

Summary

December 6, 2024

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0.1 Loaded Graphs

0.1.1 g_{0}



File: out/001_g_0_10300000



File: out/003_g_0_11310100

0.1.2 g_{1}



File: out/005_g_1_10300000



File: out/007_g_1_11310100

0.1.3 g_{2}



File: out/009_g_2_10300000



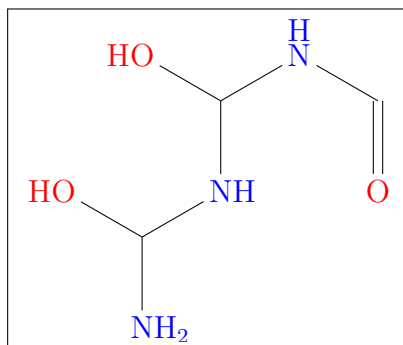
File: out/011_g_2_11310100

0.2 Product Graphs

0.2.1 p_{0,56}



File: out/013_g_1088_10300000



File: out/015_g_1088_11310100

0.3 Enumerated Flows

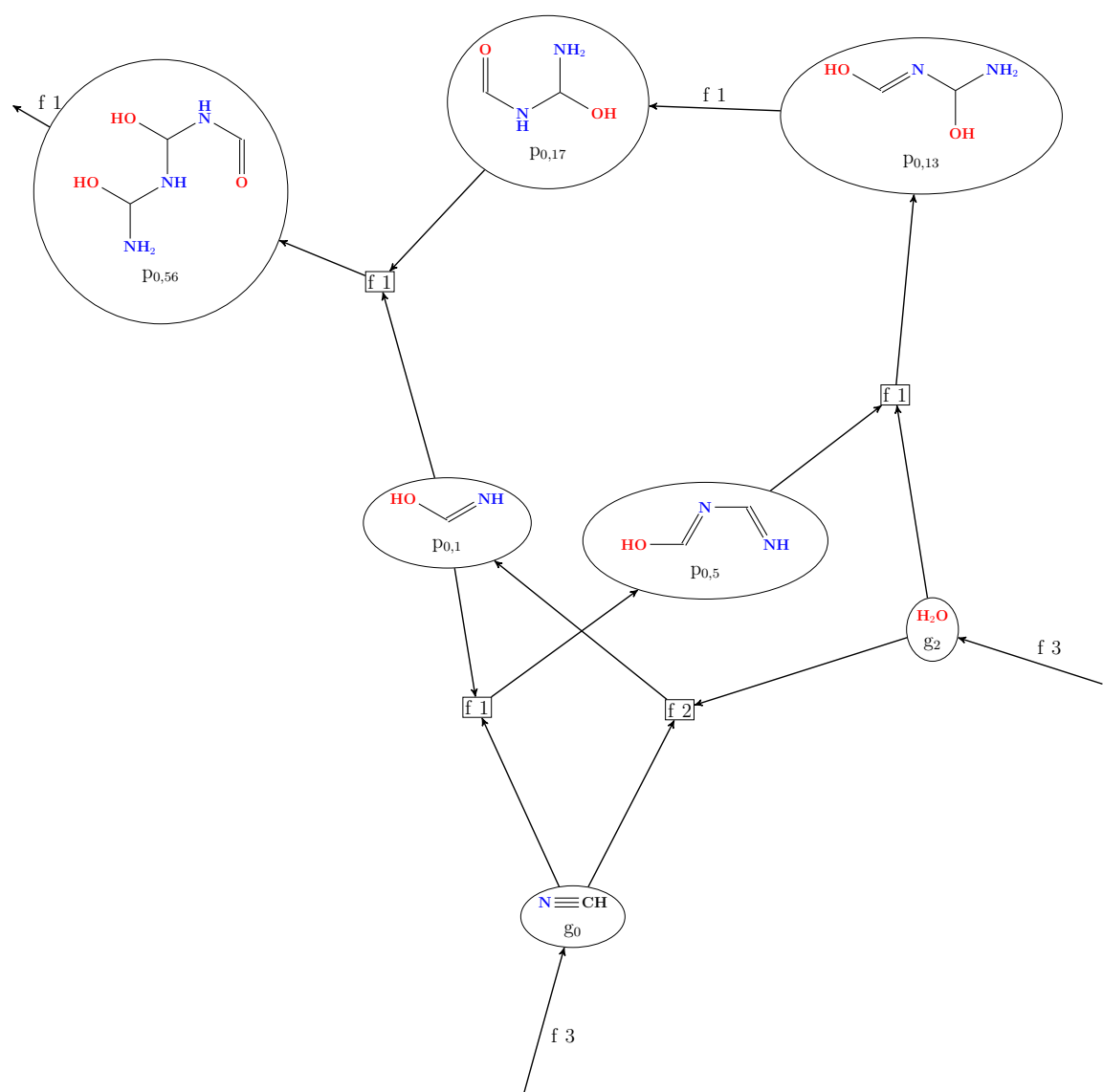
0.3.1 Solution 0

Overall Data

Objective value (non-integral): -0.0840908

Vertex/Graph	In	Out	G	logK	t_order
g_{0}	3	0	-5.507152	-6.000000	0
g_{2}	3	0	-5.068043	-6.000000	0
p_{0,13}	0	0	-21.240678	-9.000000	3
p_{0,17}	0	0	-21.248887	-9.000000	65
p_{0,1}	0	0	-10.610101	-6.000000	1
p_{0,56}	0	1	-31.869324	-9.000000	67
p_{0,5}	0	0	-16.158998	-9.000000	2

Filtered Graph



File: out/029_dg_0_11100_f_0_0_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	-6.0	-14478.980288	0
g_2	3	0	-13306.144961	-6.0	-13326.099672	0
$p_{0,1}$	0	0	-27856.817054	-6.0	-27876.771765	1
$p_{0,5}$	0	0	-42425.44262	-9.0	-42455.374686	2
$p_{0,13}$	0	0	-55767.391129	-9.0	-55797.323194	3
$p_{0,17}$	0	0	-55788.944315	-9.0	-55818.87638	65
$p_{0,56}$	0	1	-83672.898792	-9.0	-83702.830857	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	2	-73.038748	-73.038748
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-100.296105	-100.296105
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-17.19578	-17.19578
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-8.529655	-8.529655
250	$p_{0,13},$	$p_{0,17},$	1	-21.553186	-21.553186
Sum					-220.78024833298164

$$\Delta G = -29.365221028720075$$

$$\Delta E = -0.08409075553204373$$

$$|E| = 6$$

$$|U| = 5$$

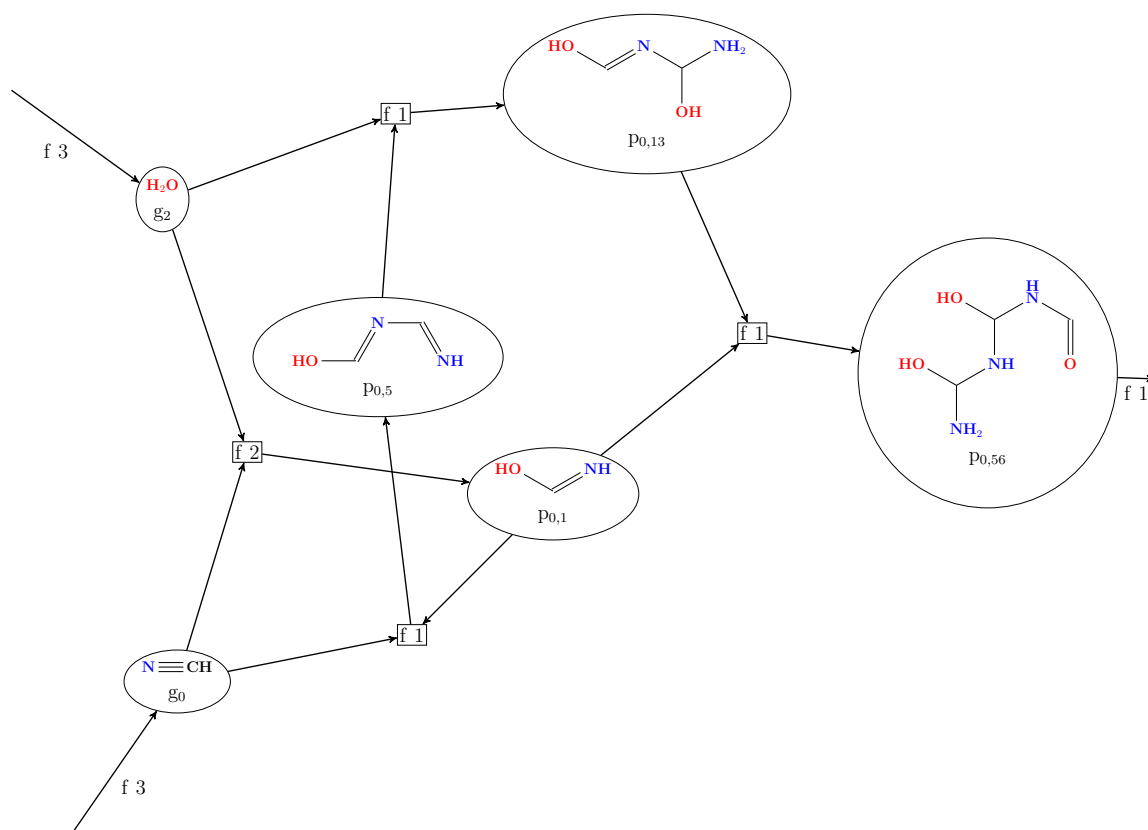
0.3.2 Solution 1

Overall Data

Objective value (non-integral): -0.0840908

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-6.000000	0
$g_{\{2\}}$	3	0	-5.068043	-6.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-6.000000	65
$p_{\{0,1\}}$	0	0	-10.610101	-6.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67
$p_{\{0,5\}}$	0	0	-16.158998	-6.000000	2

Filtered Graph



File: out/038_dg_0_11100_f_0_1_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	-6.0	-14478.980288	0
g_2	3	0	-13306.144961	-6.0	-13326.099672	0
$p_{0,1}$	0	0	-27856.817054	-6.0	-27876.771765	1
$p_{0,5}$	0	0	-42425.44262	-6.0	-42445.397331	2
$p_{0,13}$	0	0	-55767.391129	-6.0	-55787.345839	65
$p_{0,56}$	0	1	-83672.898792	-9.0	-83702.830857	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	2	-73.038748	-73.038748
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-90.992221	-90.992221
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-17.19578	-17.19578
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-39.386725	-39.386725
Sum				-220.78024833297997	

$$\Delta G = -29.36522129127004$$

$$\Delta E = -0.0840907555320431$$

$$|E| = 5$$

$$|U| = 4$$

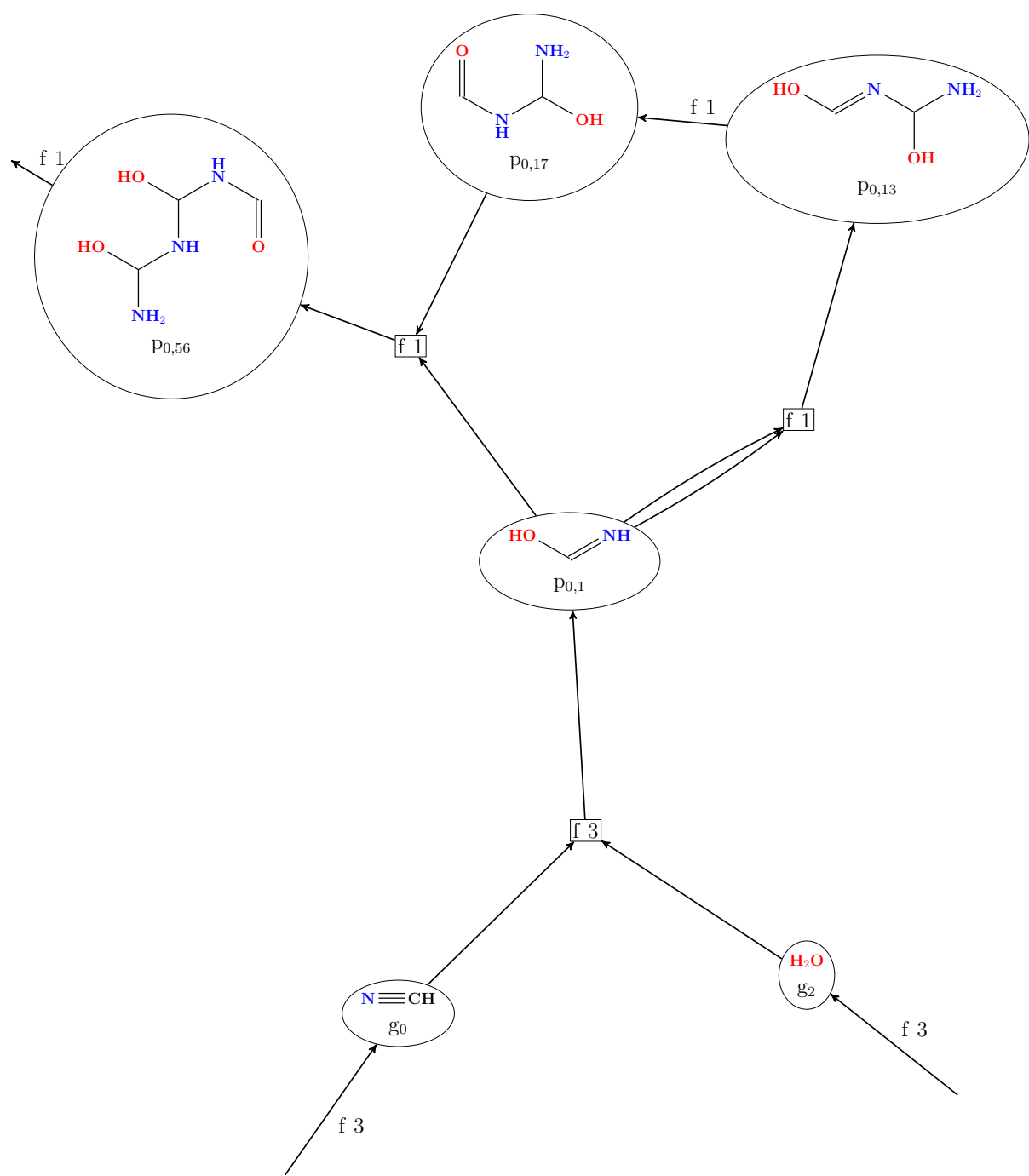
0.3.3 Solution 2

Overall Data

Objective value (non-integral): -0.0562718

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-6.000000	0
$g_{\{2\}}$	3	0	-5.068033	-9.000000	20
$p_{\{0,13\}}$	0	0	-21.240635	-6.000000	44
$p_{\{0,17\}}$	0	0	-21.248844	-9.000000	45
$p_{\{0,1\}}$	0	0	-10.610080	-6.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

Filtered Graph



File: out/047_dg_0_11100_f_0_2_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	-6.0	-14478.980288	0
g_2	3	0	-13306.118349	-9.0	-13336.050414	20
$p_{0,1}$	0	0	-27856.761341	-6.0	-27876.716051	21
$p_{0,13}$	0	0	-55767.279594	-6.0	-55787.234305	44
$p_{0,17}$	0	0	-55788.832737	-9.0	-55818.764803	45
$p_{0,56}$	0	1	-83672.898792	-9.0	-83702.830857	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-63.705763	-63.705763
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-35.149145	-35.149145
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-8.696947	-8.696947
250	$p_{0,13},$	$p_{0,17},$	1	-30.857027	-30.857027
Sum					-147.74168342519073

$$\Delta G = -26.582039919542076$$

$$\Delta E = -0.05627183535033815$$

$$|E| = 6$$

$$|U| = 4$$

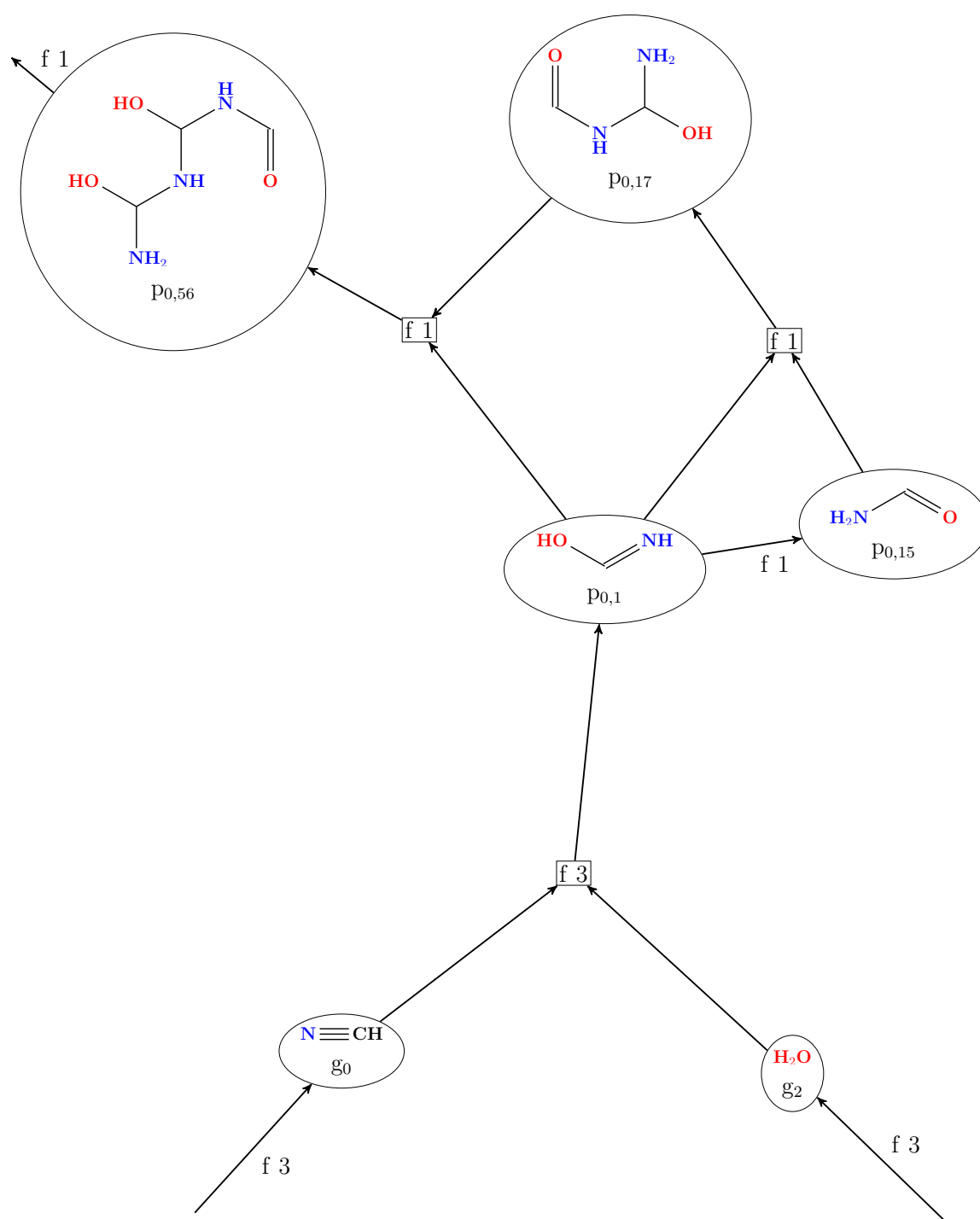
0.3.4 Solution 3

Overall Data

Objective value (non-integral): -0.0562718

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-6.000000	0
$g_{\{2\}}$	3	0	-5.068043	-6.000000	0
$p_{\{0,15\}}$	0	0	-10.625174	-9.000000	22
$p_{\{0,17\}}$	0	0	-21.248844	-6.000000	44
$p_{\{0,1\}}$	0	0	-10.610080	-6.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

Filtered Graph



File: out/058_dg_0_11100_f_0_3_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	-6.0	-14478.980288	0
g_2	3	0	-13306.144961	-6.0	-13326.099672	0
$p_{0,1}$	0	0	-27856.761341	-6.0	-27876.716051	21
$p_{0,15}$	0	0	-27896.389963	-9.0	-27926.322028	22
$p_{0,17}$	0	0	-55788.832737	-6.0	-55808.787447	44
$p_{0,56}$	0	1	-83672.898792	-9.0	-83702.830857	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-72.983035	-72.983035
36	$p_{0,1},$	$p_{0,15},$	1	-48.932506	-48.932506
183	$p_{0,1}, p_{0,15},$	$p_{0,17},$	1	-7.769782	-7.769782
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-18.00083	-18.00083
Sum					-147.74168342519073

$$\Delta G = -29.36522129127004$$

$$\Delta E = -0.05627183535033815$$

$$|E| = 6$$

$$|U| = 4$$

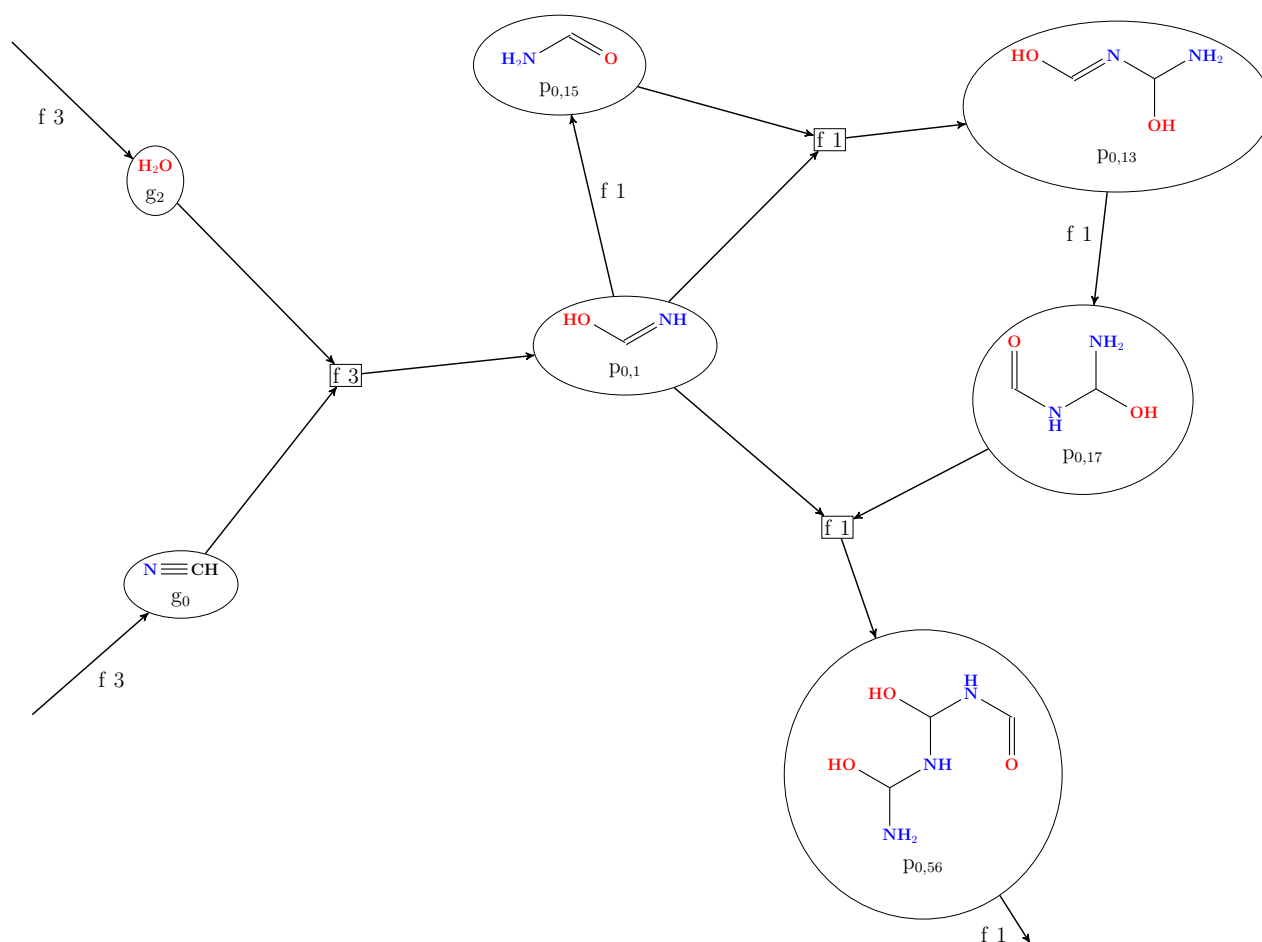
0.3.5 Solution 4

Overall Data

Objective value (non-integral): -0.0562718

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-6.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	20
$p_{\{0,13\}}$	0	0	-21.240635	-7.444389	44
$p_{\{0,15\}}$	0	0	-10.625174	-6.000000	22
$p_{\{0,17\}}$	0	0	-21.248844	-9.000000	45
$p_{\{0,1\}}$	0	0	-10.610080	-6.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

Filtered Graph



File: out/067_dg_0_11100_f_0_4_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	-6.0	-14478.980288	0
g_2	3	0	-13306.144961	-9.0	-13336.077027	20
$p_{0,1}$	0	0	-27856.761341	-6.0	-27876.716051	21
$p_{0,13}$	0	0	-55767.279594	-7.444389	-55792.038033	44
$p_{0,15}$	0	0	-27896.389963	-6.0	-27916.344673	22
$p_{0,17}$	0	0	-55788.832737	-9.0	-55818.764803	45
$p_{0,56}$	0	1	-83672.898792	-9.0	-83702.830857	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	g_0, g_2	$p_{0,1}$	3	-63.679151	-63.679151
36	$p_{0,1}$	$p_{0,15}$	1	-39.628622	-39.628622
192	$p_{0,1}, p_{0,15}$	$p_{0,13}$	1	0.0	0.0
196	$p_{0,1}, p_{0,17}$	$p_{0,56}$	1	-8.696947	-8.696947
250	$p_{0,13}$	$p_{0,17}$	1	-26.37755	-26.37755
Sum				-147.74168342518908	

$$\Delta G = -26.57405656278831$$

$$\Delta E = -0.056271835350337515$$

$|E| = 7$
 $|U| = 5$

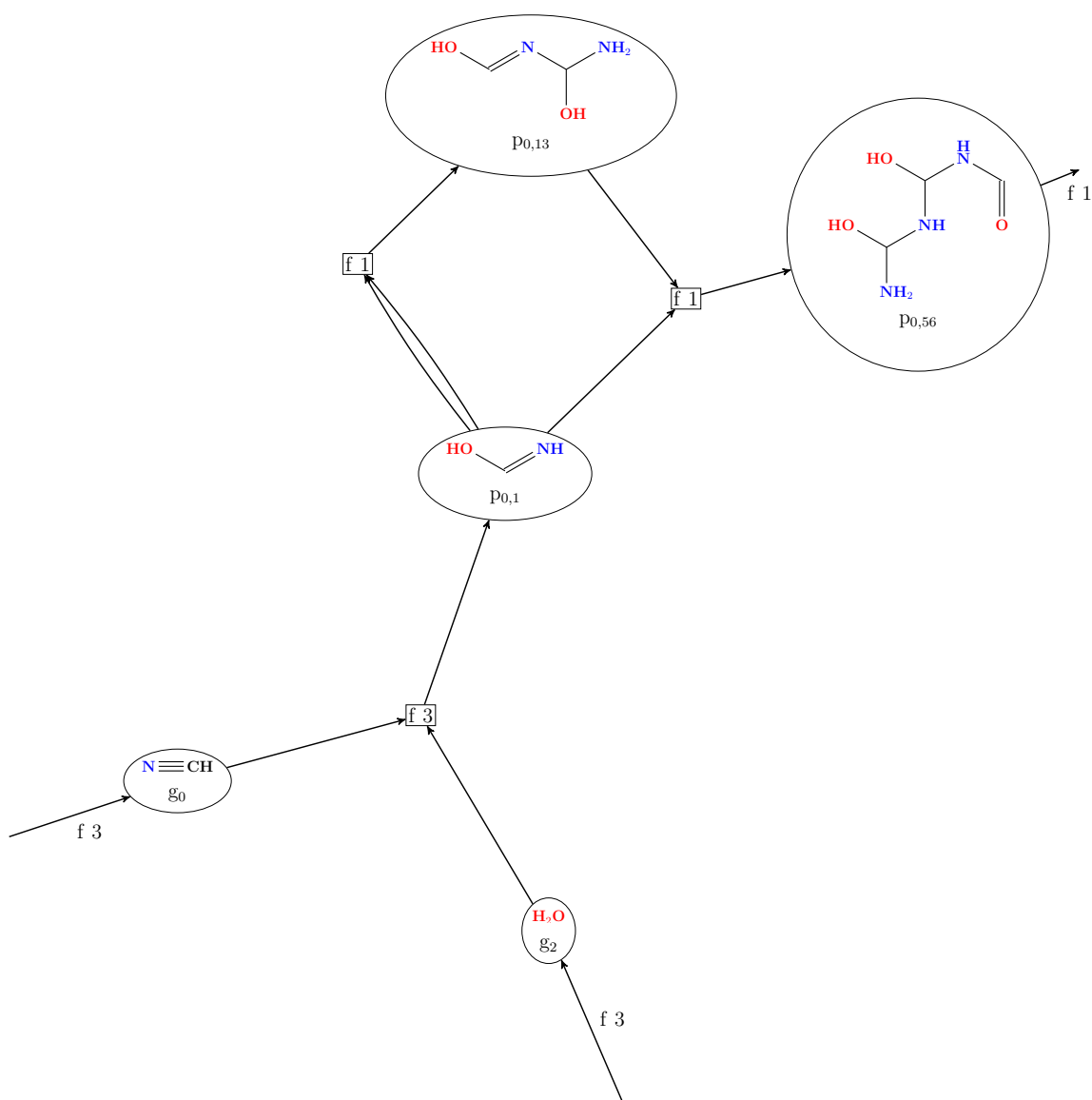
0.3.6 Solution 5

Overall Data

Objective value (non-integral): -0.0562718

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-6.000000	0
$g_{\{2\}}$	3	0	-5.068033	-9.000000	0
$p_{\{0,13\}}$	0	0	-21.240635	-6.000000	3
$p_{\{0,1\}}$	0	0	-10.610080	-6.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

Filtered Graph



File: out/076_dg_0_11100_f_0_5_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	-6.0	-14478.980288	0
g_2	3	0	-13306.118349	-9.0	-13336.050414	0
$p_{0,1}$	0	0	-27856.761341	-6.0	-27876.716051	1
$p_{0,13}$	0	0	-55767.279594	-6.0	-55787.234305	3
$p_{0,56}$	0	1	-83672.898792	-9.0	-83702.830857	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-63.705763	-63.705763
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-35.149145	-35.149145
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-39.553973	-39.553973
Sum					-147.74168342518908

$$\Delta G = -26.582039919542076$$

$$\Delta E = -0.056271835350337515$$

$$|E| = 5$$

$$|U| = 3$$

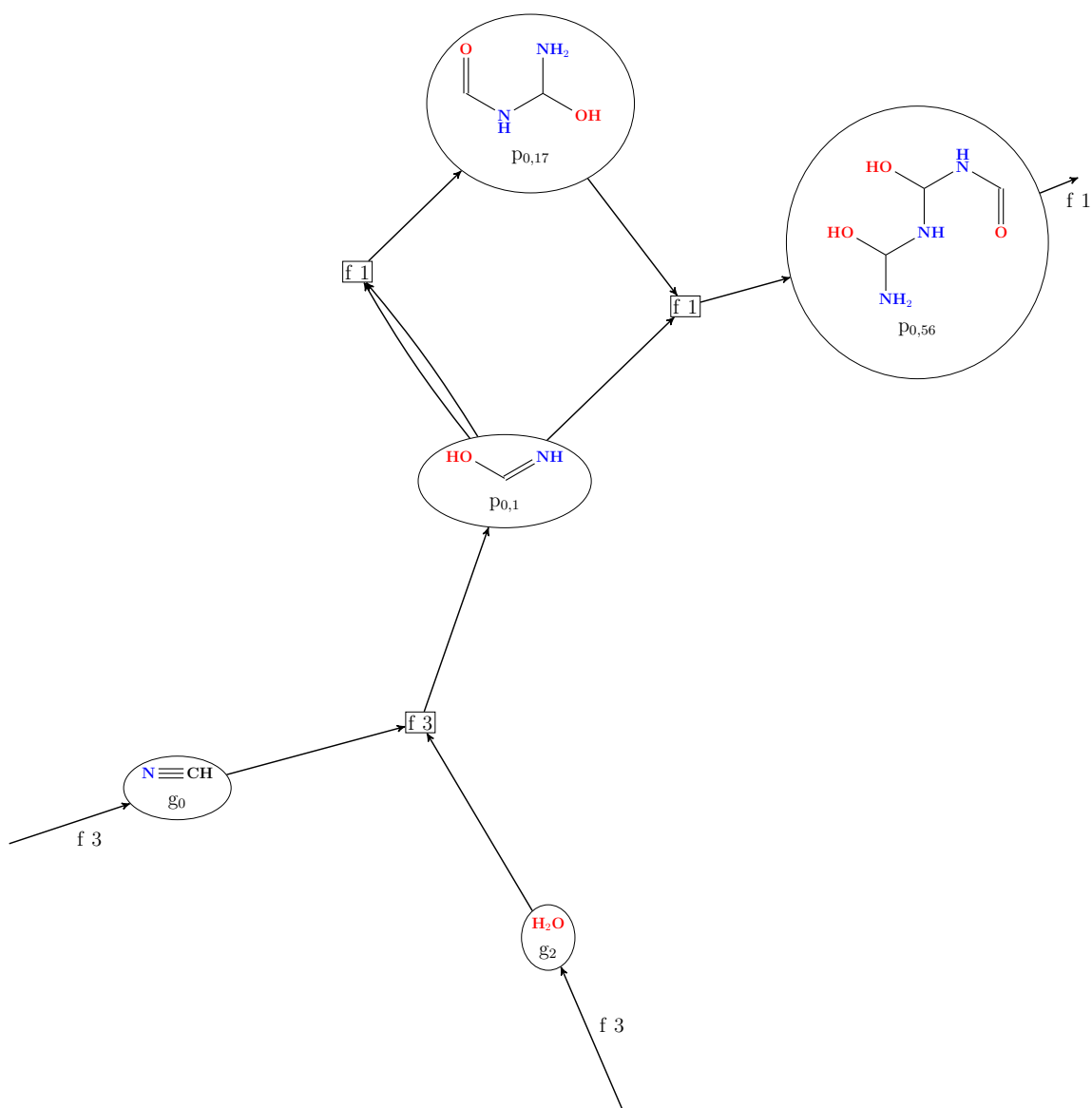
0.3.7 Solution 6

Overall Data

Objective value (non-integral): -0.0562718

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507141	-6.000000	0
$g_{\{2\}}$	3	0	-5.068033	-6.000000	0
$p_{\{0,17\}}$	0	0	-21.248844	-6.000000	3
$p_{\{0,1\}}$	0	0	-10.610101	-9.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

Filtered Graph



File: out/085_dg_0_11100_f_0_6_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14458.99666	-6.0	-14478.95137	0
g_2	3	0	-13306.118349	-6.0	-13326.073059	0
$p_{0,1}$	0	0	-27856.817054	-9.0	-27886.74912	1
$p_{0,17}$	0	0	-55788.832737	-6.0	-55808.787447	3
$p_{0,56}$	0	1	-83672.898792	-9.0	-83702.830857	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-82.398162	-82.398162
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-37.983094	-37.983094
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-8.641233	-8.641233
Sum					-147.74168342518908

$$\Delta G = -29.38188061158247$$

$$\Delta E = -0.056271835350337515$$

$|E| = 5$
 $|U| = 3$

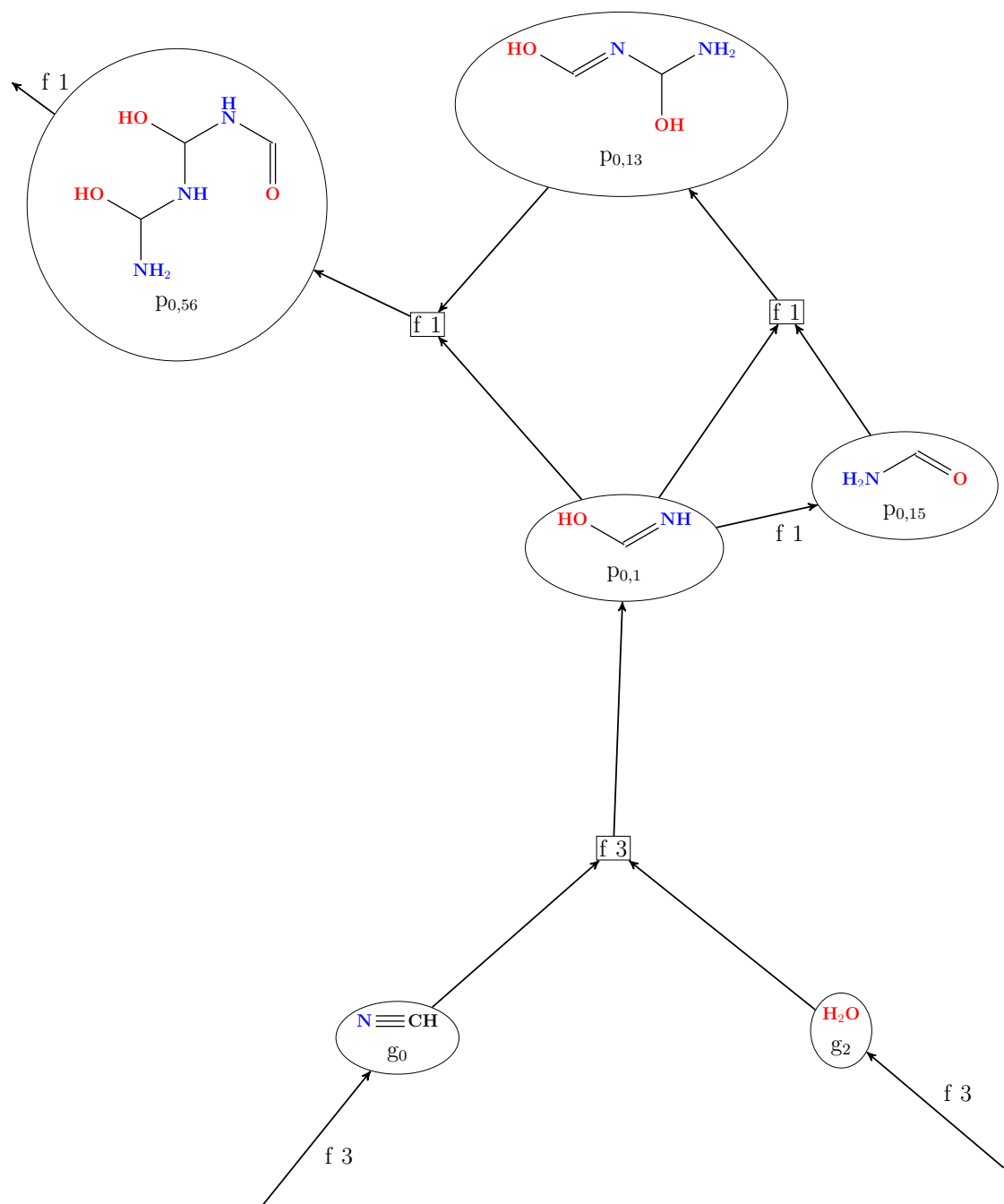
0.3.8 Solution 7

Overall Data

Objective value (non-integral): -0.0562718

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-6.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-9.000000	43
$p_{\{0,15\}}$	0	0	-10.625174	-6.000000	22
$p_{\{0,1\}}$	0	0	-10.610101	-7.575581	20
$p_{\{0,56\}}$	0	1	-31.869260	-6.000000	67

Filtered Graph



File: out/094_dg_0_11100_f_0_7_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	-6.0	-14478.980288	0
g_2	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	-7.575581	-27882.011809	20
$p_{0,13}$	0	0	-55767.391129	-9.0	-55797.323194	43
$p_{0,15}$	0	0	-27896.389963	-6.0	-27916.344673	22
$p_{0,56}$	0	1	-83672.731446	-6.0	-83692.686157	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-68.621205	-68.621205
36	$p_{0,1},$	$p_{0,15},$	1	-34.686568	-34.686568
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	0.006113	0.006113
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-15.725271	-15.725271
Sum					-147.7416834251874

$$\Delta G = -25.62693329774237$$

$$\Delta E = -0.056271835350336884$$

$$|E| = 6$$

$$|U| = 4$$