

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



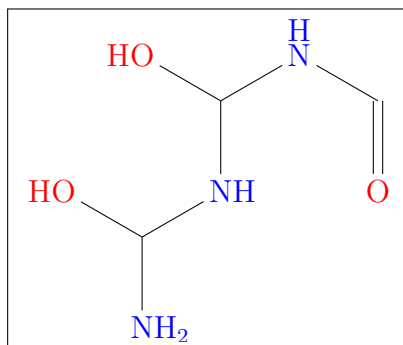
File: out/011_g_2_11310100

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

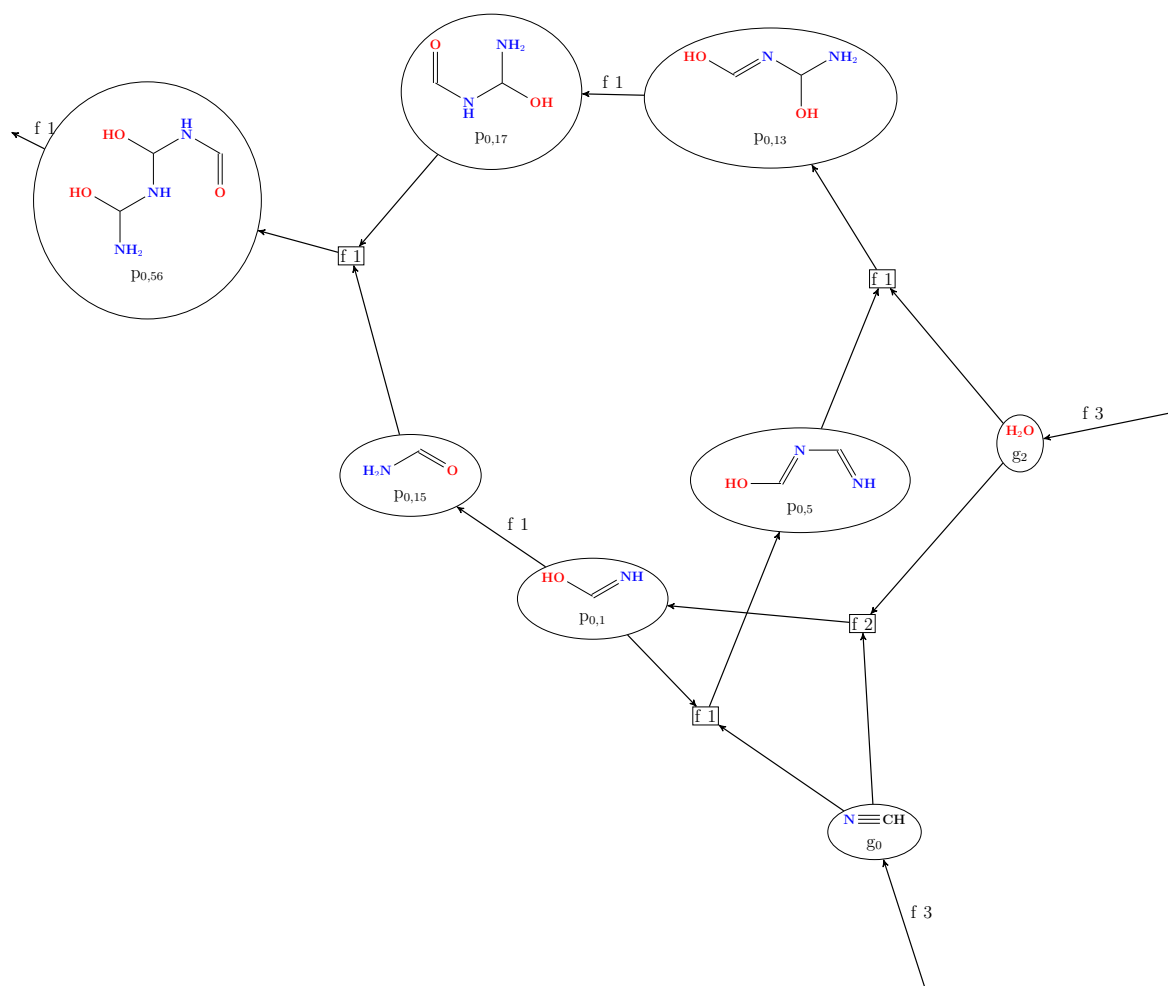
0.3.1 Solution 0

Overall Data

Objective value (non-integral): -0.121564

Vertex/Graph	In	Out	G	logK	t_order
g_{0}	3	0	-5.507152	1.000000	0
g_{2}	3	0	-5.068043	1.000000	0
p_{0,13}	0	0	-21.240678	1.000000	33
p_{0,15}	0	0	-10.625174	-1.010180	32
p_{0,17}	0	0	-21.248887	1.000000	34
p_{0,1}	0	0	-10.610101	1.000000	31
p_{0,56}	0	1	-31.869324	-3.000000	67
p_{0,5}	0	0	-16.158998	-3.000000	32

Filtered Graph



File: out/031_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	1.0	-14455.699793	0
g_2	3	0	-13306.144961	1.0	-13302.819176	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	31
$p_{0,5}$	0	0	-42425.44262	-3.0	-42435.419975	32
$p_{0,13}$	0	0	-55767.391129	1.0	-55764.065344	33
$p_{0,15}$	0	0	-27896.389963	-1.01018	-27899.749605	32
$p_{0,17}$	0	0	-55788.944315	1.0	-55785.61853	34
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	g_0, g_2	$p_{0,1}$	2	-95.803747	-95.803747
14	$g_0, p_{0,1}$	$p_{0,5}$	1	-130.386145	-130.386145
36	$p_{0,1}$	$p_{0,15}$	1	-47.929692	-47.929692
123	$g_2, p_{0,5}$	$p_{0,13}$	1	-23.331853	-23.331853
181	$p_{0,15}, p_{0,17}$	$p_{0,56}$	1	0.006113	0.006113
250	$p_{0,13}$	$p_{0,17}$	1	-21.553186	-21.553186
Sum					-319.1652844935788

$\Delta G = -41.48022495830054$
 $\Delta E = -0.12156363676240757$
 $|E| = 7$
 $|U| = 6$

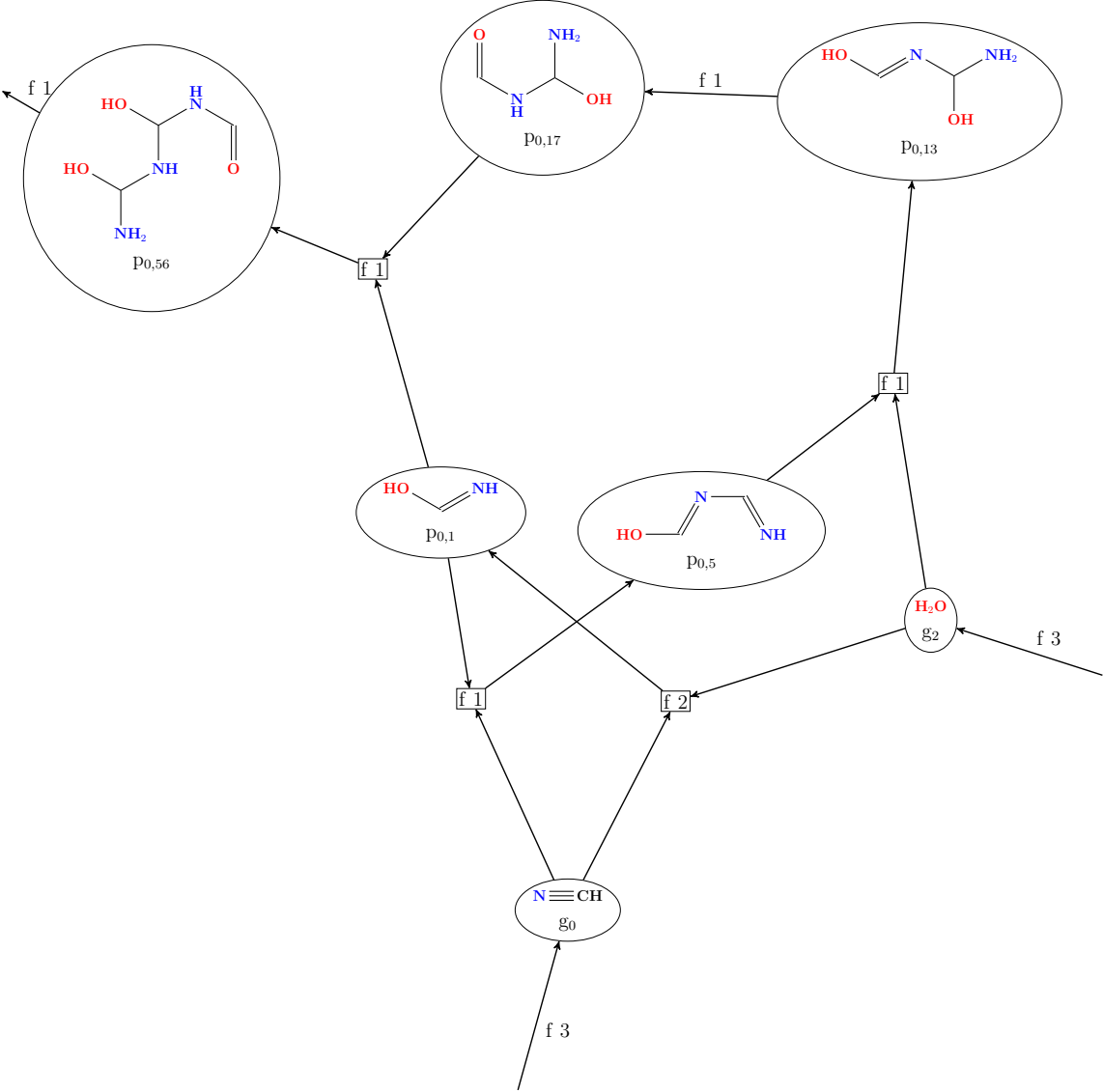
0.3.2 Solution 1

Overall Data

Objective value (non-integral): -0.121564

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	1.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	1.000000	3
$p_{\{0,17\}}$	0	0	-21.248887	1.000000	34
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	67
$p_{\{0,5\}}$	0	0	-16.158998	1.000000	2

Filtered Graph



File: out/040_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	1.0	-14455.699793	0
g_2	3	0	-13306.144961	1.0	-13302.819176	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	1
$p_{0,5}$	0	0	-42425.44262	1.0	-42422.116835	2
$p_{0,13}$	0	0	-55767.391129	1.0	-55764.065344	3
$p_{0,17}$	0	0	-55788.944315	1.0	-55785.61853	34
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	2	-95.803747	-95.803747
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-113.75722	-113.75722
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-39.960779	-39.960779
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-47.923579	-47.923579
250	$p_{0,13},$	$p_{0,17},$	1	-21.553186	-21.553186
Sum					-319.1652844935773

$$\Delta G = -41.48022495830054$$

$$\Delta E = -0.12156363676240702$$

$$|E| = 6$$

$$|U| = 5$$

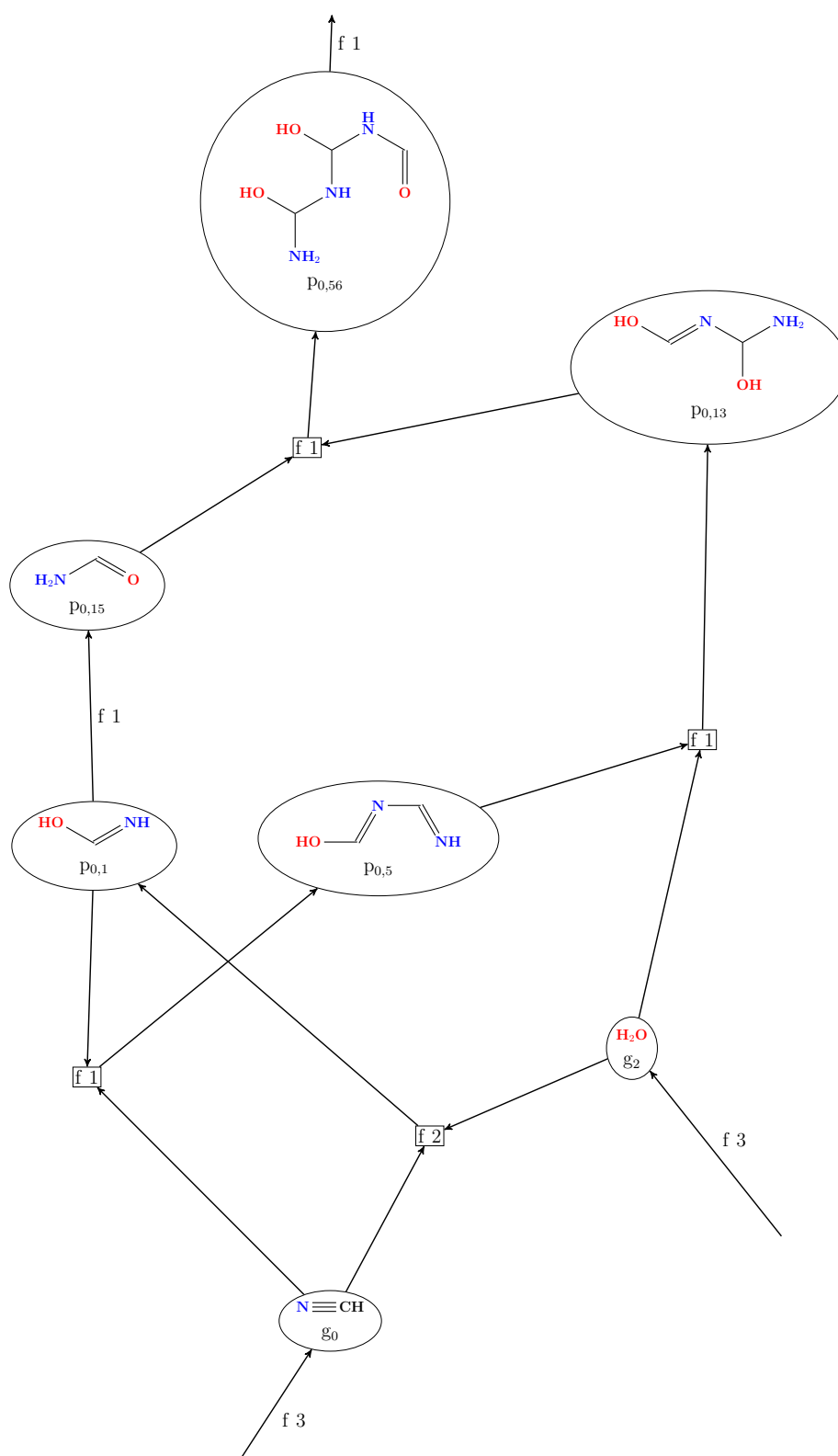
0.3.3 Solution 2

Overall Data

Objective value (non-integral): -0.121564

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507141	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	-3.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	1.000000	3
$p_{\{0,15\}}$	0	0	-10.625174	-3.000000	63
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	0.194685	67
$p_{\{0,5\}}$	0	0	-16.158998	-3.000000	2

Filtered Graph



File: out/049_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	-14458.99666	1.0	-14455.670875	0
g_2	3	0	-13306.144961	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	1
$p_{0,5}$	0	0	-42425.44262	-3.0	-42435.419975	2
$p_{0,13}$	0	0	-55767.391129	1.0	-55764.065344	3
$p_{0,15}$	0	0	-27896.389963	-3.0	-27906.367318	63
$p_{0,56}$	0	1	-83672.898792	0.194685	-83672.251312	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	2	-79.148026	-79.148026
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-130.470776	-130.470776
36	$p_{0,1},$	$p_{0,15},$	1	-56.257547	-56.257547
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-6.702928	-6.702928
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	0.006113	0.006113
Sum					-319.1652844935726

$$\Delta G = -35.17211892164696$$

$$\Delta E = -0.12156363676240522$$

$$|E| = 6$$

$$|U| = 5$$

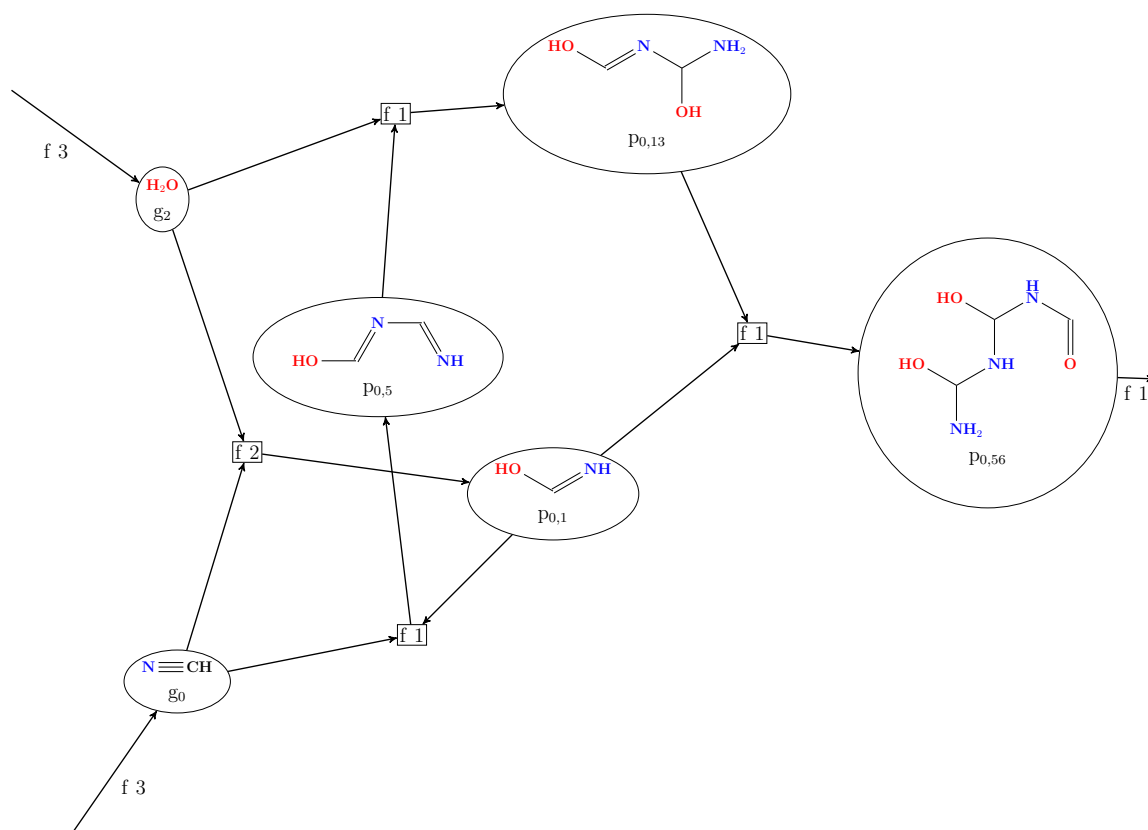
0.3.4 Solution 3

Overall Data

Objective value (non-integral): -0.121564

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	1.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-3.000000	3
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	67
$p_{\{0,5\}}$	0	0	-16.158998	1.000000	2

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	1.0	-14455.699793	0
g_2	3	0	-13306.144961	1.0	-13302.819176	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	1
$p_{0,5}$	0	0	-42425.44262	1.0	-42422.116835	2
$p_{0,13}$	0	0	-55767.391129	-3.0	-55777.368484	3
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	2	-95.803747	-95.803747
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-113.75722	-113.75722
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-56.589704	-56.589704
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-52.84784	-52.84784
Sum				-319.1652844935805	

$$\Delta G = -41.48022522085051$$

$$\Delta E = -0.12156363676240822$$

$$|E| = 5$$

$$|U| = 4$$

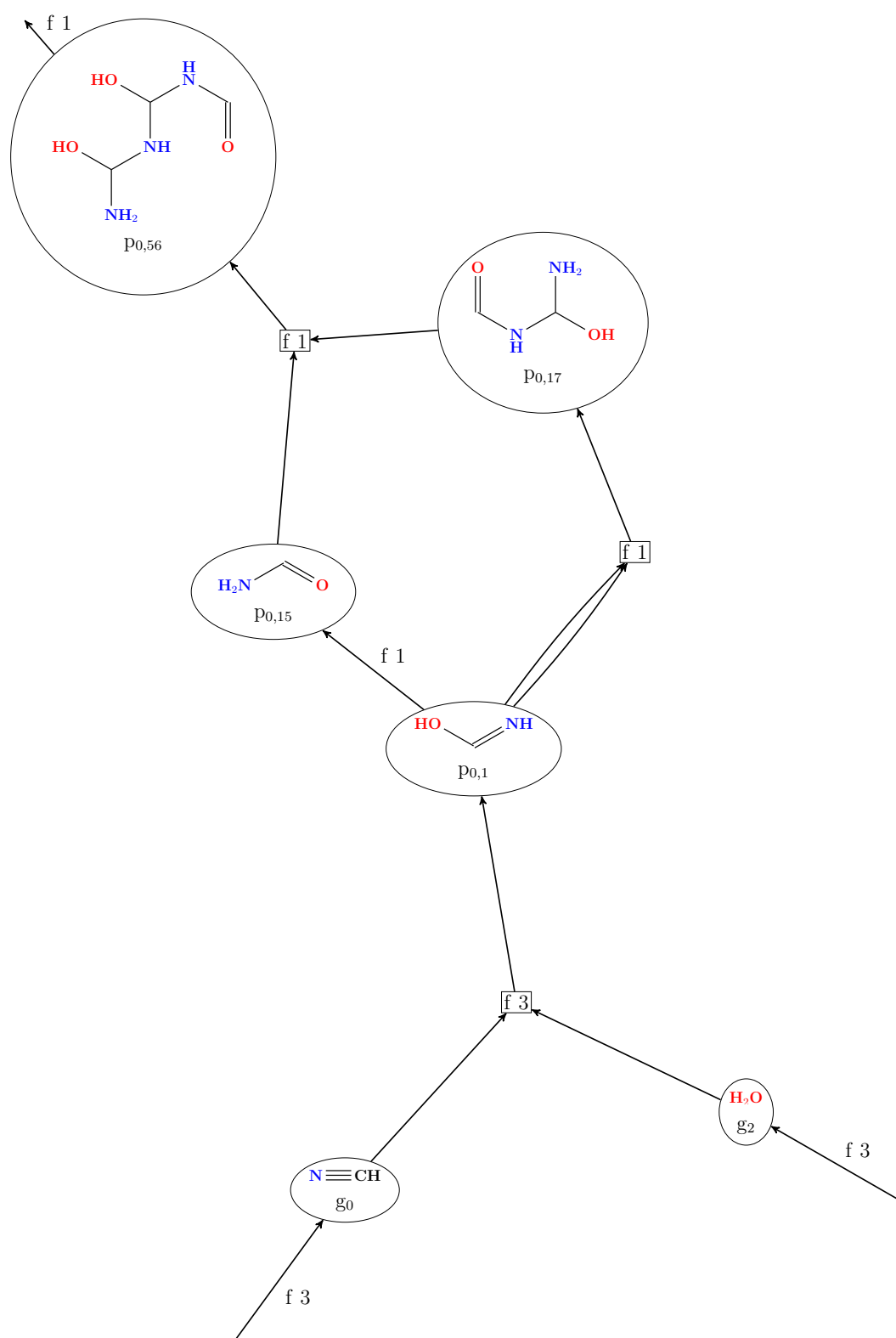
0.3.5 Solution 4

Overall Data

Objective value (non-integral): -0.085074

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	-3.000000	0
$p_{\{0,15\}}$	0	0	-10.625195	-0.996759	2
$p_{\{0,17\}}$	0	0	-21.248887	1.000000	64
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	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	1.0	-14455.699793	0
g_2	3	0	-13306.144961	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	1
$p_{0,15}$	0	0	-27896.445756	-0.996759	-27899.760763	2
$p_{0,17}$	0	0	-55788.944315	1.0	-55785.61853	64
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-79.174822	-79.174822
36	$p_{0,1},$	$p_{0,15},$	1	-47.929692	-47.929692
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-79.467437	-79.467437
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.006113	0.006113
Sum					-223.3617209372962

$$\Delta G = -36.491547224819904$$

$$\Delta E = -0.08507398651996566$$

$$|E| = 6$$

$$|U| = 4$$

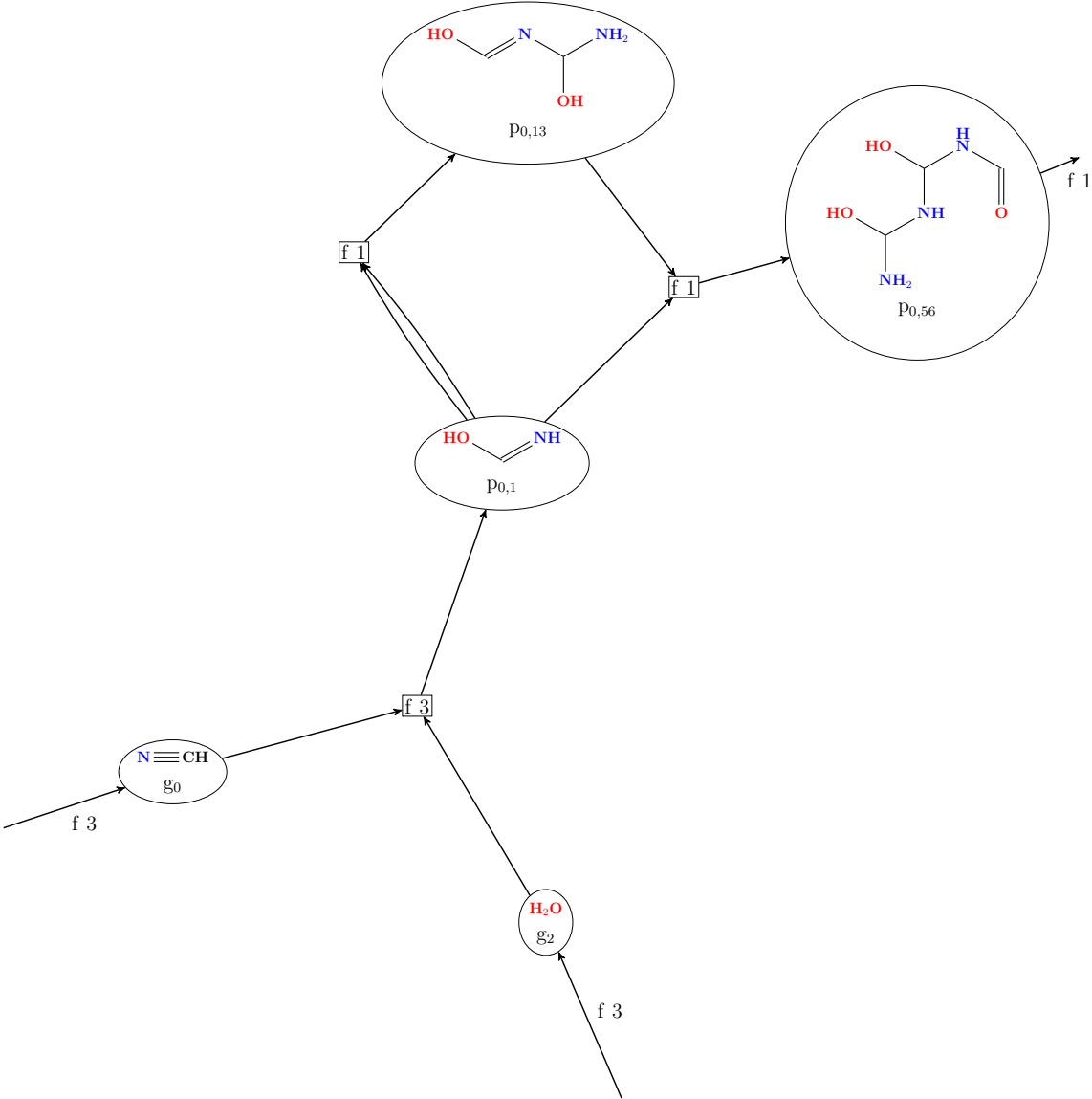
0.3.6 Solution 5

Overall Data

Objective value (non-integral): -0.085074

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	-3.000000	0
$p_{\{0,13\}}$	0	0	-21.240635	1.000000	65
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	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	1.0	-14455.699793	0
g_2	3	0	-13306.144961	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	1
$p_{0,13}$	0	0	-55767.279594	1.0	-55763.953809	65
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-79.119108	-79.119108
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-57.914144	-57.914144
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-69.644013	-69.644013
Sum					-223.36172093729473

$\Delta G = -36.491547224819904$

$\Delta E = -0.08507398651996509$

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

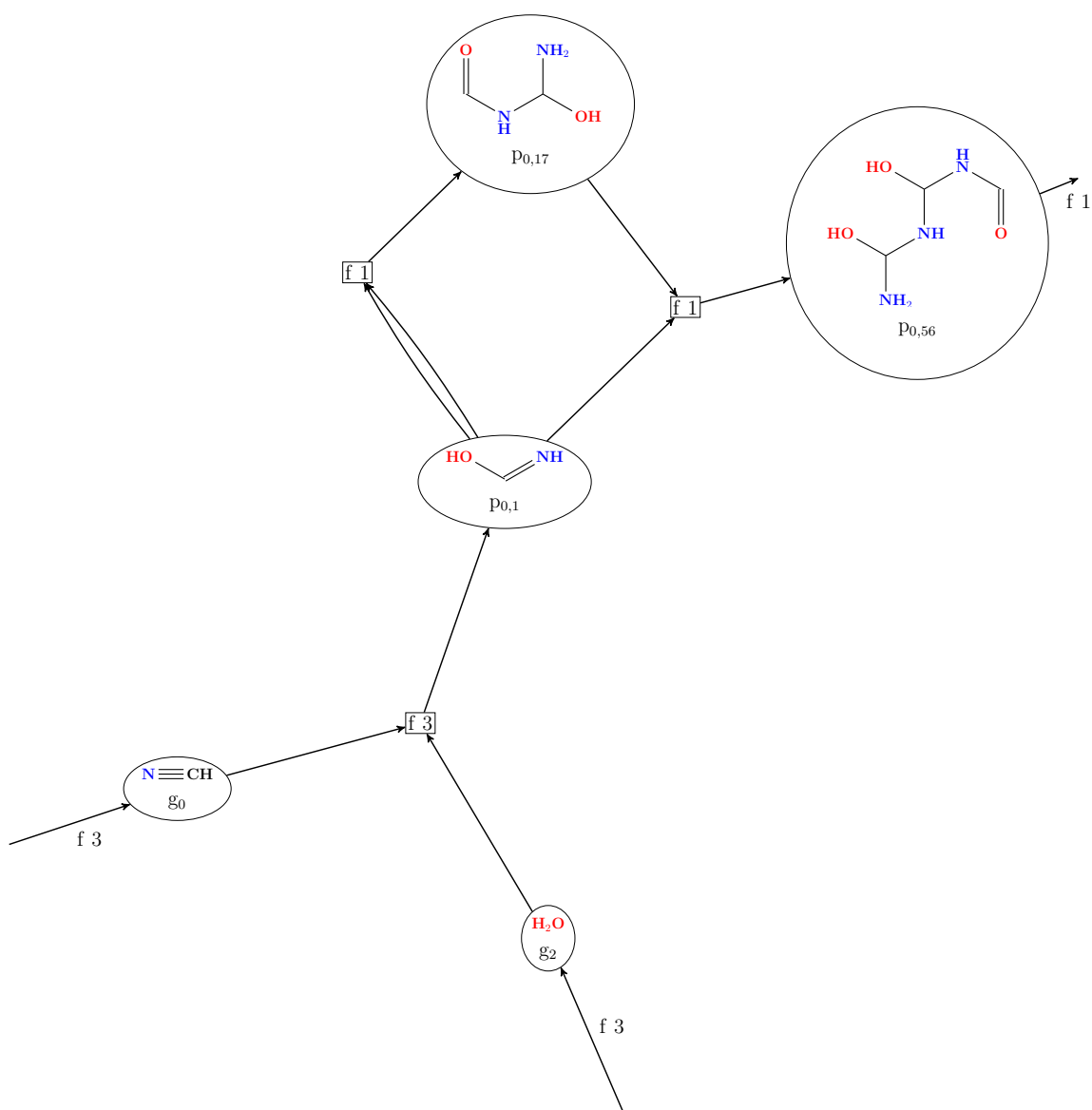
0.3.7 Solution 6

Overall Data

Objective value (non-integral): -0.085074

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	1.000000	0
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	65
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	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	-14459.025578	1.0	-14455.699793	0
g_2	3	0	-13306.144961	1.0	-13302.819176	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	1
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	65
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-95.748033	-95.748033
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-79.467287	-79.467287
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-48.090871	-48.090871
Sum					-223.36172093729473

$$\Delta G = -41.48022495830054$$

$$\Delta E = -0.08507398651996509$$

$$|E| = 5$$

$$|U| = 3$$

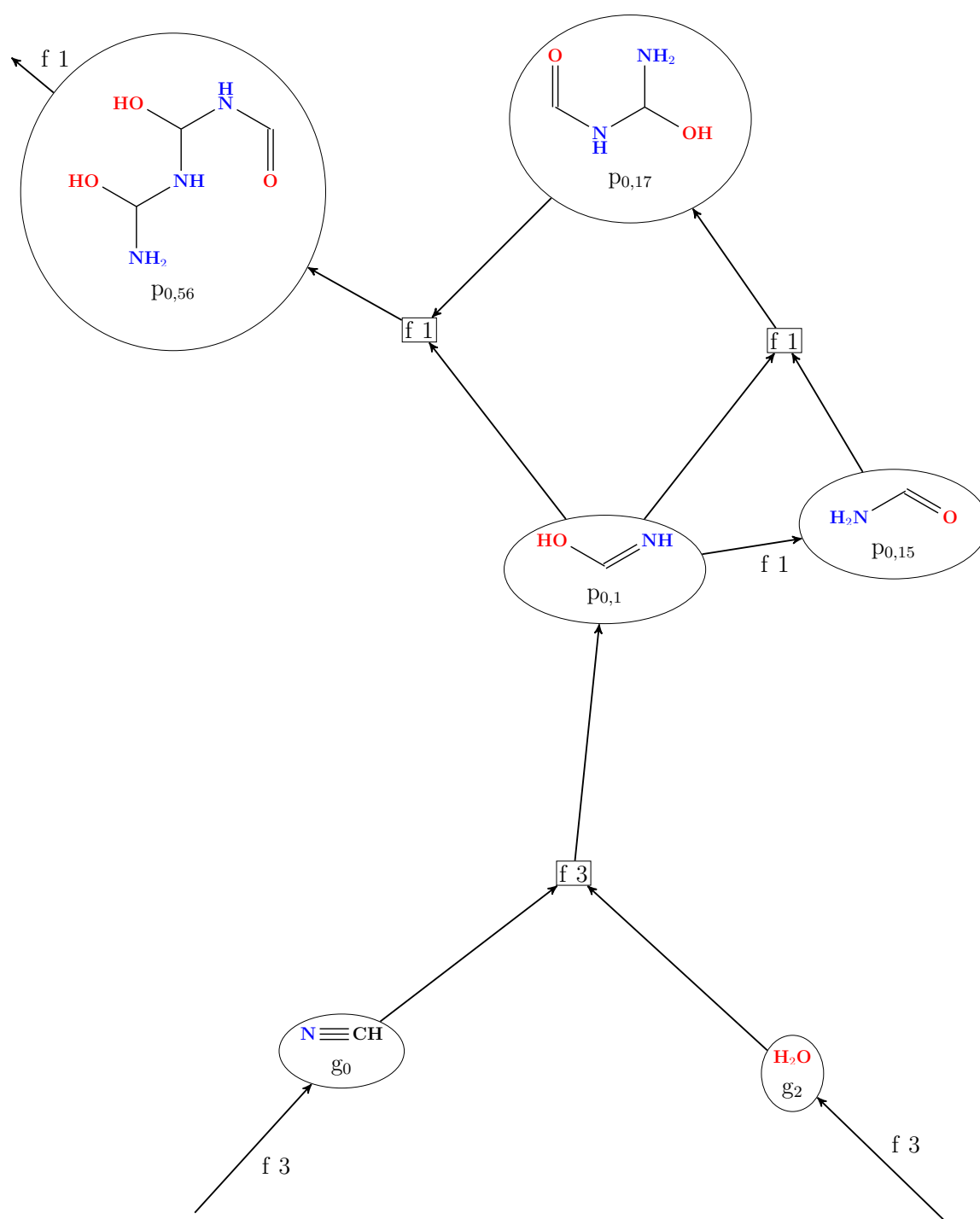
0.3.8 Solution 7

Overall Data

Objective value (non-integral): -0.085074

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	1.000000	0
$p_{\{0,15\}}$	0	0	-10.625195	-3.000000	2
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	4
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	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	1.0	-14455.699793	0
g_2	3	0	-13306.144961	1.0	-13302.819176	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	1
$p_{0,15}$	0	0	-27896.445756	-3.0	-27906.423111	2
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	4
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-95.748033	-95.748033
36	$p_{0,1},$	$p_{0,15},$	1	-56.31334	-56.31334
183	$p_{0,1}, p_{0,15},$	$p_{0,17},$	1	-23.153947	-23.153947
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-48.090871	-48.090871
Sum					-223.36172093729627

$$\Delta G = -41.48022469575057$$

$$\Delta E = -0.08507398651996567$$

$$|E| = 6$$

$$|U| = 4$$

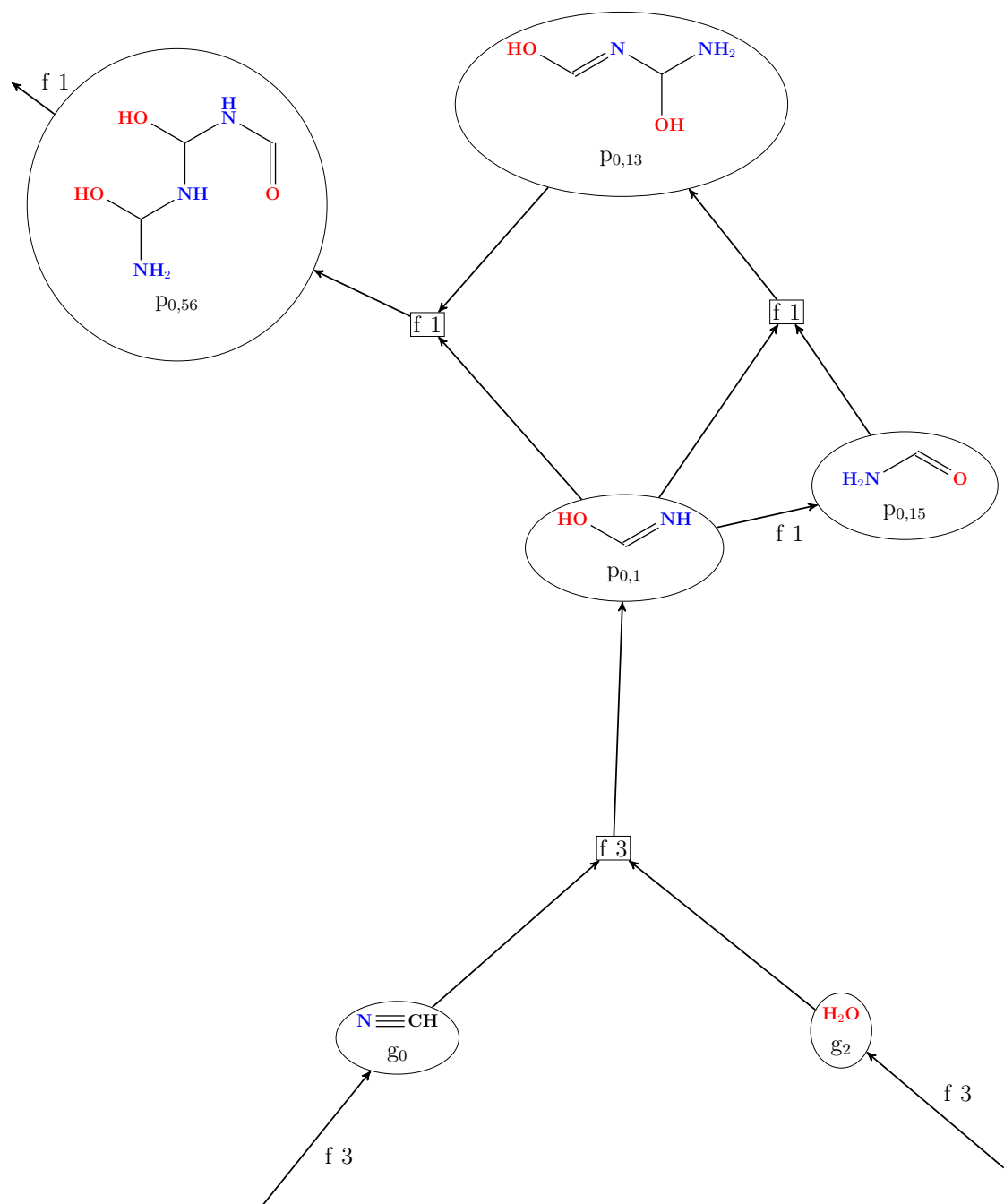
0.3.9 Solution 8

Overall Data

Objective value (non-integral): -0.085074

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	1.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-3.000000	44
$p_{\{0,15\}}$	0	0	-10.625195	-3.000000	42
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	67

Filtered Graph



File: out/103_dg_0_11100_f_0_8_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	1.0	-14455.699793	0
g_2	3	0	-13306.144961	1.0	-13302.819176	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	1
$p_{0,13}$	0	0	-55767.391129	-3.0	-55777.368484	44
$p_{0,15}$	0	0	-27896.445756	-3.0	-27906.423111	42
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-95.803747	-95.803747
36	$p_{0,1},$	$p_{0,15},$	1	-56.257627	-56.257627
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	-18.28555	-18.28555
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-52.84784	-52.84784
Sum					-223.36172093729326

$$\Delta G = -41.48022548340047$$

$$\Delta E = -0.08507398651996453$$

$$|E| = 6$$

$$|U| = 4$$

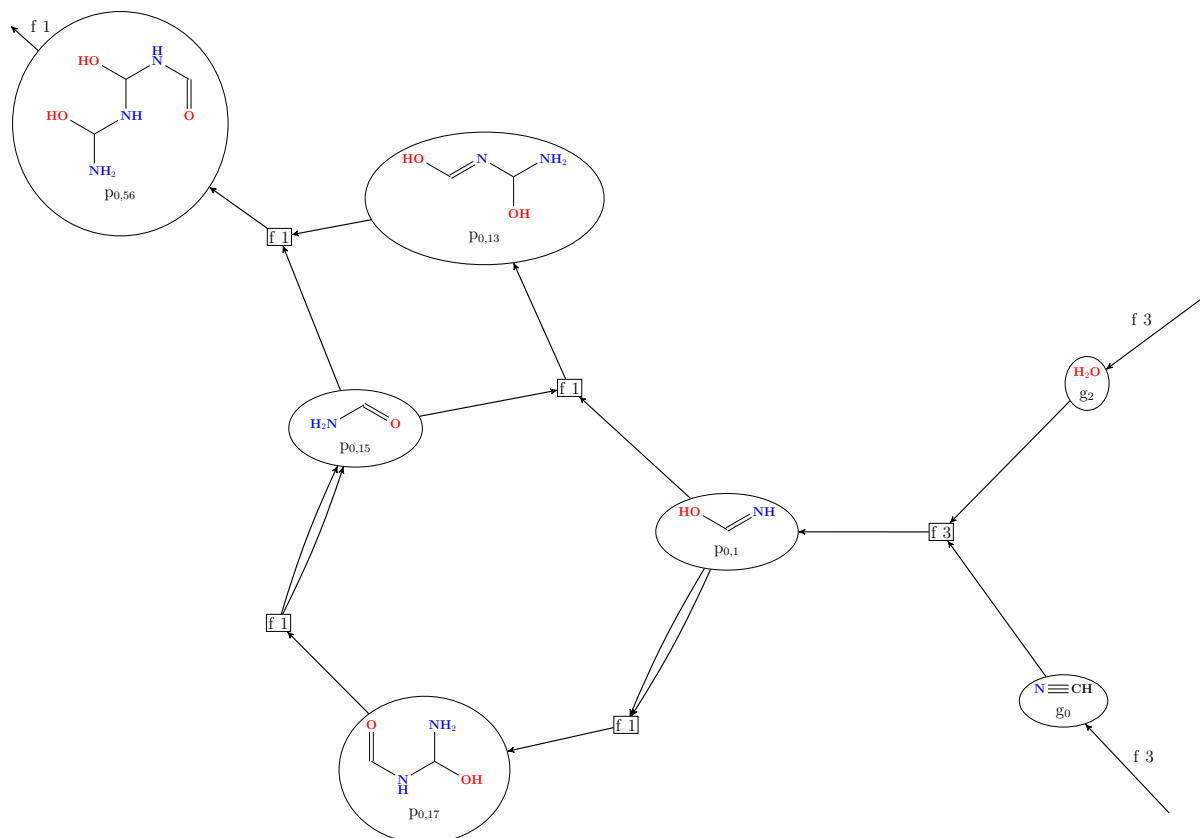
0.3.10 Solution 9

Overall Data

Objective value (non-integral): -0.085074

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507141	1.000000	0
$g_{\{2\}}$	3	0	-5.068033	1.000000	10
$p_{\{0,13\}}$	0	0	-21.240678	-3.000000	39
$p_{\{0,15\}}$	0	0	-10.625174	0.961318	27
$p_{\{0,17\}}$	0	0	-21.248887	1.000000	26
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	11
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	67

Filtered Graph



Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14458.99666	1.0	-14455.670875	0
g_2	3	0	-13306.118349	1.0	-13302.792564	10
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	11
$p_{0,13}$	0	0	-55767.391129	-3.0	-55777.368484	39
$p_{0,15}$	0	0	-27896.389963	0.961318	-27893.192826	27
$p_{0,17}$	0	0	-55788.944315	1.0	-55785.61853	26
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-95.803564	-95.803564
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-79.578865	-79.578865
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	-13.114121	-13.114121
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	-34.865172	-34.865172
237	$p_{0,17},$	$p_{0,15}, p_{0,15},$	1	0.0	0.0
Sum					-223.36172093729323

$$\Delta G = -41.496884016063$$

$$\Delta E = -0.08507398651996452$$

$$|E| = 7$$

$$|U| = 5$$

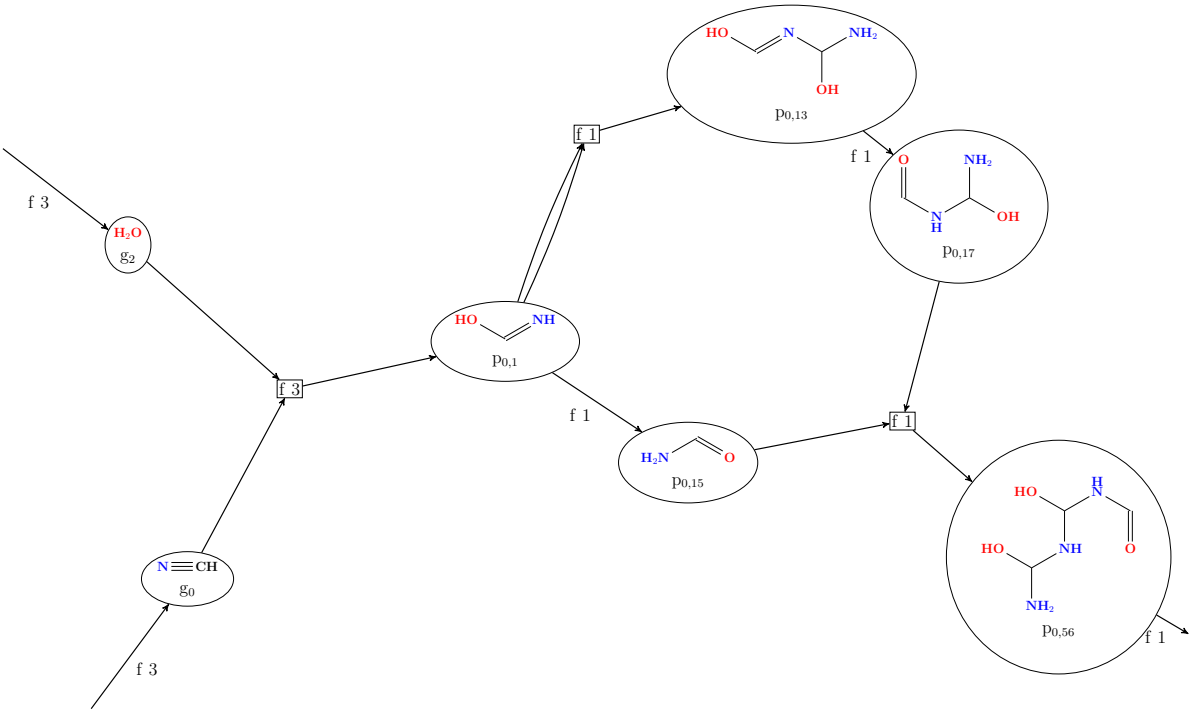
0.3.11 Solution 10

Overall Data

Objective value (non-integral): -0.085074

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	-3.000000	0
$p_{\{0,13\}}$	0	0	-21.240635	1.000000	3
$p_{\{0,15\}}$	0	0	-10.625174	1.000000	2
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	64
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	67

Filtered Graph



File: out/121_dg_0_11100_f_0_10_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	1.0	-14455.699793	0
g_2	3	0	-13306.144961	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	1
$p_{0,13}$	0	0	-55767.279594	1.0	-55763.953809	3
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	2
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	64
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-79.174822	-79.174822
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-57.802717	-57.802717
36	$p_{0,1},$	$p_{0,15},$	1	-39.572909	-39.572909
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	-8.462249	-8.462249
250	$p_{0,13},$	$p_{0,17},$	1	-21.553143	-21.553143
Sum					-223.36172093729306

$\Delta G = -36.49154696226994$

$\Delta E = -0.08507398651996445$

$|E| = 7$

$|U| = 5$

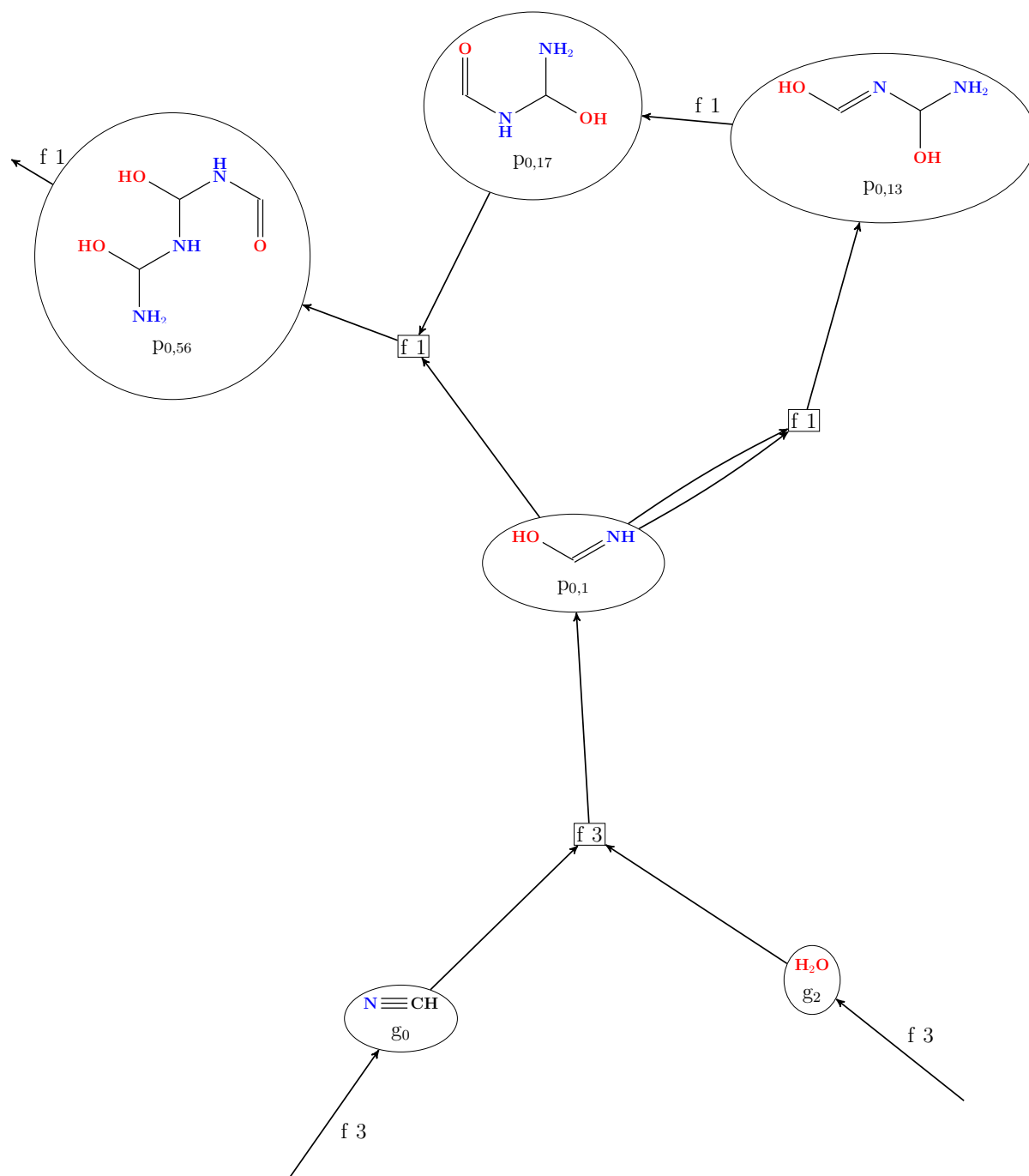
0.3.12 Solution 11

Overall Data

Objective value (non-integral): -0.085074

Vertex/Graph	In	Out	G	logK	t_order
g_{0}	3	0	-5.507152	1.000000	0
g_{2}	3	0	-5.068043	-3.000000	0
p_{0,13}	0	0	-21.240635	1.000000	3
p_{0,17}	0	0	-21.248844	1.000000	65
p_{0,1}	0	0	-10.610080	1.000000	1
p_{0,56}	0	1	-31.869324	-3.000000	67

Filtered Graph



File: out/130_dg_0_11100_f_0_11_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	1.0	-14455.699793	0
g_2	3	0	-13306.144961	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	1
$p_{0,13}$	0	0	-55767.279594	1.0	-55763.953809	3
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	65
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-79.119108	-79.119108
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-57.914144	-57.914144
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-48.090871	-48.090871
250	$p_{0,13},$	$p_{0,17},$	1	-21.553143	-21.553143
Sum					-223.36172093729155

$$\Delta G = -36.491547224819904$$

$$\Delta E = -0.08507398651996388$$

$$|E| = 6$$

$$|U| = 4$$

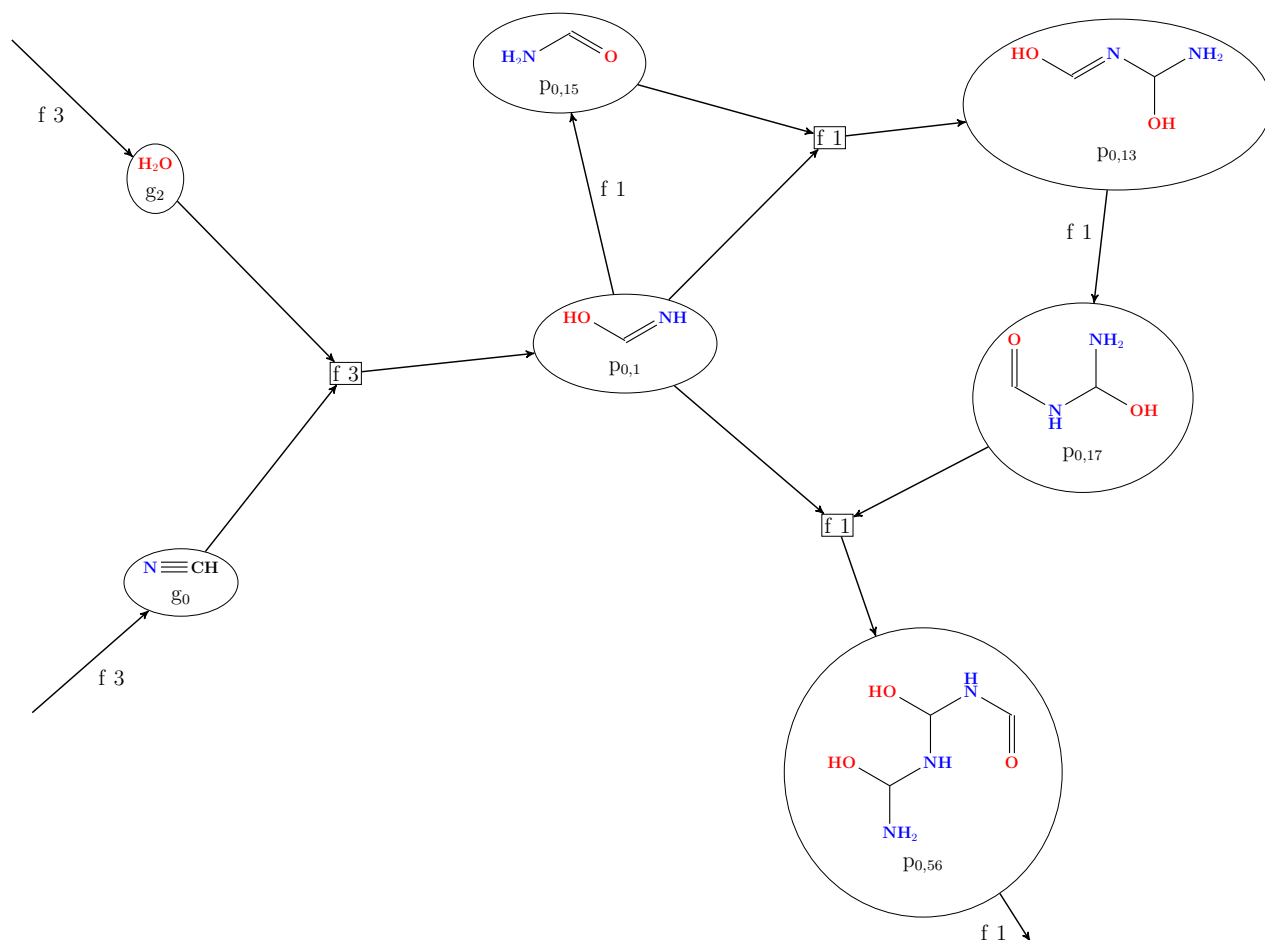
0.3.13 Solution 12

Overall Data

Objective value (non-integral): -0.085074

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	1.000000	0
$p_{\{0,13\}}$	0	0	-21.240635	1.000000	4
$p_{\{0,15\}}$	0	0	-10.625195	-3.000000	2
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	5
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	67

Filtered Graph



File: out/139_dg_0_11100_f_0_12_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	1.0	-14455.699793	0
g_2	3	0	-13306.144961	1.0	-13302.819176	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	1
$p_{0,13}$	0	0	-55767.279594	1.0	-55763.953809	4
$p_{0,15}$	0	0	-27896.445756	-3.0	-27906.423111	2
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	5
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	g_0, g_2	$p_{0,1}$	3	-95.748033	-95.748033
36	$p_{0,1}$	$p_{0,15}$	1	-56.31334	-56.31334
192	$p_{0,1}, p_{0,15}$	$p_{0,13}$	1	-1.600804	-1.600804
196	$p_{0,1}, p_{0,17}$	$p_{0,56}$	1	-48.090871	-48.090871
250	$p_{0,13}$	$p_{0,17}$	1	-21.553143	-21.553143
Sum					-223.3617209372901

$$\Delta G = -41.48022443320061$$

$$\Delta E = -0.08507398651996333$$

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

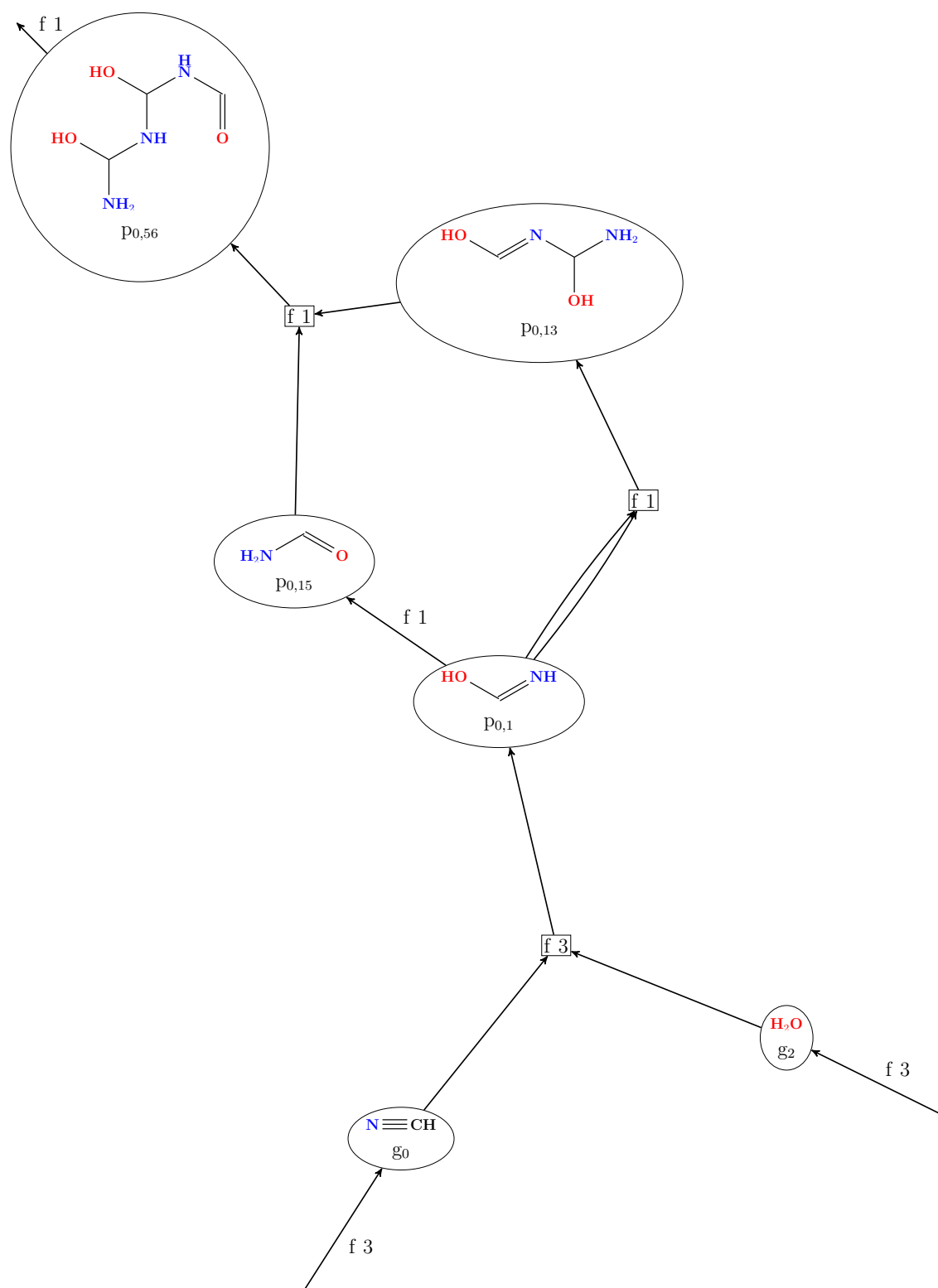
0.3.14 Solution 13

Overall Data

Objective value (non-integral): -0.085074

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-3.000000	0
$g_{\{2\}}$	3	0	-5.068043	-3.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-2.181264	64
$p_{\{0,15\}}$	0	0	-10.625195	-3.000000	2
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	67

Filtered Graph



File: out/148_dg_0_11100_f_0_13_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	-3.0	-14469.002933	0
g_2	3	0	-13306.144961	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	1
$p_{0,13}$	0	0	-55767.391129	-2.181264	-55774.645545	64
$p_{0,15}$	0	0	-27896.445756	-3.0	-27906.423111	2
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-62.545896	-62.545896
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-71.139503	-71.139503
36	$p_{0,1},$	$p_{0,15},$	1	-56.257627	-56.257627
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	0.006113	0.006113
Sum					-223.3617209372869

$$\Delta G = -31.502869753889232$$

$$\Delta E = -0.0850739865199621$$

$$|E| = 6$$

$$|U| = 4$$

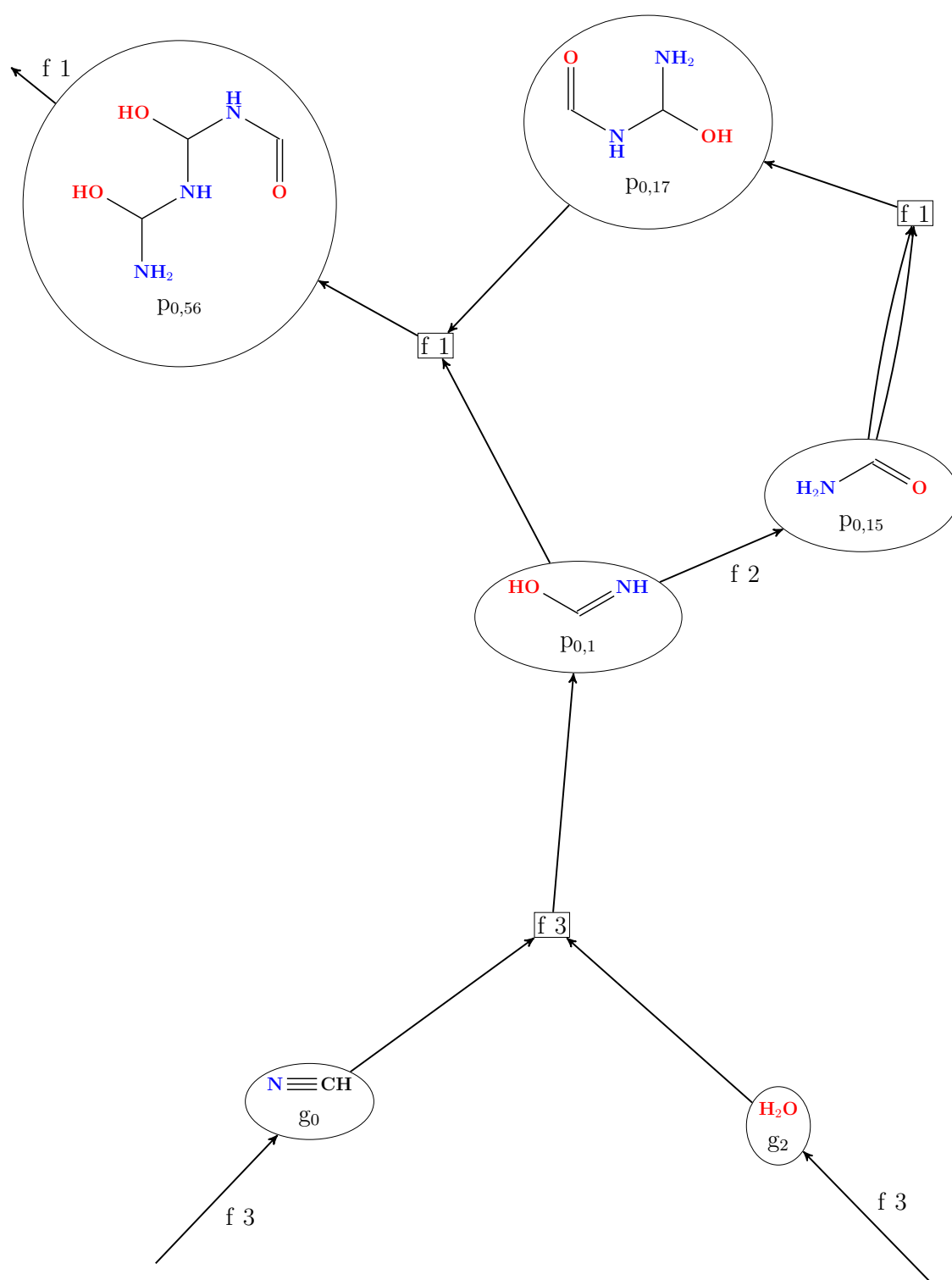
0.3.15 Solution 14

Overall Data

Objective value (non-integral): -0.0699802

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	1.000000	0
$p_{\{0,15\}}$	0	0	-10.625174	0.974002	32
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	65
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	67

Filtered Graph



File: out/157_dg_0_11100_f_0_14_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	1.0	-14455.699793	0
g_2	3	0	-13306.144961	1.0	-13302.819176	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	1
$p_{0,15}$	0	0	-27896.389963	0.974002	-27893.15064	32
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	65
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-95.748033	-95.748033
36	$p_{0,1},$	$p_{0,15},$	2	-39.7367	-39.7367
180	$p_{0,15}, p_{0,15},$	$p_{0,17},$	1	0.006113	0.006113
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-48.090871	-48.090871
Sum					-183.73309883350115

$$\Delta G = -41.48022469575057$$

$$\Delta E = -0.06998024150172455$$

$$|E| = 7$$

$$|U| = 4$$

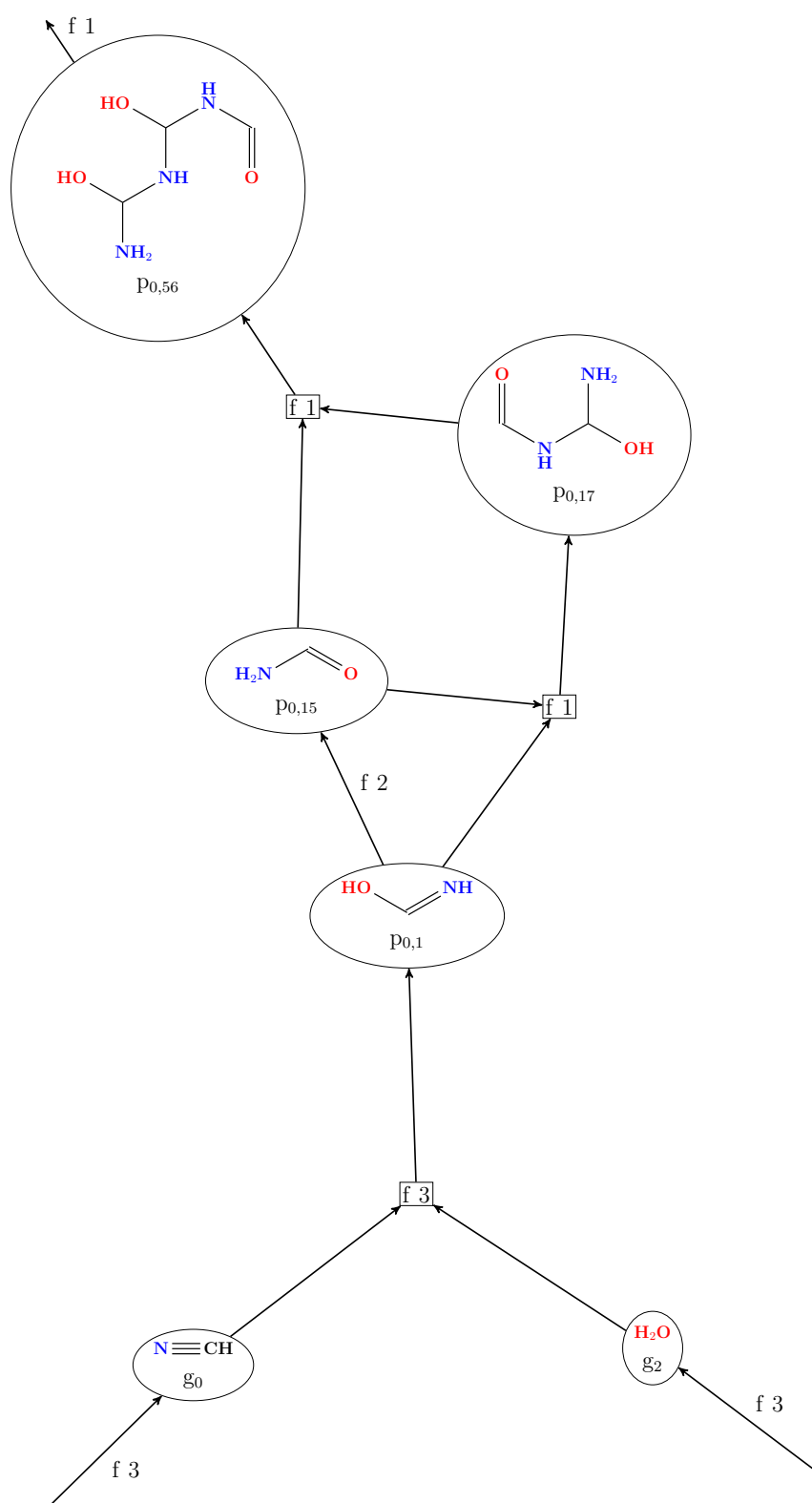
0.3.16 Solution 15

Overall Data

Objective value (non-integral): -0.0699802

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	-3.000000	0
$p_{\{0,15\}}$	0	0	-10.625195	-0.996759	2
$p_{\{0,17\}}$	0	0	-21.248887	1.000000	4
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	67

Filtered Graph



File: out/166_dg_0_11100_f_0_15_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	1.0	-14455.699793	0
g_2	3	0	-13306.144961	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	1
$p_{0,15}$	0	0	-27896.445756	-0.996759	-27899.760763	2
$p_{0,17}$	0	0	-55788.944315	1.0	-55785.61853	4
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-79.174822	-79.174822
36	$p_{0,1},$	$p_{0,15},$	2	-47.929692	-47.929692
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.006113	0.006113
183	$p_{0,1}, p_{0,15},$	$p_{0,17},$	1	-31.537745	-31.537745
Sum	-183.73309883350115				

$$\Delta G = -36.49154696226994$$

$$\Delta E = -0.06998024150172455$$

$$|E| = 7$$

$$|U| = 4$$

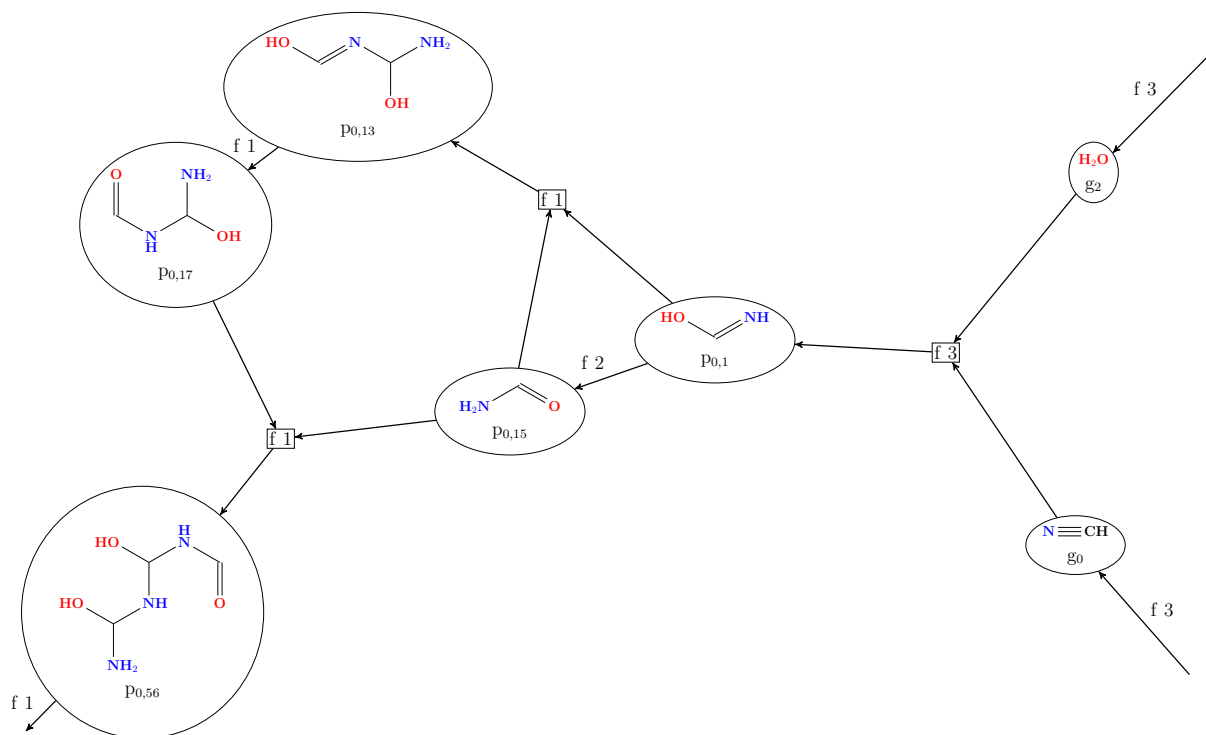
0.3.17 Solution 16

Overall Data

Objective value (non-integral): -0.0699802

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	1.000000	0
$p_{\{0,13\}}$	0	0	-21.240635	1.000000	4
$p_{\{0,15\}}$	0	0	-10.625174	1.000000	2
$p_{\{0,17\}}$	0	0	-21.248887	-1.008710	64
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	67

Filtered Graph



File: out/175_dg_0_11100_f_0_16_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	1.0	-14455.699793	0
g_2	3	0	-13306.144961	1.0	-13302.819176	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	1
$p_{0,13}$	0	0	-55767.279594	1.0	-55763.953809	4
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	2
$p_{0,17}$	0	0	-55788.944315	-1.00871	-55792.299066	64
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-95.803747	-95.803747
36	$p_{0,1},$	$p_{0,15},$	2	-39.572909	-39.572909
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.0	0.0
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	-18.229808	-18.229808
250	$p_{0,13},$	$p_{0,17},$	1	-30.015391	-30.015391
Sum				-183.73309883349495	

$$\Delta G = -41.48022495830054$$

$$\Delta E = -0.06998024150172219$$

$$|E| = 8$$

$$|U| = 5$$

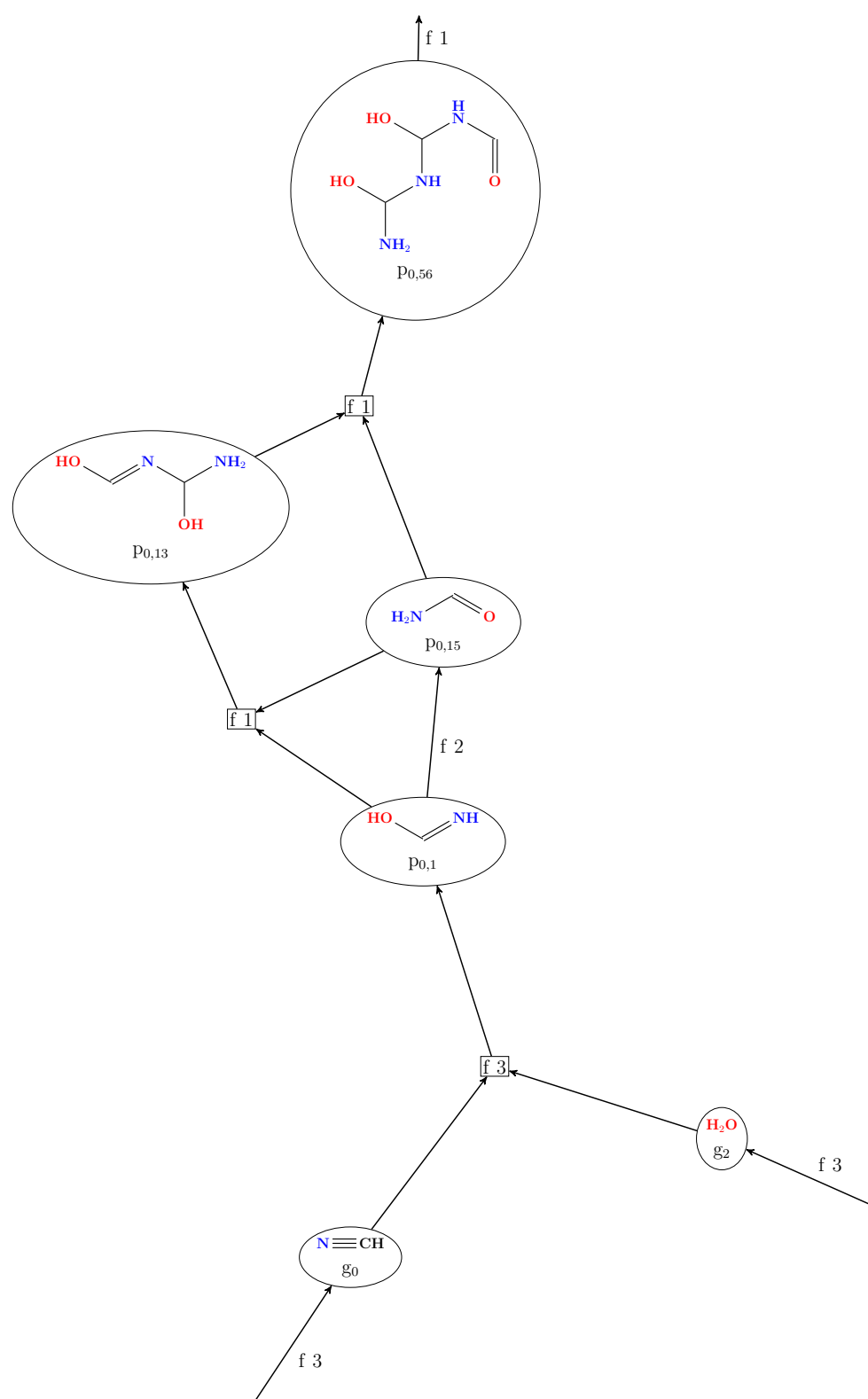
0.3.18 Solution 17

Overall Data

Objective value (non-integral): -0.0699802

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	1.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-3.000000	44
$p_{\{0,15\}}$	0	0	-10.625174	1.000000	22
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	67

Filtered Graph



File: out/184_dg_0_11100_f_0_17_filt

Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-14459.025578	1.0	-14455.699793	0
g_2	3	0	-13306.144961	1.0	-13302.819176	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	21
$p_{0,13}$	0	0	-55767.391129	-3.0	-55777.368484	44
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	22
$p_{0,56}$	0	1	-83672.898792	-3.0	-83682.876147	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-95.748033	-95.748033
36	$p_{0,1},$	$p_{0,15},$	2	-39.628622	-39.628622
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	-13.274931	-13.274931
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	-35.025982	-35.025982
Sum					-183.73309883348878

$$\Delta G = -41.48022469575057$$

$$\Delta E = -0.06998024150171984$$

$$|E| = 7$$

$$|U| = 4$$