

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}



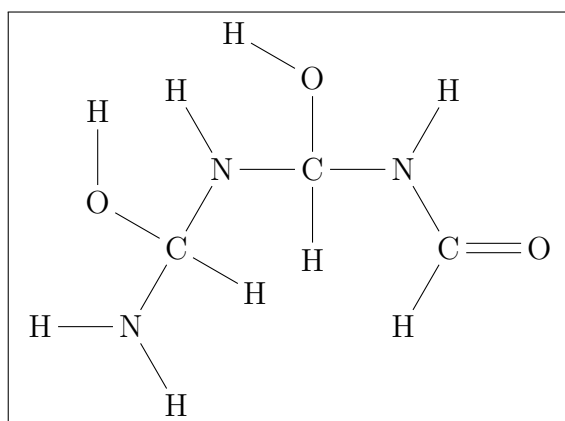
File: out/009_g_2_10300000



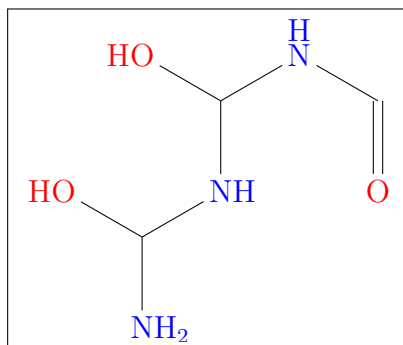
File: out/011_g_2_11310100

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

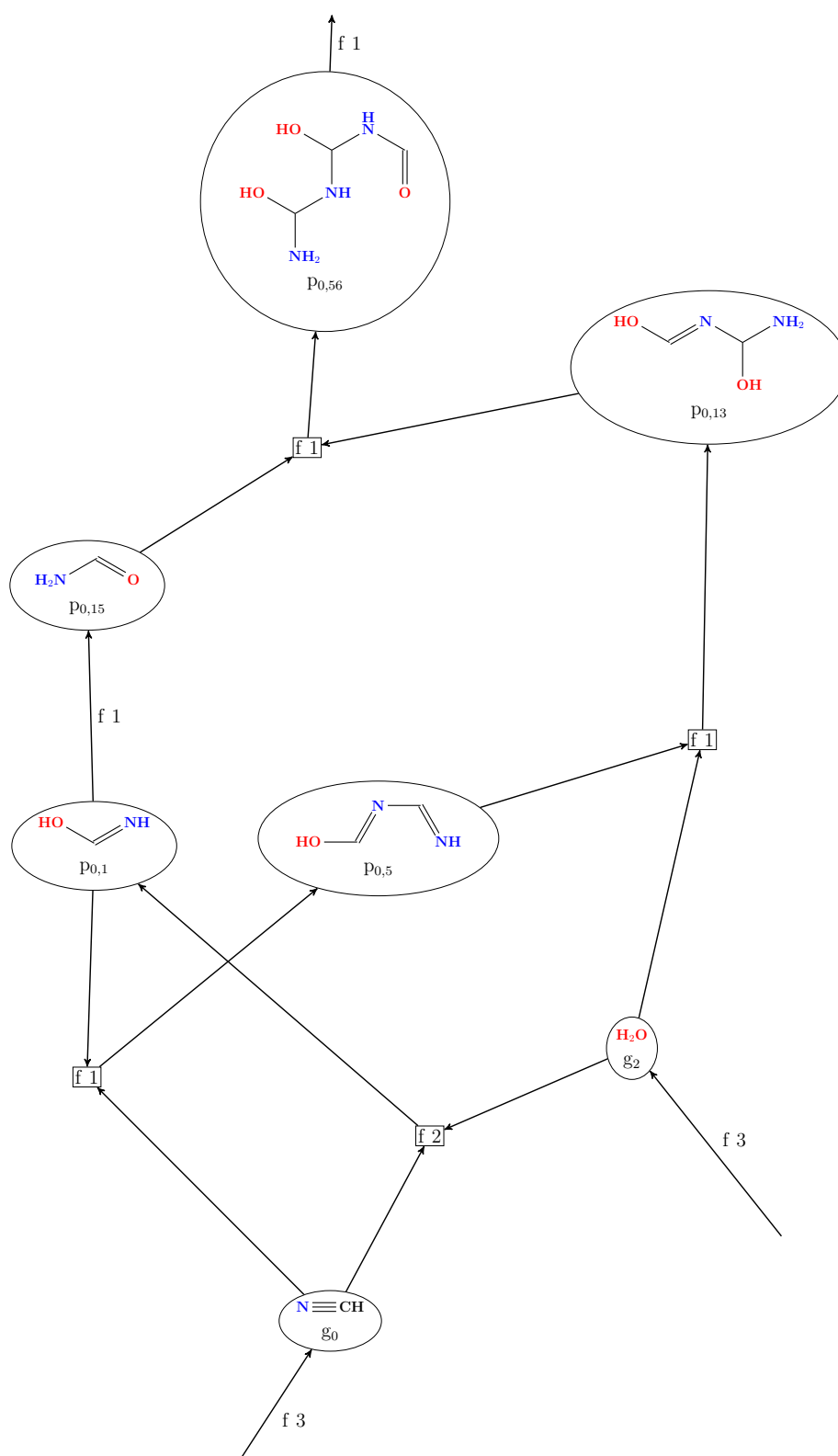
0.3.1 Solution 0

Overall Data

Objective value (non-integral): -0.118346

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	-2.941937	17
p_{0,15}	0	0	-10.625174	-3.000000	49
p_{0,1}	0	0	-10.610101	-3.000000	1
p_{0,56}	0	1	-31.869324	-3.000000	67
p_{0,5}	0	0	-16.158998	1.000000	16

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	1.0	-14455.699793	0
g_2	3	0	-13306.144961	1.0	-13302.819176	0
$p_{0,1}$	0	0	-27856.817054	-3.0	-27866.79441	1
$p_{0,5}$	0	0	-42425.44262	1.0	-42422.116835	16
$p_{0,13}$	0	0	-55767.391129	-2.941937	-55777.175379	17
$p_{0,15}$	0	0	-27896.389963	-3.0	-27906.367318	49
$p_{0,56}$	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	-107.152988	-107.152988
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-100.296105	-100.296105
36	$p_{0,1},$	$p_{0,15},$	1	-39.572909	-39.572909
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-51.12995	-51.12995
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	0.006113	0.006113
Sum					-310.71779047352663

$$\Delta G = -40.529881780496744$$

$$\Delta E = -0.11834615621393367$$

$$|E| = 6$$

$$|U| = 5$$

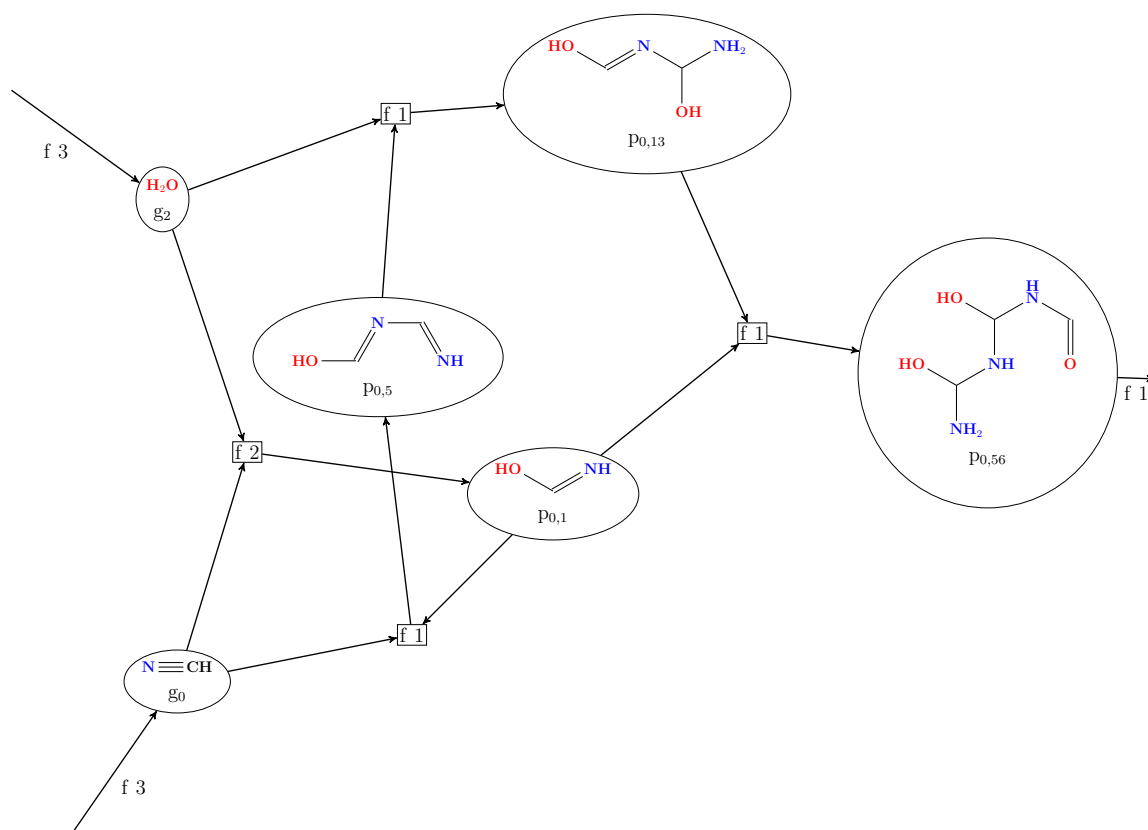
0.3.2 Solution 1

Overall Data

Objective value (non-integral): -0.118346

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	65
$p_{\{0,1\}}$	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/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	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	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	$g_0, g_2,$	$p_{0,1},$	2	-94.74781	-94.74781
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-112.701283	-112.701283
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-51.31002	-51.31002
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-51.791903	-51.791903
Sum				-310.71779047353465	

$$\Delta G = -40.529881780496744$$

$$\Delta E = -0.11834615621393674$$

$$|E| = 5$$

$$|U| = 4$$

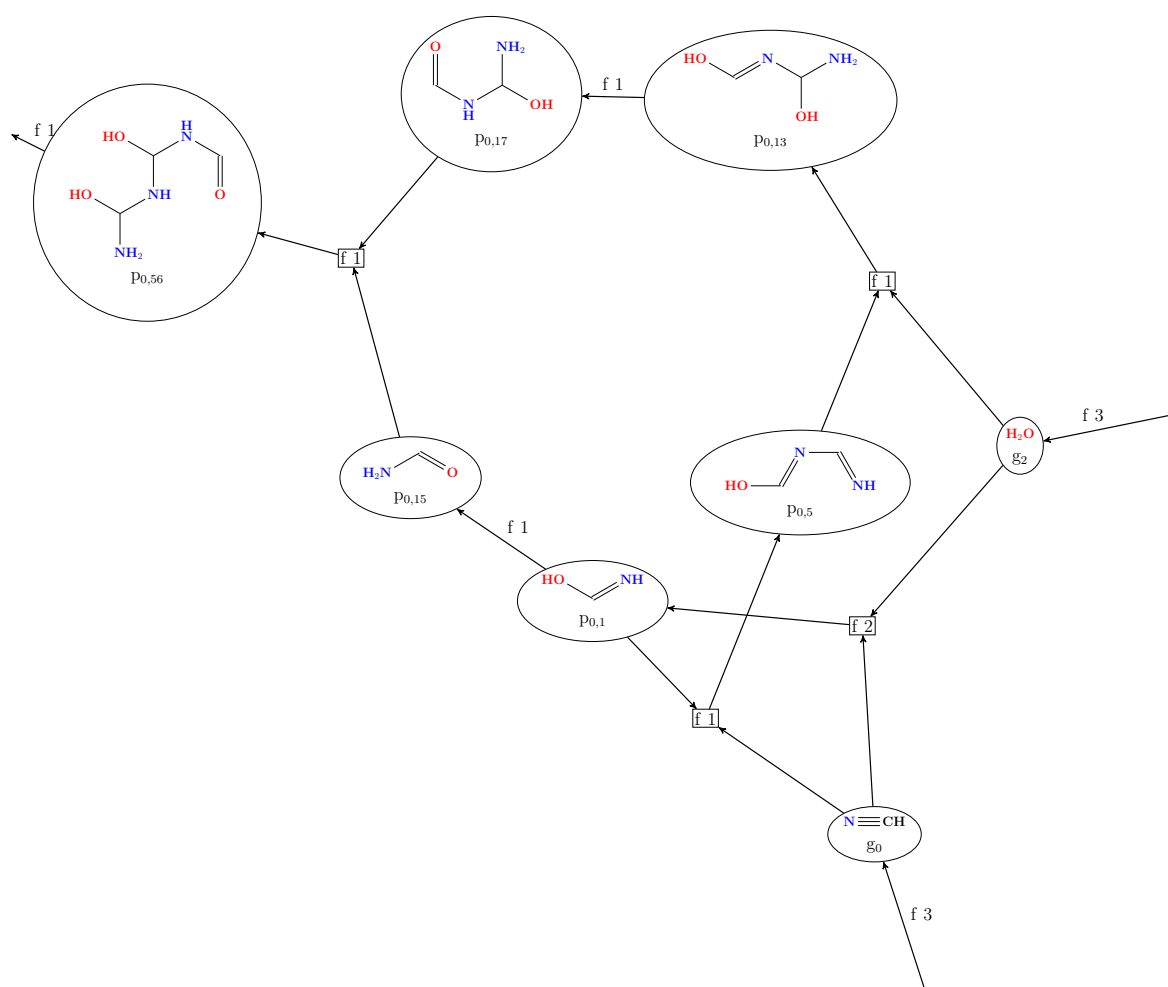
0.3.3 Solution 2

Overall Data

Objective value (non-integral): -0.118346

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	-21.240678	1.000000	3
$p_{\{0,15\}}$	0	0	-10.625174	-0.028176	32
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	34
$p_{\{0,1\}}$	0	0	-10.610101	-3.000000	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/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	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.817054	-3.0	-27866.79441	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
$p_{0,15}$	0	0	-27896.389963	-0.028176	-27896.483671	32
$p_{0,17}$	0	0	-55788.832737	1.0	-55785.506952	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	-94.74781	-94.74781
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-100.296105	-100.296105
36	$p_{0,1},$	$p_{0,15},$	1	-30.356408	-30.356408
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-26.499664	-26.499664
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.006113	0.006113
250	$p_{0,13},$	$p_{0,17},$	1	-21.441608	-21.441608
Sum					-310.71779047353255

$$\Delta G = -36.80832819657119$$

$$\Delta E = -0.11834615621393593$$

$$|E| = 7$$

$$|U| = 6$$

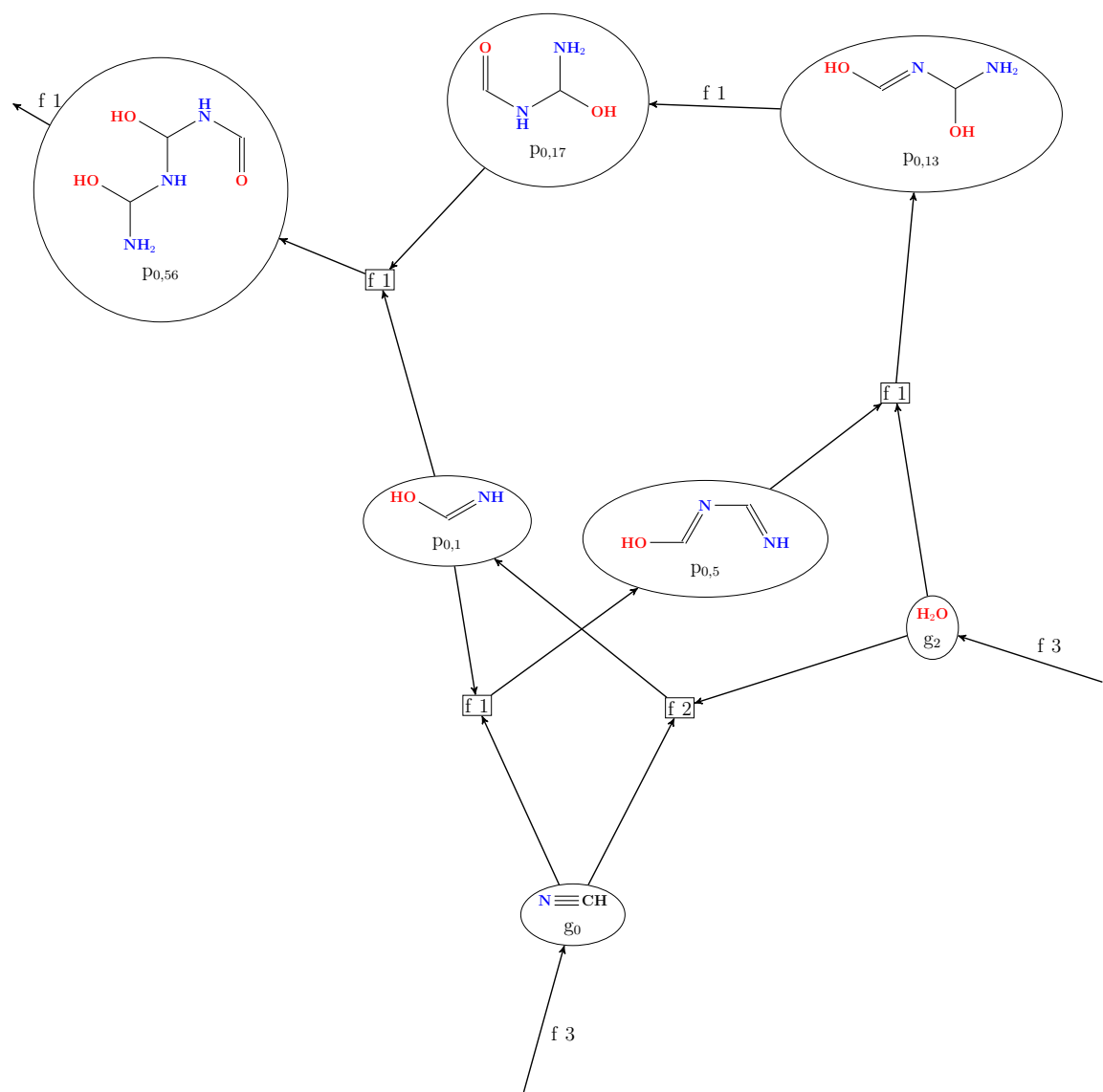
0.3.4 Solution 3

Overall Data

Objective value (non-integral): -0.118346

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	-21.240678	-3.000000	33
$p_{\{0,17\}}$	0	0	-21.248887	-3.000000	35
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	31
$p_{\{0,56\}}$	0	1	-31.869324	-3.000000	67
$p_{\{0,5\}}$	0	0	-16.158998	1.000000	32

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	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	31
$p_{0,5}$	0	0	-42425.44262	1.0	-42422.116835	32
$p_{0,13}$	0	0	-55767.391129	-3.0	-55777.368484	33
$p_{0,17}$	0	0	-55788.944315	-3.0	-55798.92167	35
$p_{0,56}$	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	-82.342632	-82.342632
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-112.701283	-112.701283
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-38.904842	-38.904842
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-30.238717	-30.238717
250	$p_{0,13},$	$p_{0,17},$	1	-21.553186	-21.553186
Sum					-310.7177904735313

$$\Delta G = -36.80832845912115$$

$$\Delta E = -0.11834615621393545$$

$$|E| = 6$$

$$|U| = 5$$

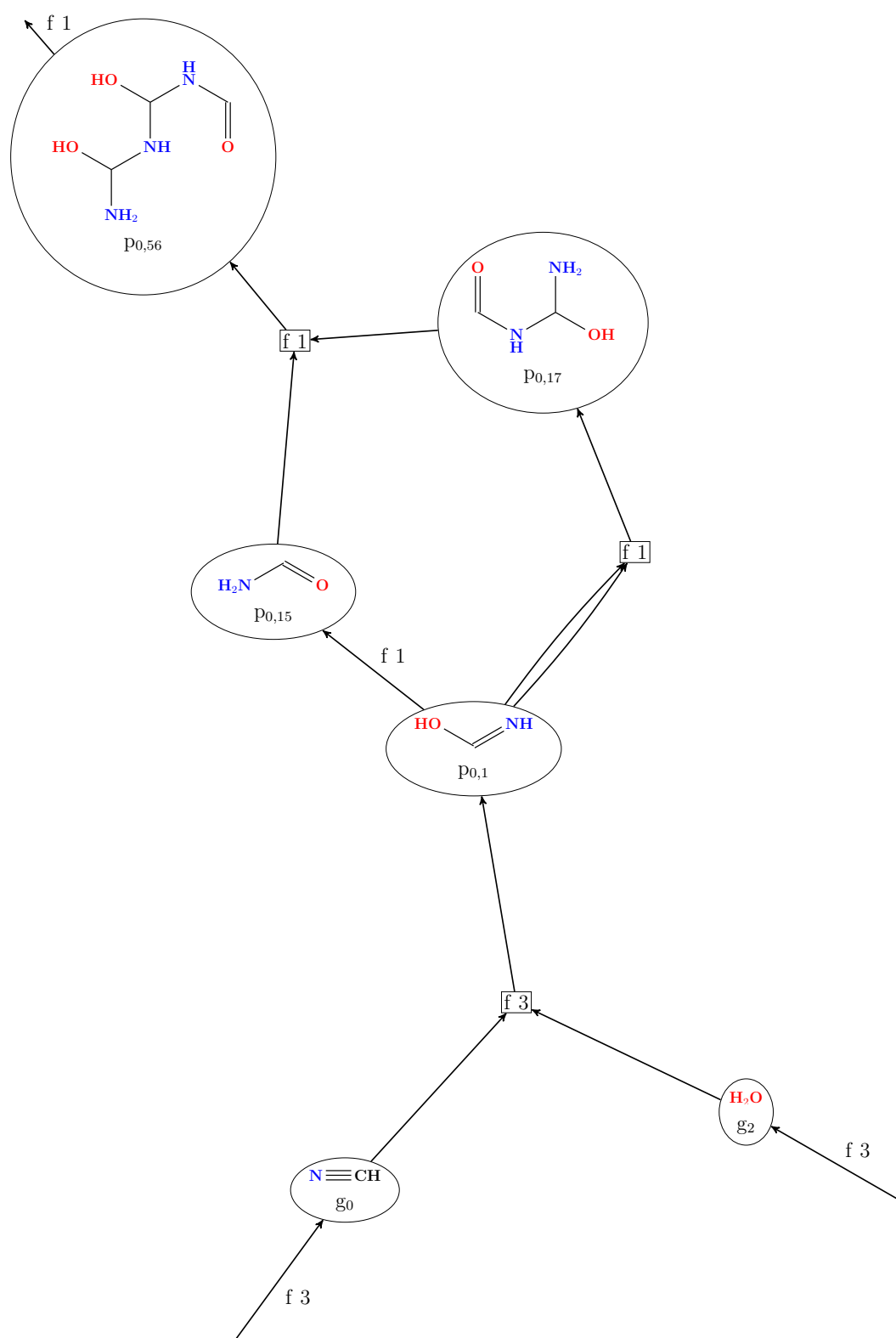
0.3.5 Solution 4

Overall Data

Objective value (non-integral): -0.0822587

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	0.025792	2
$p_{\{0,17\}}$	0	0	-21.248887	1.000000	64
$p_{\{0,1\}}$	0	0	-10.610101	-3.000000	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	-3.0	-27866.79441	1
$p_{0,15}$	0	0	-27896.445756	0.025792	-27896.359978	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	-94.74781	-94.74781
36	$p_{0,1},$	$p_{0,15},$	1	-30.24483	-30.24483
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-53.601144	-53.601144
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.006113	0.006113
Sum					-215.97016366975618

$\Delta G = -36.80832819657119$

$\Delta E = -0.08225869104005312$

$|E| = 6$

$|U| = 4$

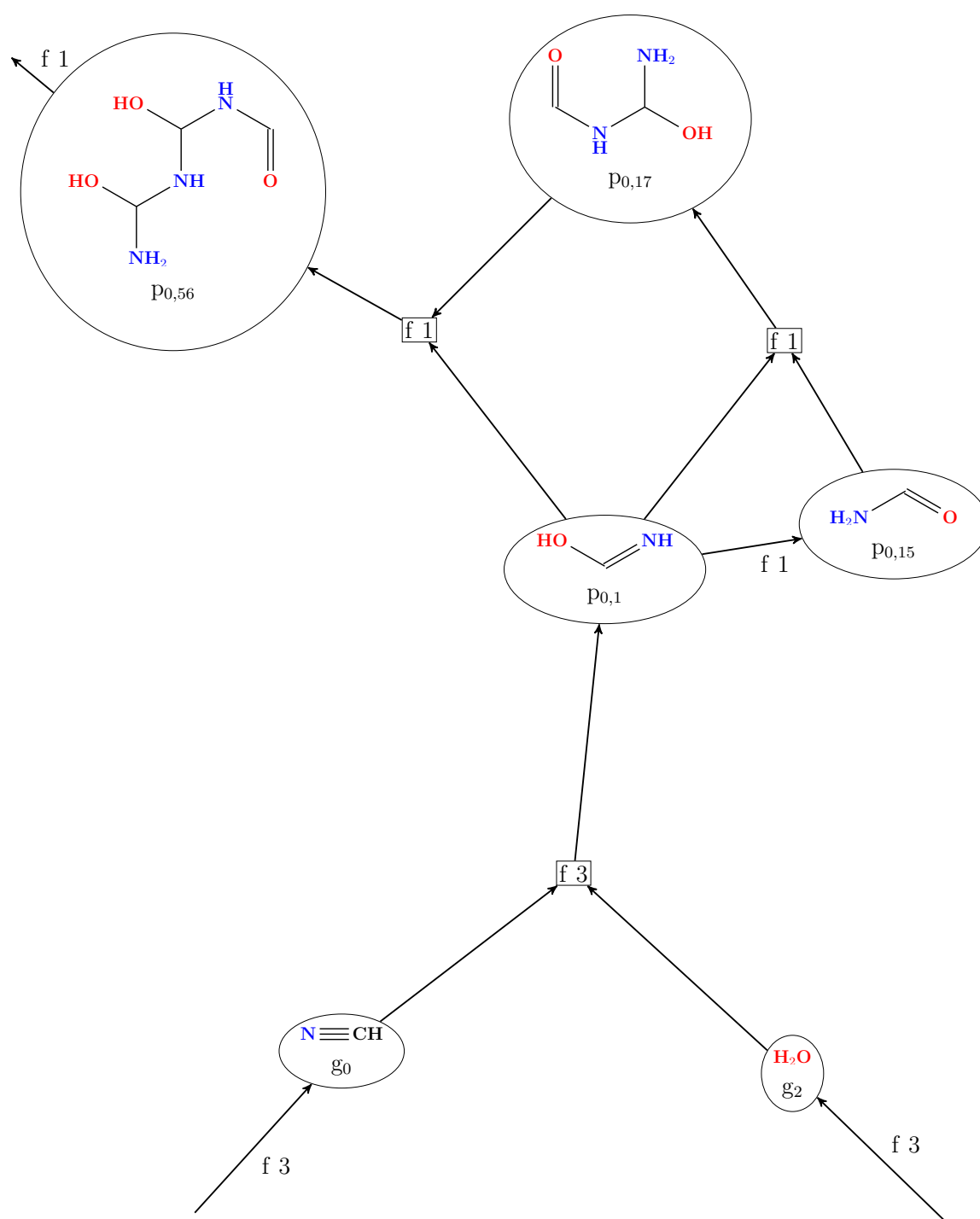
0.3.6 Solution 5

Overall Data

Objective value (non-integral): -0.0822587

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	-10.625174	-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/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
$p_{0,15}$	0	0	-27896.389963	-3.0	-27906.367318	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	-82.286918	-82.286918
36	$p_{0,1},$	$p_{0,15},$	1	-52.0338	-52.0338
183	$p_{0,1}, p_{0,15},$	$p_{0,17},$	1	-26.37755	-26.37755
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-42.811187	-42.811187
Sum					-215.97016366975618

$$\Delta G = -36.80832793402122$$

$$\Delta E = -0.08225869104005312$$

$$|E| = 6$$

$$|U| = 4$$

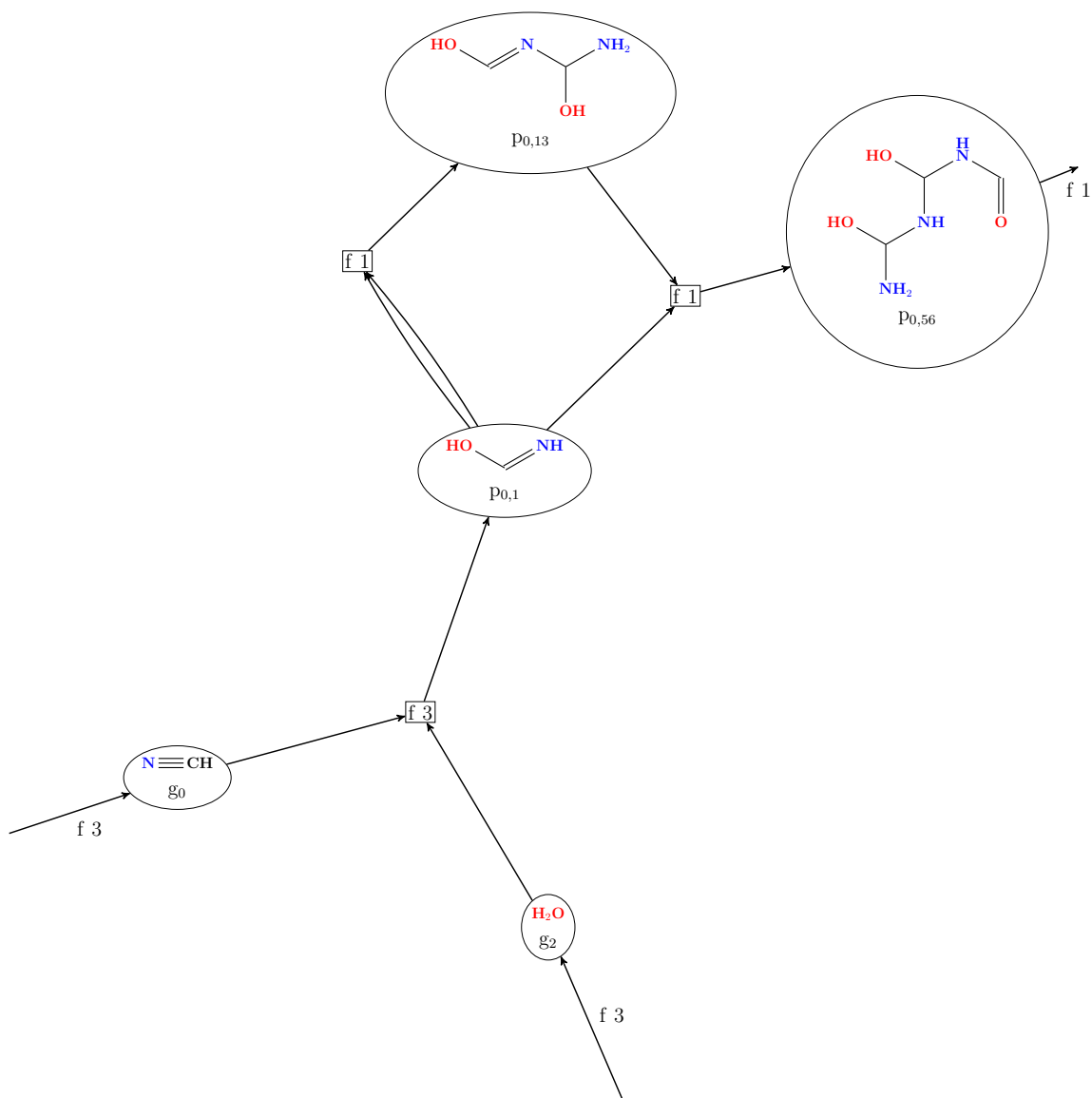
0.3.7 Solution 6

Overall Data

Objective value (non-integral): -0.0822587

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	-21.240635	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/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	-3.0	-14469.002933	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	-69.88174	-69.88174
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-56.858207	-56.858207
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-64.36433	-64.36433
Sum					-215.9701636697549

$$\Delta G = -33.08677540029552$$

$$\Delta E = -0.08225869104005264$$

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

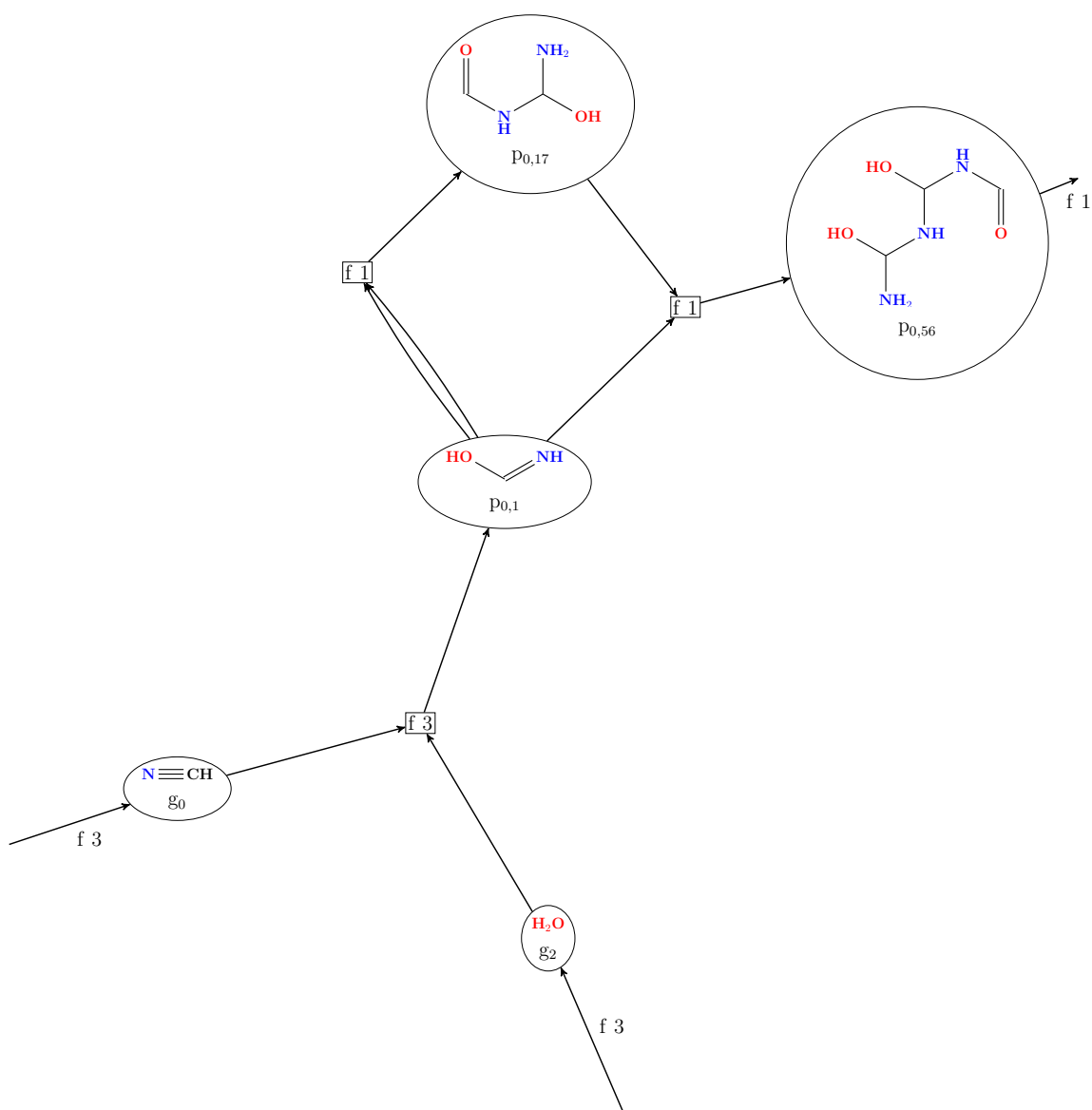
0.3.8 Solution 7

Overall Data

Objective value (non-integral): -0.0822587

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
$p_{\{0,17\}}$	0	0	-21.248844	1.000000	45
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-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	-3.0	-13316.122316	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	-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	-82.286918	-82.286918
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-78.41135	-78.41135
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-42.811187	-42.811187
Sum					-215.9701636697549

$$\Delta G = -36.80832793402122$$

$$\Delta E = -0.08225869104005264$$

$$|E| = 5$$

$$|U| = 3$$

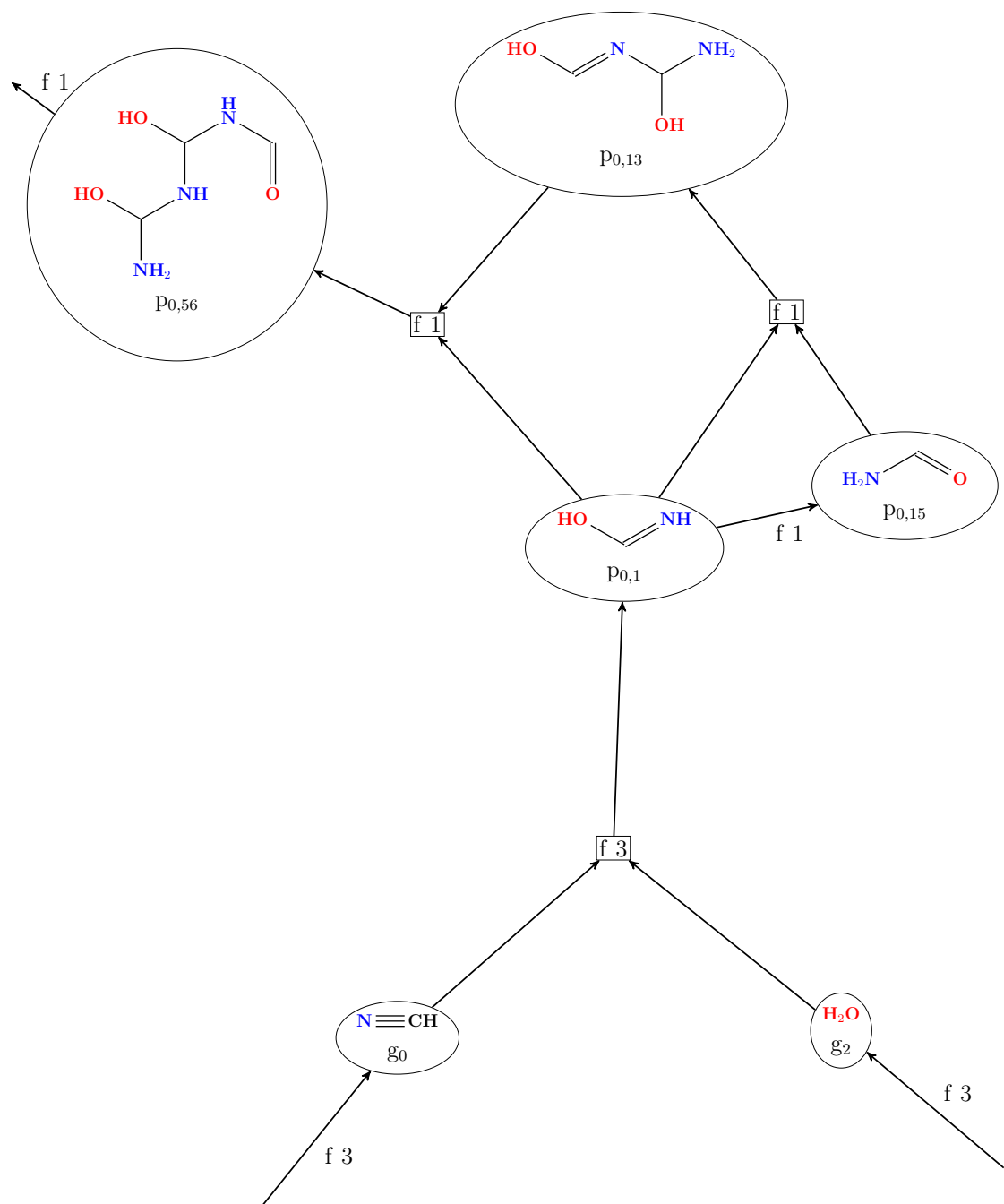
0.3.9 Solution 8

Overall Data

Objective value (non-integral): -0.0822587

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	-21.240678	-1.442409	65
$p_{\{0,15\}}$	0	0	-10.625195	-3.000000	2
$p_{\{0,1\}}$	0	0	-10.610101	-3.000000	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	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.817054	-3.0	-27866.79441	1
$p_{0,13}$	0	0	-55767.391129	-1.442409	-55772.188272	65
$p_{0,15}$	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	-94.74781	-94.74781
36	$p_{0,1},$	$p_{0,15},$	1	-39.628701	-39.628701
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	-44.217273	-44.217273
Sum					-215.97016366975365

$$\Delta G = -36.80832819657119$$

$$\Delta E = -0.08225869104005215$$

$$|E| = 6$$

$$|U| = 4$$

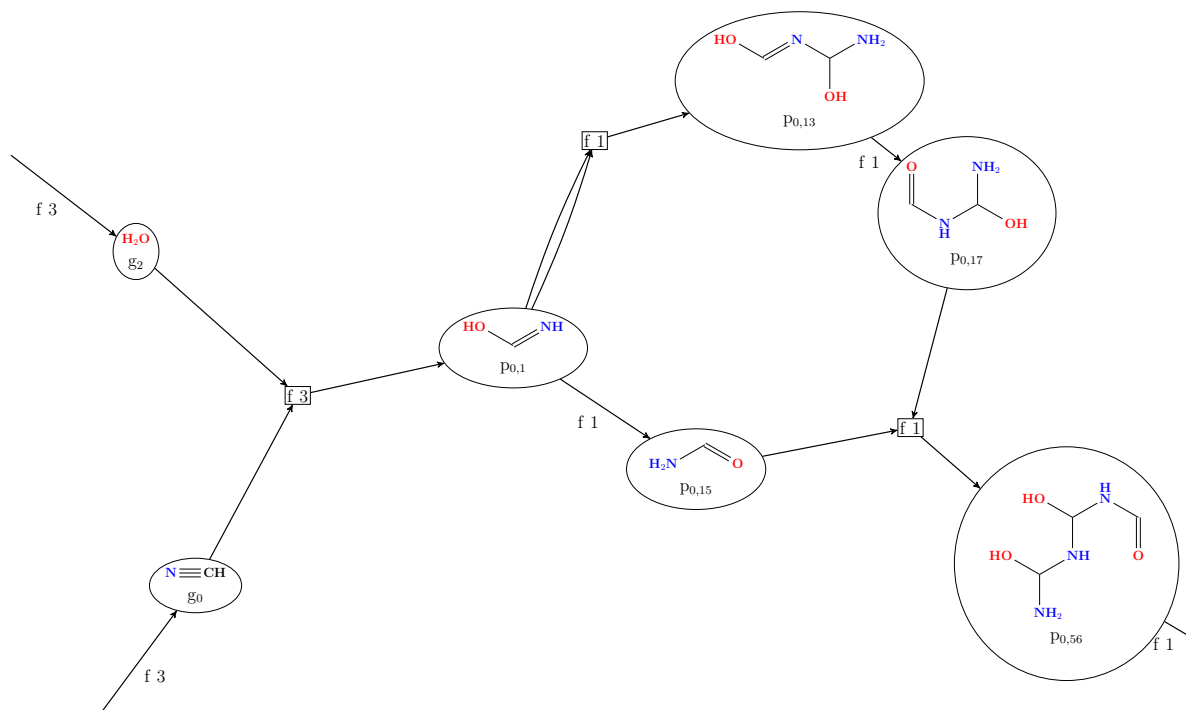
0.3.10 Solution 9

Overall Data

Objective value (non-integral): -0.0822587

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	-0.026205	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/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	-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	-0.026205	-55788.91989	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	-82.342632	-82.342632
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-56.74678	-56.74678
36	$p_{0,1},$	$p_{0,15},$	1	-39.572909	-39.572909
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.0	0.0
250	$p_{0,13},$	$p_{0,17},$	1	-24.735708	-24.735708
Sum					-215.9701636697528

$$\Delta G = -36.80832872167111$$

$$\Delta E = -0.08225869104005183$$

$$|E| = 7$$

$$|U| = 5$$

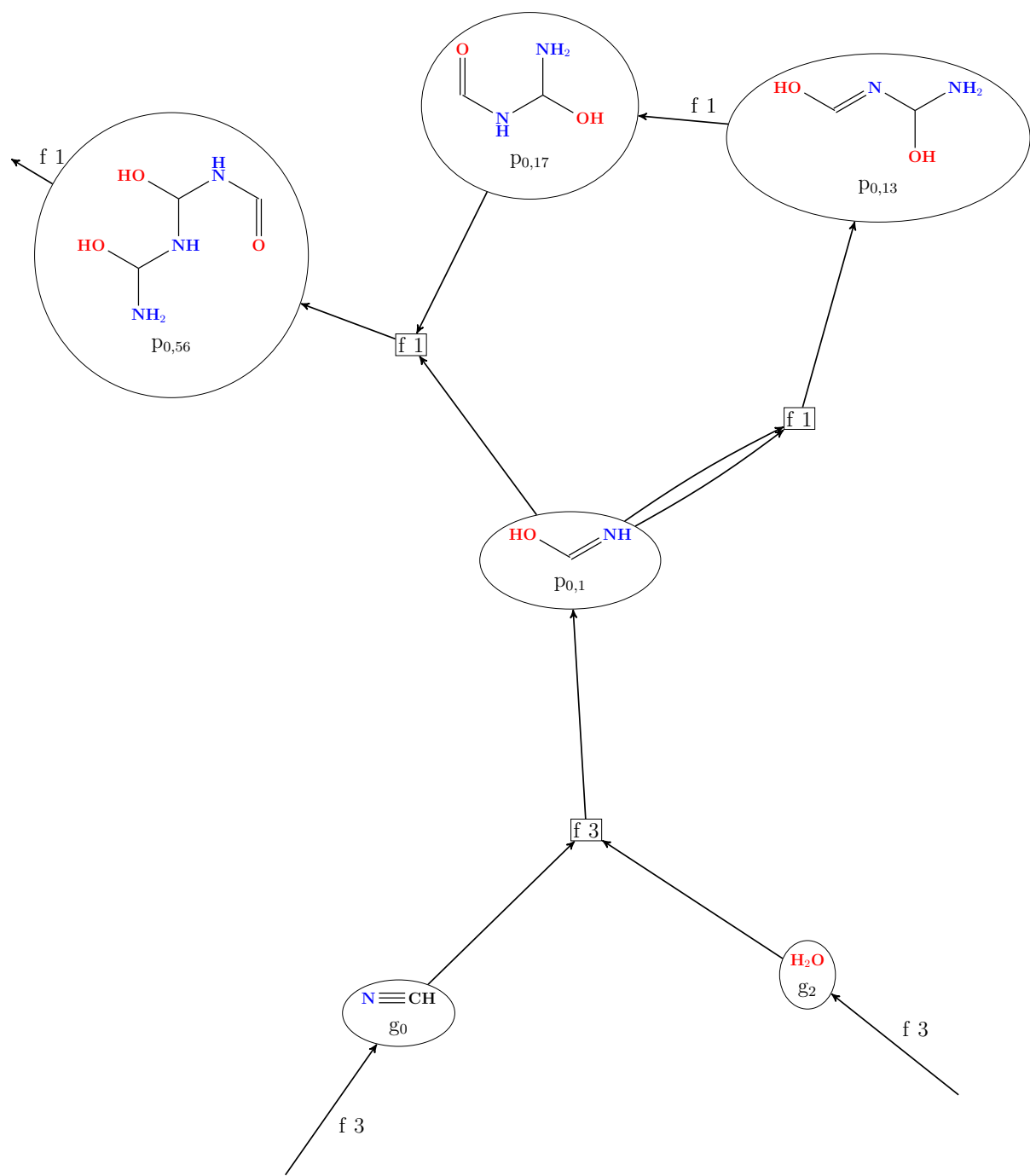
0.3.11 Solution 10

Overall Data

Objective value (non-integral): -0.0822587

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	44
$p_{\{0,17\}}$	0	0	-21.248844	-3.000000	45
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	21
$p_{\{0,56\}}$	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	-27856.761341	1.0	-27853.435556	21
$p_{0,13}$	0	0	-55767.279594	1.0	-55763.953809	44
$p_{0,17}$	0	0	-55788.832737	-3.0	-55798.810092	45
$p_{0,56}$	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	-82.286918	-82.286918
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-56.858207	-56.858207
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-30.406009	-30.406009
250	$p_{0,13},$	$p_{0,17},$	1	-33.958321	-33.958321
Sum					-215.9701636697515

$$\Delta G = -36.80832819657119$$

$$\Delta E = -0.08225869104005135$$

$$|E| = 6$$

$$|U| = 4$$

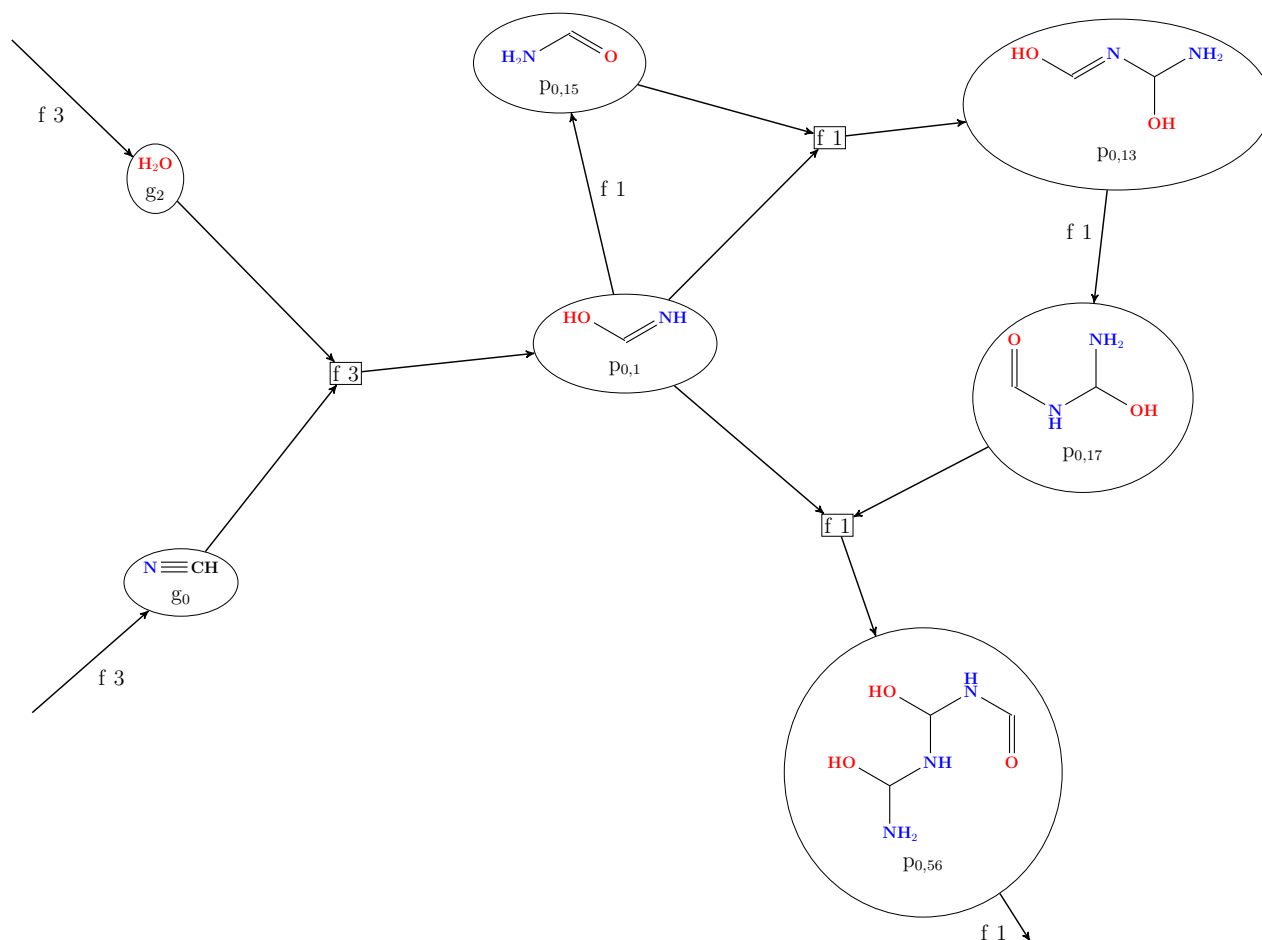
0.3.12 Solution 11

Overall Data

Objective value (non-integral): -0.0822587

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	20
$p_{\{0,13\}}$	0	0	-21.240635	1.000000	44
$p_{\{0,15\}}$	0	0	-10.625174	-3.000000	22
$p_{\{0,17\}}$	0	0	-21.248844	-3.000000	45
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	21
$p_{\{0,56\}}$	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	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
$p_{0,15}$	0	0	-27896.389963	-3.0	-27906.367318	22
$p_{0,17}$	0	0	-55788.832737	-3.0	-55798.810092	45
$p_{0,56}$	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	-82.286918	-82.286918
36	$p_{0,1}$	$p_{0,15}$	1	-52.0338	-52.0338
192	$p_{0,1}, p_{0,15}$	$p_{0,13}$	1	-4.824407	-4.824407
196	$p_{0,1}, p_{0,17}$	$p_{0,56}$	1	-30.406009	-30.406009
250	$p_{0,13}$	$p_{0,17}$	1	-33.958321	-33.958321
Sum					-215.97016366975024

$$\Delta G = -36.80832793402122$$

$$\Delta E = -0.08225869104005086$$

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

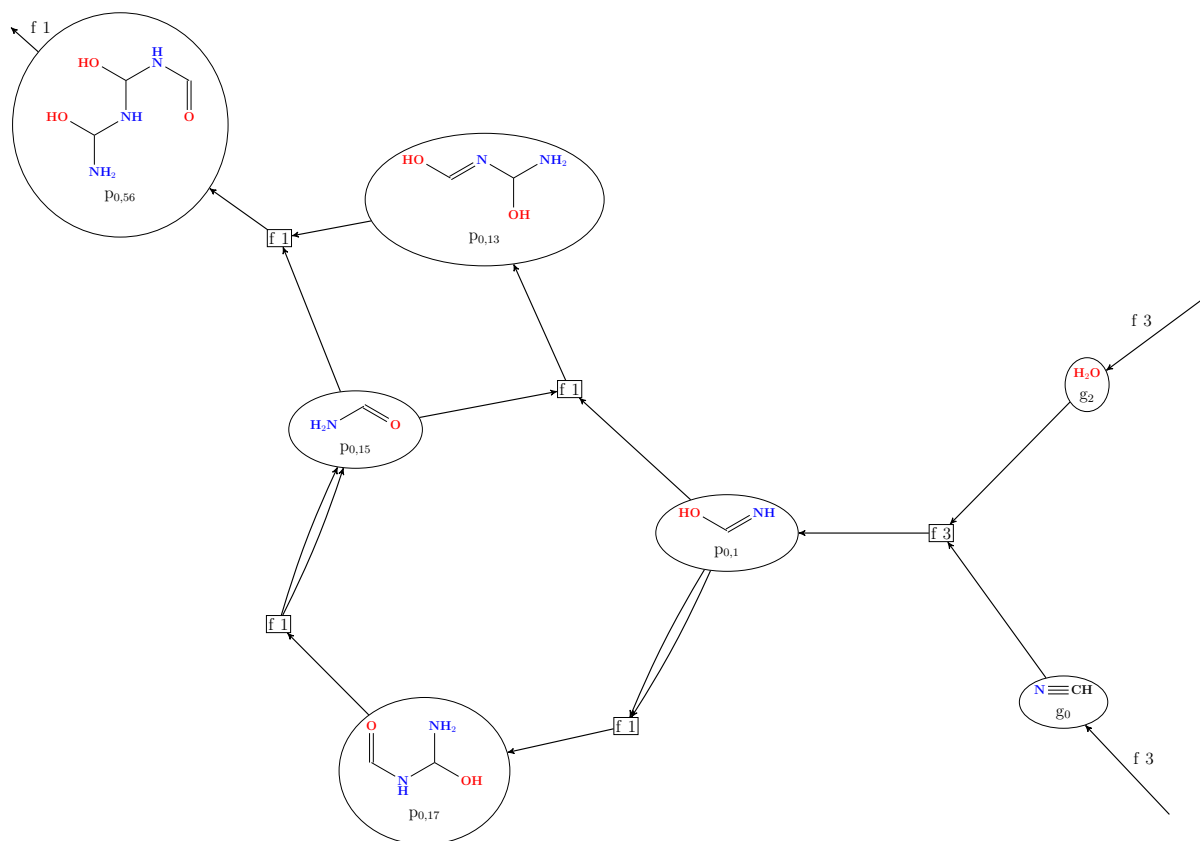
0.3.13 Solution 12

Overall Data

Objective value (non-integral): -0.0822587

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	10
$p_{\{0,13\}}$	0	0	-21.240678	1.000000	39
$p_{\{0,15\}}$	0	0	-10.625174	-3.000000	27
$p_{\{0,17\}}$	0	0	-21.248887	1.000000	26
$p_{\{0,1\}}$	0	0	-10.610101	1.000000	11
$p_{\{0,56\}}$	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	10
$p_{0,1}$	0	0	-27856.817054	1.0	-27853.491269	11
$p_{0,13}$	0	0	-55767.391129	1.0	-55764.065344	39
$p_{0,15}$	0	0	-27896.389963	-3.0	-27906.367318	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	-94.74781	-94.74781
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-78.411501	-78.411501
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	-12.218995	-12.218995
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	-4.880228	-4.880228
237	$p_{0,17},$	$p_{0,15}, p_{0,15},$	1	-25.544673	-25.544673
Sum					-215.9701636697477

$$\Delta G = -40.52988151794678$$

$$\Delta E = -0.08225869104004989$$

$$|E| = 7$$

$$|U| = 5$$

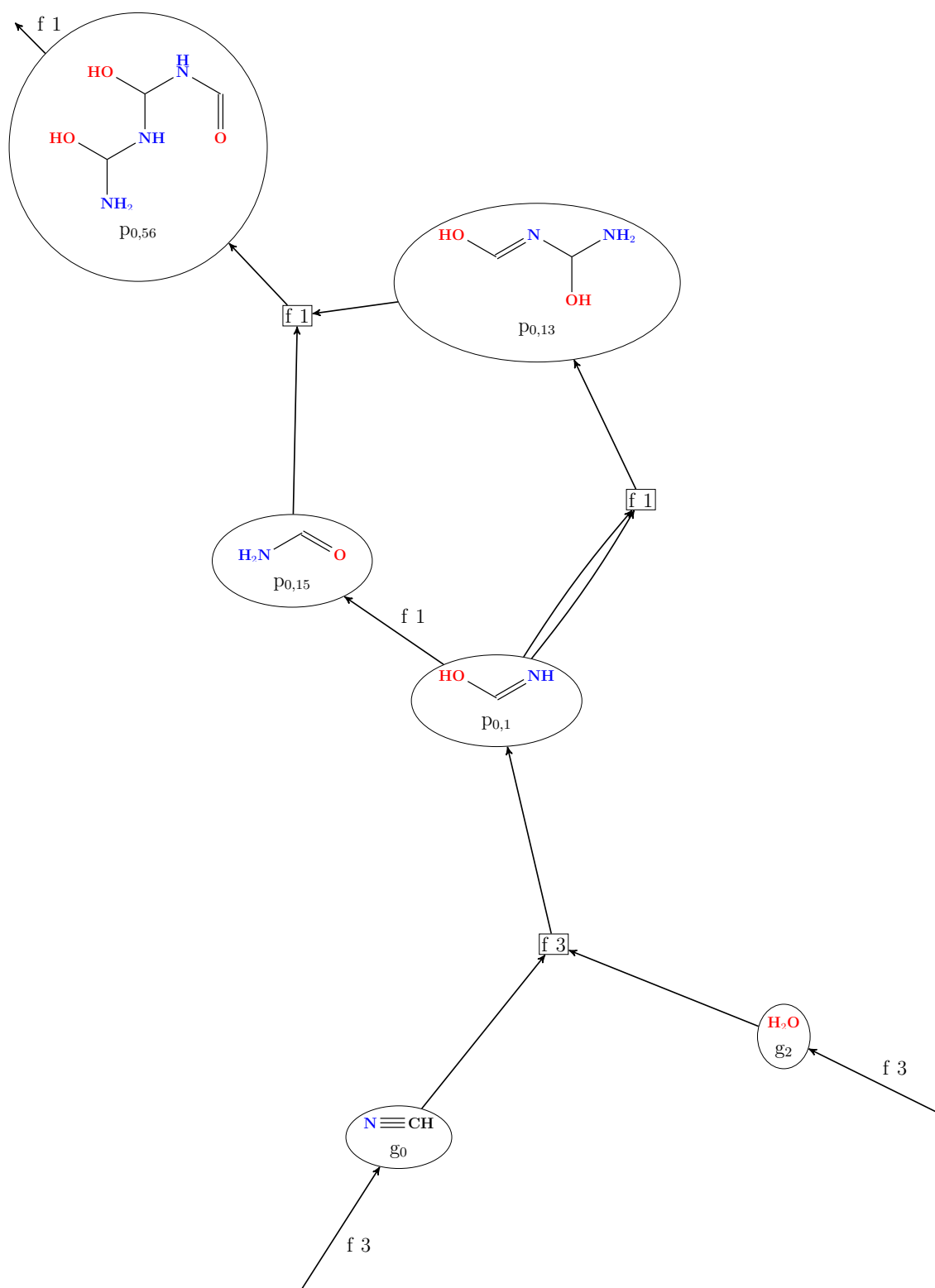
0.3.14 Solution 13

Overall Data

Objective value (non-integral): -0.0822587

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	-2.923947	3
$p_{\{0,15\}}$	0	0	-10.625195	-3.000000	63
$p_{\{0,1\}}$	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	-2.923947	-55777.115547	3
$p_{0,15}$	0	0	-27896.445756	-3.0	-27906.423111	63
$p_{0,56}$	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	-69.937454	-69.937454
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-69.02763	-69.02763
36	$p_{0,1},$	$p_{0,15},$	1	-52.03388	-52.03388
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	0.006113	0.006113
Sum					-215.97016366974685

$$\Delta G = -33.08677540029552$$

$$\Delta E = -0.08225869104004957$$

$$|E| = 6$$

$$|U| = 4$$

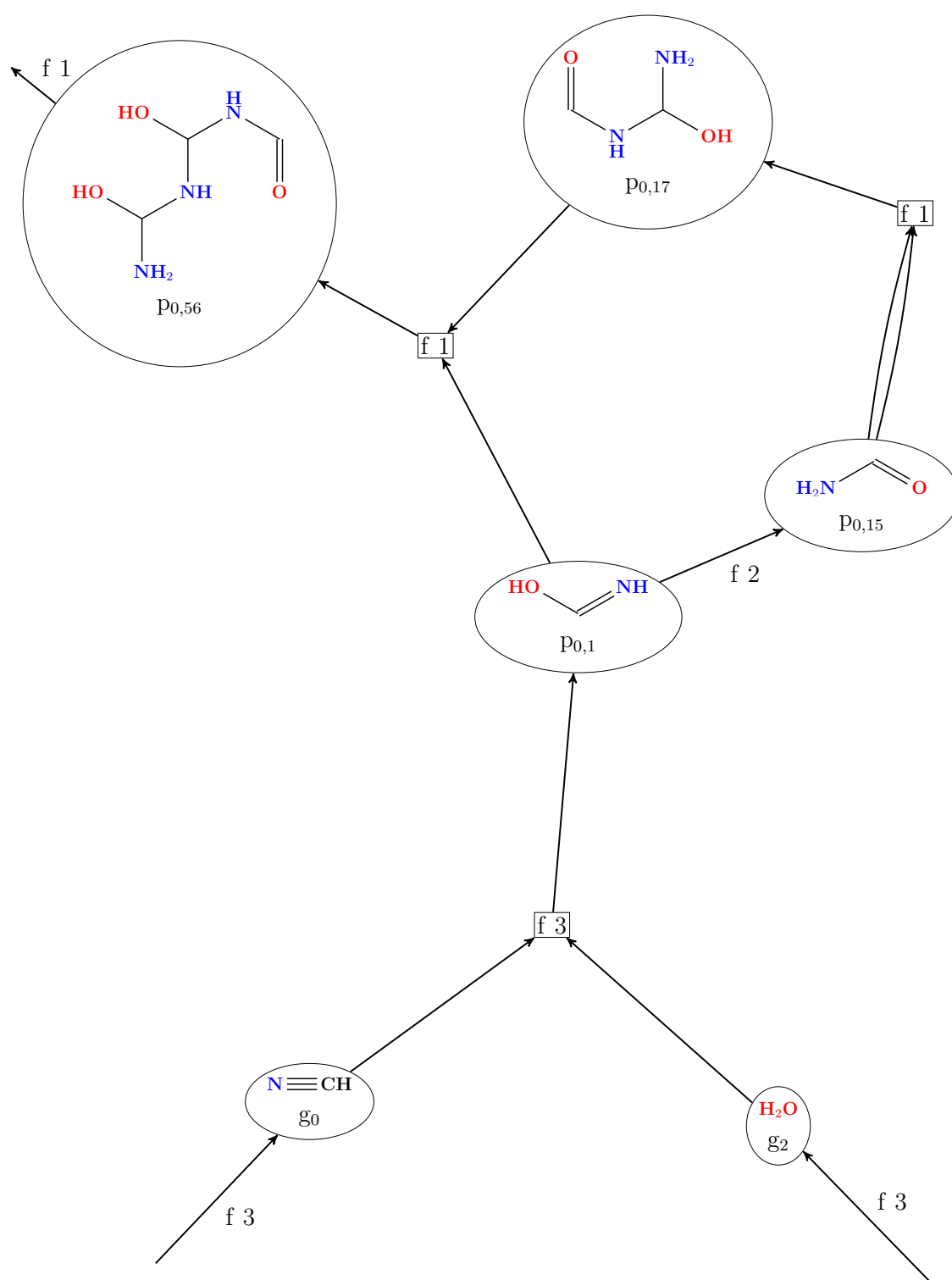
0.3.15 Solution 14

Overall Data

Objective value (non-integral): -0.0671649

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	-10.625174	1.000000	32
$p_{\{0,17\}}$	0	0	-21.248844	0.727245	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	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.761341	1.0	-27853.435556	1
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	32
$p_{0,17}$	0	0	-55788.832737	0.727245	-55786.414077	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	-82.286918	-82.286918
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	-41.965293	-41.965293
Sum					-176.34154156596446

$$\Delta G = -36.80832819657119$$

$$\Delta E = -0.06716494602181329$$

$$|E| = 7$$

$$|U| = 4$$

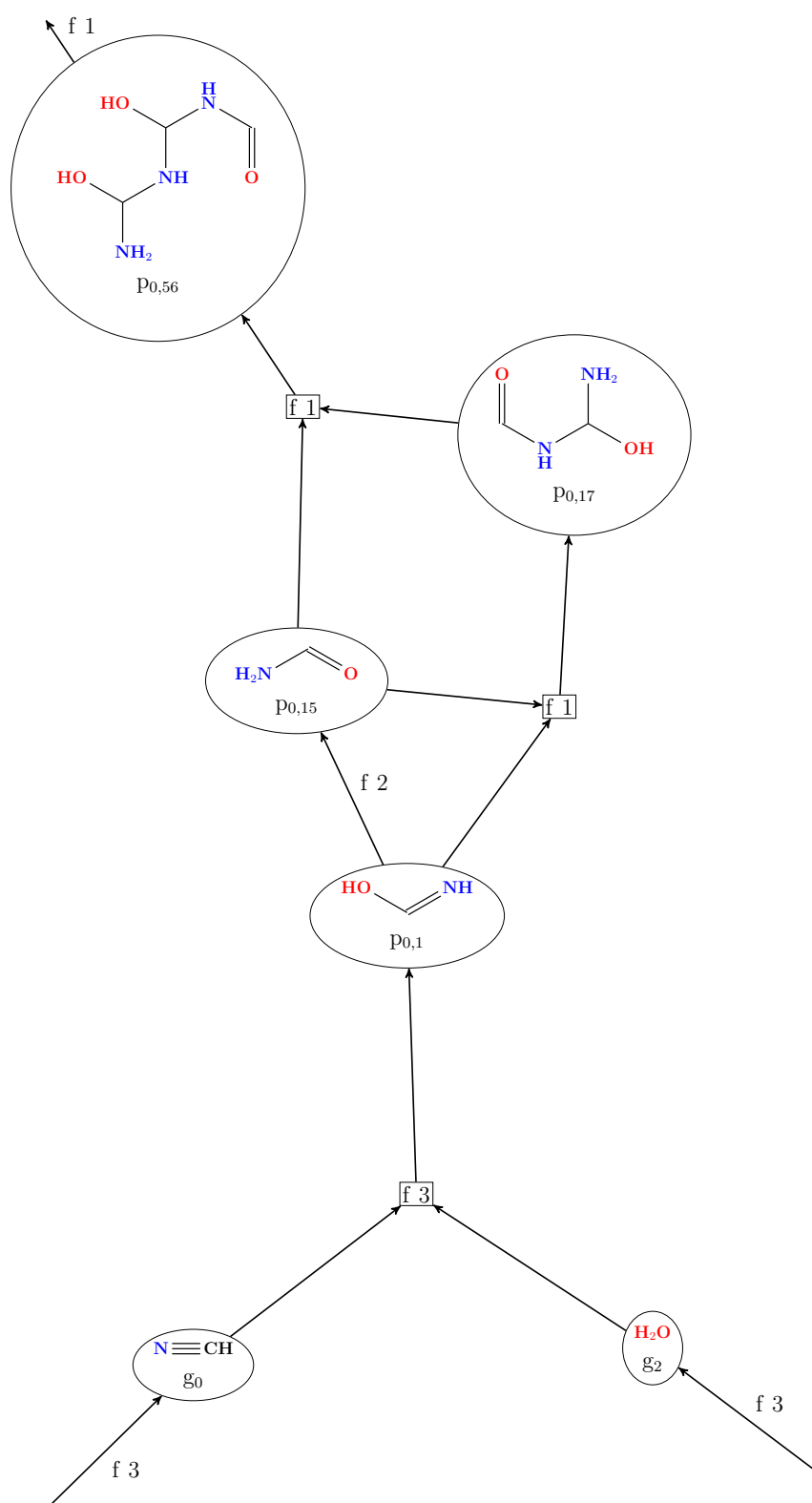
0.3.16 Solution 15

Overall Data

Objective value (non-integral): -0.0671649

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	1.000000	2
$p_{\{0,17\}}$	0	0	-21.248887	0.025792	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	1.0	-27893.119971	2
$p_{0,17}$	0	0	-55788.944315	0.025792	-55788.858537	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	-82.342632	-82.342632
36	$p_{0,1},$	$p_{0,15},$	2	-39.628701	-39.628701
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	-41.804106	-41.804106
Sum					-176.34154156596108

$\Delta G = -36.80832898422108$

$\Delta E = -0.067164946021812$

$|E| = 7$

$|U| = 4$

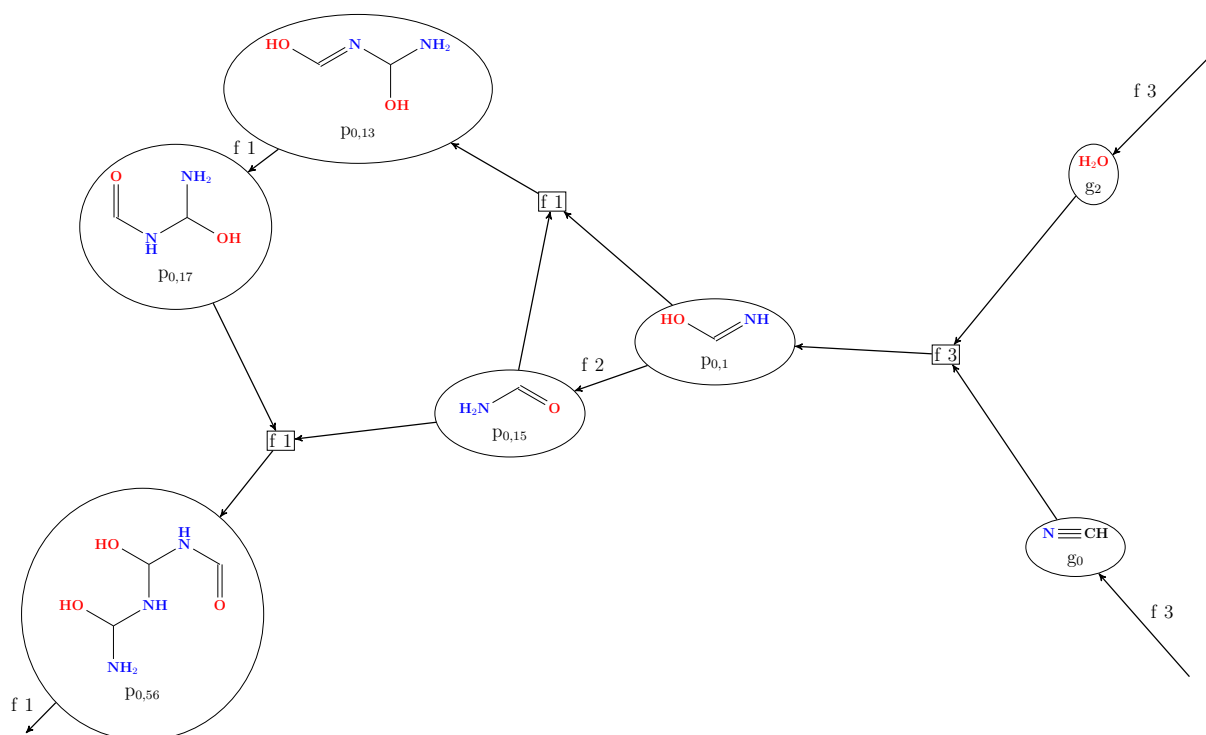
0.3.17 Solution 16

Overall Data

Objective value (non-integral): -0.0671649

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	33
$p_{\{0,15\}}$	0	0	-10.625174	1.000000	31
$p_{\{0,17\}}$	0	0	-21.248887	0.009773	35
$p_{\{0,1\}}$	0	0	-10.610101	-3.000000	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	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.817054	-3.0	-27866.79441	1
$p_{0,13}$	0	0	-55767.279594	1.0	-55763.953809	33
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	31
$p_{0,17}$	0	0	-55788.944315	0.009773	-55788.911813	35
$p_{0,56}$	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	-94.74781	-94.74781
36	$p_{0,1},$	$p_{0,15},$	2	-27.16773	-27.16773
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	-4.768693	-4.768693
250	$p_{0,13},$	$p_{0,17},$	1	-24.735708	-24.735708
Sum					-176.34154156595514

$$\Delta G = -36.808327671471254$$

$$\Delta E = -0.06716494602180974$$

$$|E| = 8$$

$$|U| = 5$$

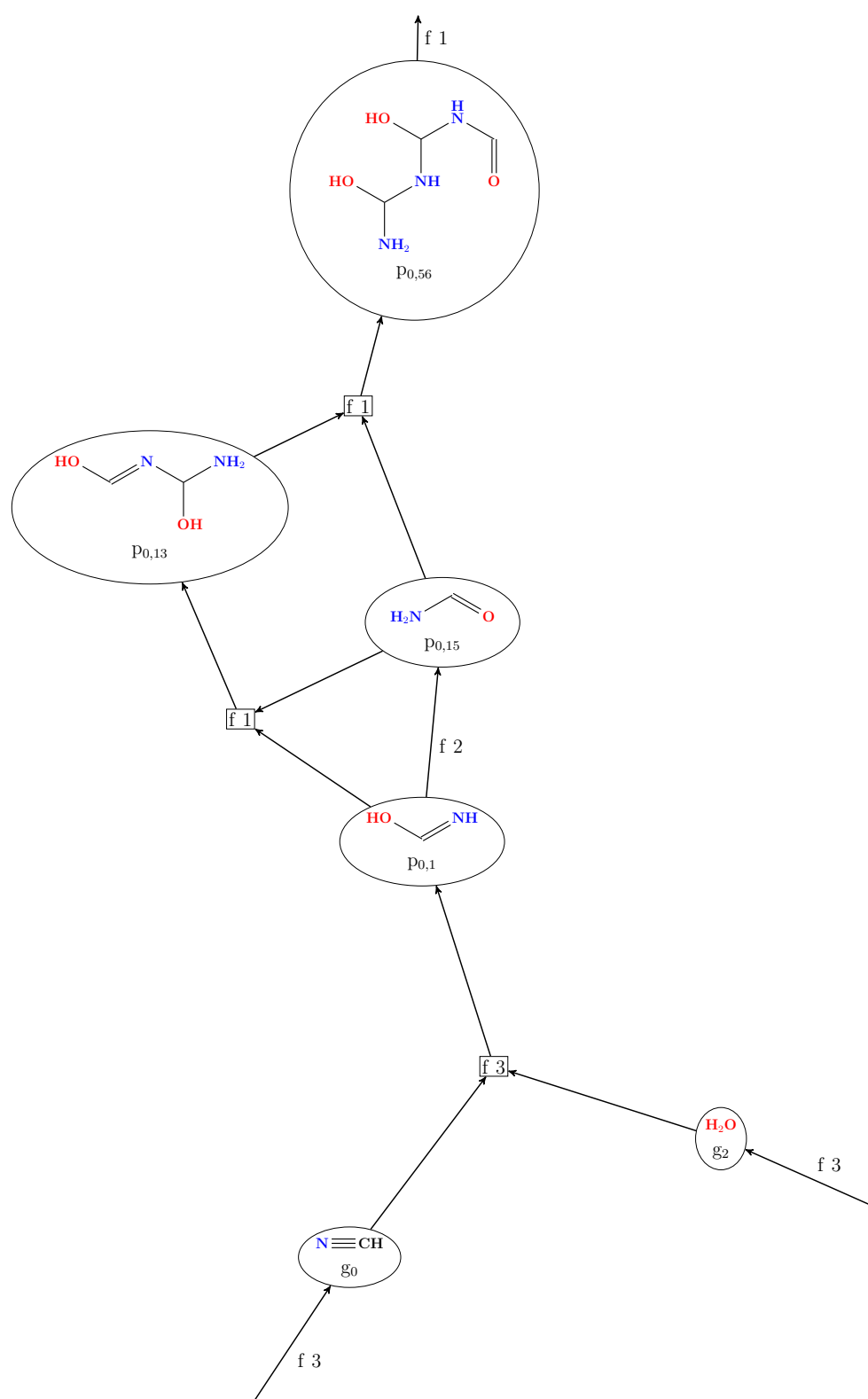
0.3.18 Solution 17

Overall Data

Objective value (non-integral): -0.0671649

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	64
$p_{\{0,15\}}$	0	0	-10.625174	1.000000	2
$p_{\{0,1\}}$	0	0	-10.610080	1.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-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	1
$p_{0,13}$	0	0	-55767.391129	-3.0	-55777.368484	64
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	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	-94.692097	-94.692097
36	$p_{0,1},$	$p_{0,15},$	2	-39.628622	-39.628622
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	-12.218995	-12.218995
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	-29.746298	-29.746298
Sum					-176.3415415659492

$$\Delta G = -40.529881780496744$$

$$\Delta E = -0.06716494602180748$$

$$|E| = 7$$

$$|U| = 4$$

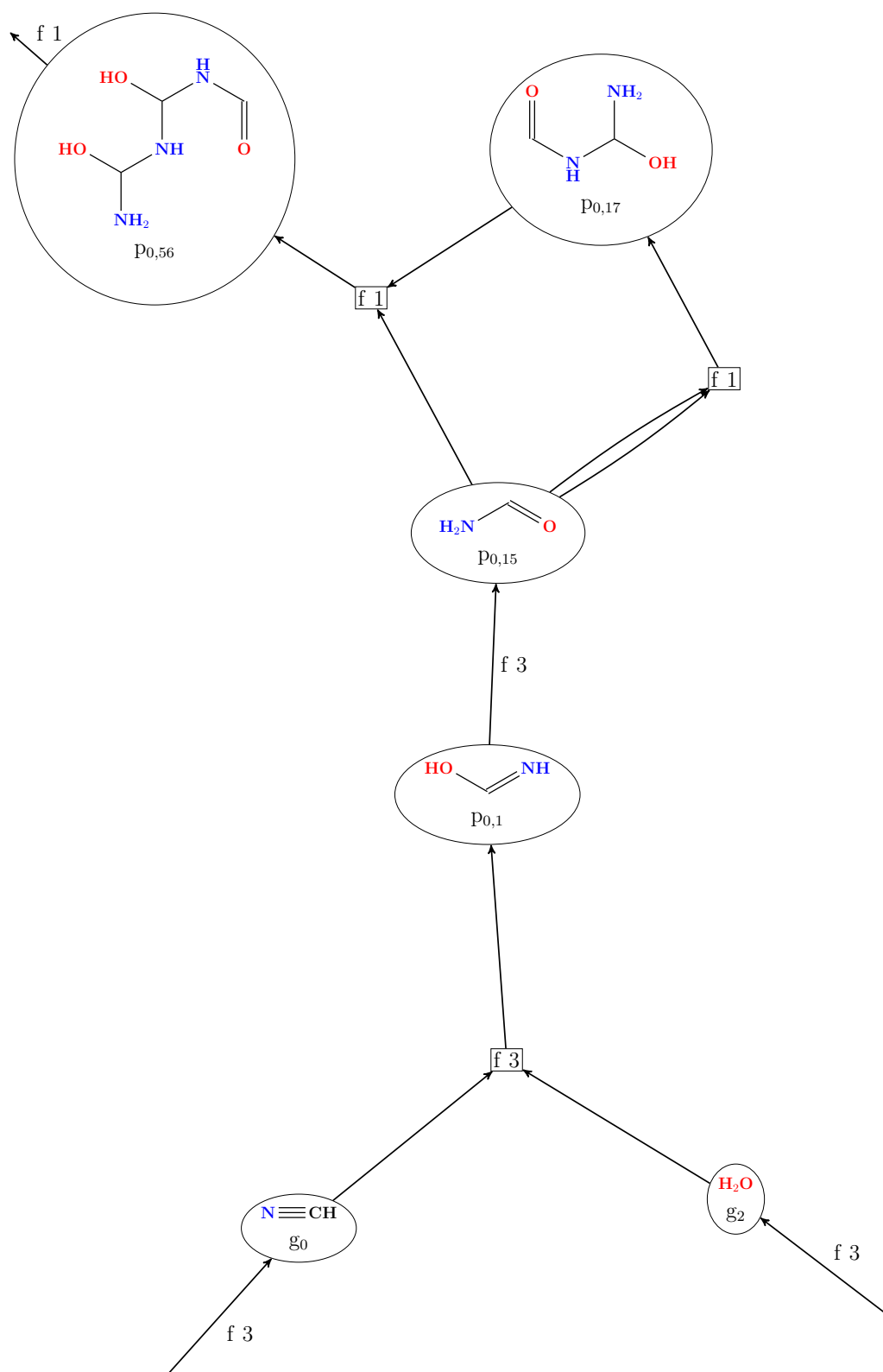
0.3.19 Solution 18

Overall Data

Objective value (non-integral): -0.0520712

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
$p_{\{0,15\}}$	0	0	-10.625174	1.000000	2
$p_{\{0,17\}}$	0	0	-21.248887	0.007801	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/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	-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
$p_{0,15}$	0	0	-27896.389963	1.0	-27893.064178	2
$p_{0,17}$	0	0	-55788.944315	0.007801	-55788.918369	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	-69.937454	-69.937454
36	$p_{0,1},$	$p_{0,15},$	3	-39.572909	-39.572909
180	$p_{0,15}, p_{0,15},$	$p_{0,17},$	1	-2.342784	-2.342784
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.006113	0.006113
Sum					-136.71291946216934

$$\Delta G = -33.086774875195594$$

$$\Delta E = -0.05207120100357216$$

$$|E| = 8$$

$$|U| = 4$$