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demo_Polynomial_Dictionary_Learning
Starting to train the dictionary
solving the quadratic problem with YALMIP...
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```
num. of constraints = 85
dim. of socp var = 86, num. of socp blk = 1
dim. of linear var = 800
*****
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SDPT3: Infeasible path-following algorithms
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*****
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version	predcorr	gam	expon	scale_data							
HKM	1	0.000	1	0							
it	pstep	dstep	pinfeas	dinfeas	gap	prim-obj	dual-obj	cputime			
0	0.000	0.000	1.0e+00	9.3e+01	1.1e+07	2.215846e+04	0.000000e+00	0:0:00	chol	1✓	
1	1	1.000	0.991	5.2e-06	9.4e-01	1.4e+05	2.242960e+04	-2.268146e+02	0:0:00	chol	1✓
1	2	1.000	0.784	6.6e-06	2.3e-01	4.2e+04	1.858567e+04	-1.521676e+02	0:0:00	chol	1✓
1	3	0.608	0.919	3.4e-06	2.8e-02	1.8e+04	1.583718e+04	-1.851991e+02	0:0:00	chol	1✓
1	4	0.990	1.000	2.2e-07	3.0e-03	7.2e+02	5.221039e+02	-1.821814e+02	0:0:00	chol	1✓
1	5	0.526	0.426	2.0e-07	1.8e-03	6.3e+02	4.833197e+02	-1.382353e+02	0:0:00	chol	1✓
1	6	1.000	0.666	2.8e-08	6.4e-04	4.7e+02	3.648656e+02	-1.030299e+02	0:0:00	chol	1✓
1	7	0.631	1.000	1.2e-08	3.0e-06	3.4e+02	2.309945e+02	-1.057200e+02	0:0:00	chol	1✓
1	8	1.000	0.915	5.1e-10	5.3e-07	1.6e+02	8.874827e+01	-7.362153e+01	0:0:00	chol	1✓
1	9	1.000	1.000	1.0e-10	3.0e-08	8.7e+01	1.956398e+01	-6.783363e+01	0:0:00	chol	1✓
1	10	1.000	1.000	2.4e-13	3.0e-09	3.3e+01	-2.432243e+01	-5.725610e+01	0:0:00	chol	1✓
1	11	1.000	1.000	1.6e-13	3.0e-10	1.4e+01	-4.139267e+01	-5.495230e+01	0:0:00	chol	1✓
1	12	1.000	1.000	2.1e-14	3.1e-11	5.2e+00	-4.741315e+01	-5.257838e+01	0:0:00	chol	1✓
1	13	1.000	1.000	1.1e-13	4.0e-12	1.8e+00	-5.026054e+01	-5.204978e+01	0:0:00	chol	1✓
1	14	1.000	1.000	1.1e-14	1.3e-12	7.0e-01	-5.100581e+01	-5.170183e+01	0:0:00	chol	1✓
1	15	1.000	1.000	7.4e-14	1.0e-12	2.2e-01	-5.139810e+01	-5.161768e+01	0:0:00	chol	1✓
1	16	1.000	1.000	7.8e-14	1.0e-12	8.7e-02	-5.148814e+01	-5.157501e+01	0:0:00	chol	1✓
1	17	1.000	1.000	2.5e-13	1.0e-12	2.3e-02	-5.153973e+01	-5.156301e+01	0:0:00	chol	1✓
1	18	1.000	1.000	7.8e-13	1.0e-12	9.4e-03	-5.154973e+01	-5.155908e+01	0:0:00	chol	1✓
1	19	1.000	1.000	3.7e-12	1.0e-12	2.7e-03	-5.155520e+01	-5.155790e+01	0:0:00	chol	1✓

```

20|0.606|1.000|1.1e-12|1.0e-12|1.6e-03|-5.155610e+01 -5.155766e+01| 0:0:00| chol 1✓
1
21|1.000|1.000|8.7e-12|1.0e-12|3.7e-04|-5.155721e+01 -5.155758e+01| 0:0:00| chol 2✓
2
22|1.000|1.000|5.6e-12|1.5e-12|1.2e-04|-5.155743e+01 -5.155755e+01| 0:0:01| chol 2✓
2
23|0.997|1.000|2.9e-12|1.1e-12|2.5e-05|-5.155752e+01 -5.155754e+01| 0:0:01| chol 2✓
2
24|1.000|1.000|1.0e-11|1.0e-12|8.1e-06|-5.155753e+01 -5.155754e+01| 0:0:01|
stop: max(relative gap, infeasibilities) < 1.00e-07

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```

-----
number of iterations    = 24
primal objective value = -5.15575348e+01
dual  objective value = -5.15575429e+01
gap := trace(XZ)        = 8.07e-06
relative gap           = 7.75e-08
actual relative gap    = 7.75e-08
rel. primal infeas     = 1.03e-11
rel. dual  infeas     = 1.00e-12
norm(X), norm(y), norm(Z) = 1.1e+00, 5.2e+01, 2.0e+01
norm(A), norm(b), norm(C) = 1.8e+03, 4.0e+01, 7.7e+01
Total CPU time (secs)   = 0.52
CPU time per iteration = 0.02
termination code        = 0
DIMACS errors: 2.3e-11  0.0e+00  1.4e-12  0.0e+00  7.8e-08  7.8e-08
-----

```

ans =

51.5575

```

num. of constraints = 85
dim. of socp var   = 86,   num. of socp blk = 1
dim. of linear var = 800
*****
SDPT3: Infeasible path-following algorithms
*****
version  predcorr  gam  expon  scale_data
HKM      1      0.000  1      0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj      cputime
-----
0|0.000|0.000|1.0e+00|8.9e+02|8.6e+09| 1.693547e+07  0.000000e+00| 0:0:00| chol 1✓
1
1|1.000|0.982|2.0e-07|1.6e+01|1.8e+08| 1.681019e+07 -1.065965e+04| 0:0:00| chol 2✓
2
2|1.000|0.804|1.2e-08|3.1e+00|6.5e+07| 1.940373e+07 -4.580063e+04| 0:0:00| chol 2✓
2
3|0.486|0.502|7.0e-09|1.5e+00|4.4e+07| 1.893742e+07 -8.037891e+04| 0:0:00| chol 2✓
3
4|0.243|0.503|5.9e-09|7.7e-01|3.2e+07| 1.869591e+07 -1.419240e+05| 0:0:00| chol 3✓
2
5|0.305|0.384|4.9e-09|4.7e-01|2.6e+07| 1.779568e+07 -2.007518e+05| 0:0:00| chol 3✓
2

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```

6|0.169|0.540|4.8e-09|2.2e-01|2.2e+07| 1.706681e+07 -2.752908e+05| 0:0:00| chol 2✓
2
7|0.356|0.307|3.6e-09|1.5e-01|1.8e+07| 1.524098e+07 -3.336803e+05| 0:0:00| chol 3✓
3
8|0.103|0.648|4.7e-09|5.4e-02|1.6e+07| 1.469192e+07 -4.091875e+05| 0:0:00| chol 3✓
2
9|0.390|0.228|4.2e-09|4.1e-02|1.4e+07| 1.287444e+07 -4.630904e+05| 0:0:00| chol 3✓
3
10|0.073|0.751|1.5e-08|1.0e-02|1.3e+07| 1.254727e+07 -3.415440e+05| 0:0:00| chol 3✓
3
11|0.241|0.426|2.2e-08|6.0e-03|1.2e+07| 1.161285e+07 -4.152749e+05| 0:0:00| chol 3✓
3
12|1.000|0.603|1.2e-07|2.4e-03|7.0e+06| 6.456055e+06 -5.177139e+05| 0:0:00| chol 3✓
3
13|0.741|1.000|1.4e-06|4.5e-05|5.5e+06| 5.177157e+06 -3.110196e+05| 0:0:00| chol 2✓
3
14|0.729|1.000|2.4e-07|2.3e-05|3.7e+06| 3.174929e+06 -5.337022e+05| 0:0:00| chol 2✓
2
15|1.000|1.000|8.5e-09|1.1e-05|1.8e+06| 1.549225e+06 -2.172433e+05| 0:0:00| chol 2✓
2
16|0.925|0.989|2.2e-09|5.7e-06|4.9e+05| 4.115665e+05 -8.024508e+04| 0:0:00| chol 2✓
2
17|1.000|1.000|1.2e-08|2.8e-06|2.9e+05| 2.390259e+05 -5.078699e+04| 0:0:00| chol 2✓
2
18|1.000|1.000|1.1e-09|1.4e-06|8.5e+04| 6.747567e+04 -1.716311e+04| 0:0:00| chol 2✓
2
19|1.000|1.000|2.0e-10|7.0e-07|4.0e+04| 3.210278e+04 -8.173156e+03| 0:0:00| chol 2✓
2
20|1.000|1.000|4.7e-11|7.0e-08|1.2e+04| 9.252827e+03 -2.666494e+03| 0:0:00| chol 2✓
2
21|1.000|1.000|2.7e-11|7.1e-09|5.0e+03| 3.970770e+03 -1.016657e+03| 0:0:00| chol 2✓
2
22|1.000|1.000|1.4e-11|7.1e-10|1.5e+03| 1.141557e+03 -3.294386e+02| 0:0:00| chol 2✓
2
23|1.000|1.000|7.0e-12|7.3e-11|6.0e+02| 4.846014e+02 -1.146424e+02| 0:0:00| chol 2✓
2
24|1.000|1.000|3.6e-12|8.4e-12|1.6e+02| 1.182954e+02 -4.317118e+01| 0:0:00| chol 2✓
2
25|1.000|1.000|1.8e-12|1.7e-12|6.8e+01| 4.473047e+01 -2.290429e+01| 0:0:00| chol 2✓
2
26|0.959|1.000|2.2e-12|1.1e-12|1.4e+01|-2.496950e+00 -1.653284e+01| 0:0:00| chol 2✓
2
27|1.000|1.000|9.5e-12|1.0e-12|5.8e+00|-9.800468e+00 -1.563366e+01| 0:0:00| chol 2✓
2
28|0.948|0.988|1.3e-11|1.5e-12|9.6e-01|-1.436065e+01 -1.531615e+01| 0:0:00| chol 3✓
3
29|1.000|1.000|9.6e-12|2.3e-12|3.1e-01|-1.497600e+01 -1.528920e+01| 0:0:00| chol 4✓
4
30|1.000|1.000|2.0e-11|1.9e-12|8.5e-02|-1.519644e+01 -1.528166e+01| 0:0:00| chol 6✓
6
31|0.935|1.000|3.1e-11|2.9e-12|1.8e-02|-1.526267e+01 -1.528022e+01| 0:0:00| chol
linsysolve: Schur complement matrix not positive definite
switch to LU factor. lu 30 ^ 2
32|1.000|1.000|1.0e-09|4.3e-12|6.2e-03|-1.527387e+01 -1.528006e+01| 0:0:00| lu 30✓

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30
33|0.962|0.962|1.4e-09|6.7e-12|1.1e-03|-1.527894e+01 -1.528002e+01| 0:0:00| lu 30 ✓
^18
34|0.918|0.782|2.4e-09|1.1e-11|9.9e-05|-1.528000e+01 -1.528002e+01| 0:0:00| lu 30 ^✓
6
35|0.144|0.160|4.0e-09|2.4e-11|9.2e-05|-1.527998e+01 -1.528002e+01| 0:0:00| lu 30 ✓
30
36|0.521|0.702|2.8e-08|2.9e-11|7.5e-05|-1.527995e+01 -1.528002e+01| 0:0:00|
  stop: progress is too slow
  stop: progress is bad*
-----
number of iterations    = 36
primal objective value = -1.52799546e+01
dual   objective value = -1.52800158e+01
gap := trace(XZ)        = 7.51e-05
relative gap            = 2.38e-06
actual relative gap     = 1.94e-06
rel. primal infeas      = 2.81e-08
rel. dual   infeas      = 2.91e-11
norm(X), norm(y), norm(Z) = 2.7e+01, 8.8e+01, 5.6e+01
norm(A), norm(b), norm(C) = 1.8e+05, 2.9e+05, 7.7e+01
Total CPU time (secs)   = 0.39
CPU time per iteration = 0.01
termination code        = -5
DIMACS errors: 7.1e-08  0.0e+00  4.2e-11  0.0e+00  1.9e-06  2.4e-06
-----

ans =

    15.2800

Iteration    2    Total error is: 0.015931

num. of constraints = 85
dim. of socp var   = 86,   num. of socp blk   = 1
dim. of linear var = 800
*****
SDPT3: Infeasible path-following algorithms
*****
version predcorr gam expon scale_data
HKM      1      0.000  1      0
it pstep dstep pinfeas dinfeas gap      prim-obj      dual-obj      cputime
-----
0|0.000|0.000|1.0e+00|8.6e+02|1.1e+10| 2.101967e+07  0.000000e+00| 0:0:00| chol 1 ✓
1
1|1.000|0.983|9.5e-08|1.4e+01|2.2e+08| 2.086529e+07 -8.229158e+03| 0:0:00| chol 2 ✓
2
2|1.000|0.858|1.6e-08|2.0e+00|6.3e+07| 2.261573e+07 -4.204936e+04| 0:0:00| chol 3 ✓
2
3|0.587|0.476|2.6e-08|1.1e+00|4.1e+07| 1.972229e+07 -6.564791e+04| 0:0:00| chol 2 ✓
3
4|0.215|0.533|2.1e-08|5.1e-01|3.0e+07| 1.923222e+07 -1.256017e+05| 0:0:00| chol 2 ✓
2
5|0.345|0.358|1.4e-08|3.3e-01|2.5e+07| 1.792961e+07 -1.752123e+05| 0:0:00| chol 3 ✓

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2
6|0.134|0.549|1.1e-08|1.5e-01|2.1e+07| 1.730671e+07 -2.577273e+05| 0:0:00| chol 2✓
2
7|0.366|0.298|7.9e-09|1.0e-01|1.8e+07| 1.546075e+07 -3.157350e+05| 0:0:00| chol 3✓
3
8|0.078|0.665|9.0e-09|3.5e-02|1.6e+07| 1.503234e+07 -4.261421e+05| 0:0:00| chol 2✓
3
9|0.297|0.344|7.0e-09|2.3e-02|1.5e+07| 1.383224e+07 -4.890296e+05| 0:0:00| chol 3✓
3
10|0.091|0.213|1.3e-08|1.8e-02|1.5e+07| 1.352232e+07 -3.983663e+05| 0:0:00| chol 3✓
3
11|0.405|0.554|8.9e-09|8.1e-03|1.3e+07| 1.214055e+07 -5.436675e+05| 0:0:00| chol 3✓
3
12|0.694|1.000|6.3e-08|9.0e-05|8.2e+06| 7.687333e+06 -5.049478e+05| 0:0:00| chol 2✓
3
13|1.000|1.000|1.1e-07|4.5e-05|5.7e+06| 5.239865e+06 -4.879933e+05| 0:0:00| chol 2✓
2
14|1.000|1.000|1.2e-08|2.3e-05|3.1e+06| 2.759556e+06 -3.755311e+05| 0:0:00| chol 2✓
2
15|1.000|1.000|1.8e-08|1.1e-05|1.2e+06| 1.026197e+06 -1.766391e+05| 0:0:00| chol 2✓
2
16|1.000|1.000|6.5e-09|5.6e-06|5.7e+05| 4.874869e+05 -8.455738e+04| 0:0:00| chol 2✓
2
17|1.000|1.000|4.3e-09|2.8e-06|2.2e+05| 1.720650e+05 -4.607137e+04| 0:0:00| chol 2✓
2
18|1.000|1.000|6.0e-10|1.4e-06|9.3e+04| 7.652391e+04 -1.644852e+04| 0:0:00| chol 2✓
2
19|1.000|1.000|1.5e-10|7.0e-07|3.3e+04| 2.503183e+04 -8.239482e+03| 0:0:00| chol 2✓
2
20|1.000|1.000|7.4e-11|7.0e-08|1.3e+04| 1.056086e+04 -2.475622e+03| 0:0:00| chol 2✓
2
21|1.000|1.000|3.2e-11|7.1e-09|4.4e+03| 3.257971e+03 -1.092997e+03| 0:0:00| chol 2✓
2
22|1.000|1.000|5.6e-12|7.1e-10|1.7e+03| 1.409330e+03 -3.047525e+02| 0:0:00| chol 2✓
2
23|1.000|1.000|6.8e-12|7.2e-11|5.0e+02| 3.865310e+02 -1.181825e+02| 0:0:00| chol 2✓
2
24|1.000|1.000|3.2e-12|8.4e-12|2.1e+02| 1.753835e+02 -3.720125e+01| 0:0:00| chol 2✓
2
25|0.970|1.000|1.9e-12|1.7e-12|5.0e+01| 3.485304e+01 -1.526713e+01| 0:0:00| chol 2✓
2
26|1.000|1.000|2.2e-12|1.1e-12|2.2e+01| 1.134788e+01 -1.038973e+01| 0:0:00| chol 2✓
2
27|0.943|0.998|3.3e-12|1.0e-12|3.9e+00|-4.834582e+00 -8.741277e+00| 0:0:00| chol 3✓
3
28|1.000|1.000|9.8e-12|1.0e-12|1.5e+00|-7.090224e+00 -8.606770e+00| 0:0:00| chol 3✓
3
29|1.000|1.000|7.3e-12|1.5e-12|3.1e-01|-8.239546e+00 -8.551385e+00| 0:0:00| chol 3✓
3
30|0.934|0.987|2.6e-11|1.5e-12|6.3e-02|-8.481943e+00 -8.544735e+00| 0:0:00| chol 13✓
8
31|1.000|1.000|7.0e-11|2.2e-12|2.5e-02|-8.518590e+00 -8.544040e+00| 0:0:00| chol
linsysolve: Schur complement matrix not positive definite
switch to LU factor. lu 30 1

```

```

32|1.000|0.915|4.3e-11|3.5e-12|3.6e-03|-8.540122e+00 -8.543774e+00| 0:0:00| 1u 30✓
^28
33|0.809|0.917|2.3e-10|5.2e-12|1.0e-03|-8.542702e+00 -8.543755e+00| 0:0:00| 1u 30✓
30
34|0.910|0.733|8.1e-10|8.8e-12|9.7e-05|-8.543683e+00 -8.543746e+00| 0:0:00| 1u 13✓
30
35|0.915|0.791|2.6e-09|1.3e-11|1.9e-05|-8.543761e+00 -8.543746e+00| 0:0:00| 1u 30✓
30
36|0.969|1.000|1.5e-08|1.7e-11|8.2e-06|-8.543757e+00 -8.543746e+00| 0:0:00| 1u 17✓
^25
37|0.991|0.875|1.0e-08|2.7e-11|1.3e-06|-8.543774e+00 -8.543746e+00| 0:0:00|
stop: max(relative gap, infeasibilities) < 1.00e-07

```

```

-----
number of iterations    = 37
primal objective value = -8.54377431e+00
dual   objective value = -8.54374604e+00
gap := trace(XZ)        = 1.30e-06
relative gap           = 7.18e-08
actual relative gap    = -1.56e-06
rel. primal infeas     = 1.02e-08
rel. dual   infeas     = 2.71e-11
norm(X), norm(y), norm(Z) = 3.2e+01, 9.5e+01, 6.5e+01
norm(A), norm(b), norm(C) = 1.6e+05, 2.5e+05, 7.7e+01
Total CPU time (secs)   = 0.40
CPU time per iteration = 0.01
termination code        = 0
DIMACS errors: 2.7e-08  0.0e+00  3.9e-11  0.0e+00  -1.6e-06  7.2e-08
-----

```

ans =

8.5437

Iteration 3 Total error is: 0.011884

```

num. of constraints = 85
dim. of socp var   = 86,   num. of socp blk = 1
dim. of linear var = 800

```

\*\*\*\*\*

SDPT3: Infeasible path-following algorithms

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```

version predcorr gam expon scale_data
HKM      1      0.000  1      0
it pstep dstep pinfeas dinfeas gap      prim-obj      dual-obj      cputime
-----

```

```

0|0.000|0.000|1.0e+00|1.1e+03|9.5e+09| 1.884629e+07  0.000000e+00| 0:0:00| chol 1✓
1
1|1.000|0.986|2.0e-07|1.6e+01|1.7e+08| 1.871257e+07 -1.720235e+04| 0:0:00| chol 2✓
2
2|1.000|0.825|8.0e-09|2.8e+00|4.8e+07| 1.701583e+07 -1.709044e+04| 0:0:00| chol 2✓
2
3|0.362|0.527|6.5e-09|1.3e+00|3.1e+07| 1.575477e+07 -4.109741e+04| 0:0:00| chol 2✓
2
4|0.227|0.495|5.3e-09|6.6e-01|2.4e+07| 1.527395e+07 -8.752182e+04| 0:0:00| chol 2✓

```

```
2
5|0.297|0.365|4.5e-09|4.2e-01|2.0e+07| 1.438664e+07 -1.315650e+05| 0:0:00| chol 2✓
2
6|0.140|0.508|4.1e-09|2.1e-01|1.7e+07| 1.387126e+07 -2.097194e+05| 0:0:00| chol 2✓
2
7|0.347|0.317|3.3e-09|1.4e-01|1.5e+07| 1.245291e+07 -2.664569e+05| 0:0:00| chol 2✓
3
8|0.101|0.682|6.4e-09|4.5e-02|1.3e+07| 1.200831e+07 -3.652486e+05| 0:0:00| chol 2✓
2
9|0.444|0.244|8.6e-09|3.4e-02|1.1e+07| 1.029037e+07 -4.119225e+05| 0:0:00| chol 3✓
3
10|0.121|1.000|4.8e-09|3.6e-04|1.0e+07| 9.740463e+06 -3.389517e+05| 0:0:00| chol 2✓
2
11|0.579|0.536|2.7e-08|2.6e-04|8.0e+06| 7.556632e+06 -4.382791e+05| 0:0:00| chol 2✓
3
12|0.485|1.000|6.2e-09|9.0e-05|7.1e+06| 6.665813e+06 -4.575511e+05| 0:0:00| chol 2✓
3
13|1.000|1.000|1.7e-08|4.5e-05|4.8e+06| 4.326128e+06 -4.762878e+05| 0:0:00| chol 2✓
2
14|1.000|1.000|3.0e-08|2.3e-05|1.8e+06| 1.557359e+06 -2.380514e+05| 0:0:00| chol 2✓
2
15|1.000|1.000|2.5e-08|1.1e-05|7.9e+05| 6.580577e+05 -1.336124e+05| 0:0:00| chol 2✓
2
16|1.000|1.000|5.3e-09|5.6e-06|3.5e+05| 2.908162e+05 -5.618886e+04| 0:0:00| chol 2✓
2
17|1.000|1.000|4.0e-09|2.8e-06|1.3e+05| 1.033972e+05 -3.034596e+04| 0:0:00| chol 2✓
2
18|1.000|1.000|6.0e-10|1.4e-06|5.3e+04| 4.309637e+04 -9.931886e+03| 0:0:00| chol 2✓
2
19|1.000|1.000|2.3e-10|7.0e-07|1.9e+04| 1.385067e+04 -4.683376e+03| 0:0:00| chol 2✓
2
20|1.000|1.000|4.7e-11|7.0e-08|7.2e+03| 5.849935e+03 -1.355103e+03| 0:0:00| chol 2✓
2
21|1.000|1.000|2.2e-11|7.1e-09|2.3e+03| 1.742398e+03 -5.605307e+02| 0:0:00| chol 2✓
2
22|1.000|1.000|4.9e-12|7.1e-10|9.3e+02| 7.760531e+02 -1.519875e+02| 0:0:00| chol 2✓
2
23|1.000|1.000|6.3e-12|7.1e-11|2.5e+02| 2.003008e+02 -5.229319e+01| 0:0:00| chol 2✓
2
24|1.000|1.000|3.2e-12|8.3e-12|1.1e+02| 9.452341e+01 -1.619785e+01| 0:0:00| chol 2✓
2
25|0.953|1.000|1.9e-12|1.7e-12|2.3e+01| 1.789464e+01 -4.983600e+00| 0:0:00| chol 2✓
2
26|1.000|1.000|2.0e-12|1.1e-12|9.7e+00| 6.205846e+00 -3.495674e+00| 0:0:00| chol 2✓
2
27|0.961|1.000|1.5e-12|1.0e-12|1.7e+00|-1.167414e+00 -2.915446e+00| 0:0:00| chol 3✓
3
28|1.000|1.000|2.4e-12|1.0e-12|6.6e-01|-2.206722e+00 -2.866540e+00| 0:0:00| chol 3✓
3
29|0.993|0.990|5.2e-12|1.0e-12|1.1e-01|-2.740555e+00 -2.848603e+00| 0:0:00| chol 5✓
5
30|1.000|1.000|6.5e-12|1.1e-12|3.7e-02|-2.810558e+00 -2.847207e+00| 0:0:00| chol 7✓
8
31|1.000|1.000|2.2e-11|1.3e-12|7.0e-03|-2.839830e+00 -2.846855e+00| 0:0:00| chol
```

```

linsysolve: Schur complement matrix not positive definite
switch to LU factor. lu 30 30
32|1.000|1.000|3.9e-10|1.9e-12|2.3e-03|-2.844506e+00 -2.846822e+00| 0:0:00| lu 11✓
^25
33|0.747|0.667|9.5e-10|3.6e-12|5.9e-04|-2.846217e+00 -2.846819e+00| 0:0:00| lu 11✓
^20
34|0.204|0.876|2.6e-09|4.8e-12|4.9e-04|-2.846323e+00 -2.846818e+00| 0:0:00| lu 30✓
30
35|1.000|1.000|5.7e-08|6.5e-12|3.3e-04|-2.846459e+00 -2.846818e+00| 0:0:00| lu 30✓
^27
36|0.843|0.696|1.7e-08|1.2e-11|9.9e-05|-2.846697e+00 -2.846818e+00| 0:0:00| lu 30✓
30
37|0.301|0.552|9.3e-08|2.0e-11|8.2e-05|-2.846728e+00 -2.846818e+00| 0:0:00| lu 25✓
30
38|0.423|1.000|2.9e-08|2.2e-11|7.1e-05|-2.846762e+00 -2.846818e+00| 0:0:00|
stop: progress is too slow
stop: progress is bad*
-----
number of iterations    = 38
primal objective value = -2.84676170e+00
dual   objective value = -2.84681825e+00
gap := trace(XZ)       = 7.11e-05
relative gap           = 1.06e-05
actual relative gap    = 8.45e-06
rel. primal infeas     = 2.86e-08
rel. dual   infeas     = 2.21e-11
norm(X), norm(y), norm(Z) = 3.5e+01, 1.0e+02, 7.3e+01
norm(A), norm(b), norm(C) = 1.9e+05, 2.0e+05, 7.7e+01
Total CPU time (secs)   = 0.39
CPU time per iteration = 0.01
termination code        = -5
DIMACS errors: 8.9e-08  0.0e+00  3.2e-11  0.0e+00  8.4e-06  1.1e-05
-----

ans =

    2.8468

Iteration    4    Total error is: 0.0068656

num. of constraints = 85
dim. of socp var   = 86,   num. of socp blk = 1
dim. of linear var = 800
*****
SDPT3: Infeasible path-following algorithms
*****
version predcorr gam expon scale_data
   HKM      1      0.000  1      0
it pstep dstep pinfeas dinfeas gap      prim-obj      dual-obj      cputime
-----
0|0.000|0.000|1.0e+00|1.1e+03|7.7e+09| 1.523343e+07  0.000000e+00| 0:0:00| chol  1✓
1
1|1.000|0.986|1.3e-07|1.5e+01|1.3e+08| 1.512866e+07 -1.605539e+04| 0:0:00| chol  2✓
2

```



```
2|1.000|0.809|4.7e-09|2.8e+00|4.0e+07| 1.363134e+07 -1.208099e+04| 0:0:00| chol 2✓
2
3|0.319|0.533|4.1e-09|1.3e+00|2.6e+07| 1.289631e+07 -3.501177e+04| 0:0:00| chol 2✓
2
4|0.230|0.475|3.7e-09|7.0e-01|2.0e+07| 1.252090e+07 -7.521093e+04| 0:0:00| chol 2✓
2
5|0.269|0.367|3.6e-09|4.5e-01|1.7e+07| 1.189191e+07 -1.167688e+05| 0:0:00| chol 2✓
2
6|0.142|0.480|4.3e-09|2.3e-01|1.4e+07| 1.146483e+07 -1.896423e+05| 0:0:00| chol 2✓
2
7|0.320|0.330|3.7e-09|1.6e-01|1.2e+07| 1.036786e+07 -2.472275e+05| 0:0:00| chol 2✓
2
8|0.119|0.674|3.8e-09|5.1e-02|1.1e+07| 9.923300e+06 -3.368208e+05| 0:0:00| chol 2✓
2
9|0.452|0.247|4.3e-09|3.8e-02|9.4e+06| 8.410125e+06 -3.784284e+05| 0:0:00| chol 2✓
3
10|0.158|0.978|1.3e-08|9.9e-04|8.1e+06| 7.725585e+06 -2.949797e+05| 0:0:00| chol 2✓
2
11|0.333|0.444|3.1e-08|6.0e-04|7.2e+06| 6.853862e+06 -3.710883e+05| 0:0:00| chol 2✓
3
12|0.206|1.000|1.8e-08|9.0e-05|7.0e+06| 6.522384e+06 -4.517485e+05| 0:0:00| chol 2✓
3
13|1.000|1.000|2.6e-08|4.5e-05|5.0e+06| 4.525222e+06 -4.846593e+05| 0:0:00| chol 2✓
2
14|1.000|1.000|7.6e-08|2.3e-05|2.0e+06| 1.702331e+06 -2.716752e+05| 0:0:00| chol 2✓
2
15|1.000|1.000|4.2e-09|1.1e-05|8.5e+05| 7.185896e+05 -1.294321e+05| 0:0:00| chol 2✓
2
16|1.000|1.000|9.4e-09|5.6e-06|3.8e+05| 3.101290e+05 -6.719933e+04| 0:0:00| chol 2✓
2
17|1.000|1.000|1.5e-09|2.8e-06|1.4e+05| 1.120074e+05 -2.783952e+04| 0:0:00| chol 2✓
1
18|1.000|1.000|3.7e-10|1.4e-06|5.5e+04| 4.363693e+04 -1.145679e+04| 0:0:00| chol 2✓
2
19|1.000|1.000|7.0e-11|7.0e-07|1.8e+04| 1.439799e+04 -4.061859e+03| 0:0:00| chol 1✓
2
20|1.000|1.000|2.4e-11|7.0e-08|7.1e+03| 5.579687e+03 -1.470757e+03| 0:0:00| chol 2✓
2
21|1.000|1.000|9.6e-12|7.0e-09|2.2e+03| 1.736627e+03 -4.561050e+02| 0:0:00| chol 2✓
2
22|1.000|1.000|2.6e-12|7.1e-10|8.5e+02| 7.001293e+02 -1.511371e+02| 0:0:00| chol 1✓
2
23|1.000|1.000|2.2e-12|7.1e-11|2.4e+02| 1.979441e+02 -4.019174e+01| 0:0:00| chol 2✓
2
24|1.000|1.000|1.3e-12|8.0e-12|9.4e+01| 8.176095e+01 -1.231045e+01| 0:0:00| chol 2✓
2
25|0.981|1.000|5.7e-13|1.7e-12|2.0e+01| 1.744349e+01 -2.727022e+00| 0:0:00| chol 2✓
2
26|1.000|1.000|1.0e-12|1.1e-12|8.6e+00| 7.320803e+00 -1.298735e+00| 0:0:00| chol 2✓
2
27|0.947|0.993|1.7e-12|1.0e-12|1.6e+00| 8.154893e-01 -7.674771e-01| 0:0:00| chol 3✓
3
28|1.000|1.000|5.2e-12|1.0e-12|6.3e-01|-9.544804e-02 -7.238093e-01| 0:0:00| chol 3✓
3
```

```

29|1.000|1.000|7.9e-12|1.0e-12|1.2e-01|-5.821541e-01 -7.051578e-01| 0:0:00| chol 4✓
5
30|0.965|1.000|1.1e-11|1.6e-12|2.7e-02|-6.763581e-01 -7.032375e-01| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^18
31|1.000|1.000|8.0e-11|2.1e-12|1.1e-02|-6.922538e-01 -7.030094e-01| 0:0:00| lu 30✓
30
32|0.872|0.771|8.8e-10|3.7e-12|2.0e-03|-7.009510e-01 -7.029421e-01| 0:0:00| lu 30✓
^10
33|1.000|1.000|1.3e-09|4.8e-12|8.9e-04|-7.020514e-01 -7.029361e-01| 0:0:00| lu 29✓
30
34|0.901|0.714|1.9e-09|8.5e-12|2.1e-04|-7.027242e-01 -7.029350e-01| 0:0:00| lu 30✓
^11
35|0.416|0.676|3.3e-08|1.3e-11|1.6e-04|-7.027642e-01 -7.029349e-01| 0:0:00| lu 30 ^✓
8
36|0.319|0.497|1.3e-08|2.3e-11|1.5e-04|-7.027972e-01 -7.029350e-01| 0:0:00| lu 30✓
^15
37|0.043|0.108|6.9e-08|4.5e-11|1.5e-04|-7.028004e-01 -7.029349e-01| 0:0:00|
  stop: progress is too slow
  stop: progress is bad
  stop: progress is bad*

```

```

-----
number of iterations    = 37
primal objective value = -7.02764200e-01
dual   objective value = -7.02934875e-01
gap := trace(XZ)       = 1.64e-04
relative gap           = 6.82e-05
actual relative gap    = 7.09e-05
rel. primal infeas     = 3.32e-08
rel. dual   infeas     = 1.35e-11
norm(X), norm(y), norm(Z) = 3.7e+01, 1.0e+02, 7.6e+01
norm(A), norm(b), norm(C) = 1.9e+05, 2.1e+05, 7.7e+01
Total CPU time (secs)   = 0.38
CPU time per iteration = 0.01
termination code        = -5
DIMACS errors: 1.1e-07  0.0e+00  1.9e-11  0.0e+00  7.1e-05  6.8e-05
-----

```

ans =

0.7029

Iteration 5 Total error is: 0.0034089

```

num. of constraints = 85
dim. of socp var   = 86,   num. of socp blk = 1
dim. of linear var = 800
*****
SDPT3: Infeasible path-following algorithms
*****
version predcorr gam expon scale_data
HKM      1      0.000  1      0
it pstep dstep pinfeas dinfeas gap      prim-obj      dual-obj      cputime
-----

```

```
0|0.000|0.000|1.0e+00|1.1e+03|7.7e+09| 1.529376e+07 0.000000e+00| 0:0:00| chol 1✓
1
1|1.000|0.986|1.1e-07|1.5e+01|1.3e+08| 1.518870e+07 -1.646157e+04| 0:0:00| chol 2✓
2
2|1.000|0.808|4.2e-09|2.9e+00|4.0e+07| 1.361999e+07 -1.178549e+04| 0:0:00| chol 2✓
2
3|0.314|0.533|3.9e-09|1.3e+00|2.6e+07| 1.290041e+07 -3.493864e+04| 0:0:00| chol 1✓
2
4|0.230|0.473|3.4e-09|7.1e-01|2.0e+07| 1.252322e+07 -7.513532e+04| 0:0:00| chol 1✓
2
5|0.267|0.367|3.4e-09|4.5e-01|1.7e+07| 1.190211e+07 -1.170900e+05| 0:0:00| chol 2✓
2
6|0.142|0.476|4.0e-09|2.4e-01|1.4e+07| 1.147479e+07 -1.906073e+05| 0:0:00| chol 2✓
2
7|0.315|0.331|3.4e-09|1.6e-01|1.3e+07| 1.039119e+07 -2.495562e+05| 0:0:00| chol 2✓
2
8|0.121|0.672|3.6e-09|5.2e-02|1.1e+07| 9.937757e+06 -3.413382e+05| 0:0:00| chol 2✓
2
9|0.453|0.248|6.5e-09|3.9e-02|9.4e+06| 8.411937e+06 -3.834502e+05| 0:0:00| chol 2✓
2
10|0.158|0.975|6.6e-09|1.1e-03|8.1e+06| 7.730251e+06 -2.952234e+05| 0:0:00| chol 2✓
2
11|0.323|0.431|1.8e-08|6.8e-04|7.3e+06| 6.881156e+06 -3.711353e+05| 0:0:00| chol 2✓
3
12|0.202|1.000|7.5e-08|9.0e-05|7.0e+06| 6.559410e+06 -4.506359e+05| 0:0:00| chol 2✓
3
13|1.000|1.000|6.5e-09|4.5e-05|5.0e+06| 4.516548e+06 -4.905907e+05| 0:0:00| chol 1✓
2
14|1.000|1.000|4.9e-08|2.3e-05|2.0e+06| 1.723073e+06 -2.742003e+05| 0:0:00| chol 2✓
2
15|1.000|1.000|1.4e-08|1.1e-05|8.5e+05| 7.164764e+05 -1.313769e+05| 0:0:00| chol 2✓
2
16|1.000|1.000|1.3e-08|5.6e-06|3.8e+05| 3.119370e+05 -6.666940e+04| 0:0:00| chol 2✓
2
17|1.000|1.000|1.0e-09|2.8e-06|1.4e+05| 1.131513e+05 -2.878800e+04| 0:0:00| chol 2✓
2
18|1.000|1.000|2.4e-10|1.4e-06|5.6e+04| 4.419473e+04 -1.133565e+04| 0:0:00| chol 1✓
2
19|1.000|1.000|1.1e-10|7.0e-07|1.9e+04| 1.473252e+04 -4.294868e+03| 0:0:00| chol 2✓
2
20|1.000|1.000|4.0e-11|7.0e-08|7.2e+03| 5.746329e+03 -1.466686e+03| 0:0:00| chol 1✓
2
21|1.000|1.000|5.6e-12|7.1e-09|2.3e+03| 1.788014e+03 -4.943126e+02| 0:0:00| chol 2✓
1
22|1.000|1.000|3.0e-10|7.1e-10|8.9e+02| 7.357472e+02 -1.518938e+02| 0:0:00| chol 1✓
2
23|1.000|1.000|2.0e-12|7.2e-11|2.5e+02| 2.039312e+02 -4.450143e+01| 0:0:00| chol 1✓
1
24|1.000|1.000|3.3e-11|8.0e-12|1.0e+02| 8.850109e+01 -1.240112e+01| 0:0:00| chol 2✓
2
25|0.963|1.000|1.6e-12|2.2e-12|2.2e+01| 1.937907e+01 -2.473148e+00| 0:0:00| chol 2✓
2
26|1.000|1.000|1.8e-12|1.1e-12|9.3e+00| 8.456481e+00 -8.360990e-01| 0:0:00| chol 2✓
2
```

```

27|0.947|1.000|2.3e-12|1.0e-12|1.8e+00| 1.530621e+00 -2.492379e-01| 0:0:00| chol 3✓
3
28|1.000|1.000|1.1e-11|1.0e-12|7.3e-01| 5.381488e-01 -1.954811e-01| 0:0:00| chol 3✓
3
29|1.000|1.000|5.4e-12|1.5e-12|1.5e-01|-2.521806e-02 -1.709937e-01| 0:0:00| chol 5✓
5
30|1.000|1.000|4.2e-11|1.1e-12|3.6e-02|-1.324735e-01 -1.683770e-01| 0:0:00| chol 9✓
11
31|1.000|1.000|1.3e-10|1.6e-12|1.0e-02|-1.578739e-01 -1.679098e-01| 0:0:00| chol
linsysolve: Schur complement matrix not positive definite
switch to LU factor. lu 30 30
32|0.920|0.978|8.7e-10|2.5e-12|1.9e-03|-1.659282e-01 -1.678412e-01| 0:0:00| lu 11 ^✓
7
33|0.564|0.628|3.7e-09|4.6e-12|8.4e-04|-1.670076e-01 -1.678360e-01| 0:0:00| lu 30✓
^16
34|1.000|0.154|1.9e-07|9.3e-12|6.6e-04|-1.672258e-01 -1.678349e-01| 0:0:00| lu 30✓
^29
35|0.303|1.000|1.7e-07|8.2e-12|5.2e-04|-1.673633e-01 -1.678350e-01| 0:0:00| lu 30✓
^28
36|0.883|1.000|1.8e-08|1.2e-11|3.3e-04|-1.675045e-01 -1.678350e-01| 0:0:00| lu 30✓
30
37|0.786|0.767|3.0e-08|2.1e-11|2.0e-04|-1.676412e-01 -1.678344e-01| 0:0:00| lu 30✓
^26
38|0.837|0.739|5.0e-08|3.3e-11|1.1e-04|-1.677384e-01 -1.678344e-01| 0:0:00| lu 11✓
^21
39|0.329|0.338|1.3e-08|6.3e-11|7.6e-05|-1.677774e-01 -1.678344e-01| 0:0:00| lu 15✓
30
40|0.187|0.283|1.9e-07|1.1e-10|7.3e-05|-1.677785e-01 -1.678344e-01| 0:0:00| lu 16✓
^15
41|0.182|0.192|1.7e-07|1.8e-10|6.8e-05|-1.677794e-01 -1.678344e-01| 0:0:00|
stop: progress is too slow
stop: progress is bad
stop: progress is bad*
-----
number of iterations = 41
primal objective value = -1.67777428e-01
dual objective value = -1.67834413e-01
gap := trace(XZ) = 7.59e-05
relative gap = 5.68e-05
actual relative gap = 4.27e-05
rel. primal infeas = 1.35e-08
rel. dual infeas = 6.35e-11
norm(X), norm(y), norm(Z) = 3.7e+01, 1.0e+02, 7.7e+01
norm(A), norm(b), norm(C) = 2.0e+05, 2.2e+05, 7.7e+01
Total CPU time (secs) = 0.44
CPU time per iteration = 0.01
termination code = -5
DIMACS errors: 4.4e-08 0.0e+00 9.1e-11 0.0e+00 4.3e-05 5.7e-05
-----

```

ans =

0.1678

```

num. of constraints = 85
dim. of socp var   = 86,   num. of socp blk  = 1
dim. of linear var  = 800
*****

```

\*\*\*\*\*

[illegible]

```

21|1.000|1.000|4.1e-12|7.1e-09|2.4e+03| 1.815725e+03 -5.355888e+02| 0:0:00| chol 1✓
1
22|1.000|1.000|6.0e-11|7.1e-10|9.2e+02| 7.693871e+02 -1.527276e+02| 0:0:00| chol 1✓
2
23|1.000|1.000|6.1e-13|7.2e-11|2.6e+02| 2.077562e+02 -4.891015e+01| 0:0:00| chol 1✓
2
24|1.000|1.000|4.2e-13|8.0e-12|1.1e+02| 9.454533e+01 -1.316397e+01| 0:0:00| chol 1✓
1
25|0.955|1.000|2.8e-11|1.7e-12|2.3e+01| 2.060747e+01 -2.500726e+00| 0:0:00| chol 2✓
2
26|1.000|1.000|1.1e-12|1.6e-12|9.8e+00| 9.068291e+00 -7.694443e-01| 0:0:00| chol 2✓
2
27|0.950|1.000|6.1e-13|1.0e-12|1.9e+00| 1.790306e+00 -1.398427e-01| 0:0:00| chol 3✓
3
28|1.000|1.000|6.5e-12|1.0e-12|8.0e-01| 7.272731e-01 -7.325754e-02| 0:0:00| chol 3✓
3
29|0.990|1.000|7.7e-12|1.3e-12|1.5e-01| 1.021979e-01 -4.510254e-02| 0:0:00| chol 5✓
5
30|1.000|1.000|3.1e-11|1.5e-12|5.8e-02| 1.533013e-02 -4.247796e-02| 0:0:00| chol 6✓
7
31|0.960|0.980|4.7e-11|2.3e-12|1.0e-02|-3.156660e-02 -4.154207e-02| 0:0:00| chol
linsysolve: Schur complement matrix not positive definite
switch to LU factor. lu 25 ^30
32|0.977|0.821|1.8e-09|3.9e-12|3.1e-03|-3.836377e-02 -4.146350e-02| 0:0:00| lu 30✓
^17
33|1.000|0.857|6.7e-09|5.7e-12|1.6e-03|-3.989793e-02 -4.145086e-02| 0:0:00| lu 30✓
30
34|0.631|1.000|8.4e-09|7.8e-12|1.0e-03|-4.043197e-02 -4.145107e-02| 0:0:00| lu 30✓
30
35|1.000|0.772|1.5e-08|1.3e-11|5.3e-04|-4.092648e-02 -4.144818e-02| 0:0:00| lu 11✓
30
36|0.118|0.123|8.8e-09|2.9e-11|4.7e-04|-4.099082e-02 -4.144800e-02| 0:0:00| lu 27✓
30
37|0.064|0.928|7.1e-08|2.8e-11|4.6e-04|-4.099571e-02 -4.144833e-02| 0:0:00|
stop: progress is too slow
stop: progress is bad
stop: progress is bad*
-----
number of iterations    = 37
primal objective value = -4.09264797e-02
dual   objective value = -4.14481825e-02
gap := trace(XZ)       = 5.27e-04
relative gap           = 4.87e-04
actual relative gap    = 4.82e-04
rel. primal infeas     = 1.48e-08
rel. dual   infeas     = 1.34e-11
norm(X), norm(y), norm(Z) = 3.7e+01, 1.0e+02, 7.7e+01
norm(A), norm(b), norm(C) = 2.0e+05, 2.2e+05, 7.7e+01
Total CPU time (secs)   = 0.39
CPU time per iteration = 0.01
termination code        = -5
DIMACS errors: 4.9e-08  0.0e+00  1.9e-11  0.0e+00  4.8e-04  4.9e-04
-----

```

0	0.000 0.000 1.0e+00 1.1e+03 7.7e+09	1.527172e+07	0.000000e+00	0:0:00	chol	1	✓
1							
1	1.000 0.987 9.8e-08 1.5e+01 1.3e+08	1.516694e+07	-1.695880e+04	0:0:00	chol	2	✓
2							
2	1.000 0.807 4.1e-09 2.9e+00 3.9e+07	1.353422e+07	-1.148795e+04	0:0:00	chol	2	✓
2							
3	0.311 0.534 5.5e-09 1.4e+00 2.6e+07	1.283157e+07	-3.474616e+04	0:0:00	chol	2	✓
2							
4	0.231 0.472 4.6e-09 7.2e-01 2.0e+07	1.245129e+07	-7.464976e+04	0:0:00	chol	2	✓
1							
5	0.264 0.368 4.2e-09 4.6e-01 1.7e+07	1.183985e+07	-1.167272e+05	0:0:00	chol	2	✓
2							
6	0.143 0.473 4.1e-09 2.4e-01 1.4e+07	1.141148e+07	-1.899153e+05	0:0:00	chol	2	✓
2							
7	0.310 0.334 3.3e-09 1.6e-01 1.2e+07	1.034686e+07	-2.495038e+05	0:0:00	chol	2	✓
2							
8	0.123 0.666 3.4e-09 5.4e-02 1.1e+07	9.886287e+06	-3.415711e+05	0:0:00	chol	2	✓
2							
9	0.455 0.248 2.5e-09 4.1e-02 9.3e+06	8.355385e+06	-3.837774e+05	0:0:00	chol	2	✓
2							
10	0.154 0.976 7.5e-09 1.1e-03 8.0e+06	7.703335e+06	-2.940323e+05	0:0:00	chol	2	✓
2							
11	0.311 0.418 2.3e-08 6.8e-04 7.3e+06	6.897899e+06	-3.695212e+05	0:0:00	chol	2	✓
3							
12	0.198 1.000 8.2e-08 9.0e-05 7.0e+06	6.590033e+06	-4.407800e+05	0:0:00	chol	2	✓
2							
13	1.000 1.000 2.3e-08 4.5e-05 4.9e+06	4.450905e+06	-4.917399e+05	0:0:00	chol	2	✓
2							
14	1.000 1.000 1.0e-07 2.3e-05 2.0e+06	1.727010e+06	-2.706023e+05	0:0:00	chol	1	✓
2							
15	1.000 1.000 1.9e-08 1.1e-05 8.3e+05	7.002136e+05	-1.330456e+05	0:0:00	chol	1	✓
2							
16	1.000 1.000 1.2e-08 5.6e-06 3.8e+05	3.113239e+05	-6.414806e+04	0:0:00	chol	1	✓
2							
17	1.000 1.000 1.3e-09 2.8e-06 1.4e+05	1.102709e+05	-2.957009e+04	0:0:00	chol	1	✓
2							
18	1.000 1.000 5.2e-10 1.4e-06 5.5e+04	4.444275e+04	-1.086646e+04	0:0:00	chol	2	✓
2							

```
19|1.000|1.000|2.5e-10|7.0e-07|1.9e+04| 1.480639e+04 -4.600489e+03| 0:0:00| chol 1✓  
1  
20|1.000|1.000|2.9e-10|7.0e-08|7.3e+03| 5.914499e+03 -1.434709e+03| 0:0:00| chol 1✓  
2  
21|1.000|1.000|3.6e-12|7.1e-09|2.4e+03| 1.820349e+03 -5.451547e+02| 0:0:00| chol 1✓  
1  
22|1.000|1.000|1.8e-10|7.1e-10|9.3e+02| 7.767975e+02 -1.532048e+02| 0:0:00| chol 1✓  
1  
23|1.000|1.000|1.9e-10|7.2e-11|2.6e+02| 2.085008e+02 -4.978983e+01| 0:0:00| chol 1✓  
1  
24|1.000|1.000|2.7e-11|9.3e-12|1.1e+02| 9.577876e+01 -1.339071e+01| 0:0:00| chol 1✓  
1  
25|0.954|1.000|6.3e-12|4.1e-12|2.3e+01| 2.084125e+01 -2.501265e+00| 0:0:00| chol 2✓  
2  
26|1.000|1.000|1.0e-12|1.3e-12|1.0e+01| 9.190020e+00 -7.612532e-01| 0:0:00| chol 2✓  
2  
27|0.952|1.000|6.5e-13|1.0e-12|2.0e+00| 1.844862e+00 -1.189182e-01| 0:0:00| chol 3✓  
3  
28|1.000|1.000|2.8e-12|1.0e-12|8.2e-01| 7.675256e-01 -4.898526e-02| 0:0:00| chol 3✓  
3  
29|0.985|1.000|1.3e-11|1.0e-12|1.5e-01| 1.324962e-01 -1.946473e-02| 0:0:00| chol 5✓  
5  
30|1.000|1.000|7.0e-11|1.5e-12|6.1e-02| 4.392460e-02 -1.664301e-02| 0:0:00| chol 6✓  
6  
31|0.969|0.987|1.0e-10|2.3e-12|1.1e-02|-4.519024e-03 -1.556462e-02| 0:0:00| chol  
linsysolve: Schur complement matrix not positive definite  
switch to LU factor. lu 30 30  
32|0.570|0.485|7.8e-10|4.5e-12|4.9e-03|-1.058482e-02 -1.547846e-02| 0:0:00| lu 30✓  
^23  
33|0.465|0.365|4.1e-09|7.9e-12|3.6e-03|-1.182571e-02 -1.546405e-02| 0:0:00| lu 14✓  
30  
34|1.000|0.415|1.5e-08|1.2e-11|2.7e-03|-1.270807e-02 -1.545325e-02| 0:0:00| lu 30✓  
30  
35|0.588|1.000|2.0e-08|1.1e-11|1.8e-03|-1.361633e-02 -1.545345e-02| 0:0:00| lu 30✓  
30  
36|0.889|0.613|1.5e-08|2.1e-11|1.4e-03|-1.409285e-02 -1.544337e-02| 0:0:00| lu 11✓  
30  
37|0.249|0.482|1.5e-08|3.7e-11|1.1e-03|-1.440296e-02 -1.544228e-02| 0:0:00| lu 30✓  
^20  
38|0.111|1.000|3.5e-08|3.8e-11|1.0e-03|-1.442054e-02 -1.544309e-02| 0:0:00| lu 11✓  
30  
39|0.306|0.439|2.7e-08|7.9e-11|7.1e-04|-1.473897e-02 -1.544184e-02| 0:0:00| lu 13✓  
30  
40|0.133|1.000|3.1e-08|8.6e-11|6.9e-04|-1.476057e-02 -1.544227e-02| 0:0:01| lu *30✓  
^14  
41|0.830|1.000|5.3e-09|1.3e-10|4.3e-04|-1.501459e-02 -1.544093e-02| 0:0:01| lu *14✓  
30  
42|0.735|0.614|9.8e-09|2.4e-10|2.1e-04|-1.523437e-02 -1.544056e-02| 0:0:01| lu 11✓  
30  
43|0.222|0.252|3.1e-08|4.7e-10|1.7e-04|-1.527314e-02 -1.544047e-02| 0:0:01| lu 15✓  
30  
44|0.376|0.274|4.3e-08|7.8e-10|1.5e-04|-1.529744e-02 -1.544043e-02| 0:0:01|  
stop: progress is too slow  
stop: progress is bad*
```



```
-----  
number of iterations    = 44  
primal objective value = -1.52974366e-02  
dual   objective value = -1.54404261e-02  
gap := trace(XZ)       = 1.49e-04  
relative gap           = 1.44e-04  
actual relative gap    = 1.39e-04  
rel. primal infeas     = 4.31e-08  
rel. dual   infeas     = 7.83e-10  
norm(X), norm(y), norm(Z) = 3.7e+01, 1.0e+02, 7.7e+01  
norm(A), norm(b), norm(C) = 2.0e+05, 2.2e+05, 7.7e+01  
Total CPU time (secs)   = 0.64  
CPU time per iteration = 0.01  
termination code        = -5  
DIMACS errors: 1.4e-07  0.0e+00  1.1e-09  0.0e+00  1.4e-04  1.4e-04  
-----
```

ans =

0.0154

Iteration 8 Total error is: 0.00050654

The total representation error of the testing signals is: 0.024551

>>