

Summary

December 7, 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



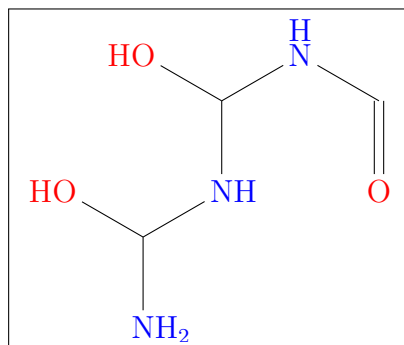
File: out/011_g_2_11310100

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

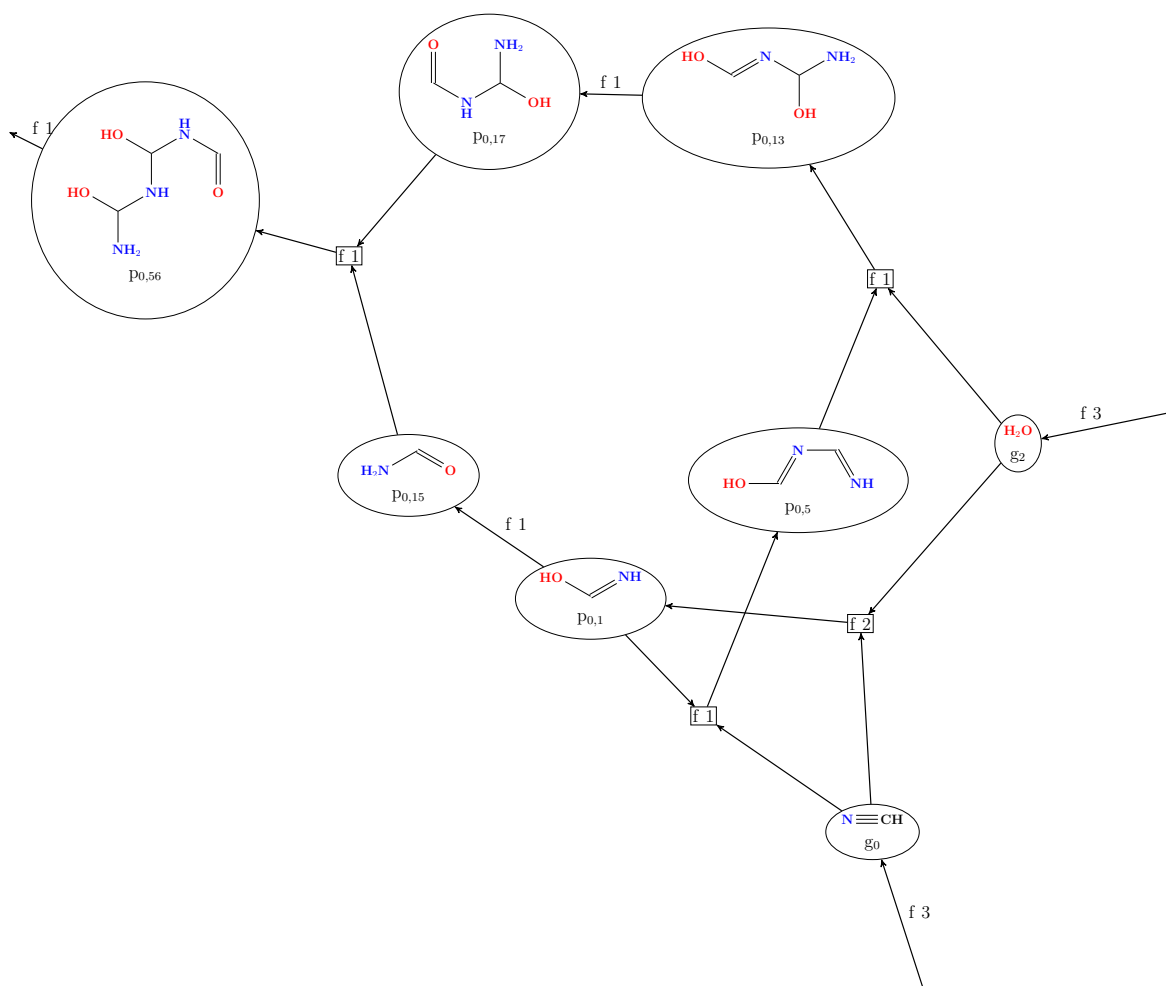
0.3.1 Solution 0

Overall Data

Objective value (non-integral): -0.121

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	-9.000000	3
p_{0,15}	0	0	-10.625195	-3.997683	2
p_{0,17}	0	0	-21.248844	0.448967	4
p_{0,1}	0	0	-10.610101	1.000000	1
p_{0,56}	0	1	-31.869324	-9.000000	67
p_{0,5}	0	0	-16.158965	1.000000	2

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	1
$p_{0,5}$	0	0	-42425.357769	1.0	-42422.031984	2
$p_{0,13}$	0	0	-55767.391129	-9.0	-55797.323194	3
$p_{0,15}$	0	0	-27896.445756	-3.997683	-27909.741189	2
$p_{0,17}$	0	0	-55788.832737	0.448967	-55787.33957	4
$p_{0,56}$	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	-93.916364	-93.916364
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-111.784986	-111.784986
36	$p_{0,1},$	$p_{0,15},$	1	-50.972683	-50.972683
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-60.856729	-60.856729
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.006113	0.006113
250	$p_{0,13},$	$p_{0,17},$	1	0.006113	0.006113
Sum					-317.68531014755155

$\Delta G = -41.14348940163932$
 $\Delta E = -0.12099994430411407$
 $|E| = 7$
 $|U| = 6$

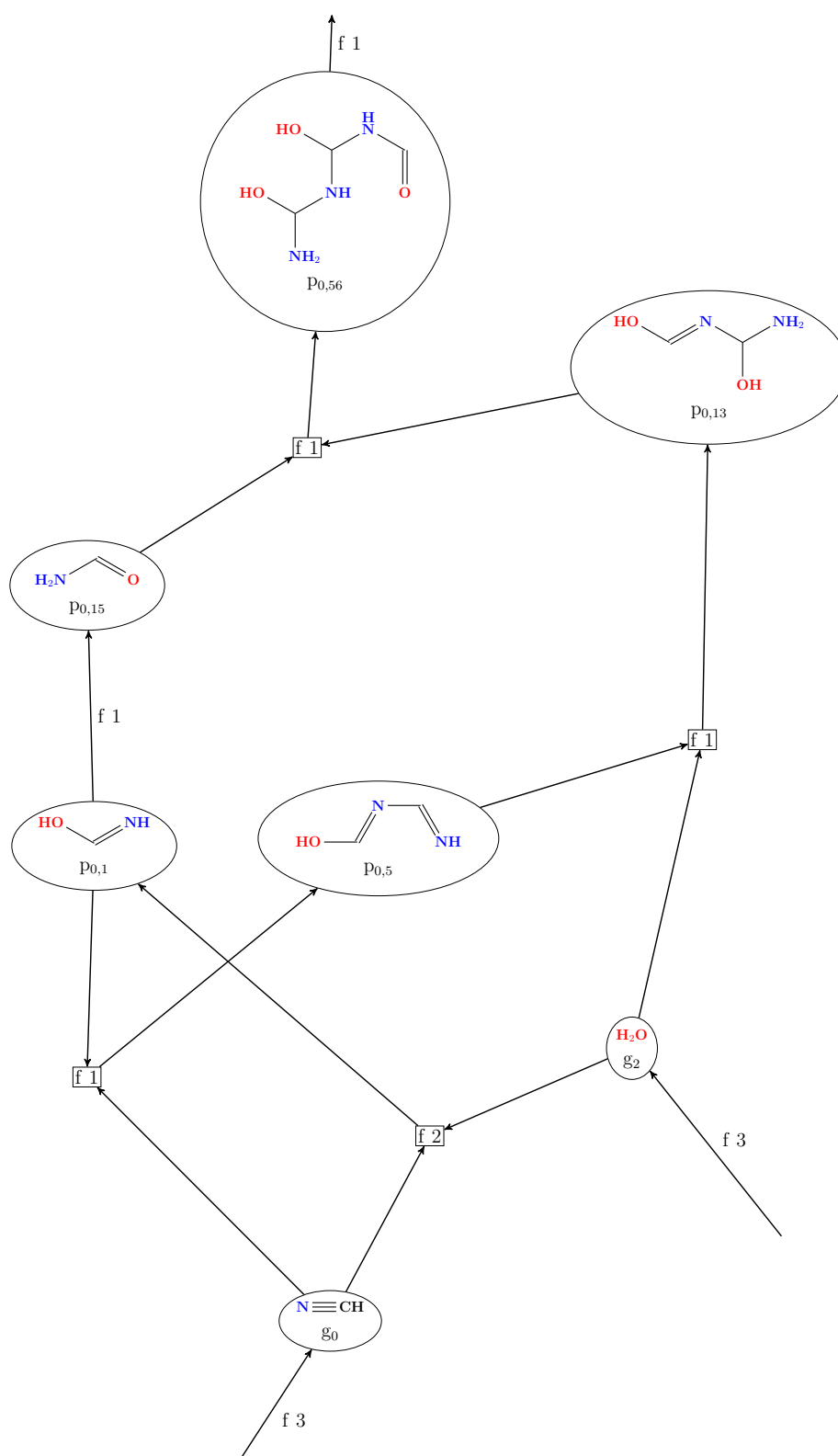
0.3.2 Solution 1

Overall Data

Objective value (non-integral): -0.121

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	0
$p_{\{0,13\}}$	0	0	-21.240678	1.000000	23
$p_{\{0,15\}}$	0	0	-10.625174	1.000000	43
$p_{\{0,1\}}$	0	0	-10.610101	-9.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67
$p_{\{0,5\}}$	0	0	-16.158998	1.000000	22

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	-14458.99666	1.0	-14455.670875	0
g_2	3	0	-13306.118349	1.0	-13302.792564	0
$p_{0,1}$	0	0	-27856.817054	-9.0	-27886.74912	21
$p_{0,5}$	0	0	-42425.44262	1.0	-42422.116835	22
$p_{0,13}$	0	0	-55767.391129	1.0	-55764.065344	23
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	43
$p_{0,56}$	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	-116.670377	-116.670377
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-89.200272	-89.200272
36	$p_{0,1},$	$p_{0,15},$	1	-16.874426	-16.874426
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-38.100008	-38.100008
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	-34.086031	-34.086031
Sum					-317.68531014755433

$$\Delta G = -41.16014819685182$$

$$\Delta E = -0.12099994430411512$$

$$|E| = 6$$

$$|U| = 5$$

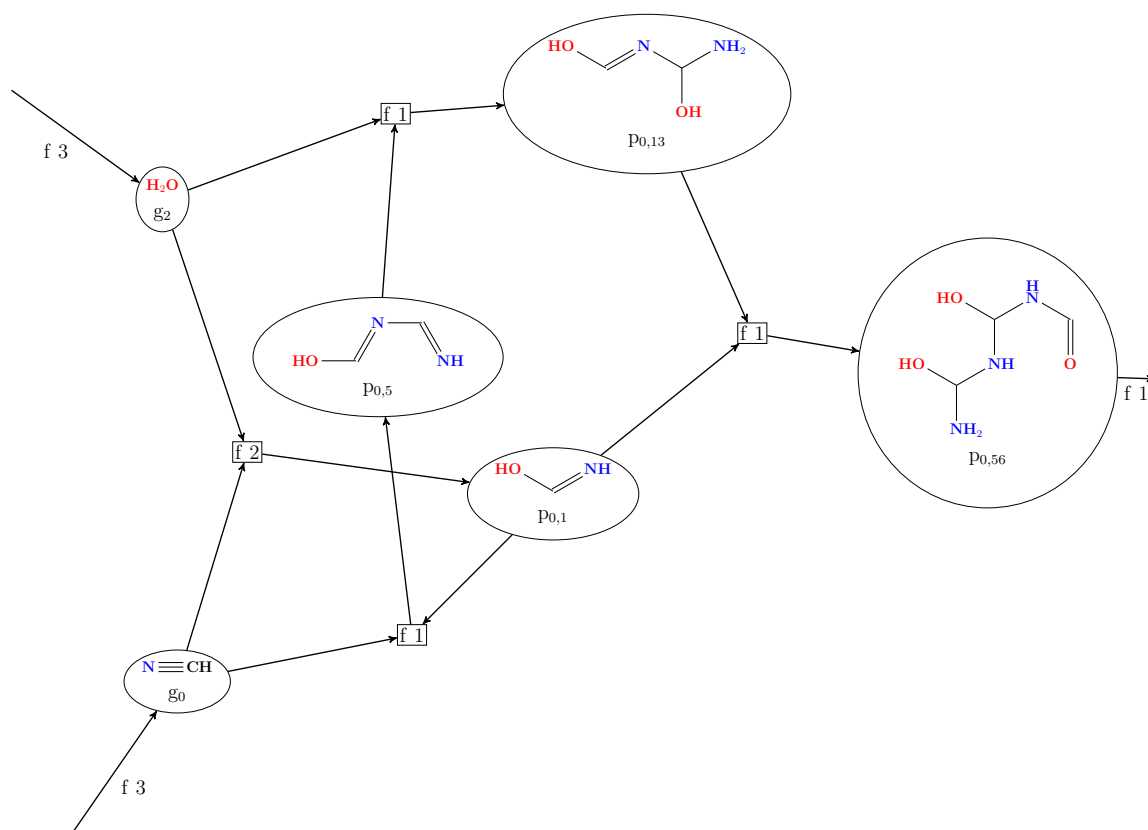
0.3.3 Solution 2

Overall Data

Objective value (non-integral): -0.121

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-9.000000	65
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67
$p_{\{0,5\}}$	0	0	-16.158998	1.000000	64

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	-14459.025578	1.0	-14455.699793	0
g_2	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	1
$p_{0,5}$	0	0	-42425.44262	1.0	-42422.116835	64
$p_{0,13}$	0	0	-55767.391129	-9.0	-55797.323194	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	-71.217881	-71.217881
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-111.869837	-111.869837
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-38.073396	-38.073396
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-50.960457	-50.960457
Sum				-317.68531014755246	

$$\Delta G = -34.333944439840735$$

$$\Delta E = -0.1209999443041144$$

$$|E| = 5$$

$$|U| = 4$$

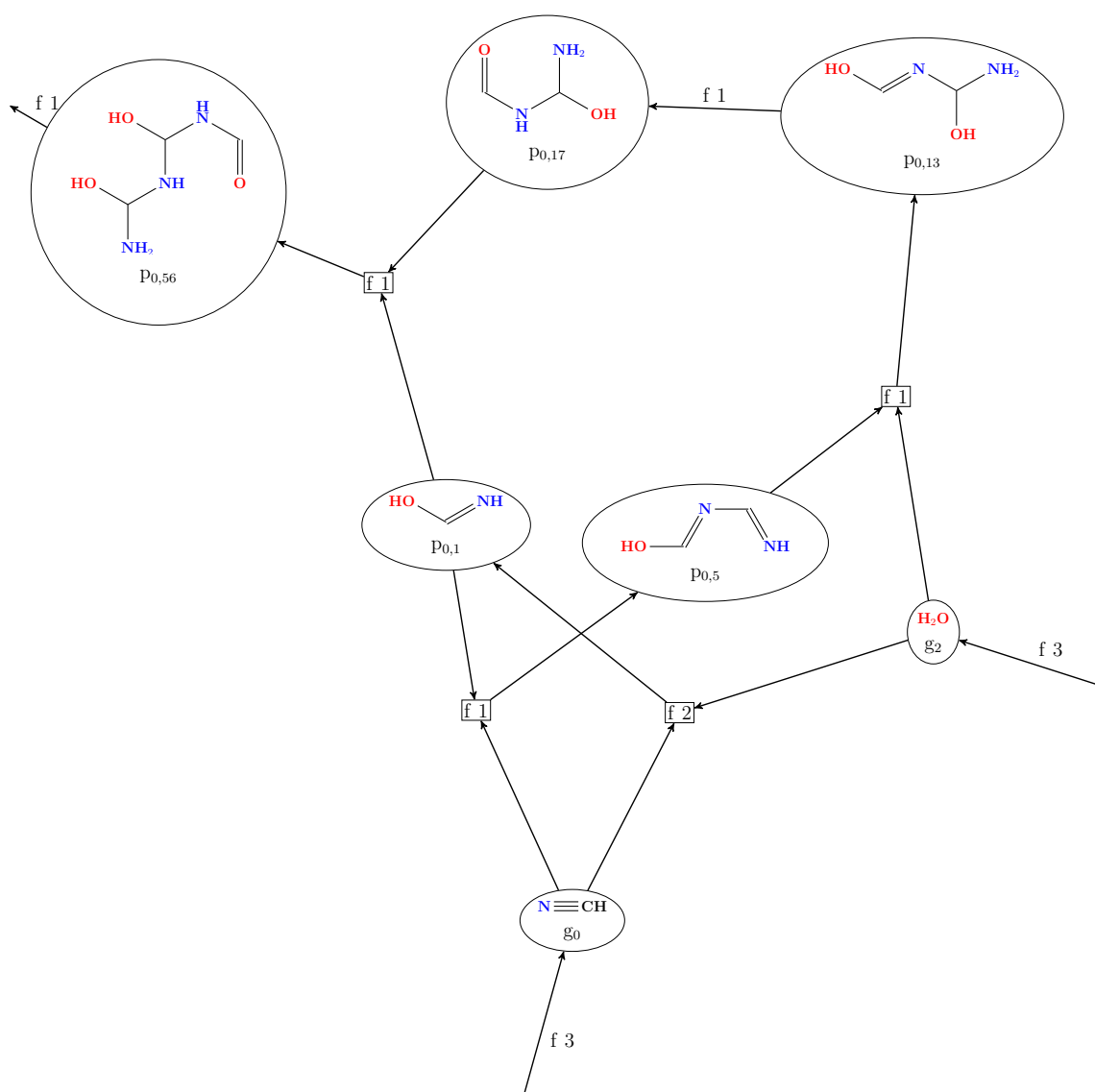
0.3.4 Solution 3

Overall Data

Objective value (non-integral): -0.121

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507141	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-2.223765	44
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	65
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67
$p_{\{0,5\}}$	0	0	-16.158998	-9.000000	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	-14458.99666	1.0	-14455.670875	0
g_2	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	1
$p_{0,5}$	0	0	-42425.44262	-9.0	-42455.374686	2
$p_{0,13}$	0	0	-55767.391129	-2.223765	-55774.786893	44
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	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	-71.191085	-71.191085
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-134.652951	-134.652951
123	$g_2, p_{0,5},$	$p_{0,13},$	1	0.006113	0.006113
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-52.273045	-52.273045
250	$p_{0,13},$	$p_{0,17},$	1	-14.124151	-14.124151
Sum					-317.68531014754967

$$\Delta G = -34.34261987829947$$

$$\Delta E = -0.12099994430411334$$

$$|E| = 6$$

$$|U| = 5$$

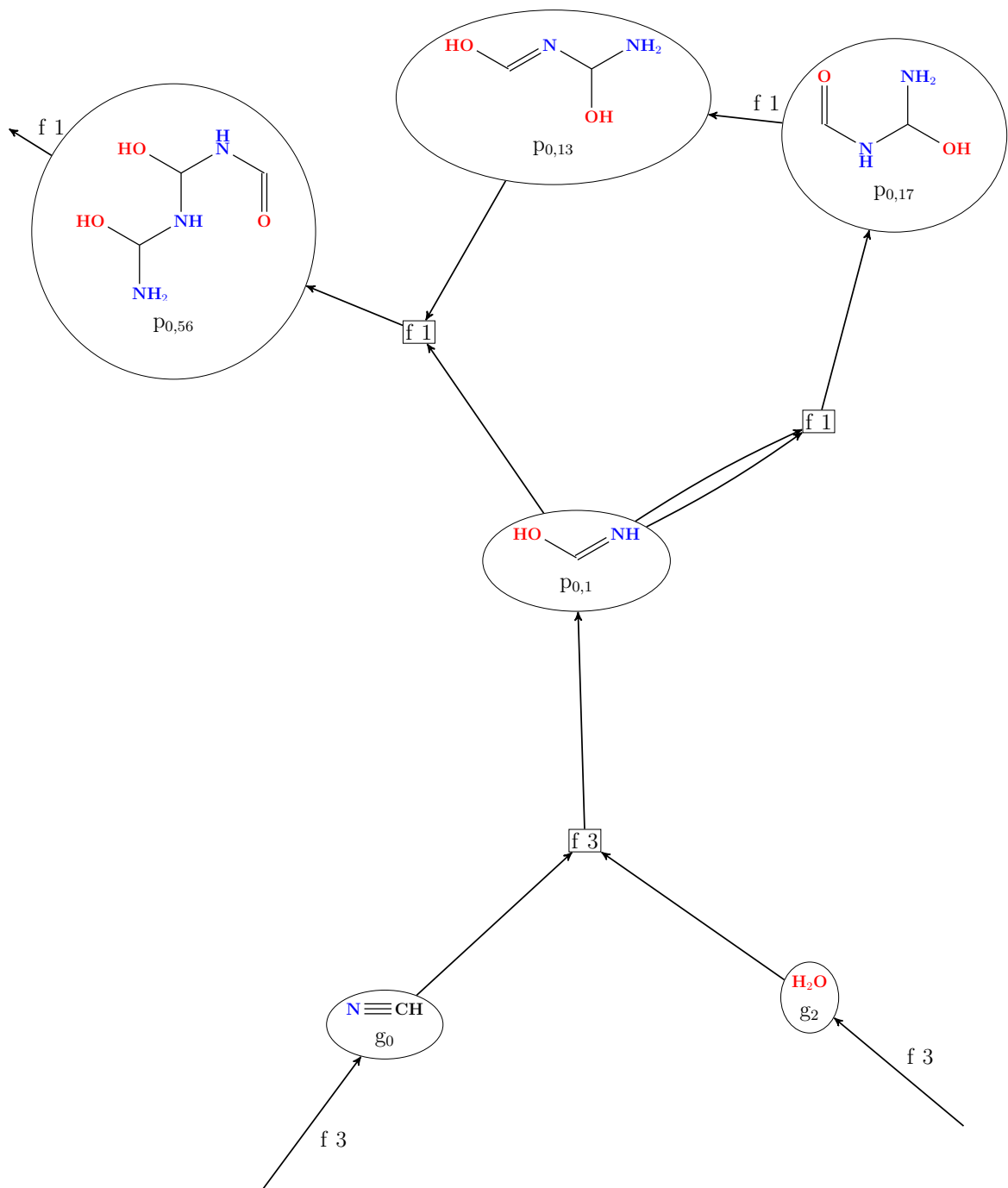
0.3.5 Solution 4

Overall Data

Objective value (non-integral): -0.0852292

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	-8.443581	65
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	64
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-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	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	-8.443581	-55795.472663	65
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	64
$p_{0,56}$	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	-93.916364	-93.916364
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-77.468477	-77.468477
253	$p_{0,17},$	$p_{0,13},$	1	0.006113	0.006113
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-52.223445	-52.223445
Sum					-223.76912960558013

$$\Delta G = -41.14348913908936$$

$$\Delta E = -0.08522916028657285$$

$$|E| = 6$$

$$|U| = 4$$

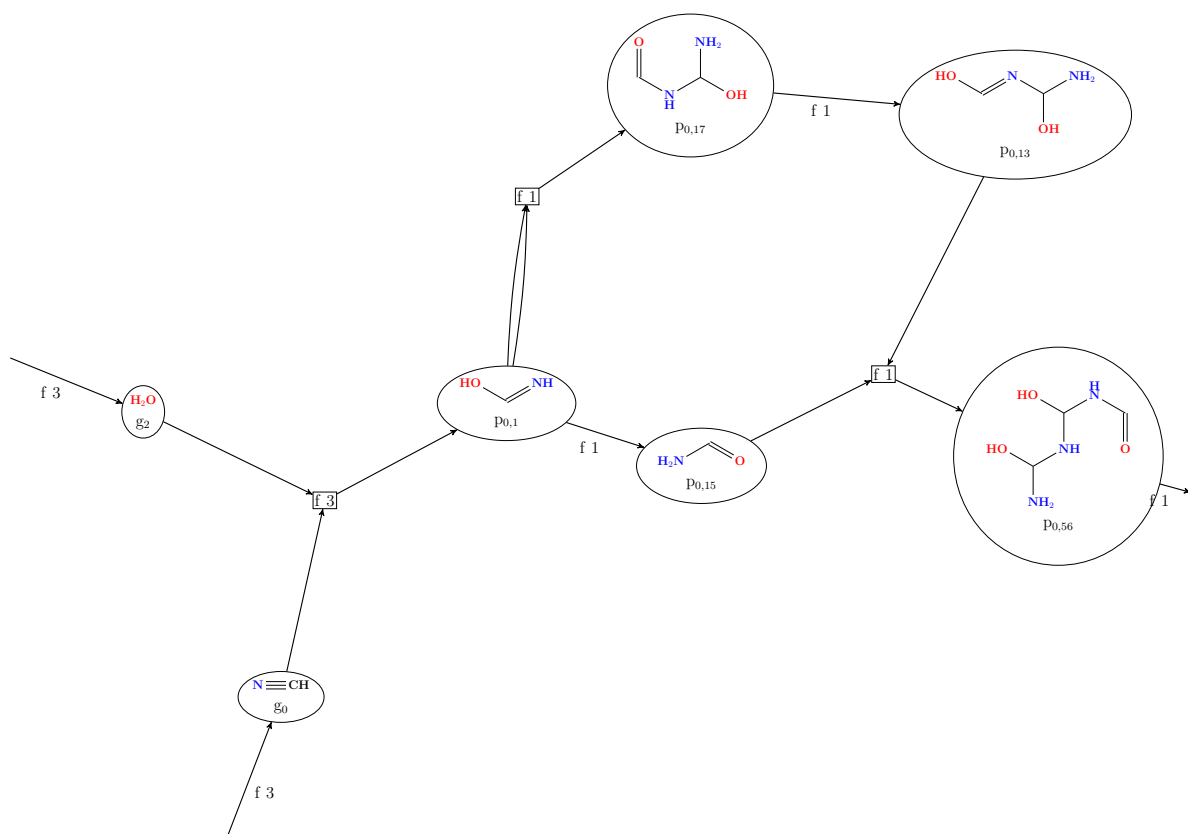
0.3.6 Solution 5

Overall Data

Objective value (non-integral): -0.0852292

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	20
$p_{\{0,13\}}$	0	0	-21.240678	-9.000000	44
$p_{\{0,15\}}$	0	0	-10.625195	1.000000	22
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	43
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	21
$p_{\{0,56\}}$	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	1.0	-14455.699793	0
g_2	3	0	-13306.144961	1.0	-13302.819176	20
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	21
$p_{0,13}$	0	0	-55767.391129	-9.0	-55797.323194	44
$p_{0,15}$	0	0	-27896.445756	1.0	-27893.119971	22
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	43
$p_{0,56}$	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	-93.86065	-93.86065
36	$p_{0,1},$	$p_{0,15},$	1	-39.684415	-39.684415
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-77.579904	-77.579904
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	-11.331756	-11.331756
253	$p_{0,17},$	$p_{0,13},$	1	-1.256875	-1.256875
Sum					-223.76912960558212

$$\Delta G = -41.143488876539394$$

$$\Delta E = -0.0852291602865736$$

$$|E| = 7$$

$$|U| = 5$$

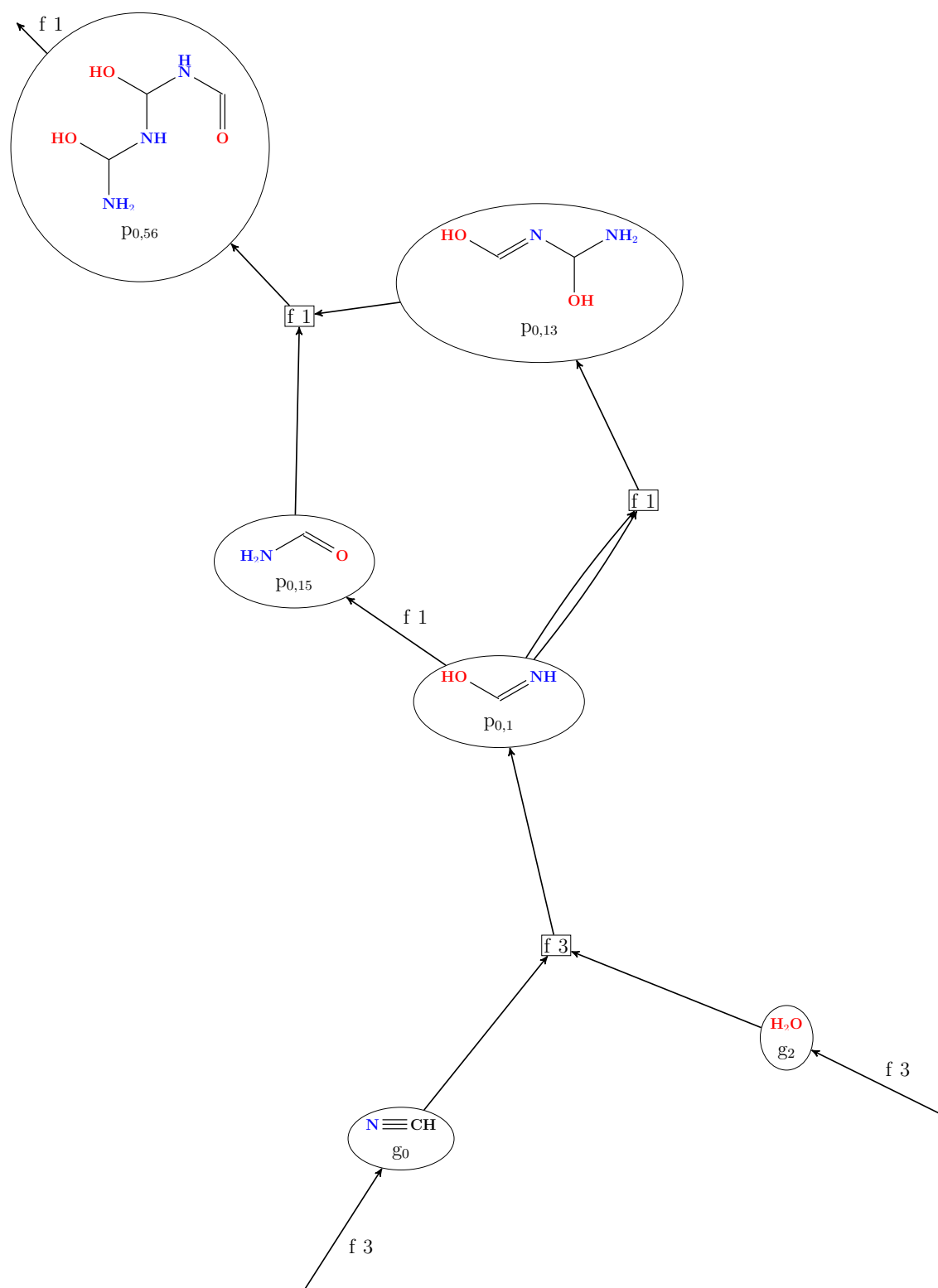
0.3.7 Solution 6

Overall Data

Objective value (non-integral): -0.0852292

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	20
$p_{\{0,13\}}$	0	0	-21.240678	-3.994990	43
$p_{\{0,15\}}$	0	0	-10.625195	-9.000000	23
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	21
$p_{\{0,56\}}$	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	-14459.025578	1.0	-14455.699793	0
g_2	3	0	-13306.144961	-9.0	-13336.077027	20
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	21
$p_{0,13}$	0	0	-55767.391129	-3.99499	-55780.677606	43
$p_{0,15}$	0	0	-27896.445756	-9.0	-27926.377821	23
$p_{0,56}$	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	-71.217881	-71.217881
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-67.364737	-67.364737
36	$p_{0,1},$	$p_{0,15},$	1	-62.327184	-62.327184
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	0.006113	0.006113
Sum					-223.76912960557934

$$\Delta G = -34.3339447023907$$

$$\Delta E = -0.08522916028657254$$

$$|E| = 6$$

$$|U| = 4$$

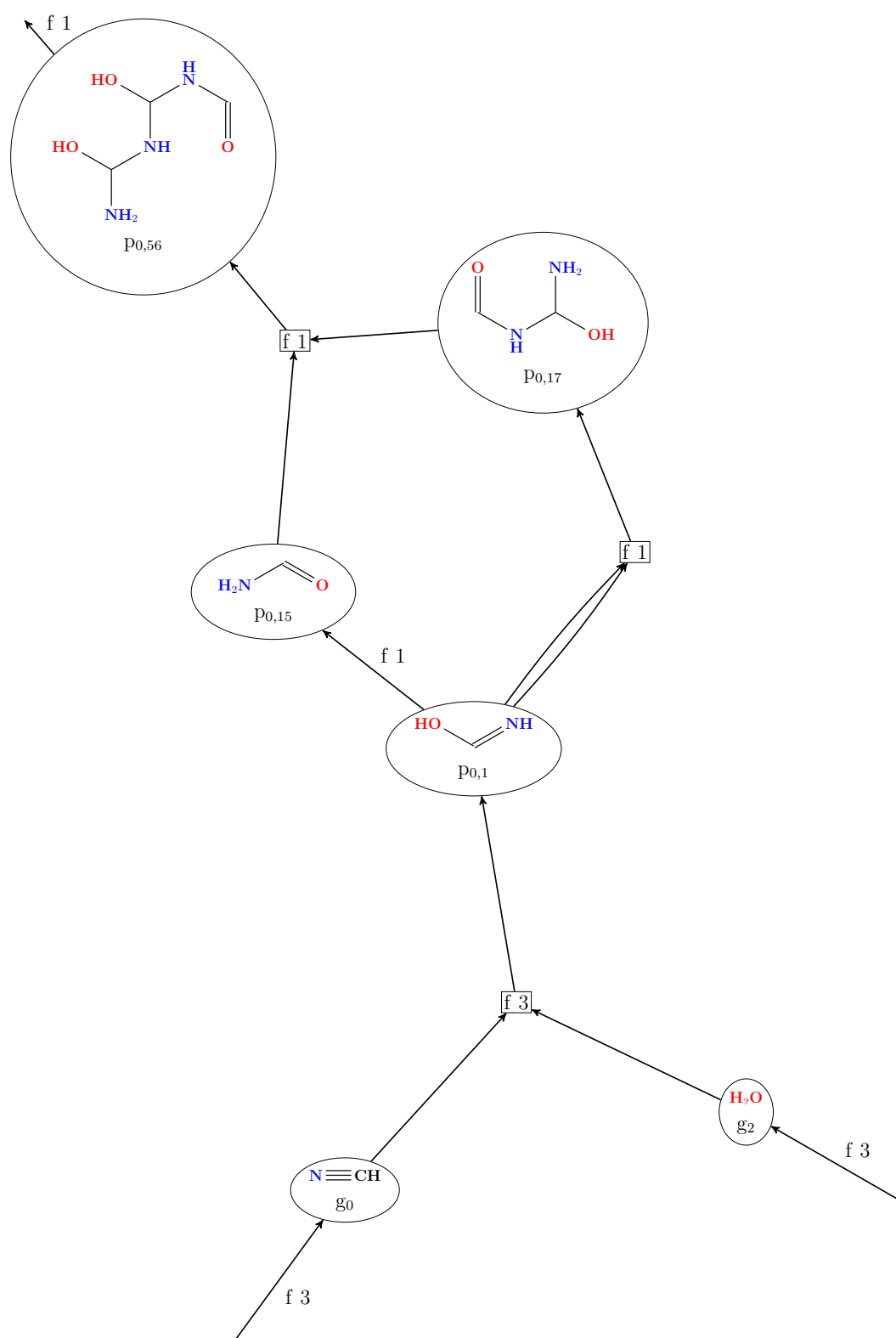
0.3.8 Solution 7

Overall Data

Objective value (non-integral): -0.0852292

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,15\}}$	0	0	-10.625195	-4.548716	2
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	3
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	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	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	1
$p_{0,15}$	0	0	-27896.445756	-4.548716	-27911.573807	2
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	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	-71.217881	-71.217881
36	$p_{0,1},$	$p_{0,15},$	1	-52.223445	-52.223445
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-77.468477	-77.468477
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.006113	0.006113
Sum					-223.76912960557934

$$\Delta G = -34.3339447023907$$

$$\Delta E = -0.08522916028657254$$

$$|E| = 6$$

$$|U| = 4$$

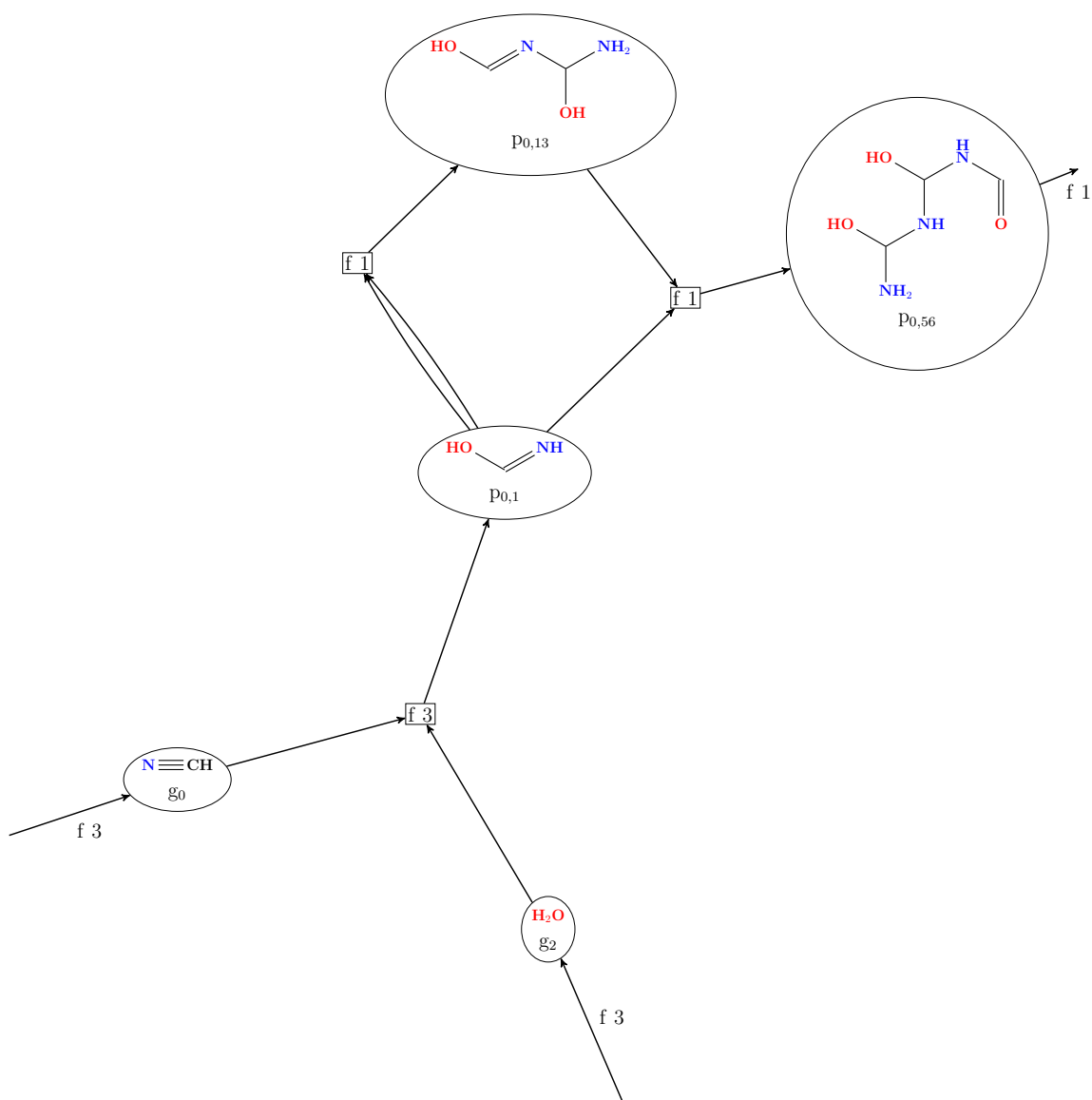
0.3.9 Solution 8

Overall Data

Objective value (non-integral): -0.0852292

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	3
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	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	-27856.761341	1.0	-27853.435556	1
$p_{0,13}$	0	0	-55767.279594	1.0	-55763.953809	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	-93.86065	-93.86065
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-56.026761	-56.026761
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-73.826188	-73.826188
Sum					-223.7691296055774

$$\Delta G = -41.14348940163932$$

$$\Delta E = -0.0852291602865718$$

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

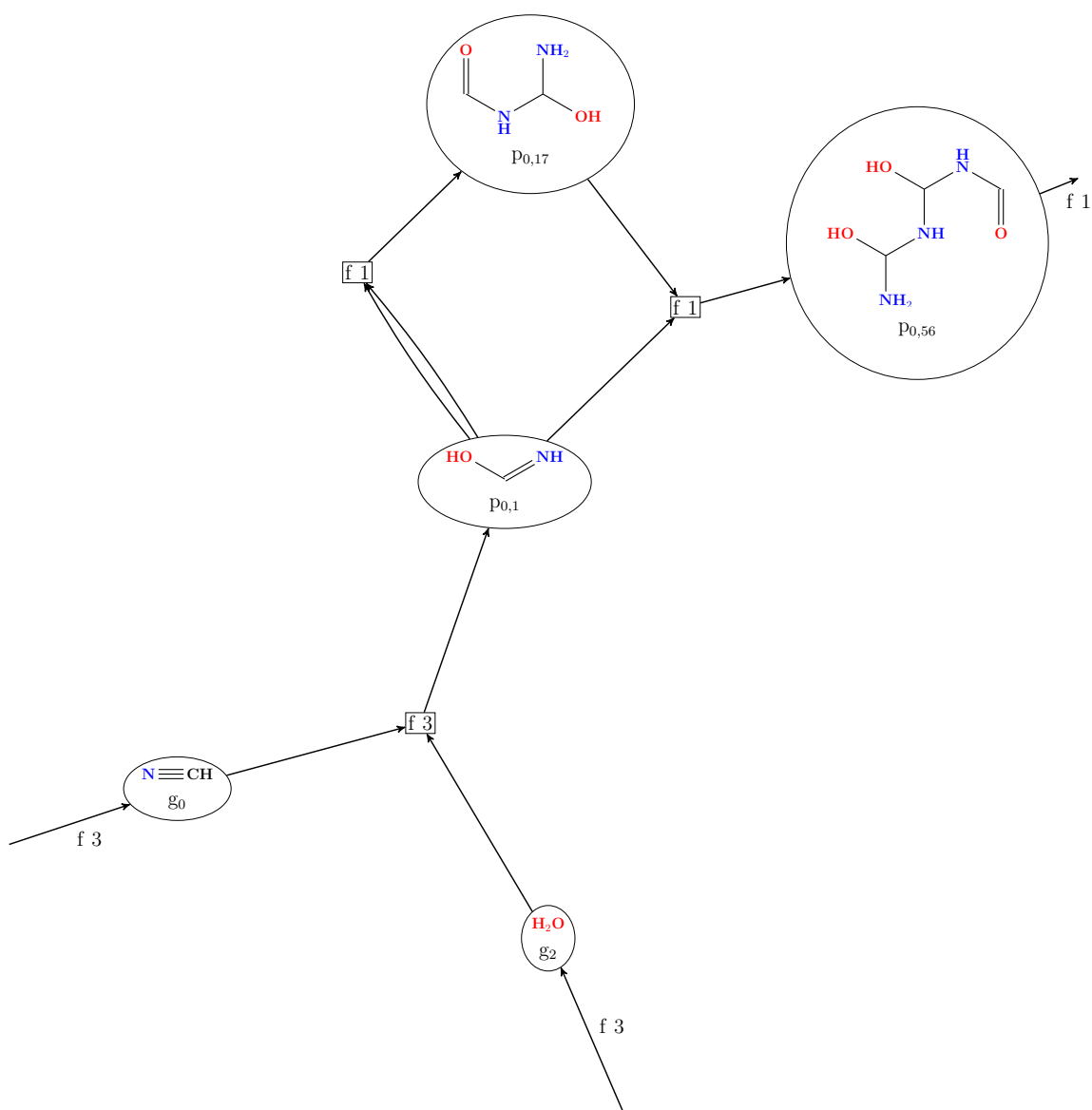
0.3.10 Solution 9

Overall Data

Objective value (non-integral): -0.0852292

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	45
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

Filtered Graph



File: out/112_dg_0_11100_f_0_9_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
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	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	-93.86065	-93.86065
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-77.579904	-77.579904
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-52.273045	-52.273045
Sum					-223.7691296055774

$$\Delta G = -41.14348913908936$$

$$\Delta E = -0.0852291602865718$$

$$|E| = 5$$

$$|U| = 3$$

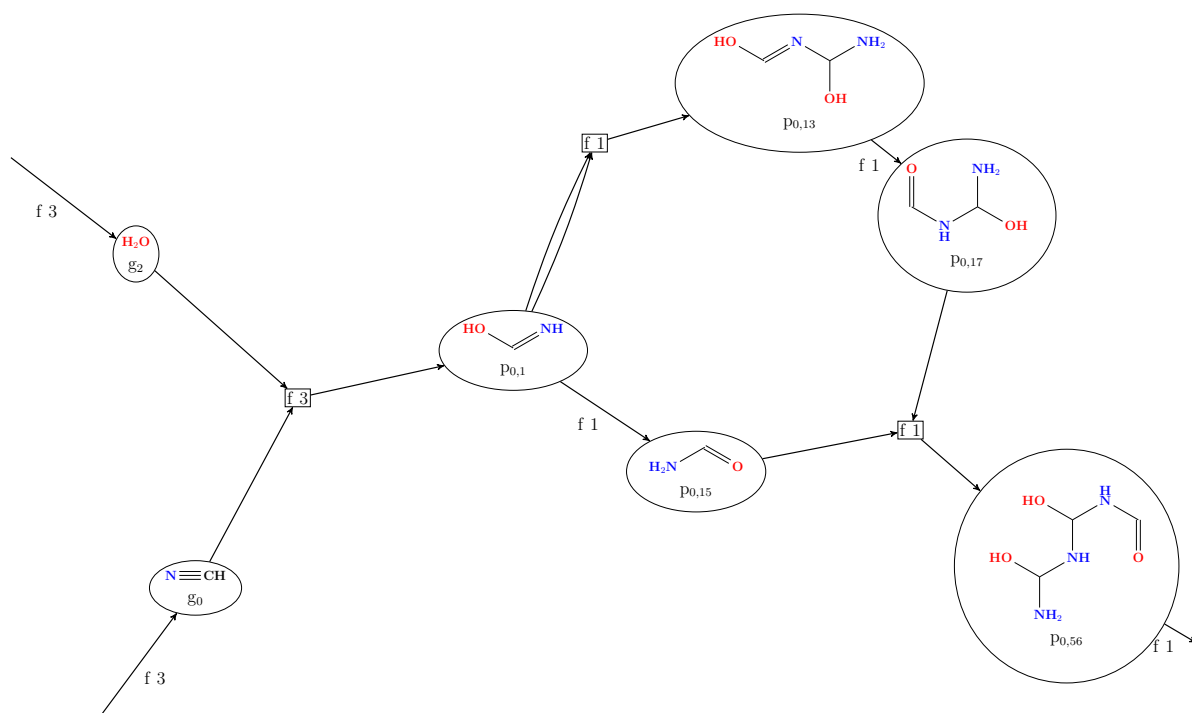
0.3.11 Solution 10

Overall Data

Objective value (non-integral): -0.0852292

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-9.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,13\}}$	0	0	-21.240635	1.000000	43
$p_{\{0,15\}}$	0	0	-10.625174	1.000000	22
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	44
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	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	-9.0	-14488.957643	0
g_2	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	21
$p_{0,13}$	0	0	-55767.279594	1.0	-55763.953809	43
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	22
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	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	-48.519398	-48.519398
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-55.915334	-55.915334
36	$p_{0,1},$	$p_{0,15},$	1	-39.572909	-39.572909
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	-12.644423	-12.644423
250	$p_{0,13},$	$p_{0,17},$	1	-21.553143	-21.553143
Sum					-223.76912960557658

$$\Delta G = -27.52439895294222$$

$$\Delta E = -0.08522916028657149$$

$$|E| = 7$$

$$|U| = 5$$

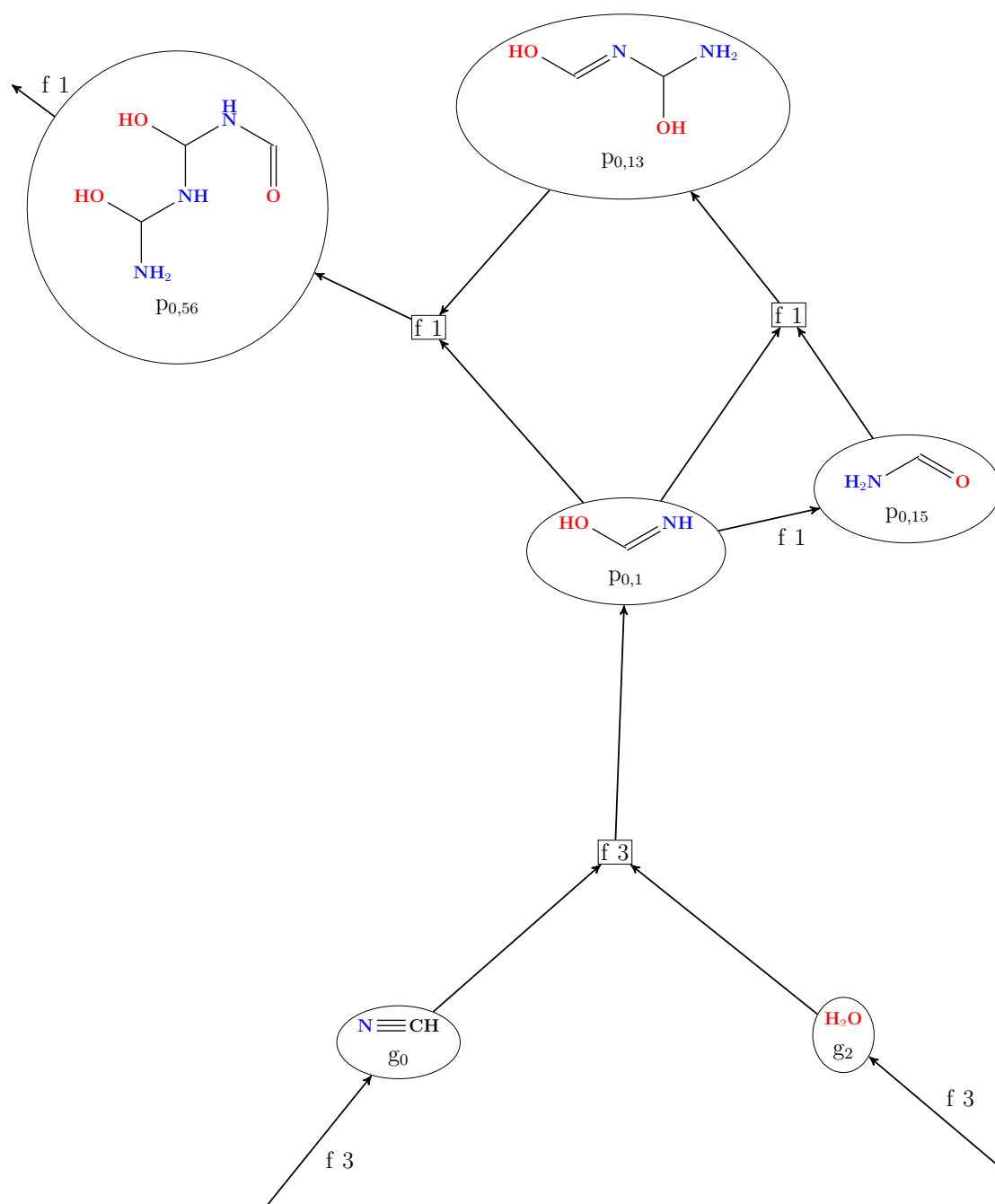
0.3.12 Solution 11

Overall Data

Objective value (non-integral): -0.0852292

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-9.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-9.000000	45
$p_{\{0,15\}}$	0	0	-10.625195	-9.000000	22
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	21
$p_{\{0,56\}}$	0	1	-31.869260	1.000000	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	-9.0	-14488.957643	0
g_2	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	21
$p_{0,13}$	0	0	-55767.391129	-9.0	-55797.323194	45
$p_{0,15}$	0	0	-27896.445756	-9.0	-27926.377821	22
$p_{0,56}$	0	1	-83672.731446	1.0	-83669.405661	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	-48.519398	-48.519398
36	$p_{0,1},$	$p_{0,15},$	1	-62.327184	-62.327184
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	-16.398167	-16.398167
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-28.094628	-28.094628
Sum					-223.76912960557547

$$\Delta G = -25.23781613522392$$

$$\Delta E = -0.08522916028657107$$

$$|E| = 6$$

$$|U| = 4$$

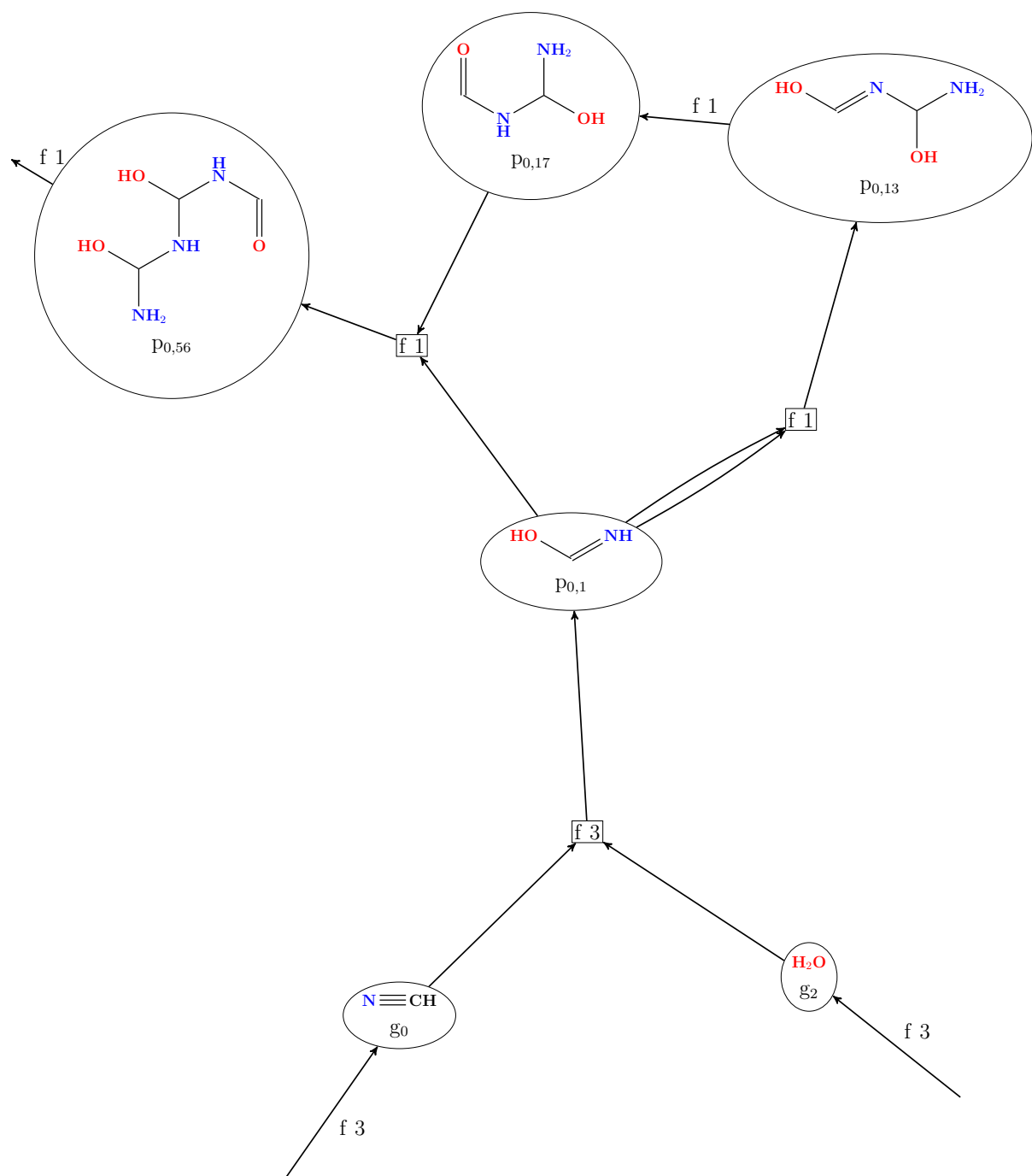
0.3.13 Solution 12

Overall Data

Objective value (non-integral): -0.0852292

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	20
$p_{\{0,13\}}$	0	0	-21.240635	1.000000	44
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	45
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	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	20
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	21
$p_{0,13}$	0	0	-55767.279594	1.0	-55763.953809	44
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	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	-93.86065	-93.86065
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-56.026761	-56.026761
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-52.273045	-52.273045
250	$p_{0,13},$	$p_{0,17},$	1	-21.553143	-21.553143
Sum					-223.76912960557468

$$\Delta G = -41.14348913908936$$

$$\Delta E = -0.08522916028657077$$

$$|E| = 6$$

$$|U| = 4$$

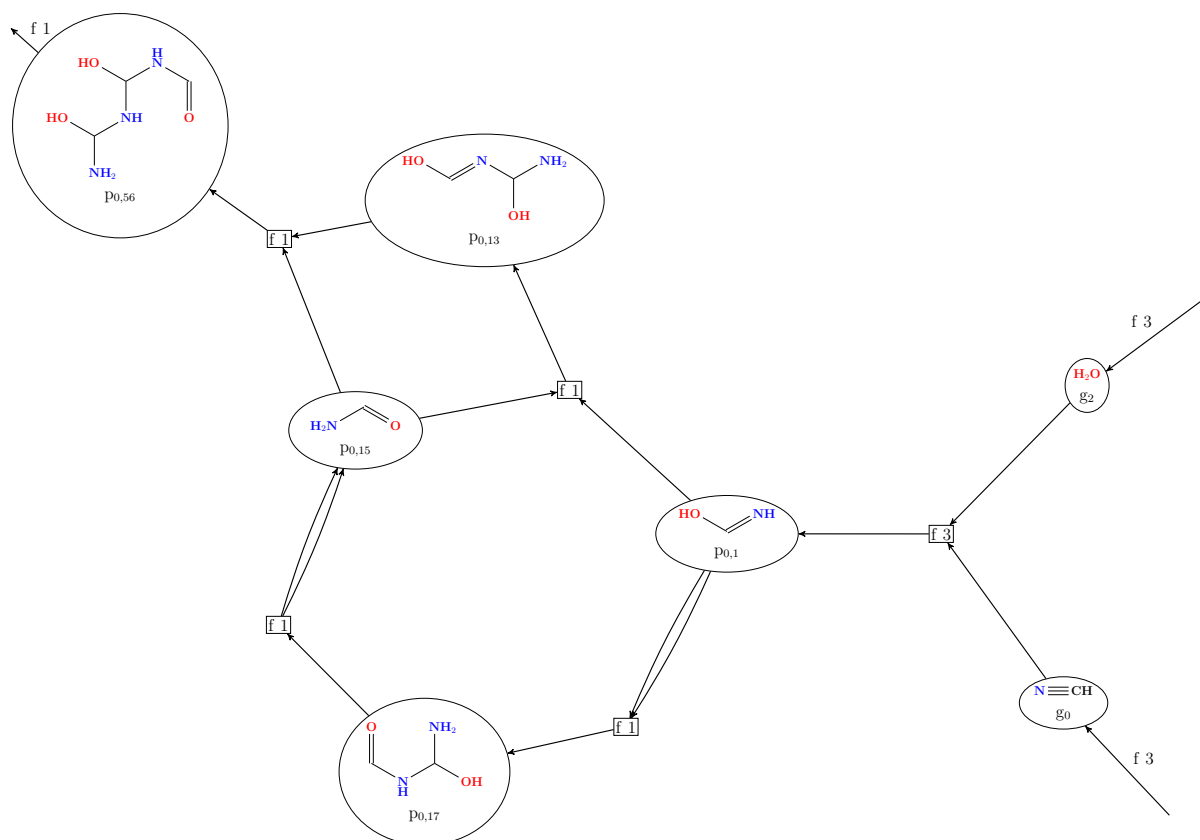
0.3.14 Solution 13

Overall Data

Objective value (non-integral): -0.0852292

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	34
$p_{\{0,15\}}$	0	0	-10.625174	1.000000	32
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	31
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

Filtered Graph



Vertex	InFlow	OutFlow	$x_v^{\Delta G^0}$	x_v^K	$x_v^{\Delta G}$	t_v
g_0	3	0	-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	34
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	32
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	31
$p_{0,56}$	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	-93.916364	-93.916364
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-77.468477	-77.468477
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	-34.197566	-34.197566
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	-16.342425	-16.342425
237	$p_{0,17},$	$p_{0,15}, p_{0,15},$	1	-1.67734	-1.67734
Sum					-223.7691296055736

$$\Delta G = -41.14348913908936$$

$$\Delta E = -0.08522916028657035$$

$$|E| = 7$$

$$|U| = 5$$

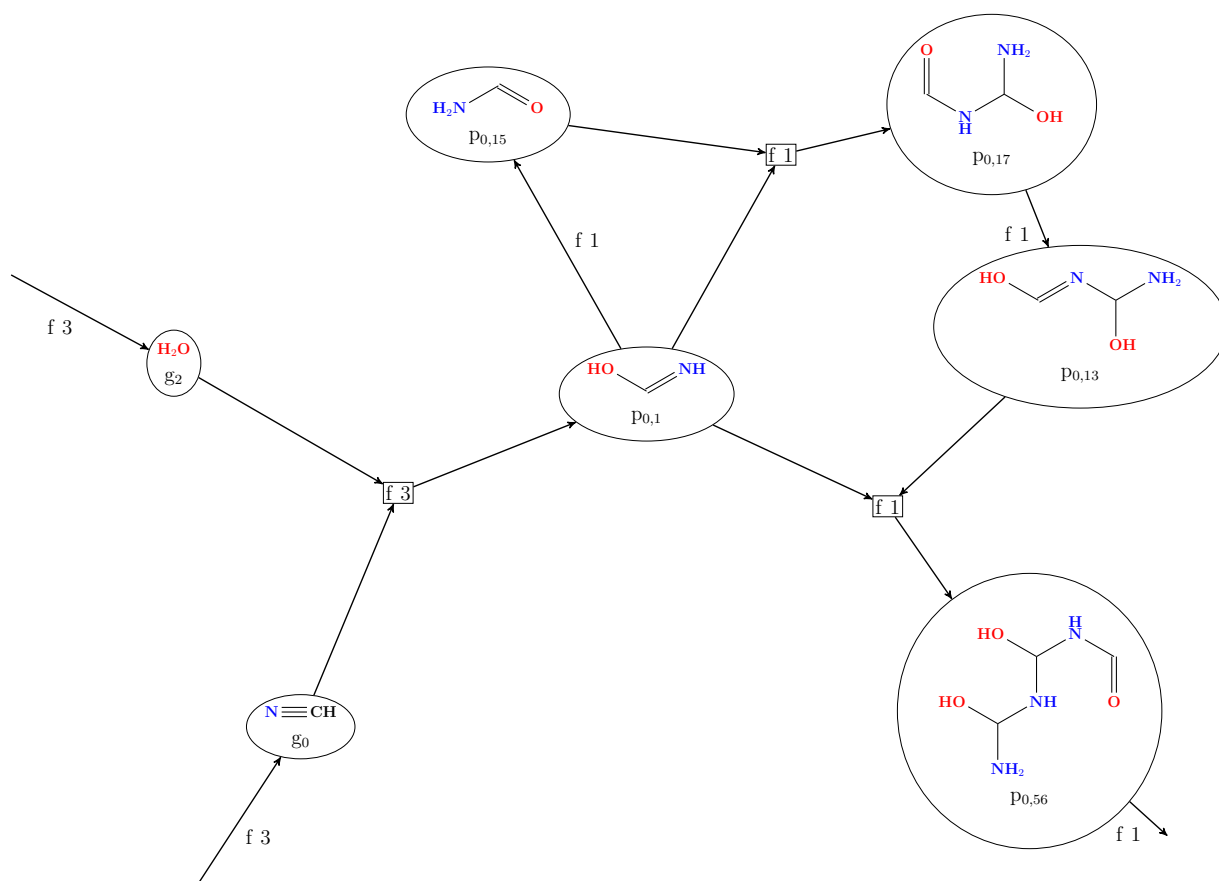
0.3.15 Solution 14

Overall Data

Objective value (non-integral): -0.0852292

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-9.000000	65
$p_{\{0,15\}}$	0	0	-10.625195	-9.000000	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	-9.000000	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	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	1
$p_{0,13}$	0	0	-55767.391129	-9.0	-55797.323194	65
$p_{0,15}$	0	0	-27896.445756	-9.0	-27926.377821	2
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	4
$p_{0,56}$	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	-71.162167	-71.162167
36	$p_{0,1}$	$p_{0,15}$	1	-62.382898	-62.382898
183	$p_{0,1}, p_{0,15}$	$p_{0,17}$	1	-15.197006	-15.197006
253	$p_{0,17}$	$p_{0,13}$	1	-1.256875	-1.256875
263	$p_{0,1}, p_{0,13}$	$p_{0,56}$	1	-51.016171	-51.016171
Sum					-223.7691296055728

$$\Delta G = -34.333944439840735$$

$$\Delta E = -0.08522916028657004$$

$$|E| = 7$$

$$|U| = 5$$

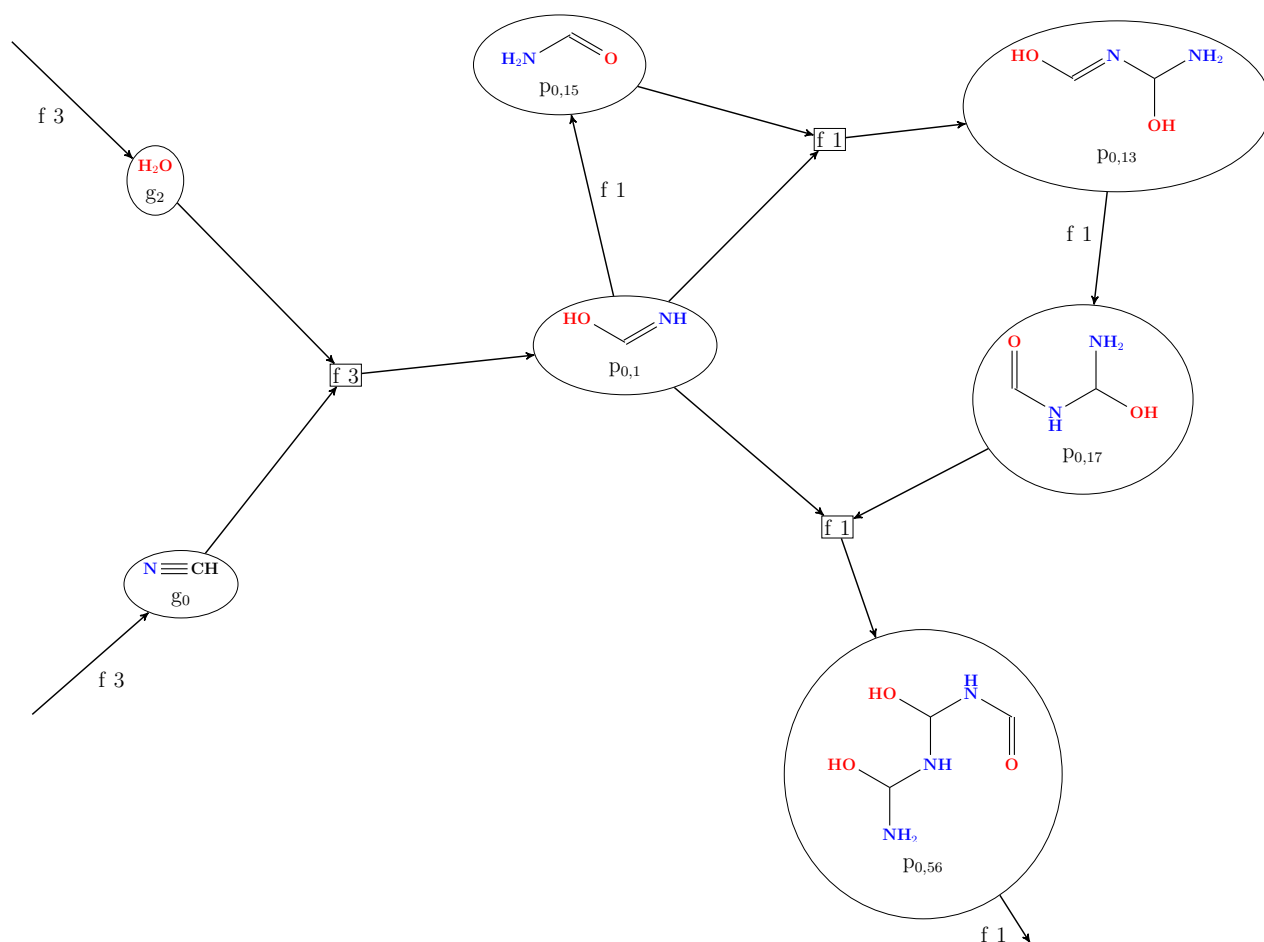
0.3.16 Solution 15

Overall Data

Objective value (non-integral): -0.0852292

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	44
$p_{\{0,15\}}$	0	0	-10.625195	-6.202446	22
$p_{\{0,17\}}$	0	0	-21.248844	-9.000000	45
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	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	1.0	-13302.819176	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	21
$p_{0,13}$	0	0	-55767.279594	1.0	-55763.953809	44
$p_{0,15}$	0	0	-27896.445756	-6.202446	-27917.073757	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	-93.86065	-93.86065
36	$p_{0,1},$	$p_{0,15},$	1	-56.032874	-56.032874
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	0.006113	0.006113
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-29.574562	-29.574562
250	$p_{0,13},$	$p_{0,17},$	1	-44.251626	-44.251626
Sum					-223.76912960557272

$$\Delta G = -41.14348913908936$$

$$\Delta E = -0.08522916028657002$$

$$|E| = 7$$

$$|U| = 5$$

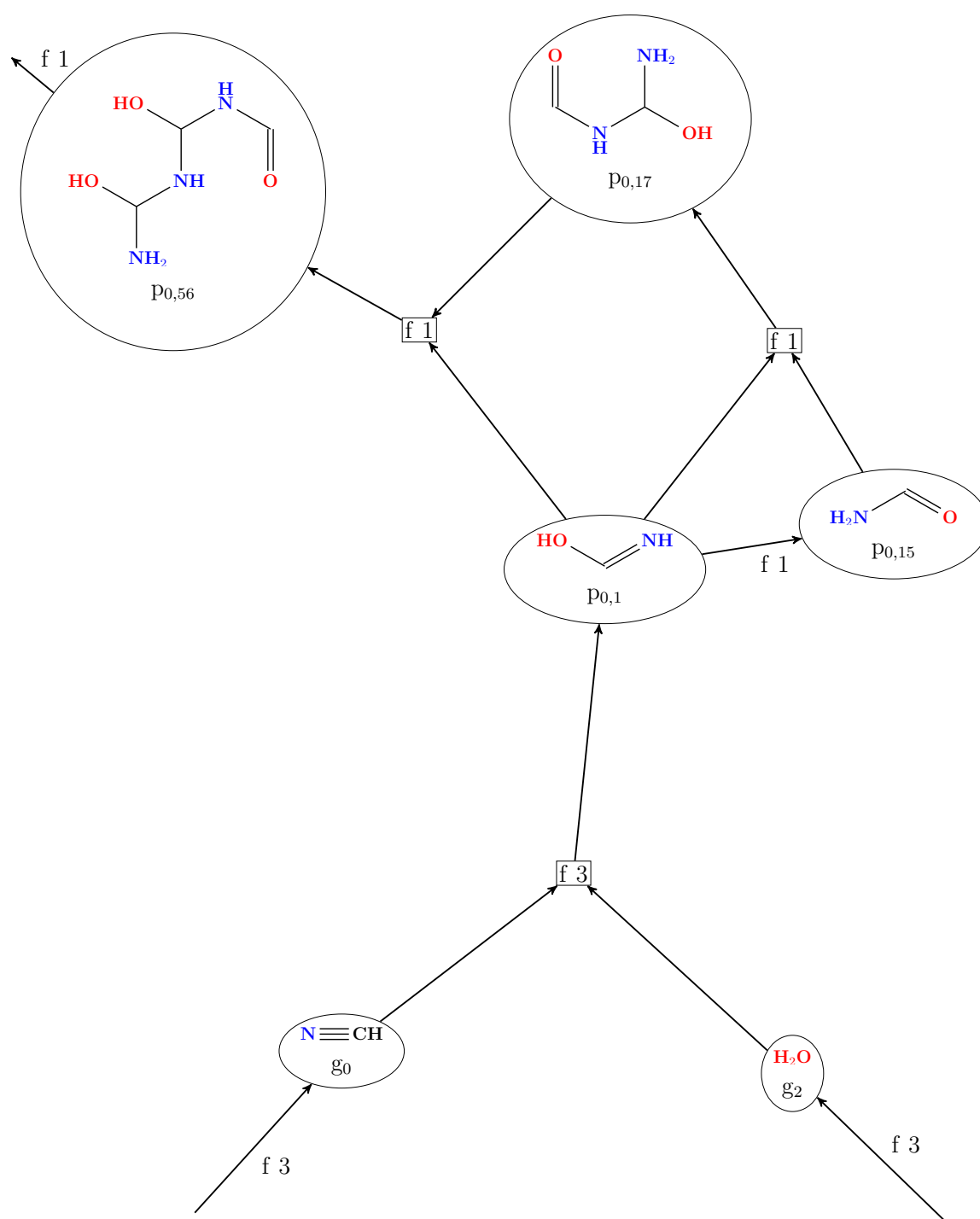
0.3.17 Solution 16

Overall Data

Objective value (non-integral): -0.0852292

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,15\}}$	0	0	-10.625195	-9.000000	22
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	44
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	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	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	21
$p_{0,15}$	0	0	-27896.445756	-9.0	-27926.377821	22
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	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	-71.162167	-71.162167
36	$p_{0,1},$	$p_{0,15},$	1	-62.382898	-62.382898
183	$p_{0,1}, p_{0,15},$	$p_{0,17},$	1	-15.197006	-15.197006
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-52.273045	-52.273045
Sum					-223.76912960557001

$$\Delta G = -34.333944439840735$$

$$\Delta E = -0.08522916028656899$$

$$|E| = 6$$

$$|U| = 4$$

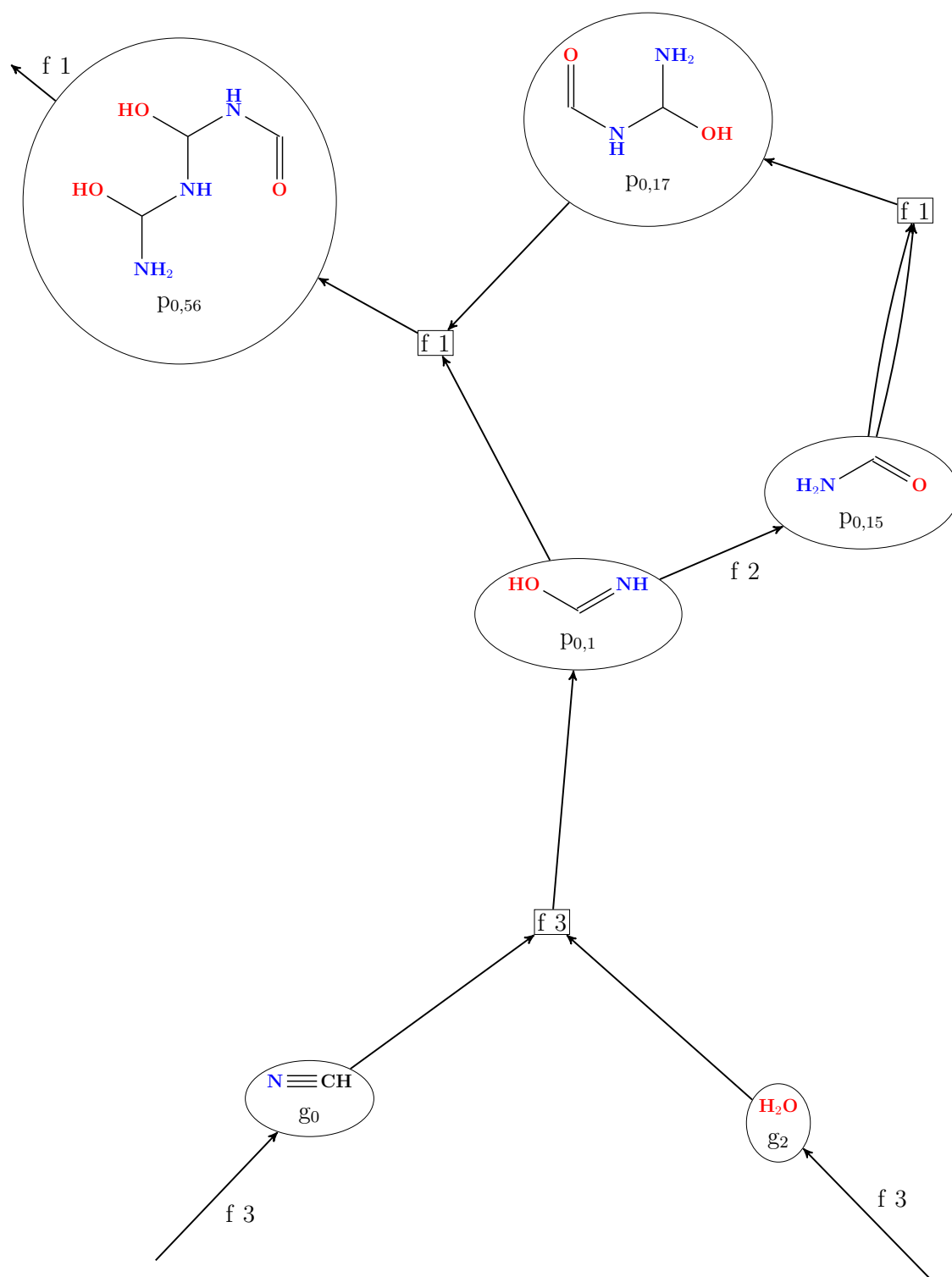
0.3.18 Solution 17

Overall Data

Objective value (non-integral): -0.0701354

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	1.000000	21
$p_{\{0,17\}}$	0	0	-21.248844	0.261034	43
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	20
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	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	20
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	21
$p_{0,17}$	0	0	-55788.832737	0.261034	-55787.964594	43
$p_{0,56}$	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	-93.86065	-93.86065
36	$p_{0,1},$	$p_{0,15},$	2	-39.628622	-39.628622
180	$p_{0,15}, p_{0,15},$	$p_{0,17},$	1	0.0	0.0
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-50.595705	-50.595705
Sum					-184.14050750178697

$$\Delta G = -41.14348940163932$$

$$\Delta E = -0.07013541526833246$$

$$|E| = 7$$

$$|U| = 4$$

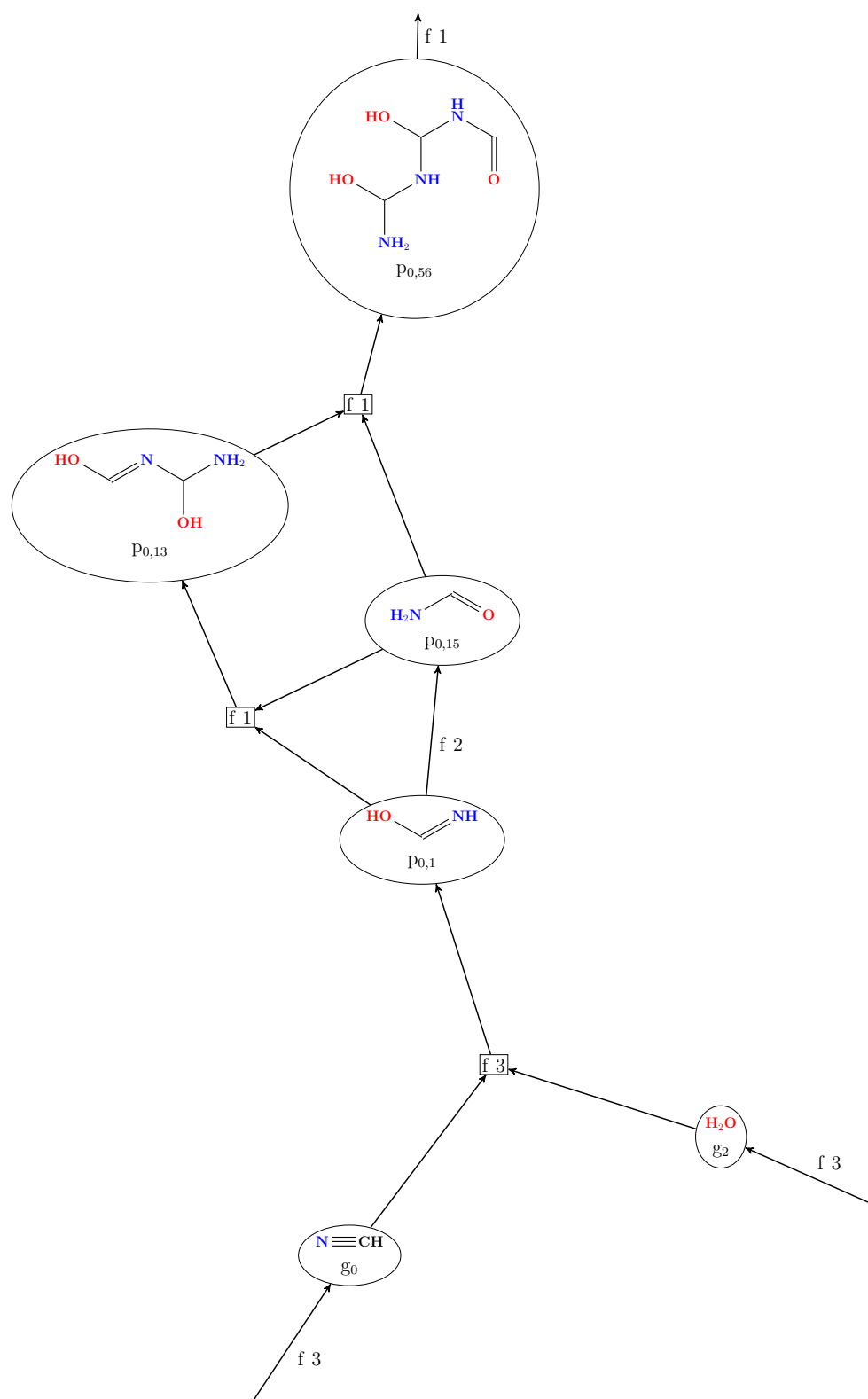
0.3.19 Solution 18

Overall Data

Objective value (non-integral): -0.0701354

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	1.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-9.000000	4
$p_{\{0,15\}}$	0	0	-10.625174	1.000000	2
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

Filtered Graph



File: out/193_dg_0_11100_f_0_18_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	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	1
$p_{0,13}$	0	0	-55767.391129	-9.0	-55797.323194	4
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	2
$p_{0,56}$	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	-71.162167	-71.162167
36	$p_{0,1},$	$p_{0,15},$	2	-39.628622	-39.628622
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	-11.387548	-11.387548
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	-39.208156	-39.208156
Sum					-184.1405075017804

$$\Delta G = -34.33394496494066$$

$$\Delta E = -0.07013541526832996$$

$$|E| = 7$$

$$|U| = 4$$

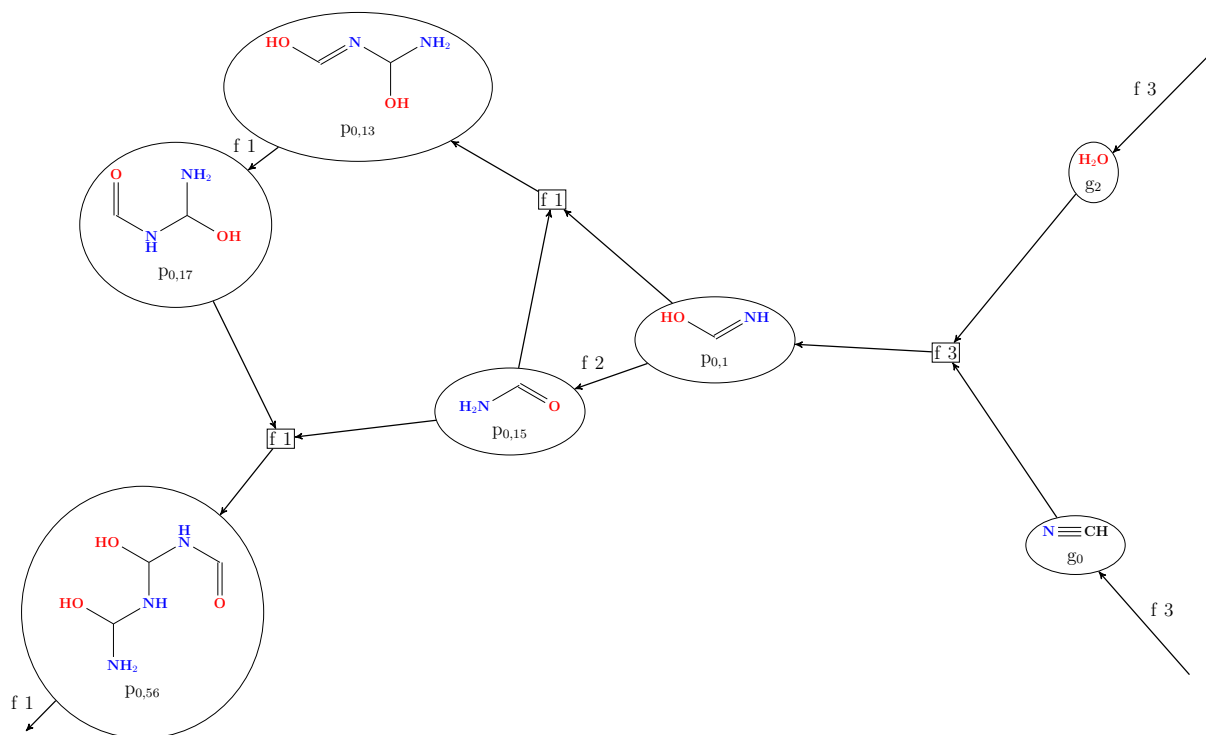
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Overall Data

Objective value (non-integral): -0.0701354

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	63
$p_{\{0,15\}}$	0	0	-10.625174	1.000000	2
$p_{\{0,17\}}$	0	0	-21.248887	-4.521446	64
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

Filtered Graph



File: out/202_dg_0_11100_f_0_19_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	63
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	2
$p_{0,17}$	0	0	-55788.944315	-4.521446	-55803.981673	64
$p_{0,56}$	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	-93.916364	-93.916364
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	-16.342425	-16.342425
250	$p_{0,13},$	$p_{0,17},$	1	-34.197566	-34.197566
Sum				-184.14050750177765	

$$\Delta G = -41.143488876539394$$

$$\Delta E = -0.07013541526832891$$

$$|E| = 8$$

$$|U| = 5$$