0 0 0 0.2310 0 0.3073 0.6399

0.5665 0.1671 0.7483 0.1147 0.2138 0.5026 1.0000 0.4214 0.6085 0.4501

0.4477 0.2923 0.4507 0.5551 0.4466 0.3662 0.6250 0.2606 0.4384 0.9532

0 0.1504 1.0000 0 0.1028 0 0 0.5186 0 0

x =

0 0 0 1 0 0 0 0 0 0

0 0 0 0 0 0 0 1 0 0

0 0 0 0 1 1 0 0 1 0

0 0 0 1 0 0 0 0 0 1

1 0 0 1 0 0 0 0 0 1

0 1 1 0 0 1 1 0 0 0

1 0 0 0 0 0 0 0 1 0

0 0 1 0 0 1 1 1 0 0

1 0 0 0 1 0 1 1 1 1

0 1 1 0 1 0 0 0 0 0

Elapsed time is 4762.401801 seconds.

nontrivial =

33

attempts =

1

yprobs =

0.0461 0 0.0597 0 0 0 0 0 0 0

0.9049 0 0.4744 0.1231 0 0.0703 0 0.2113 0.1759 0

0 0 0 0.3547 0.0810 0.7973 0.0216 0.8091 0 0

0.2415 0.3056 0.2382 0.6868 0.8739 1.0000 0.5271 0.8029 0.0592 0

0 0 0 0 0 0 0 0 0 0

0.0009 0.9464 0 0.3004 1.0000 0.4350 0.8076 0.1531 0 0.0912

0.6211 0.7939 0.4522 0.5975 0.6730 0.4620 0.5699 0.5816 0.6978 0.4185

0.3240 0 0.1867 0.0468 0 0 0 0.1792 0.2343 0

0.5454 0 0.0049 0 0 0 0 0 0.2003 0

0.1674 0.2671 0.1189 0.2706 0.4912 0.2416 0.2741 0.2992 0.1003 0

0.0027 0.7313 0 0.2503 1.0000 0.6734 0.7846 0.1766 0 0.1989

0 0.4873 0 0 0.0655 0.5101 0.5653 0 0 0.7995

x =

0 0 1 0 0 0 0 0 0 0

1 0 0 0 0 0 0 1 0 0

0 0 0 0 0 1 0 1 0 0

0 0 1 1 1 1 0 0 1 0

0 0 0 0 0 0 0 0 0 0

0 1 0 1 1 0 1 0 0 0

0 1 0 0 0 1 1 0 0 0

1 0 1 0 0 0 0 1 1 0

1 0 0 0 0 0 0 0 1 0

1 1 0 1 1 0 0 1 1 0

0 0 0 1 1 1 1 0 0 0

0 1 0 0 0 0 1 0 0 1

Elapsed time is 5224.768590 seconds.

nontrivial =

26

attempts =

1

yprobs =

Columns 1 through 11

0.3857 0.5902 0.4806 0.0070 0.1844 0 0.0295 0 0.2425 0 0.8328

0.8255 0 0.0085 1.0000 0.0848 0.0568 0.1975 0 0.3038 0 0.0790

0.3696 0.1471 0.4300 0.4979 0.3978 0.5987 0.5067 0.5814 1.0000 0.4537 0.4319

0.3104 0.2269 0.4181 0.0518 0.4152 0 0.0446 0 0.6582 0 0.5202

0.1114 0 0.6555 0.6667 0.3502 0 0.6321 0 1.0000 0 0.3588

0 0 0.1103 0.1213 0.0159 0 0.0604 0 0.0520 0 0.1829

0.2446 0 0.1351 1.0000 0.1618 0.8492 0.6916 0 1.0000 0 0.1852

0 0 0.0042 0.1277 0 0 1.0000 1.0000 0.4626 1.0000 0.0269

0 0 0 0 0 0 0 0 0 0 0

0.2841 0 0.4162 1.0000 0.3631 0.1133 1.0000 0.0772 0.6492 0.0636 0.6871

Columns 12 through 15

0.0360 0 0.5688 0

0.0847 1.0000 0 0.1850

0.7318 0.4719 0.2881 0.4568

0.1281 0.0465 0.4958 0.0851

0.7093 0 0.1120 0.2559

0.1347 0 0 0

0.4676 0.2992 0 0.2541

0.3011 0 0 0

0 0 0 0

1.0000 0.1068 0.0808 0.5271

x =

0 0 1 0 0 0 0 0 0 0 1 0 0 0 0

0 0 0 0 0 0 0 0 0 0 0 0 1 0 0

0 0 0 0 0 1 1 1 0 0 0 1 1 0 1

1 1 1 0 0 0 0 0 1 0 0 0 0 0 0

0 0 0 0 0 0 0 0 1 0 0 1 0 0 1

0 0 1 1 1 0 0 0 0 0 1 0 0 0 0

1 0 0 0 0 1 1 0 0 0 0 0 1 0 0

0 0 0 0 0 0 1 0 0 0 0 0 0 0 0

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

1 0 0 0 0 0 0 0 0 0 1 1 0 1 1

Elapsed time is 4954.570056 seconds.

optvals =

10.0000 10.0000 3.0000 23.0000 92.6762

9.0000 12.0000 3.0000 22.0000 76.4987

10.0000 12.0000 3.0000 28.0000 88.3055

10.0000 10.0000 3.0000 23.0000 86.6485

12.0000 10.0000 4.0000 33.0000 90.0058

10.0000 15.0000 3.0000 26.0000 90.7549

opttimes =

1.0e+03 \*

0.0100 0.0100 0.0030 0.0230 3.6785

0.0090 0.0120 0.0030 0.0220 4.2518

0.0100 0.0120 0.0030 0.0280 3.7679

0.0100 0.0100 0.0030 0.0230 4.7624

0.0120 0.0100 0.0040 0.0330 5.2248

0.0100 0.0150 0.0030 0.0260 4.9546

h5percent =

10.0000 10.0000 3.0000 23.0000 -0.0217 0.0053 -0.0013

9.0000 12.0000 3.0000 22.0000 0.0179 0.0190 0.0185

10.0000 12.0000 3.0000 28.0000 -0.0031 -0.0052 -0.0084

10.0000 10.0000 3.0000 23.0000 -0.0050 -0.0047 0.0051

12.0000 10.0000 4.0000 33.0000 -0.0115 0.0036 -0.0321

10.0000 15.0000 3.0000 26.0000 0.0075 0.0037 -0.0027

h5time =

10.0000 10.0000 3.0000 23.0000 9.5579 9.5124 9.6476

9.0000 12.0000 3.0000 22.0000 11.1243 10.7004 10.5080

10.0000 12.0000 3.0000 28.0000 9.9241 9.7429 9.4033

10.0000 10.0000 3.0000 23.0000 12.3880 11.9438 11.9052

12.0000 10.0000 4.0000 33.0000 13.8257 13.4760 13.0856

10.0000 15.0000 3.0000 26.0000 12.9283 12.3525 13.1498

k1percent =

10.0000 10.0000 3.0000 23.0000 0.0046 -0.0041 0.0053

9.0000 12.0000 3.0000 22.0000 0.0110 0.0127 0.0140

10.0000 12.0000 3.0000 28.0000 -0.0054 -0.0078 -0.0007

10.0000 10.0000 3.0000 23.0000 -0.0024 0.0015 0.0022

12.0000 10.0000 4.0000 33.0000 0.0021 -0.0078 0.0042

10.0000 15.0000 3.0000 26.0000 0.0066 -0.0012 -0.0003

k1time =

10.0000 10.0000 3.0000 23.0000 18.8190 19.3307 20.5293

9.0000 12.0000 3.0000 22.0000 20.9867 21.2277 20.4550

10.0000 12.0000 3.0000 28.0000 18.7347 18.8557 18.8794

10.0000 10.0000 3.0000 23.0000 24.9148 24.9885 24.1979

12.0000 10.0000 4.0000 33.0000 26.0253 26.3020 26.0291

10.0000 15.0000 3.0000 26.0000 25.0065 25.0541 25.3899

k5percent =

10.0000 10.0000 3.0000 23.0000 0.0042 0.0054 0.0010

9.0000 12.0000 3.0000 22.0000 0.0110 0.0112 0.0109

10.0000 12.0000 3.0000 28.0000 0.0012 -0.0003 0.0074

10.0000 10.0000 3.0000 23.0000 0.0014 -0.0035 0.0008

12.0000 10.0000 4.0000 33.0000 -0.0016 -0.0045 -0.0110

10.0000 15.0000 3.0000 26.0000 -0.0024 0.0034 0.0022

k5time =

10.0000 10.0000 3.0000 23.0000 96.3505 99.0016 97.3625

9.0000 12.0000 3.0000 22.0000 104.8648 109.8981 108.0365

10.0000 12.0000 3.0000 28.0000 95.2685 95.2088 95.5298

10.0000 10.0000 3.0000 23.0000 123.1561 122.6792 123.7305

12.0000 10.0000 4.0000 33.0000 133.4263 131.9237 131.9899

10.0000 15.0000 3.0000 26.0000 126.9425 128.0142 127.3350

k10percent =

10.0000 10.0000 3.0000 23.0000 0.0017 0.0001 0.0040

9.0000 12.0000 3.0000 22.0000 0.0077 0.0085 0.0087

10.0000 12.0000 3.0000 28.0000 -0.0025 -0.0041 -0.0008

10.0000 10.0000 3.0000 23.0000 -0.0017 -0.0010 0.0014

12.0000 10.0000 4.0000 33.0000 -0.0083 -0.0075 -0.0084

10.0000 15.0000 3.0000 26.0000 0.0012 0.0019 0.0006

k10time =

10.0000 10.0000 3.0000 23.0000 202.3193 199.7960 199.3410

9.0000 12.0000 3.0000 22.0000 216.9644 219.6980 213.3035

10.0000 12.0000 3.0000 28.0000 194.5203 193.0176 191.7004

10.0000 10.0000 3.0000 23.0000 246.8179 249.2108 246.3659

12.0000 10.0000 4.0000 33.0000 264.7358 266.6542 266.1094

10.0000 15.0000 3.0000 26.0000 253.3455 255.3976 252.6975

k20percent =

10.0000 10.0000 3.0000 23.0000 0.0029 0.0020 0.0016

9.0000 12.0000 3.0000 22.0000 0.0059 0.0057 0.0058

10.0000 12.0000 3.0000 28.0000 -0.0024 -0.0022 -0.0018

10.0000 10.0000 3.0000 23.0000 0.0004 -0.0010 -0.0008

12.0000 10.0000 4.0000 33.0000 -0.0084 -0.0073 -0.0075

10.0000 15.0000 3.0000 26.0000 0.0010 0.0011 0.0002

k20time =

10.0000 10.0000 3.0000 23.0000 391.8384 394.6769 402.6321

9.0000 12.0000 3.0000 22.0000 429.3969 432.9510 449.9443

10.0000 12.0000 3.0000 28.0000 382.0468 383.4400 387.6354

10.0000 10.0000 3.0000 23.0000 496.7798 503.0098 499.9494

12.0000 10.0000 4.0000 33.0000 534.5431 532.8132 536.2997

10.0000 15.0000 3.0000 26.0000 511.5358 503.5065 509.7928

>>