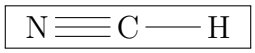
Summary

December 6, 2024

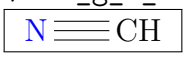
Contents

0.1 Loaded Graphs

0.1.1 g_{0}

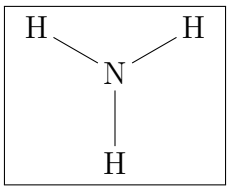


File: out/001_g_0_10300000

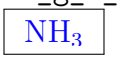


File: out/003_g_0_11310100

0.1.2 g_{1}

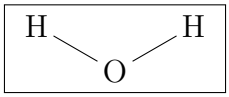


File: out/005_g_1_10300000

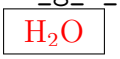


File: out/007_g_1_11310100

0.1.3 g_{2}



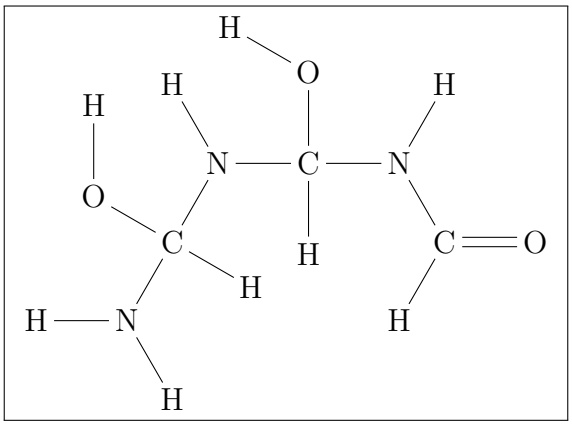
File: out/009_g_2_10300000



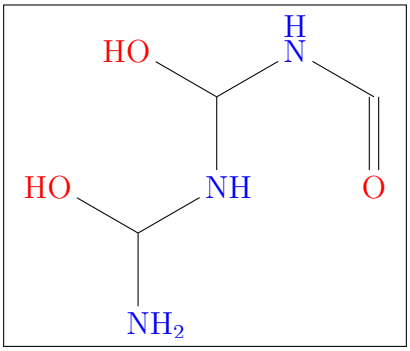
File: out/011_g_2_11310100

0.2 Product Graphs

0.2.1 p_{0,56}



File: out/013_g_1088_10300000



File: out/015_g_1088_11310100

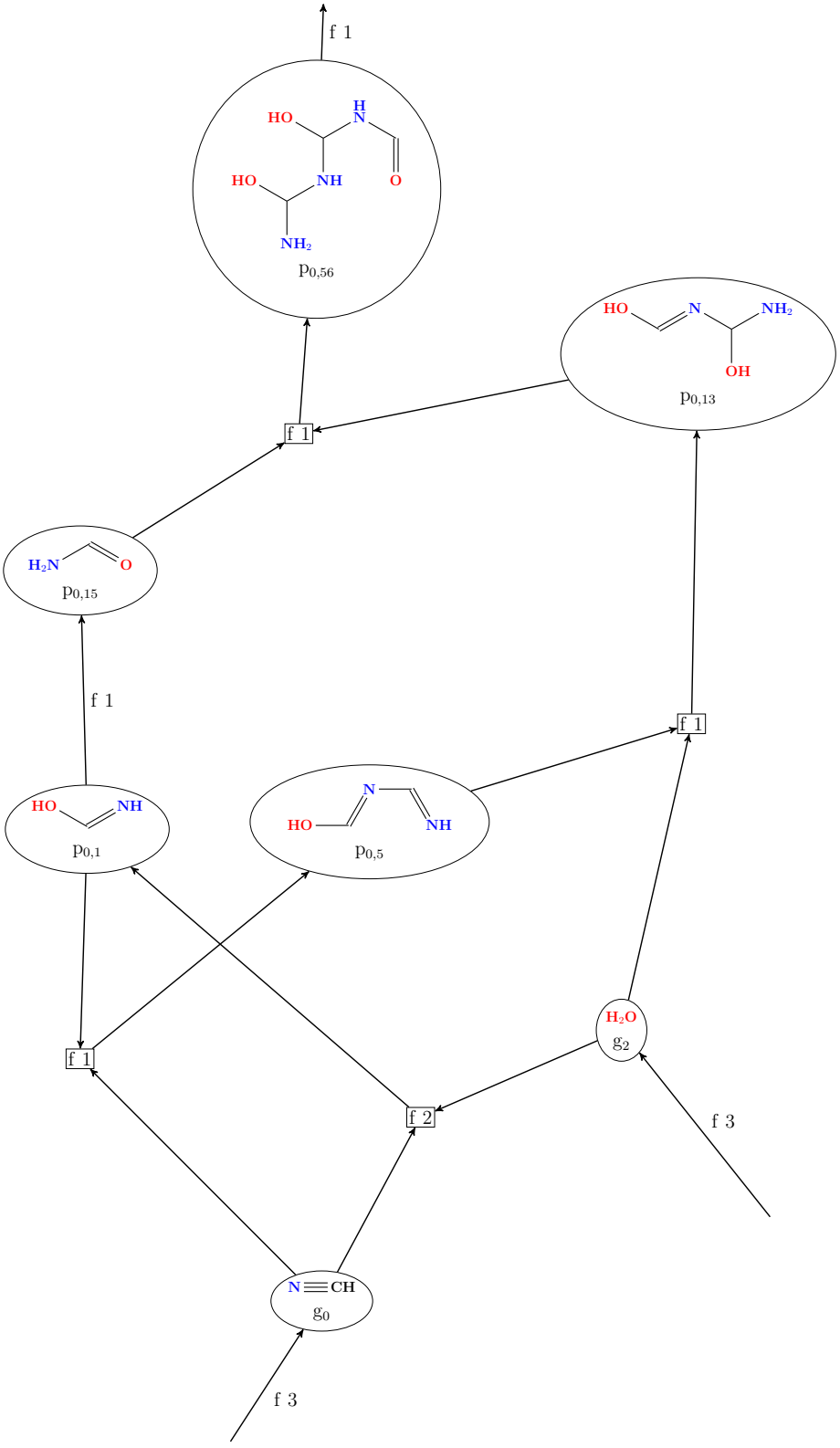
0.3 Enumerated Flows

0.3.1 Solution 0

Overall Data

```
Objective value (non-integral): -0.119347
Vertex/Graph In Out G           logK      t_order
g_{0}        3  0   -5.507141  1.000000  0
g_{2}        3  0   -5.068043  1.000000  0
p_{0,13}     0  0   -21.240635 1.000000  3
p_{0,15}     0  0   -10.625195 -6.000000 63
p_{0,1}      0  0   -10.610080 1.000000  1
p_{0,56}     0  1   -31.869324 -6.000000 67
p_{0,5}      0  0   -16.158998 -6.000000 2
```

Filtered Graph



File: `out/030_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	−14458.99666	1.0	−14455.670875	0
g_2	3	0	−13306.144961	1.0	−13302.819176	0
$p_{0,1}$	0	0	−27856.761341	1.0	−27853.435556	1
$p_{0,5}$	0	0	−42425.44262	−6.0	−42445.397331	2
$p_{0,13}$	0	0	−55767.279594	1.0	−55763.953809	3
$p_{0,15}$	0	0	−27896.445756	−6.0	−27916.400466	63
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	2	−94.114059	−94.114059
14	$g_0, p_{0,1},$	$p_{0,5},$	1	−129.63933	−129.63933
36	$p_{0,1},$	$p_{0,15},$	1	−57.144786	−57.144786
123	$g_2, p_{0,5},$	$p_{0,13},$	1	−20.72598	−20.72598
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	−11.667781	−11.667781
Sum					−313.3451606608672

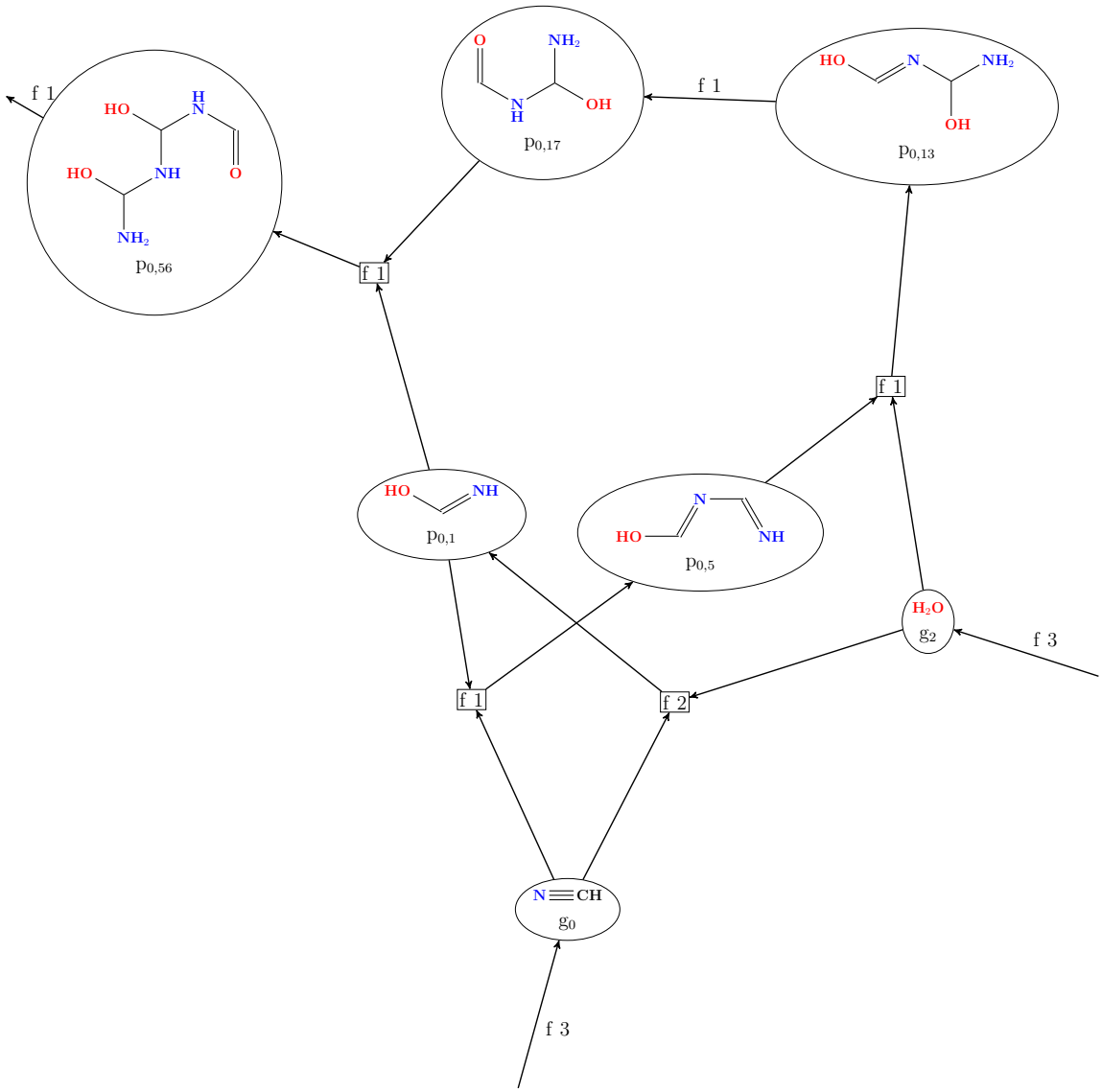
ΔG = -40.740598342912236
ΔE = -0.11934686866798716
|E| = 6
|U| = 5

0.3.2 Solution 1

Overall Data

```
Objective value (non-integral): -0.119347
Vertex/Graph In Out G          logK      t_order
g_{0}        3  0   -5.507152  1.000000  0
g_{2}        3  0   -5.068043  -6.000000 0
p_{0,13}     0  0   -21.240678 -6.000000 34
p_{0,17}     0  0   -21.248887 -6.000000 35
p_{0,1}      0  0   -10.610101 1.000000  31
p_{0,56}     0  1   -31.869324 -6.000000 67
p_{0,5}      0  0   -16.158998 -6.000000 32
```

Filtered Graph



File: `out/041_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	−6.0	−13326.099672	0
$p_{0,1}$	0	0	−27856.817054	1.0	−27853.491269	31
$p_{0,5}$	0	0	−42425.44262	−6.0	−42445.397331	32
$p_{0,13}$	0	0	−55767.391129	−6.0	−55787.345839	34
$p_{0,17}$	0	0	−55788.944315	−6.0	−55808.899025	35
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	2	−76.680483	−76.680483
14	$g_0, p_{0,1},$	$p_{0,5},$	1	−129.554699	−129.554699
123	$g_2, p_{0,5},$	$p_{0,13},$	1	−20.837515	−20.837515
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	−29.631761	−29.631761
250	$p_{0,13},$	$p_{0,17},$	1	−21.553186	−21.553186
Sum					−313.3451606608672

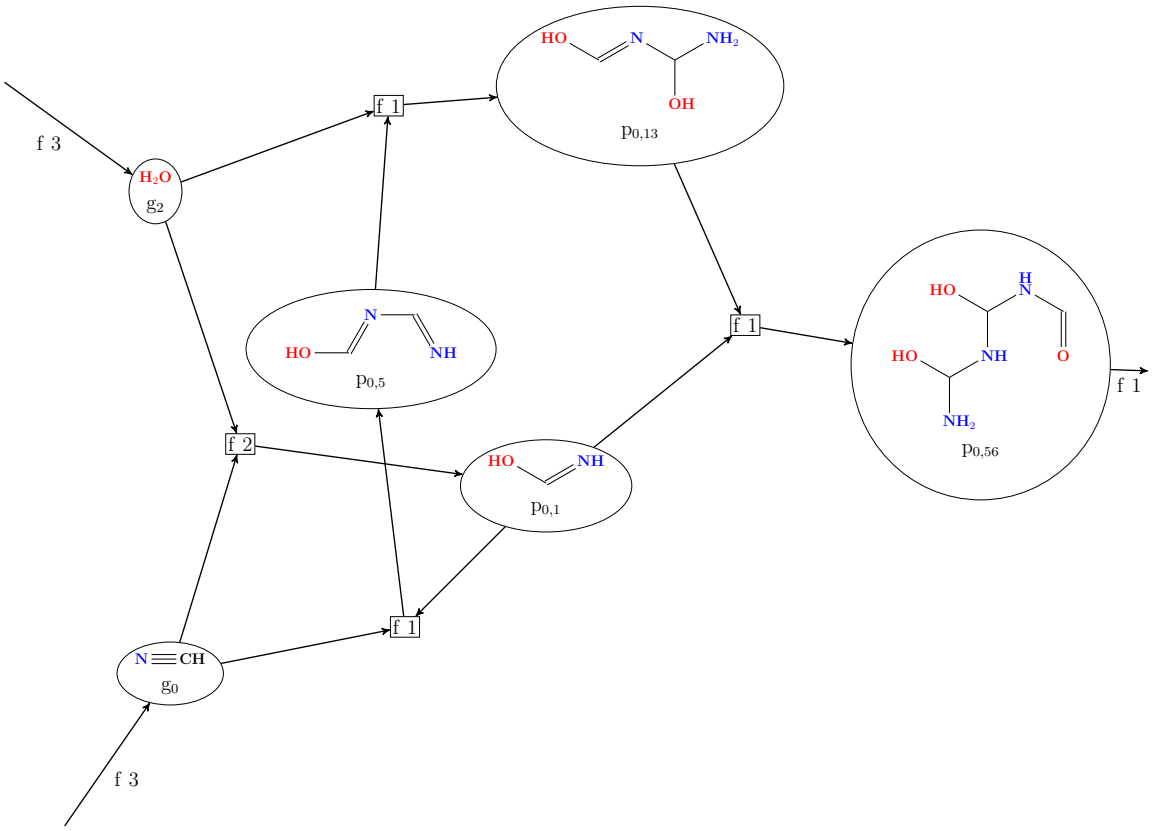
ΔG = -35.49381167812378
ΔE = -0.11934686866798716
|E| = 6
|U| = 5

0.3.3 Solution 2

Overall Data

```
Objective value (non-integral): -0.119347
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 3
p_{0,1}      0  0   -10.610101 1.000000  1
p_{0,56}     0  1   -31.869324 -6.000000 67
p_{0,5}      0  0   -16.158998 -6.000000 2
```

Filtered Graph



File: `out/050_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	−13306.144961	−6.0	−13326.099672	0
$p_{0,1}$	0	0	−27856.817054	1.0	−27853.491269	1
$p_{0,5}$	0	0	−42425.44262	−6.0	−42445.397331	2
$p_{0,13}$	0	0	−55767.391129	−6.0	−55787.345839	3
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	2	−59.220111	−59.220111
14	$g_0, p_{0,1},$	$p_{0,5},$	1	−112.094327	−112.094327
123	$g_2, p_{0,5},$	$p_{0,13},$	1	−20.837515	−20.837515
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	−51.184947	−51.184947
Sum					−313.3451606608691

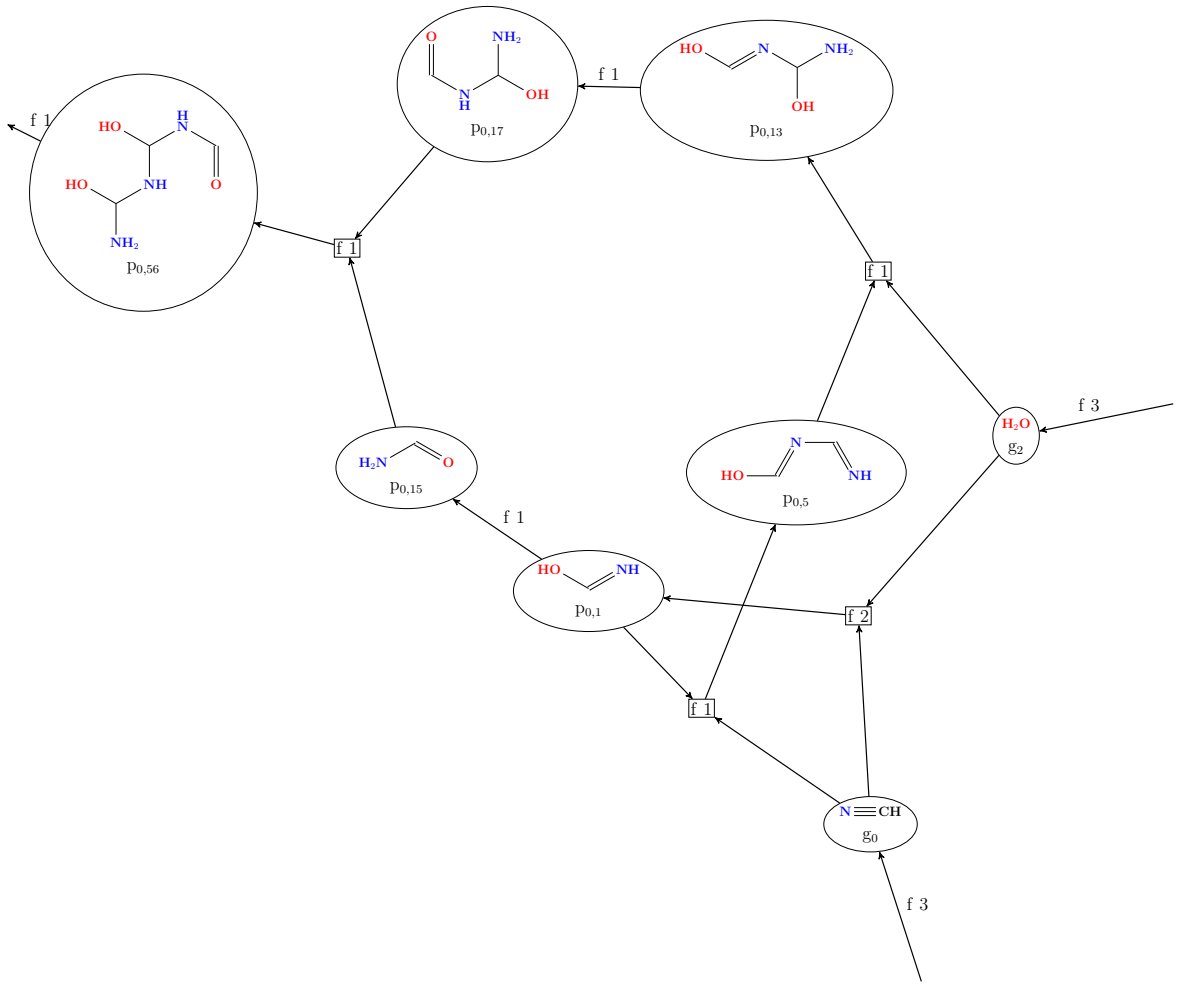
ΔG = -30.25570071434402
ΔE = -0.11934686866798788
|E| = 5
|U| = 4

0.3.4 Solution 3

Overall Data

```
Objective value (non-integral): -0.119347
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 -6.000000 3
p_{0,15}     0  0   -10.625174 -2.061699 2
p_{0,17}     0  0   -21.248844 1.000000  4
p_{0,1}      0  0   -10.610101 1.000000  1
p_{0,56}     0  1   -31.869324 -6.000000 67
p_{0,5}      0  0   -16.158998 -6.000000 2
```

Filtered Graph



File: `out/059_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	−6.0	−42445.397331	2
$p_{0,13}$	0	0	−55767.391129	−6.0	−55787.345839	3
$p_{0,15}$	0	0	−27896.389963	−2.061699	−27903.246732	2
$p_{0,17}$	0	0	−55788.832737	1.0	−55785.506952	4
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	2	−94.140854	−94.140854
14	$g_0, p_{0,1},$	$p_{0,5},$	1	−129.554699	−129.554699
36	$p_{0,1},$	$p_{0,15},$	1	−47.209824	−47.209824
123	$g_2, p_{0,5},$	$p_{0,13},$	1	−38.297886	−38.297886
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.006113	0.006113
250	$p_{0,13},$	$p_{0,17},$	1	−3.981237	−3.981237
Sum					−313.3451606608653

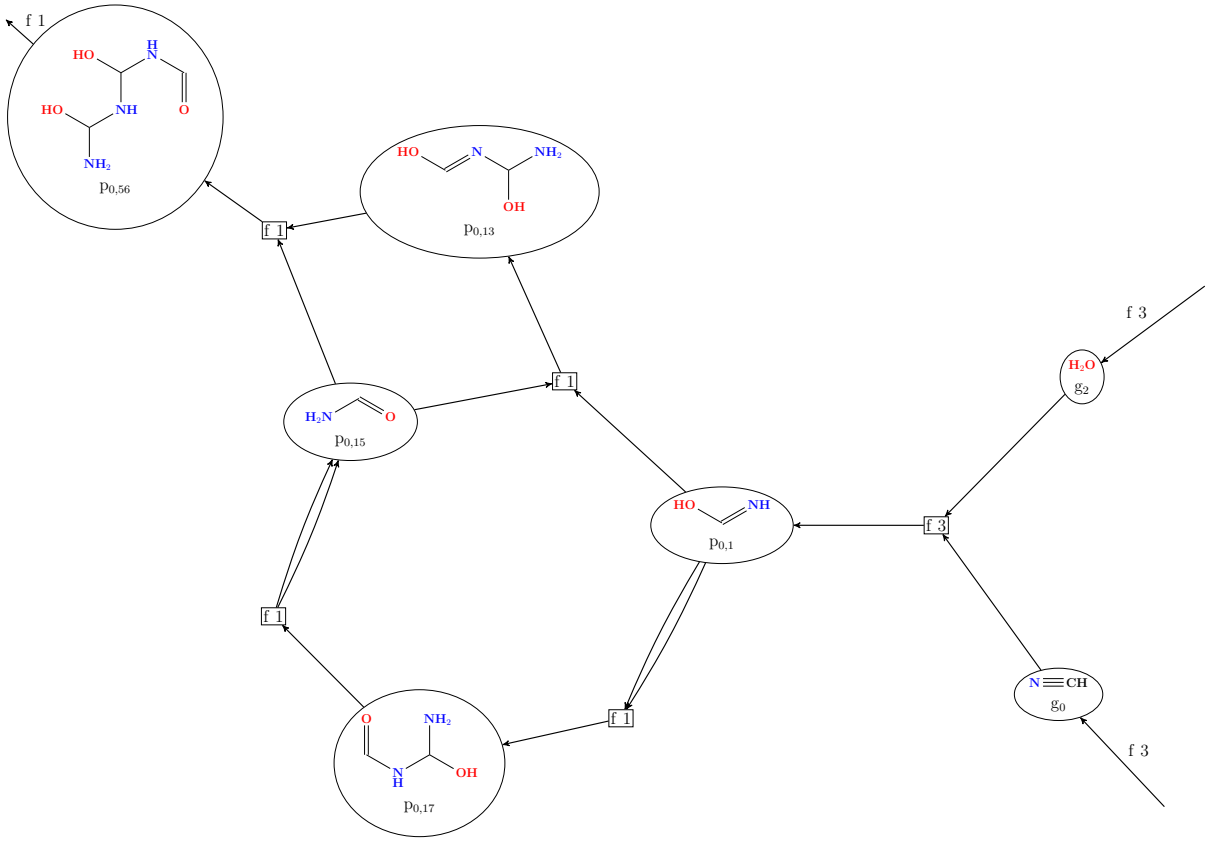
ΔG = -40.731923167003465
ΔE = -0.11934686866798644
|E| = 7
|U| = 6

0.3.5 Solution 4

Overall Data

```
Objective value (non-integral): -0.0834906
Vertex/Graph In Out G          logK      t_order
g_{0}        3  0   -5.507152  1.000000  0
g_{2}        3  0   -5.068043  -6.000000 0
p_{0,13}     0  0   -21.240678 0.688972  39
p_{0,15}     0  0   -10.625174 1.000000  27
p_{0,17}     0  0   -21.248844 1.000000  26
p_{0,1}      0  0   -10.610101 -6.000000 11
p_{0,56}     0  1   -31.869324 1.000000  67
```

Filtered Graph



File: `out/068_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	−6.0	−13326.099672	0
$p_{0,1}$	0	0	−27856.817054	−6.0	−27876.771765	11
$p_{0,13}$	0	0	−55767.391129	0.688972	−55765.099755	39
$p_{0,15}$	0	0	−27896.389963	1.0	−27893.064178	27
$p_{0,17}$	0	0	−55788.832737	1.0	−55785.506952	26
$p_{0,56}$	0	1	−83672.898792	1.0	−83669.573007	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−94.140854	−94.140854
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	−42.772224	−42.772224
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	−10.836231	−10.836231
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	0.006113	0.006113
237	$p_{0,17},$	$p_{0,15}, p_{0,15},$	1	−1.45285	−1.45285
Sum					−219.20448962820603

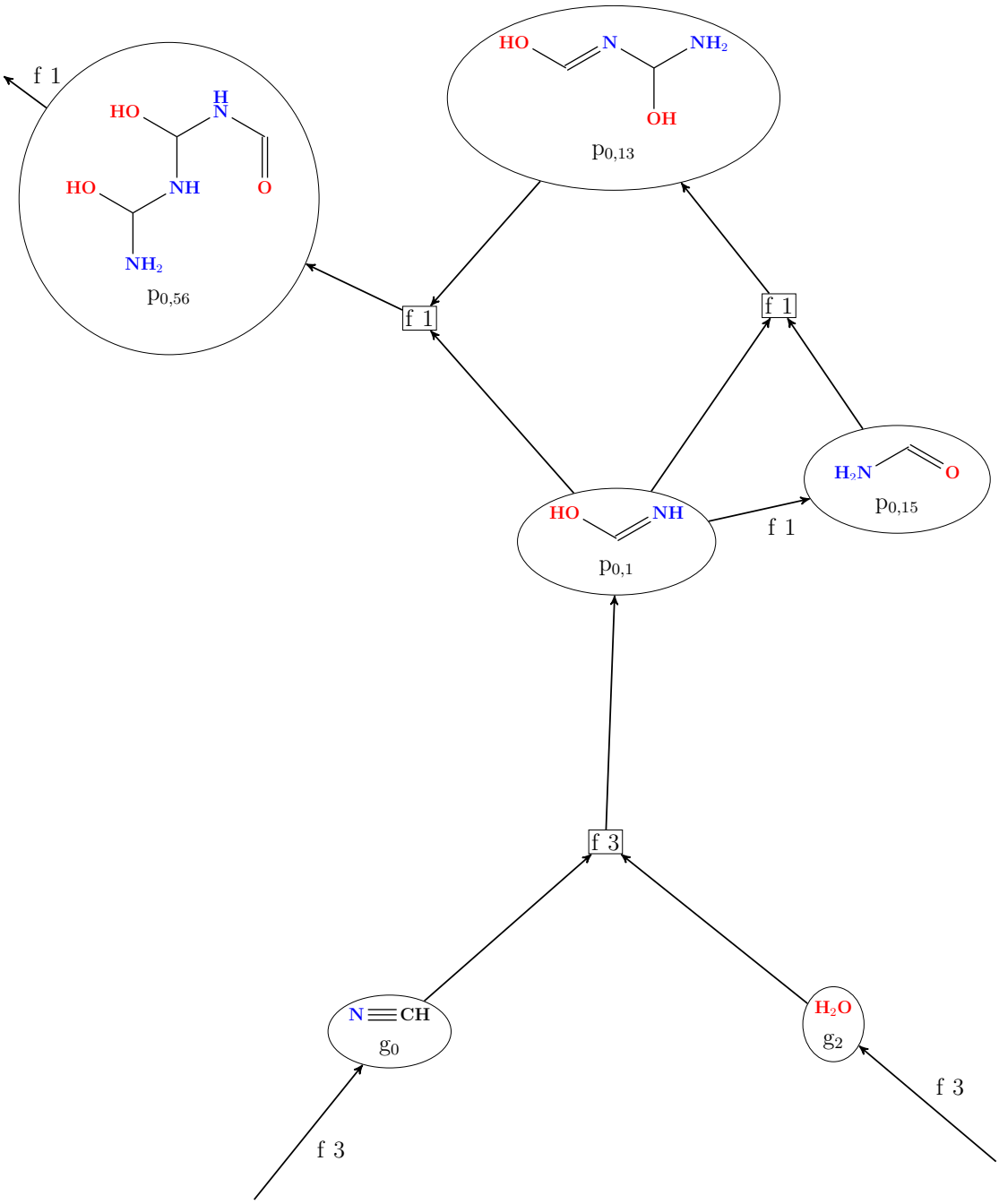
ΔG = -33.74777460268054
ΔE = -0.08349058073823279
|E| = 7
|U| = 5

0.3.6 Solution 5

Overall Data

```
Objective value (non-integral): -0.0834906
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 4
p_{0,15}     0  0   -10.625174 -6.000000 2
p_{0,1}      0  0   -10.610101 1.000000  1
p_{0,56}     0  1   -31.869260 1.000000  67
```

Filtered Graph



File: `out/077_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	−13306.144961	−6.0	−13326.099672	0
$p_{0,1}$	0	0	−27856.817054	1.0	−27853.491269	1
$p_{0,13}$	0	0	−55767.391129	−6.0	−55787.345839	4
$p_{0,15}$	0	0	−27896.389963	−6.0	−27916.344673	2
$p_{0,56}$	0	1	−83672.731446	1.0	−83669.405661	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−59.220111	−59.220111
36	$p_{0,1},$	$p_{0,15},$	1	−57.03328	−57.03328
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	−16.67845	−16.67845
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	−33.55723	−33.55723
Sum					−219.20448962820413

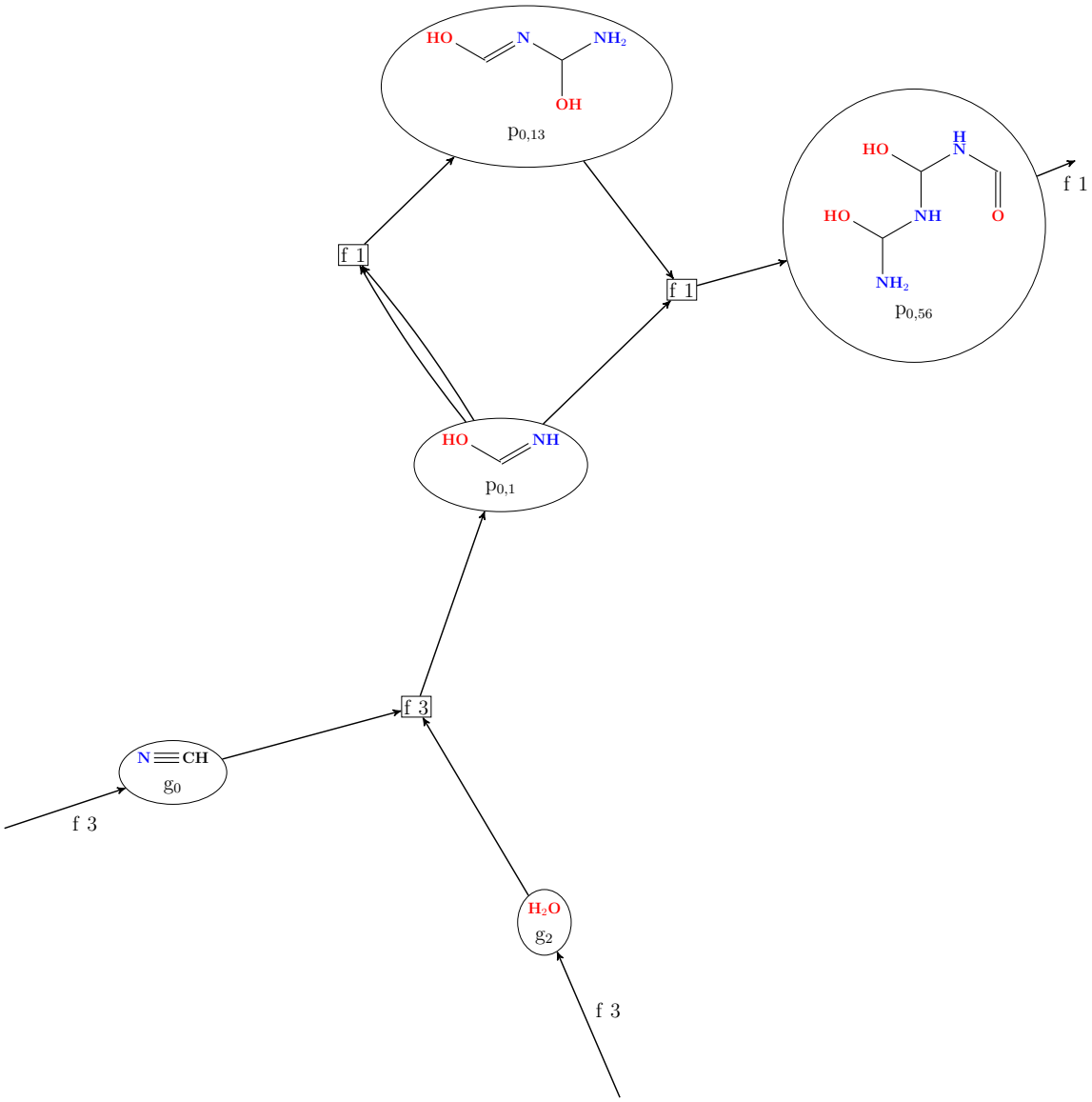
ΔG = -28.492929229298664
ΔE = -0.08349058073823207
|E| = 6
|U| = 4

0.3.7 Solution 6

Overall Data

```
Objective value (non-integral): -0.0834906
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 20
p_{0,13}     0  0   -21.240635 1.000000  45
p_{0,1}      0  0   -10.610080 1.000000  21
p_{0,56}     0  1   -31.869324 -6.000000 67
```

Filtered Graph



File: `out/086_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	−6.0	−14478.980288	0
g_2	3	0	−13306.144961	−6.0	−13326.099672	20
$p_{0,1}$	0	0	−27856.761341	1.0	−27853.435556	21
$p_{0,13}$	0	0	−55767.279594	1.0	−55763.953809	45
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−59.164398	−59.164398
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	−56.251251	−56.251251
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	−68.812567	−68.812567
Sum					−219.20448962820223

ΔG = -30.255700189244095
ΔE = -0.08349058073823135

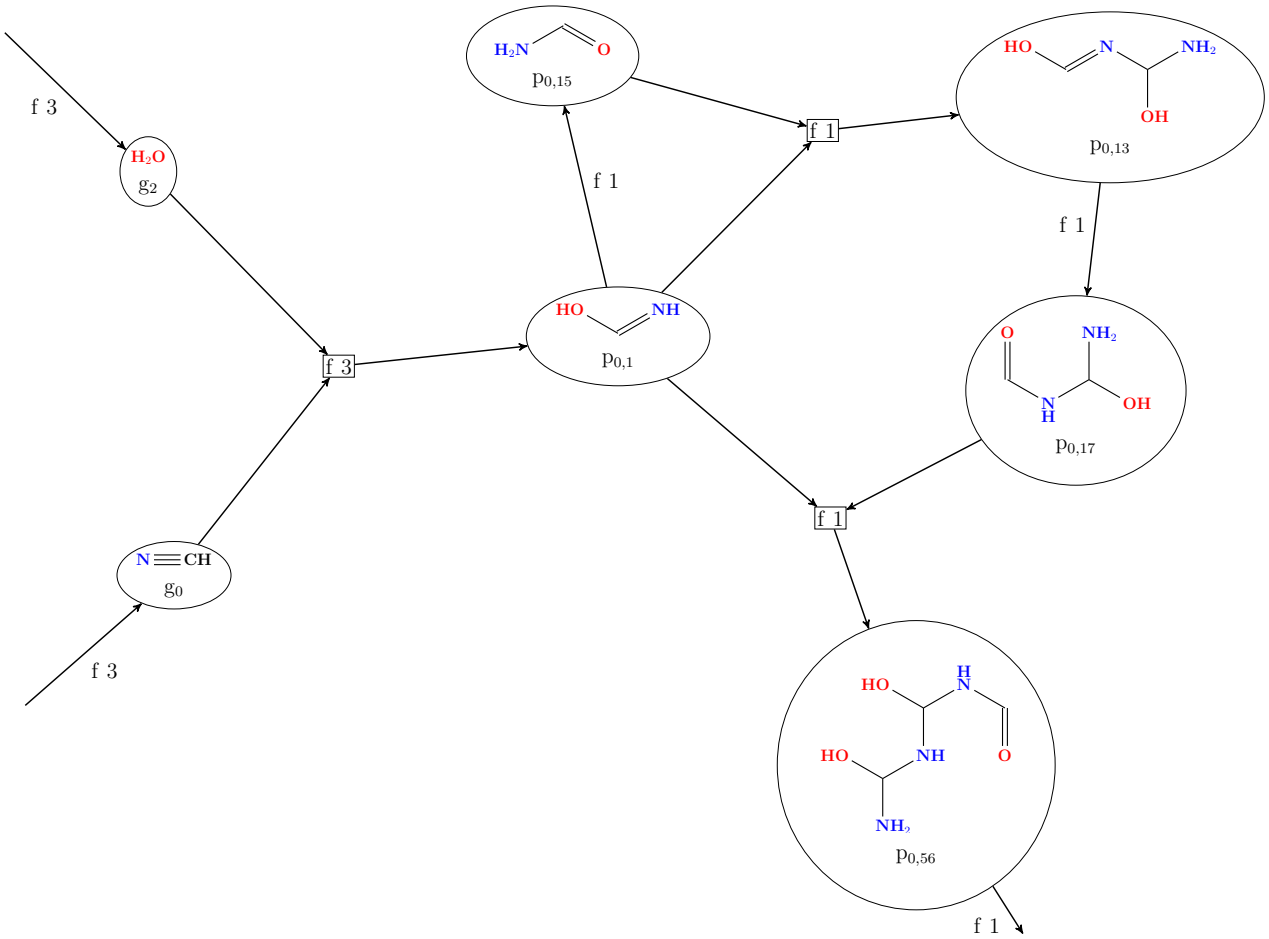
$|E| = 5$
$|U| = 3$

0.3.8 Solution 7

Overall Data

```
Objective value (non-integral): -0.0834906
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 20
p_{0,13}     0  0   -21.240635 1.000000  44
p_{0,15}     0  0   -10.625195 1.000000  22
p_{0,17}     0  0   -21.248887 1.000000  45
p_{0,1}      0  0   -10.610080 1.000000  21
p_{0,56}     0  1   -31.869324 -6.000000 67
```

Filtered Graph



File: `out/095_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	−6.0	−13326.099672	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	−27896.445756	1.0	−27893.119971	22
$p_{0,17}$	0	0	−55788.944315	1.0	−55785.61853	45
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−59.164398	−59.164398
36	$p_{0,1},$	$p_{0,15},$	1	−39.684415	−39.684415
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	−16.566836	−16.566836
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	−47.147847	−47.147847
250	$p_{0,13},$	$p_{0,17},$	1	−21.664721	−21.664721
Sum					−219.20448962820223

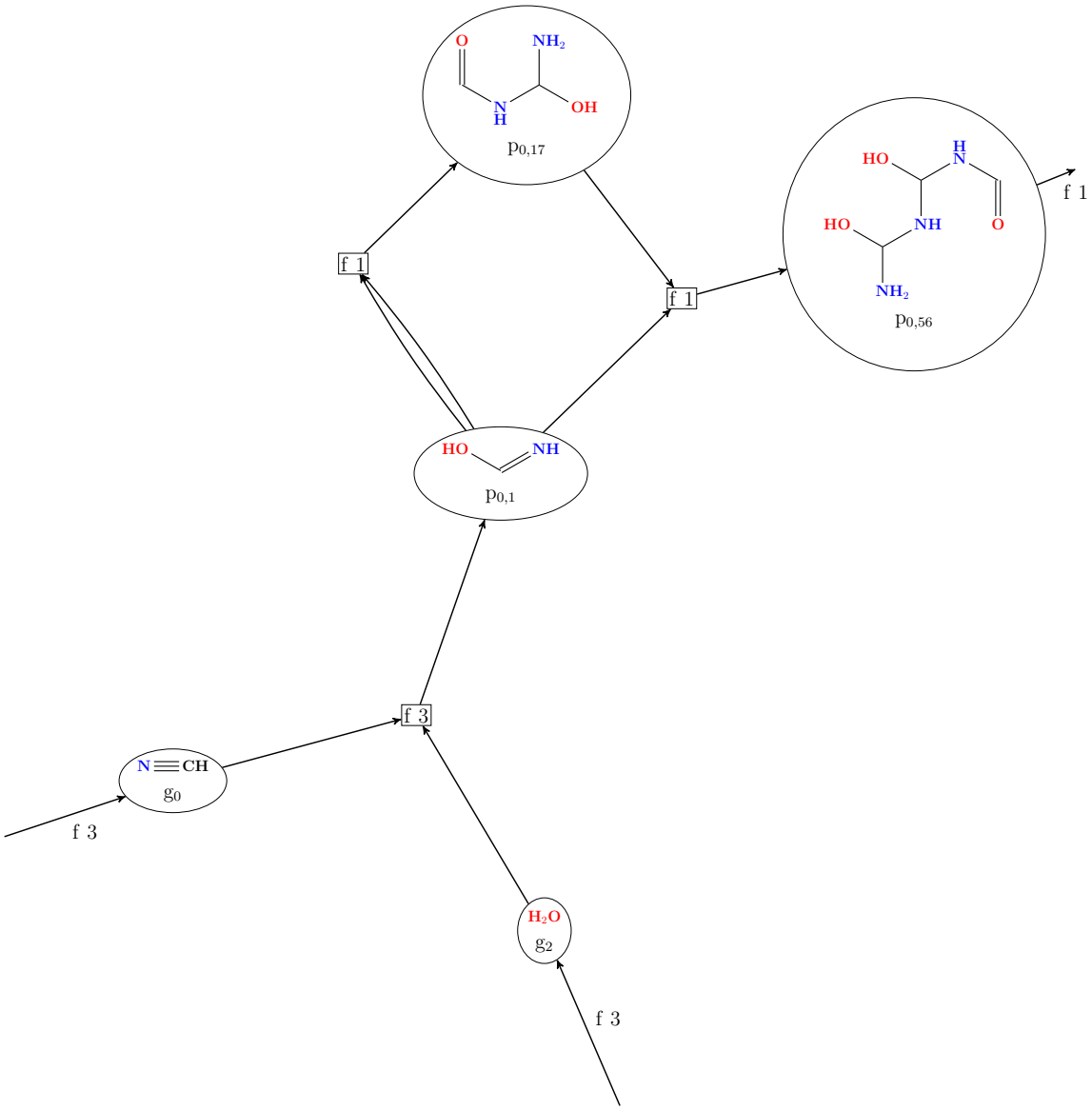
ΔG = -30.25569992669413
ΔE = -0.08349058073823135
|E| = 7
|U| = 5

0.3.9 Solution 8

Overall Data

```
Objective value (non-integral): -0.0834906
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 -6.000000 67
```

Filtered Graph



File: `out/104_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
$p_{0,17}$	0	0	−55788.832737	1.0	−55785.506952	65
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−94.085141	−94.085141
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	−77.804394	−77.804394
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	−47.259424	−47.259424
Sum					−219.20448962820223

ΔG = -40.73192342955343
ΔE = -0.08349058073823135

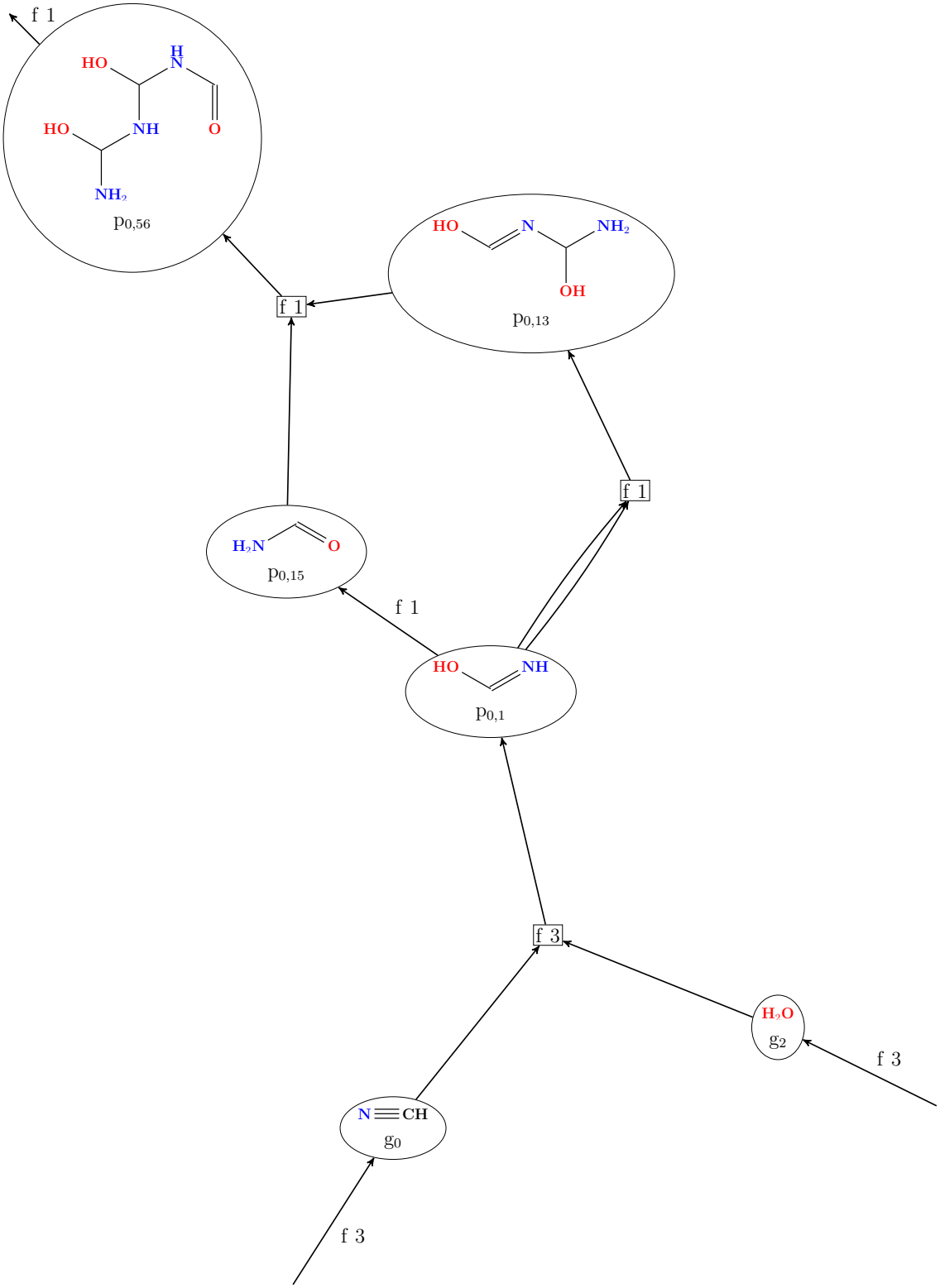
$|E| = 5$
$|U| = 3$

0.3.10 Solution 9

Overall Data

```
Objective value (non-integral): -0.0834906
Vertex/Graph In Out G          logK      t_order
g_{0}        3  0   -5.507152  1.000000  0
g_{2}        3  0   -5.068043  -6.000000 0
p_{0,13}     0  0   -21.240678 -3.635441 64
p_{0,15}     0  0   -10.625195 -6.000000 2
p_{0,1}      0  0   -10.610101 1.000000  1
p_{0,56}     0  1   -31.869324 -6.000000 67
```

Filtered Graph



File: `out/113_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	−6.0	−13326.099672	0
$p_{0,1}$	0	0	−27856.817054	1.0	−27853.491269	1
$p_{0,13}$	0	0	−55767.391129	−3.635441	−55779.481823	64
$p_{0,15}$	0	0	−27896.445756	−6.0	−27916.400466	2
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−76.680483	−76.680483
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	−67.813718	−67.813718
36	$p_{0,1},$	$p_{0,15},$	1	−57.089073	−57.089073
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	0.006113	0.006113
Sum					−219.20448962820035

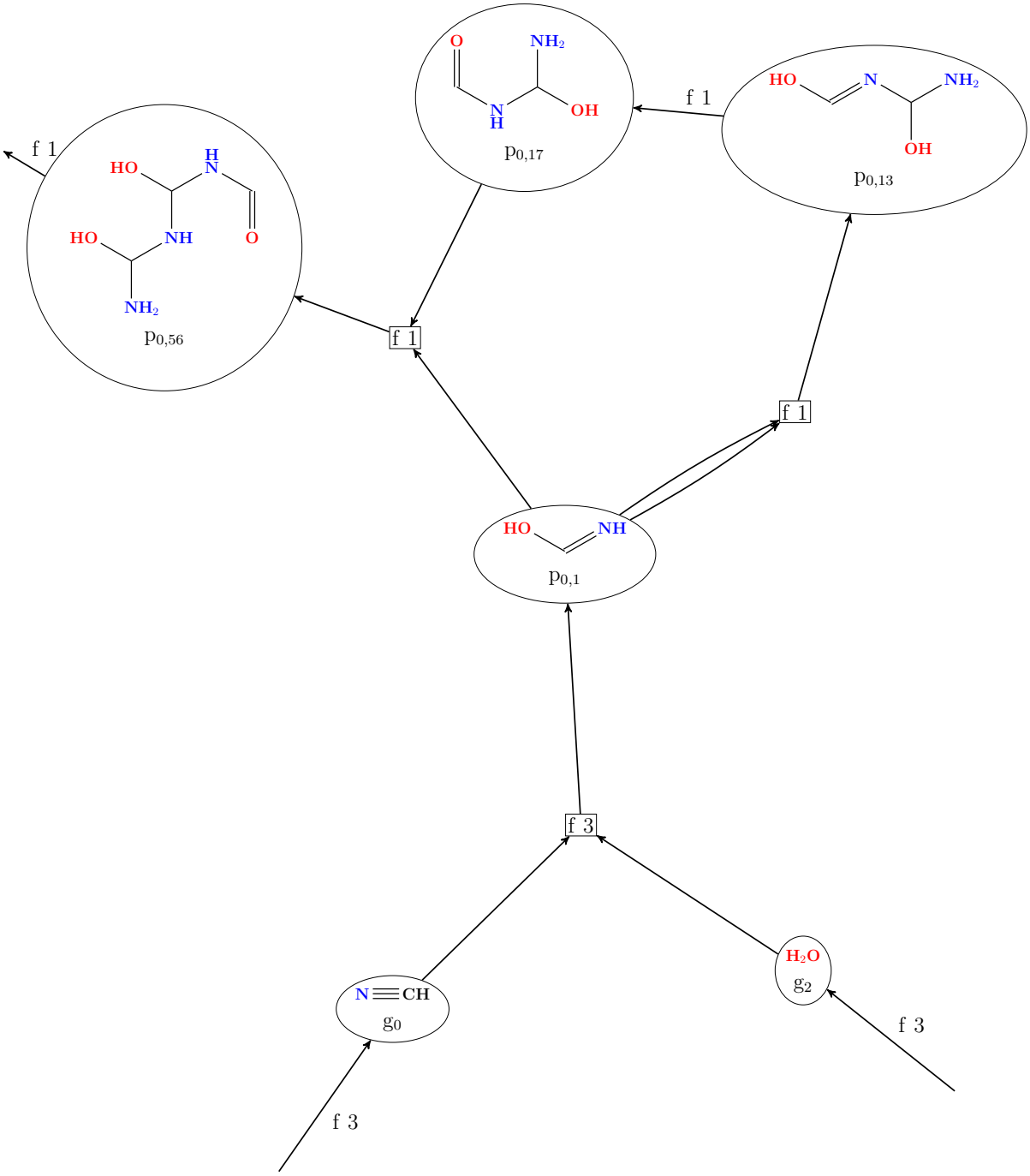
ΔG = -35.49381220322371
ΔE = -0.08349058073823062
|E| = 6
|U| = 4

0.3.11 Solution 10

Overall Data

```
Objective value (non-integral): -0.0834906
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 20
p_{0,13}     0  0   -21.240635 1.000000  43
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 -6.000000 67
```

Filtered Graph



File: `out/122_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	−6.0	−14478.980288	0
g_2	3	0	−13306.144961	−6.0	−13326.099672	20
$p_{0,1}$	0	0	−27856.761341	1.0	−27853.435556	21
$p_{0,13}$	0	0	−55767.279594	1.0	−55763.953809	43
$p_{0,17}$	0	0	−55788.832737	1.0	−55785.506952	45
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−59.164398	−59.164398
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	−56.251251	−56.251251
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	−47.259424	−47.259424
250	$p_{0,13},$	$p_{0,17},$	1	−21.553143	−21.553143
Sum					−219.20448962820035

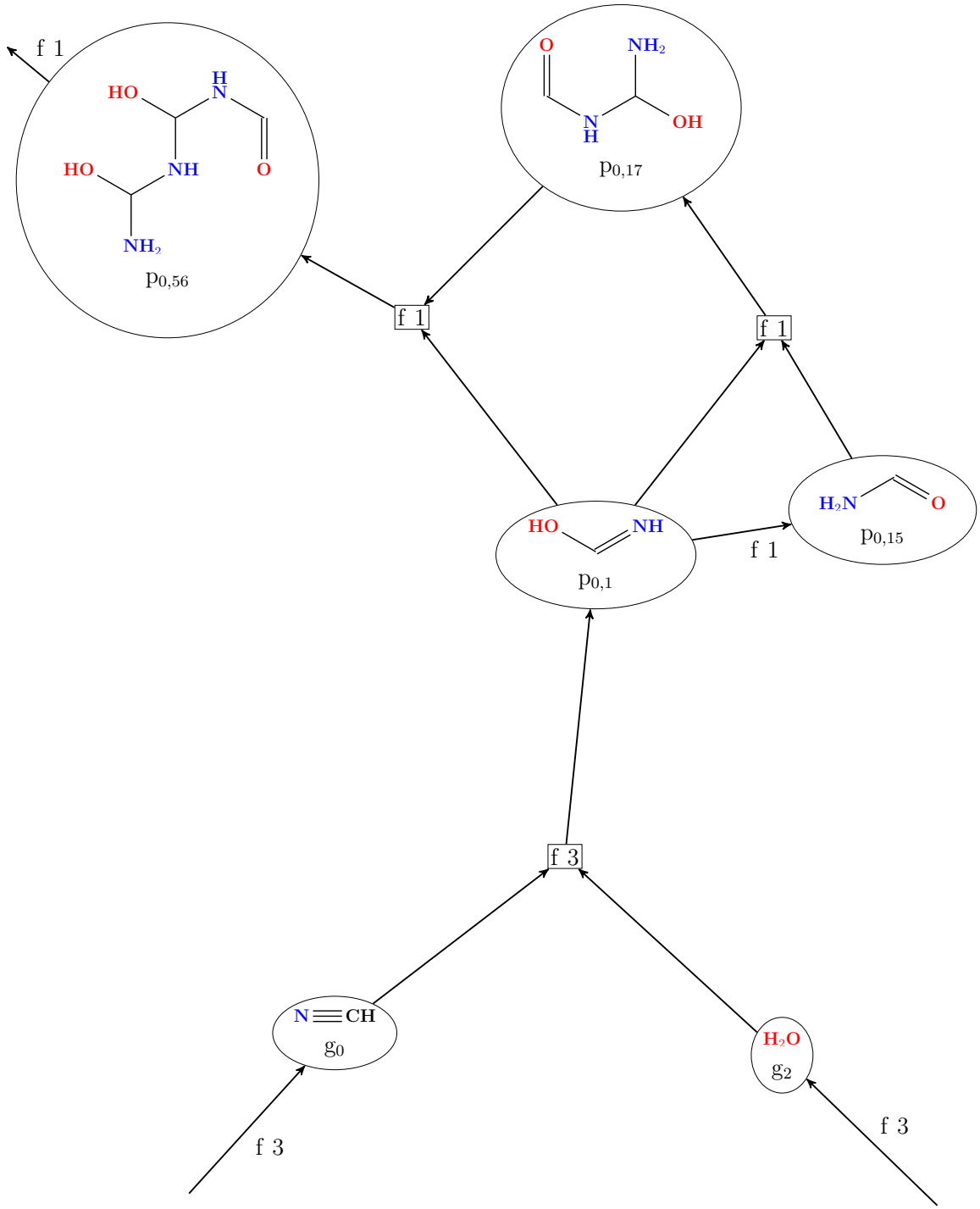
ΔG = -30.255700189244095
ΔE = -0.08349058073823062
|E| = 6
|U| = 4

0.3.12 Solution 11

Overall Data

```
Objective value (non-integral): -0.0834906
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 20
p_{0,15}     0  0   -10.625195 1.000000  23
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 -6.000000 67
```

Filtered Graph



File: `out/131_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	−6.0	−14478.980288	0
g_2	3	0	−13306.144961	−6.0	−13326.099672	20
$p_{0,1}$	0	0	−27856.761341	1.0	−27853.435556	21
$p_{0,15}$	0	0	−27896.445756	1.0	−27893.119971	23
$p_{0,17}$	0	0	−55788.832737	1.0	−55785.506952	45
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−59.164398	−59.164398
36	$p_{0,1},$	$p_{0,15},$	1	−39.684415	−39.684415
183	$p_{0,1}, p_{0,15},$	$p_{0,17},$	1	−38.119979	−38.119979
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	−47.259424	−47.259424
Sum					−219.20448962820035

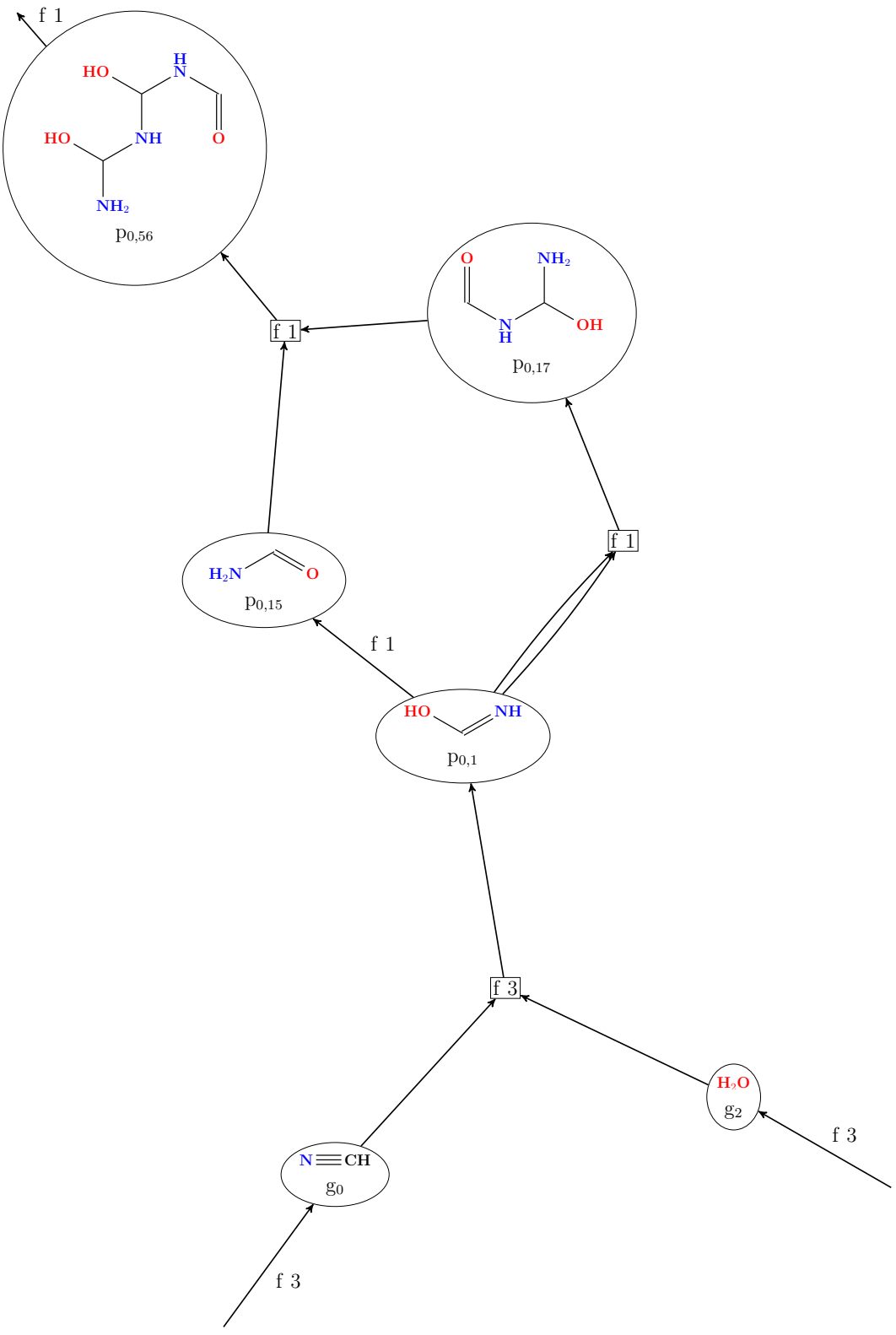
ΔG = -30.255700189244095
ΔE = -0.08349058073823062
|E| = 6
|U| = 4

0.3.13 Solution 12

Overall Data

```
Objective value (non-integral): -0.0834906
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 20
p_{0,15}     0  0   -10.625195 1.000000  23
p_{0,17}     0  0   -21.248887 -1.994599 43
p_{0,1}      0  0   -10.610101 1.000000  21
p_{0,56}     0  1   -31.869324 -6.000000 67
```

Filtered Graph



File: `out/140_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	−6.0	−14478.980288	0
g_2	3	0	−13306.144961	−6.0	−13326.099672	20
$p_{0,1}$	0	0	−27856.817054	1.0	−27853.491269	21
$p_{0,15}$	0	0	−27896.445756	1.0	−27893.119971	23
$p_{0,17}$	0	0	−55788.944315	−1.994599	−55795.577923	43
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−59.220111	−59.220111
36	$p_{0,1},$	$p_{0,15},$	1	−39.628701	−39.628701
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	−85.274089	−85.274089
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.006113	0.006113
Sum					−219.20448962820035

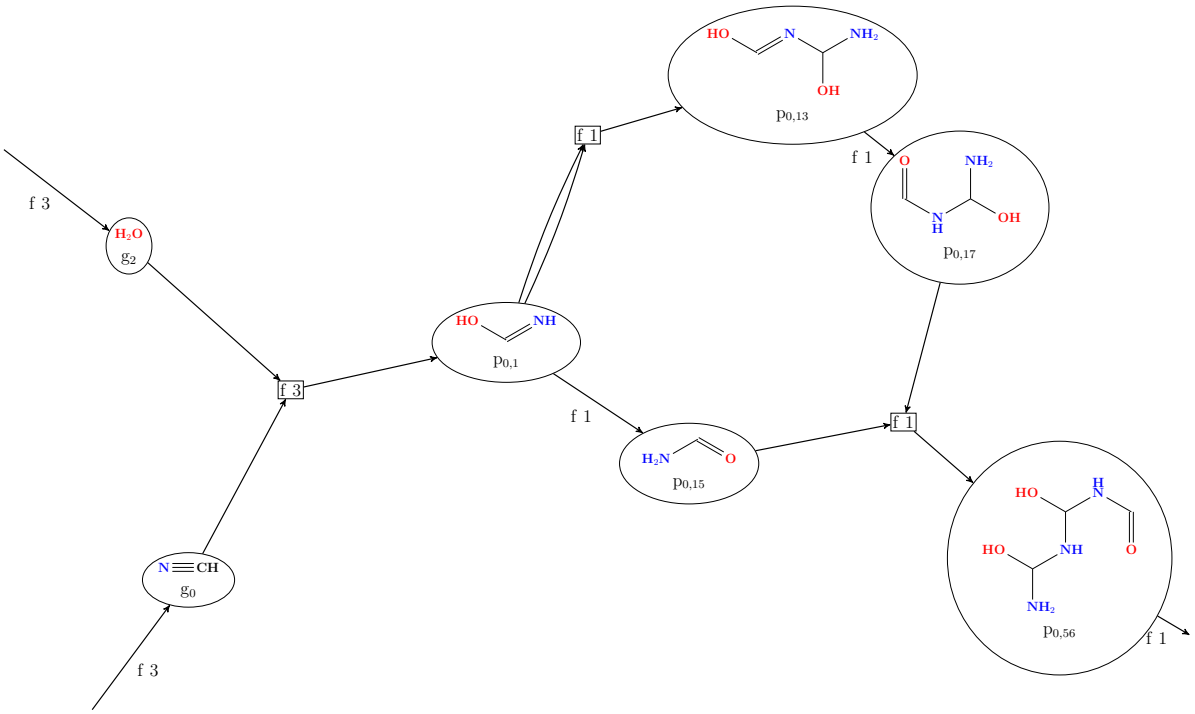
ΔG = -30.255700976893987
ΔE = -0.08349058073823062
|E| = 6
|U| = 4

0.3.14 Solution 13

Overall Data

```
Objective value (non-integral): -0.0834906
Vertex/Graph In Out G          logK      t_order
g_{0}        3  0   -5.507152  1.000000  0
g_{2}        3  0   -5.068043  -6.000000 0
p_{0,13}     0  0   -21.240635 1.000000  10
p_{0,15}     0  0   -10.625174 1.000000  55
p_{0,17}     0  0   -21.248844 1.000000  11
p_{0,1}      0  0   -10.610101 1.000000  1
p_{0,56}     0  1   -31.869324 -6.000000 67
```

Filtered Graph



File: `out/149_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	1.0	−14455.699793	0
g_2	3	0	−13306.144961	−6.0	−13326.099672	0
$p_{0,1}$	0	0	−27856.817054	1.0	−27853.491269	1
$p_{0,13}$	0	0	−55767.279594	1.0	−55763.953809	10
$p_{0,15}$	0	0	−27896.389963	1.0	−27893.064178	55
$p_{0,17}$	0	0	−55788.832737	1.0	−55785.506952	11
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−76.680483	−76.680483
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	−56.139824	−56.139824
36	$p_{0,1},$	$p_{0,15},$	1	−39.572909	−39.572909
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	−7.630802	−7.630802
250	$p_{0,13},$	$p_{0,17},$	1	−21.553143	−21.553143
Sum					−219.20448962819844

ΔG = -35.49381167812378
ΔE = -0.0834905807382299
|E| = 7
|U| = 5

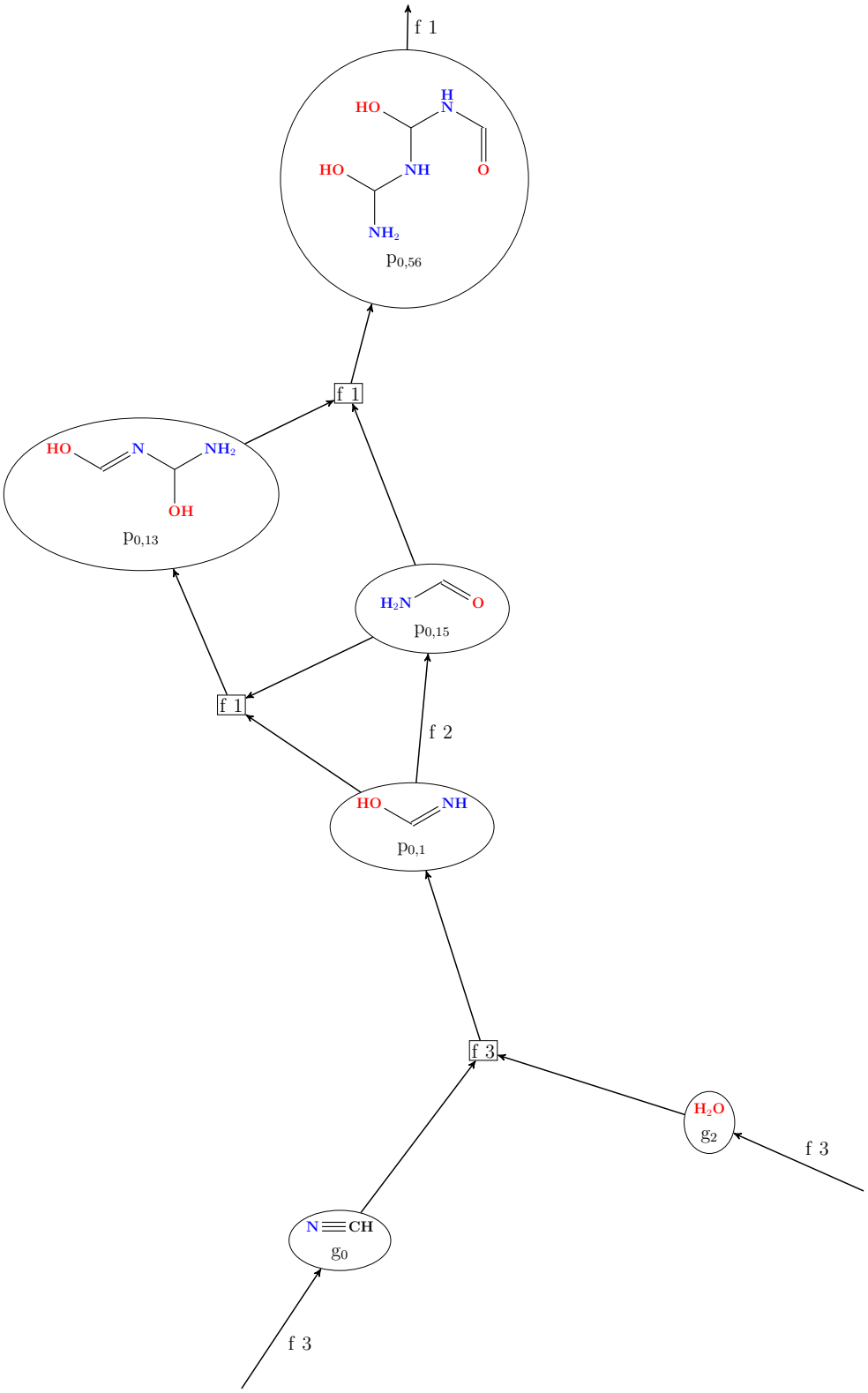
0.3.15 Solution 14

Overall Data

`Objective value (non-integral): -0.0683968`

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	-6.000000	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	-6.000000	67

Filtered Graph



File: `out/158_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
$p_{0,13}$	0	0	−55767.391129	−6.0	−55787.345839	4
$p_{0,15}$	0	0	−27896.389963	1.0	−27893.064178	2
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−94.085141	−94.085141
36	$p_{0,1},$	$p_{0,15},$	2	−39.628622	−39.628622
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	−11.612039	−11.612039
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	−34.194535	−34.194535
Sum					−179.57586752440906

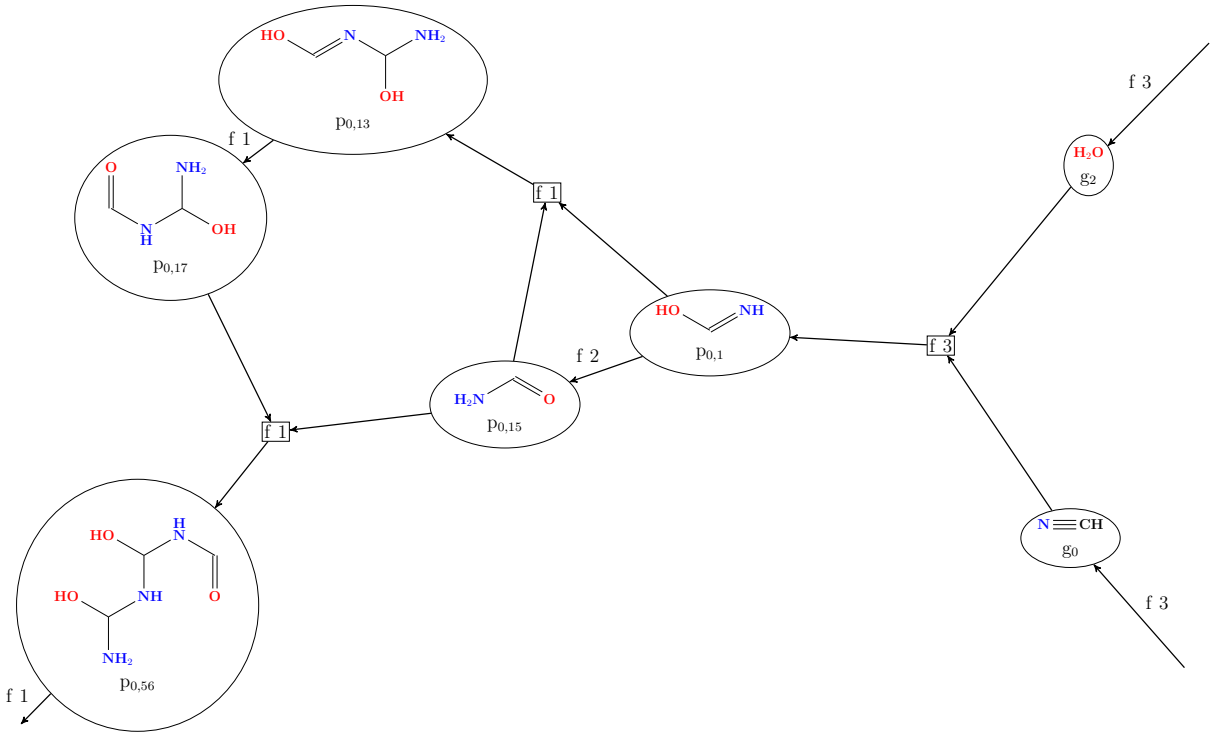
ΔG = -40.73192342955343
ΔE = -0.06839683571999096
|E| = 7
|U| = 4

0.3.16 Solution 15

Overall Data

```
Objective value (non-integral): -0.0683968
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   -21.240635 1.000000  4
p_{0,15}     0  0   -10.625174 1.000000  2
p_{0,17}     0  0   -21.248887 -2.014516 64
p_{0,1}      0  0   -10.610101 -5.644257 1
p_{0,56}     0  1   -31.869324 -6.000000 67
```

Filtered Graph



File: `out/167_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	−6.0	−14478.980288	0
g_2	3	0	−13306.144961	−6.0	−13326.099672	0
$p_{0,1}$	0	0	−27856.817054	−5.644257	−27875.588641	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	−2.014516	−55795.644162	64
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−75.79314	−75.79314
36	$p_{0,1},$	$p_{0,15},$	2	−22.99988	−22.99988
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	0.006113	0.006113
250	$p_{0,13},$	$p_{0,17},$	1	−29.183945	−29.183945
Sum					−179.57586752440713

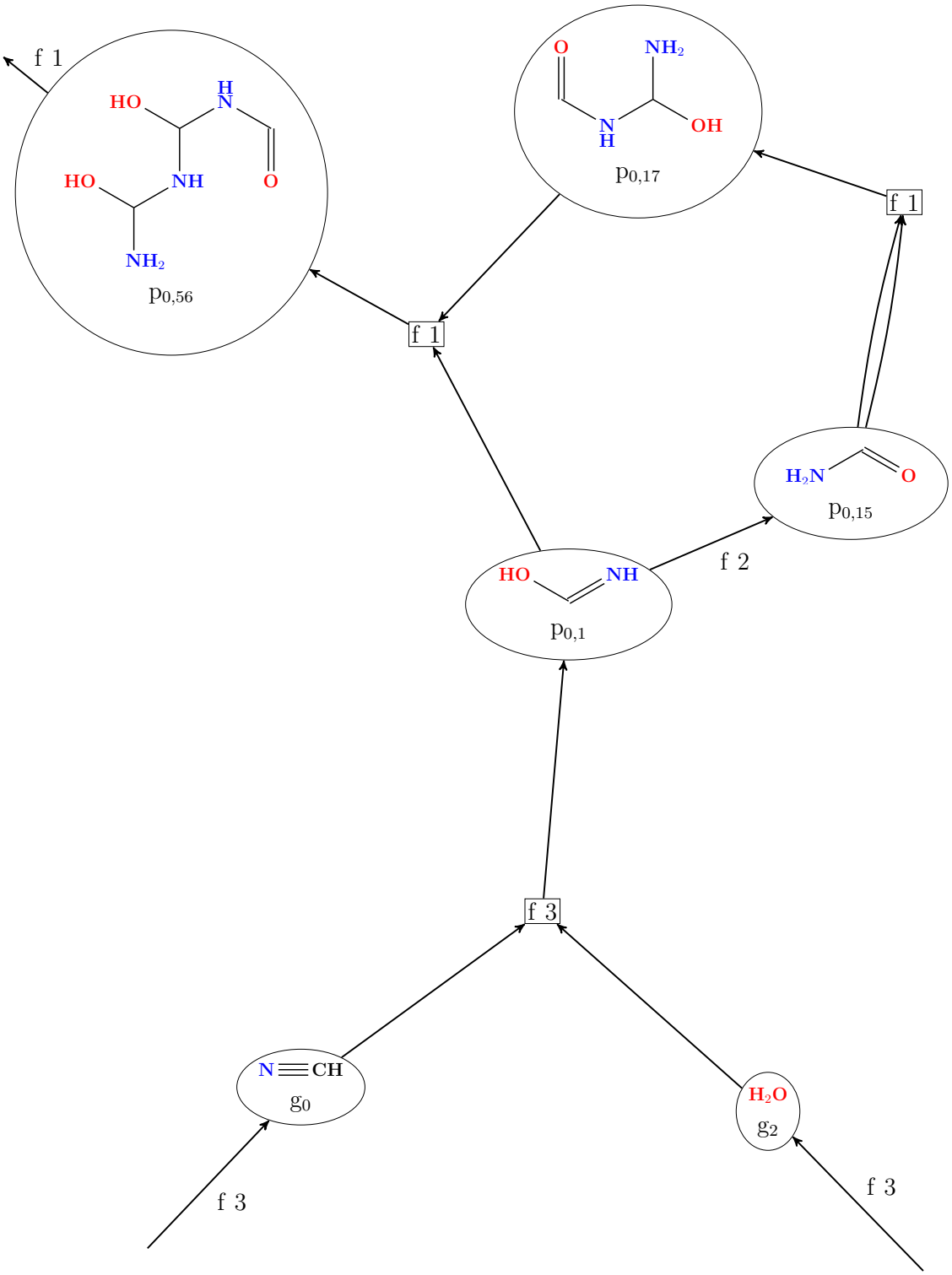
ΔG = -30.25570045179406
ΔE = -0.06839683571999022
|E| = 8
|U| = 5

0.3.17 Solution 16

Overall Data

```
Objective value (non-integral): -0.0683968
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 0.417541  43
p_{0,1}      0  0   -10.610080 1.000000  20
p_{0,56}     0  1   -31.869324 -6.000000 67
```

Filtered Graph



File: `out/176_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	−27856.761341	1.0	−27853.435556	20
$p_{0,15}$	0	0	−27896.389963	1.0	−27893.064178	21
$p_{0,17}$	0	0	−55788.832737	0.417541	−55787.444085	43
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−94.085141	−94.085141
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	−45.806574	−45.806574
Sum					−179.57586752440713

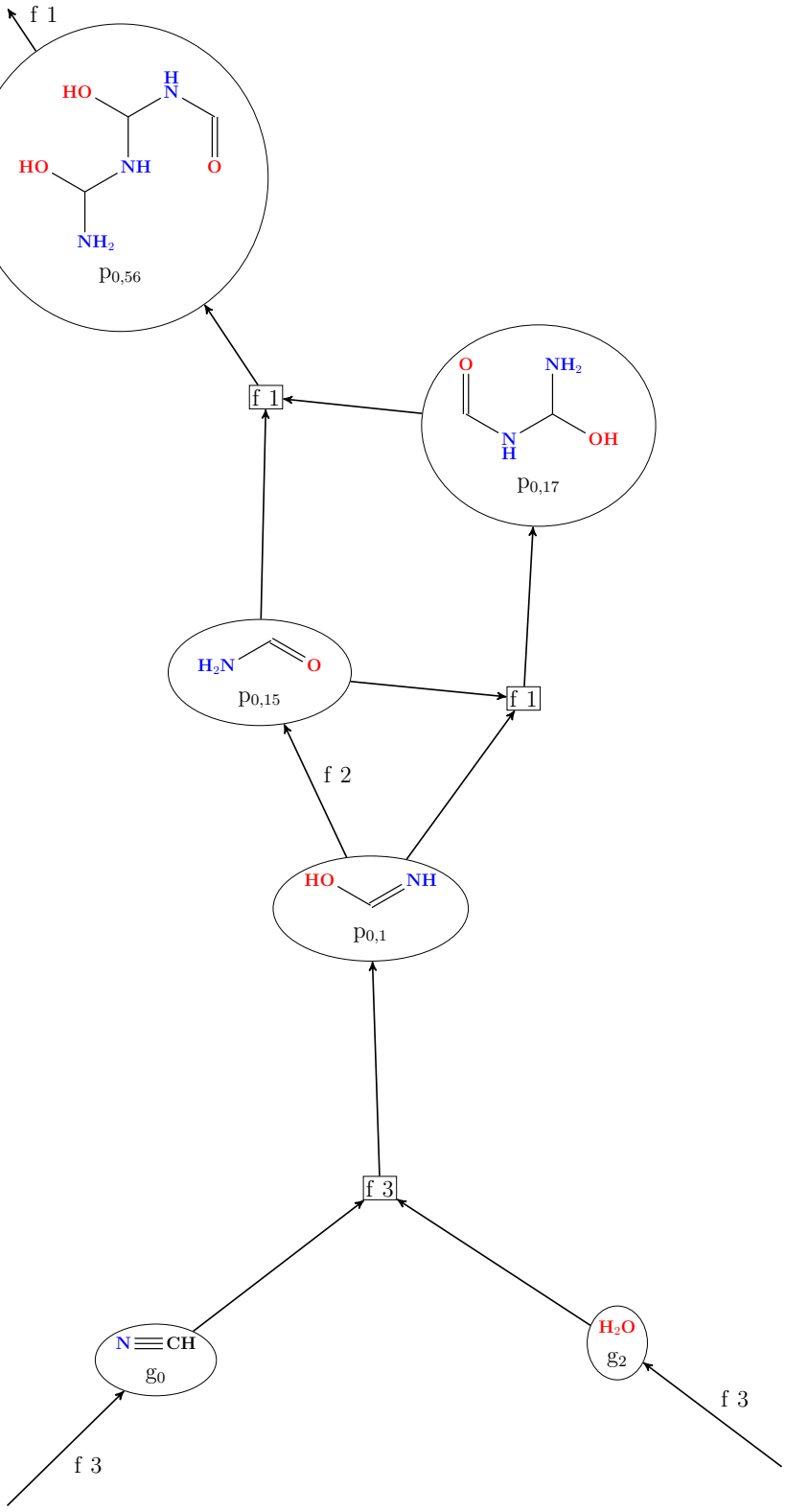
ΔG = -40.73192342955343
ΔE = -0.06839683571999022
|E| = 7
|U| = 4

0.3.18 Solution 17

Overall Data

```
Objective value (non-integral): -0.0683968
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   -10.625195 1.000000  22
p_{0,17}     0  0   -21.248887 -1.994599 44
p_{0,1}      0  0   -10.610101 1.000000  21
p_{0,56}     0  1   -31.869324 -6.000000 67
```

Filtered Graph



File: `out/185_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	−6.0	−14478.980288	0
g_2	3	0	−13306.144961	−6.0	−13326.099672	0
$p_{0,1}$	0	0	−27856.817054	1.0	−27853.491269	21
$p_{0,15}$	0	0	−27896.445756	1.0	−27893.119971	22
$p_{0,17}$	0	0	−55788.944315	−1.994599	−55795.577923	44
$p_{0,56}$	0	1	−83672.898792	−6.0	−83692.853502	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−59.220111	−59.220111
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	−45.645388	−45.645388
Sum					−179.57586752440523

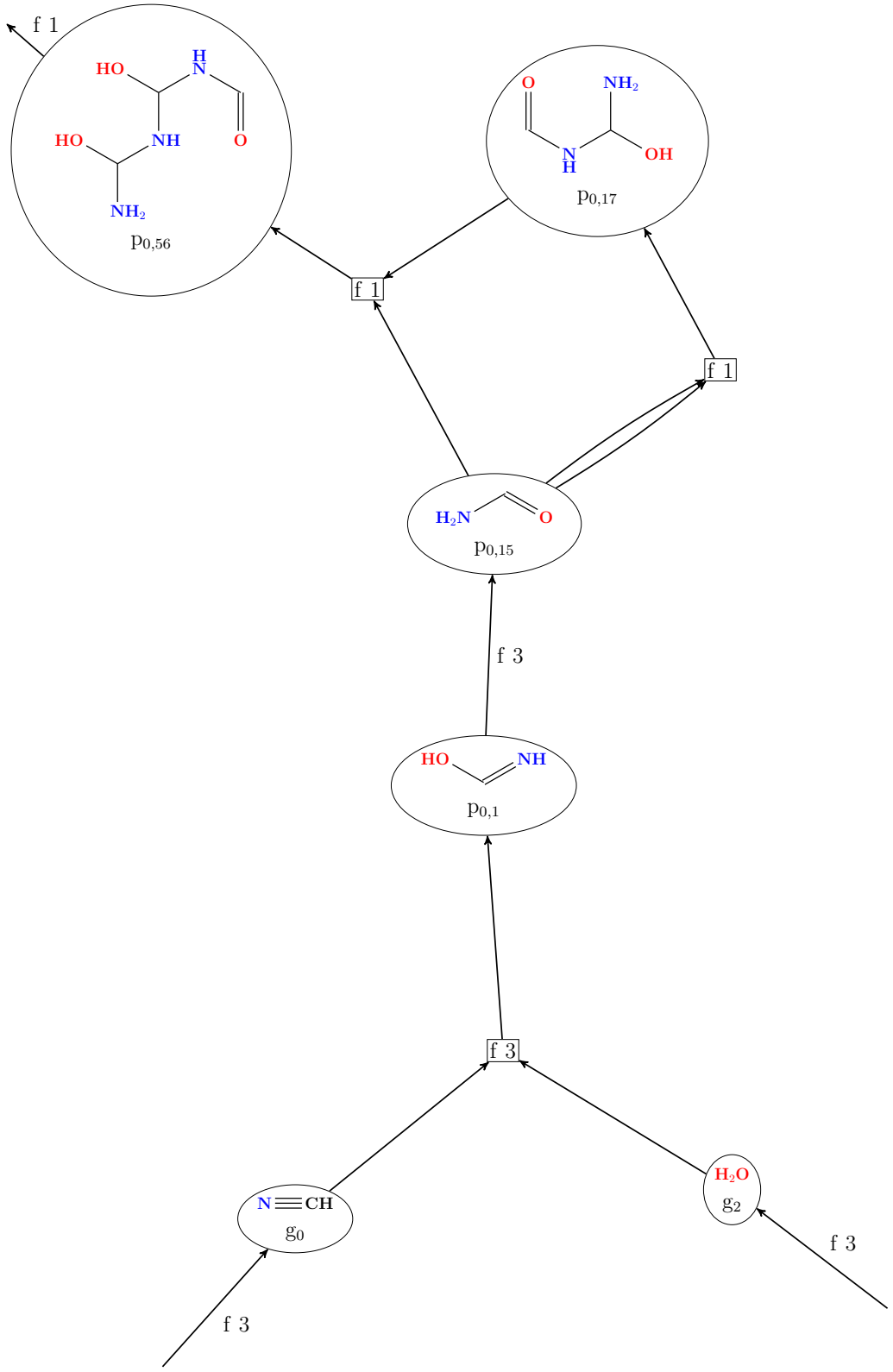
ΔG = -30.255700976893987
ΔE = -0.0683968357199895
|E| = 7
|U| = 4

0.3.19 Solution 18

Overall Data

```
Objective value (non-integral): -0.0533031
Vertex/Graph In Out G          logK      t_order
g_{0}        3  0   -5.507152  1.000000  0
g_{2}        3  0   -5.068033  -6.000000 0
p_{0,15}     0  0   -10.625174 1.000000  21
p_{0,17}     0  0   -21.248887 0.464724  44
p_{0,1}      0  0   -10.610101 -6.000000 1
p_{0,56}     0  1   -31.869324 -3.518309 67
```

Filtered Graph



File: `out/194_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	−13306.118349	−6.0	−13326.073059	0
$p_{0,1}$	0	0	−27856.817054	−6.0	−27876.771765	1
$p_{0,15}$	0	0	−27896.389963	1.0	−27893.064178	21
$p_{0,17}$	0	0	−55788.944315	0.464724	−55787.398742	44
$p_{0,56}$	0	1	−83672.898792	−3.518309	−83684.599931	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\overline{x}_e^{\Delta G}$
6	$g_0, g_2,$	$p_{0,1},$	3	−94.167467	−94.167467
36	$p_{0,1},$	$p_{0,15},$	3	−22.112537	−22.112537
180	$p_{0,15}, p_{0,15},$	$p_{0,17},$	1	0.006113	0.006113
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.006113	0.006113
Sum					−139.94724542061203

ΔG = -34.882777571727814
ΔE = -0.05330309070174911
|E| = 8
|U| = 4