

# Summary

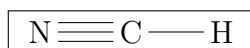
December 7, 2024

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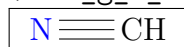
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## 0.1 Loaded Graphs

### 0.1.1 g\_{0}

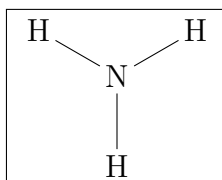


File: out/001\_g\_0\_10300000

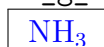


File: out/003\_g\_0\_11310100

### 0.1.2 g\_{1}

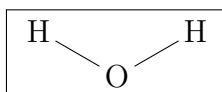


File: out/005\_g\_1\_10300000

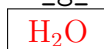


File: out/007\_g\_1\_11310100

### 0.1.3 g\_{2}



File: out/009\_g\_2\_10300000



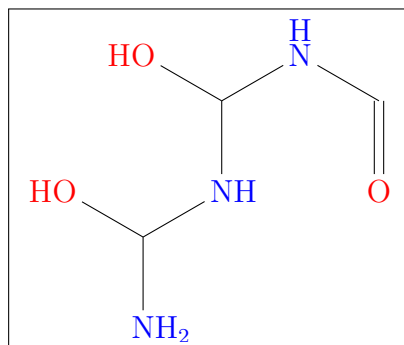
File: out/011\_g\_2\_11310100

## 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

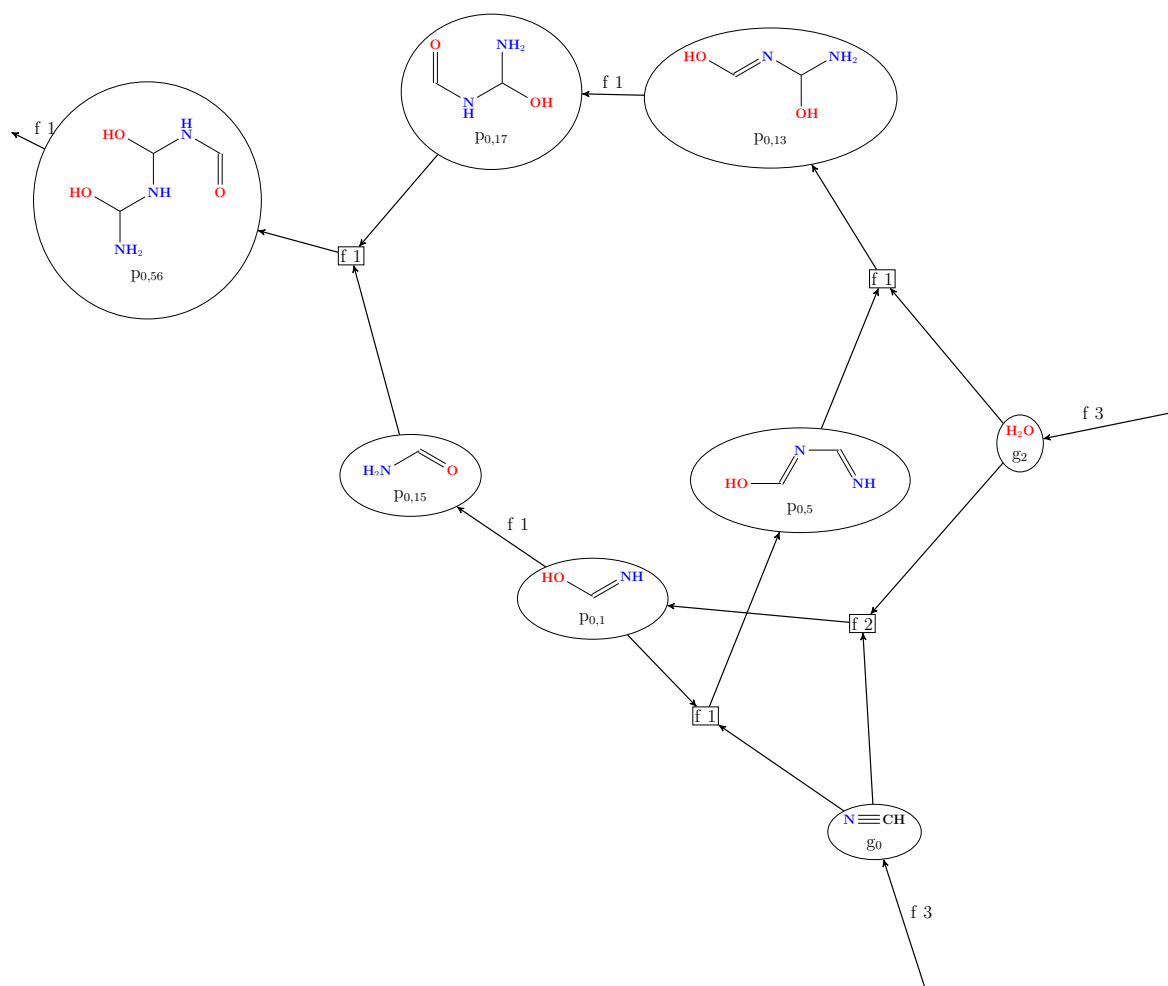
### 0.3.1 Solution 0

#### Overall Data

Objective value (non-integral): -0.099396

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	-3.386176	3
p_{0,15}	0	0	-10.625174	-3.037020	2
p_{0,17}	0	0	-21.248844	-3.000000	45
p_{0,1}	0	0	-10.610101	-3.000000	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/033\_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	-3.0	-14469.002933	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	-9.0	-42455.374686	2
$p_{0,13}$	0	0	-55767.391129	-3.386176	-55778.652821	3
$p_{0,15}$	0	0	-27896.389963	-3.03702	-27906.490437	2
$p_{0,17}$	0	0	-55788.832737	-3.0	-55798.810092	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	$g_0, g_2$	$p_{0,1}$	2	-79.174822	-79.174822
14	$g_0, p_{0,1}$	$p_{0,5}$	1	-122.071682	-122.071682
36	$p_{0,1}$	$p_{0,15}$	1	-39.726807	-39.726807
123	$g_2, p_{0,5}$	$p_{0,13}$	1	0.006113	0.006113
181	$p_{0,15}, p_{0,17}$	$p_{0,56}$	1	0.006113	0.006113
250	$p_{0,13}$	$p_{0,17}$	1	-19.836187	-19.836187
Sum					-260.9640461665091

$\Delta G = -33.99720862062955$   
 $\Delta E = -0.09939595581822094$   
 $|E| = 7$   
 $|U| = 6$

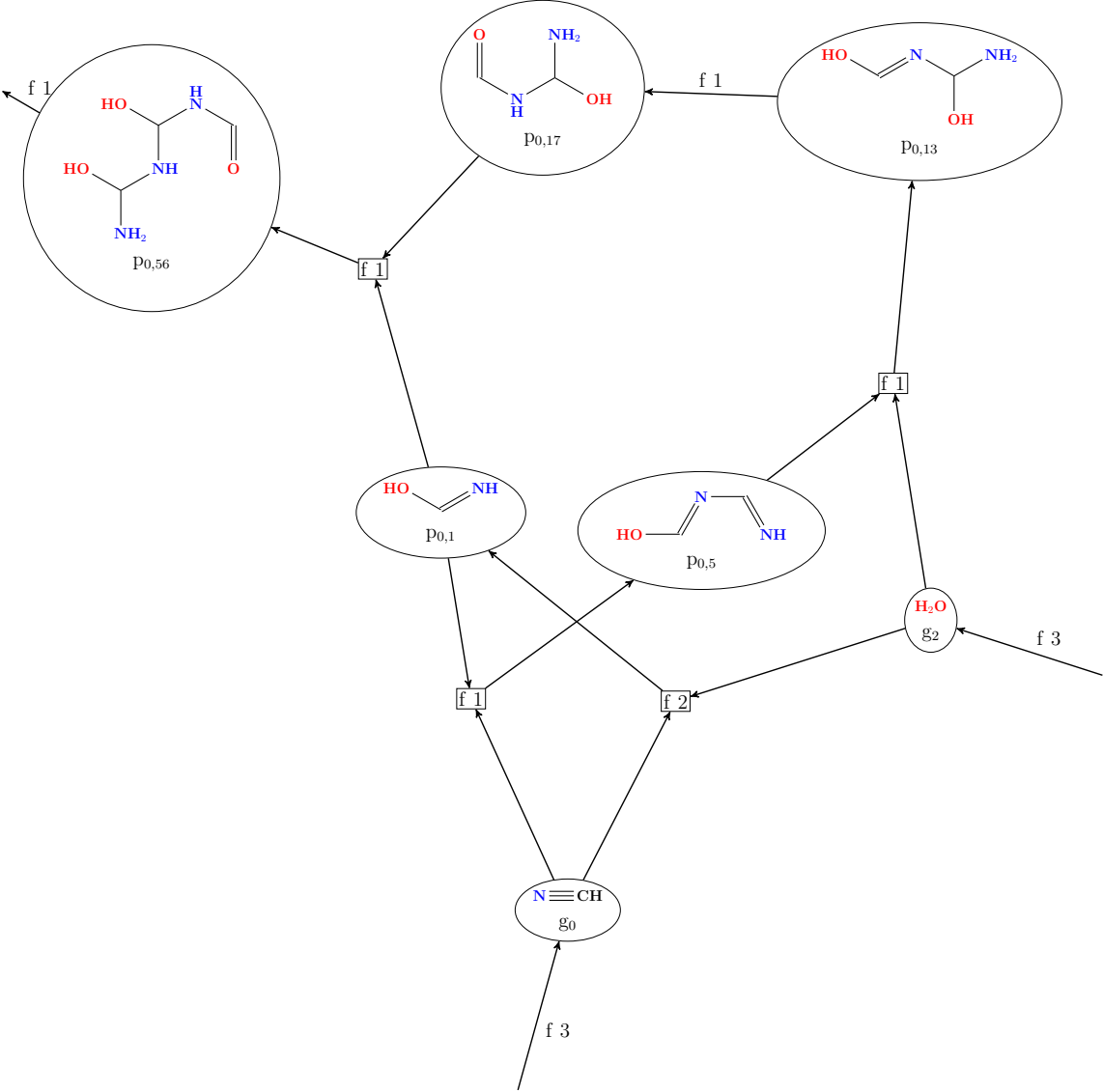
## 0.3.2 Solution 1

### Overall Data

Objective value (non-integral): -0.099396

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-3.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-8.185975	33
$p_{\{0,17\}}$	0	0	-21.248887	-3.000000	65
$p_{\{0,1\}}$	0	0	-10.610101	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67
$p_{\{0,5\}}$	0	0	-16.158998	-3.000000	32

Filtered Graph



File: out/042\_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	-3.0	-14469.002933	0
$g_2$	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	-3.0	-27866.79441	1
$p_{0,5}$	0	0	-42425.44262	-3.0	-42435.419975	32
$p_{0,13}$	0	0	-55767.391129	-8.185975	-55794.615923	33
$p_{0,17}$	0	0	-55788.944315	-3.0	-55798.92167	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	-54.231434	-54.231434
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-97.128294	-97.128294
123	$g_2, p_{0,5},$	$p_{0,13},$	1	-19.947765	-19.947765
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-39.609117	-39.609117
250	$p_{0,13},$	$p_{0,17},$	1	0.006113	0.006113
Sum					-260.964046166509

$$\Delta G = -26.51419254550853$$

$$\Delta E = -0.09939595581822089$$

$$|E| = 6$$

$$|U| = 5$$

### 0.3.3 Solution 2

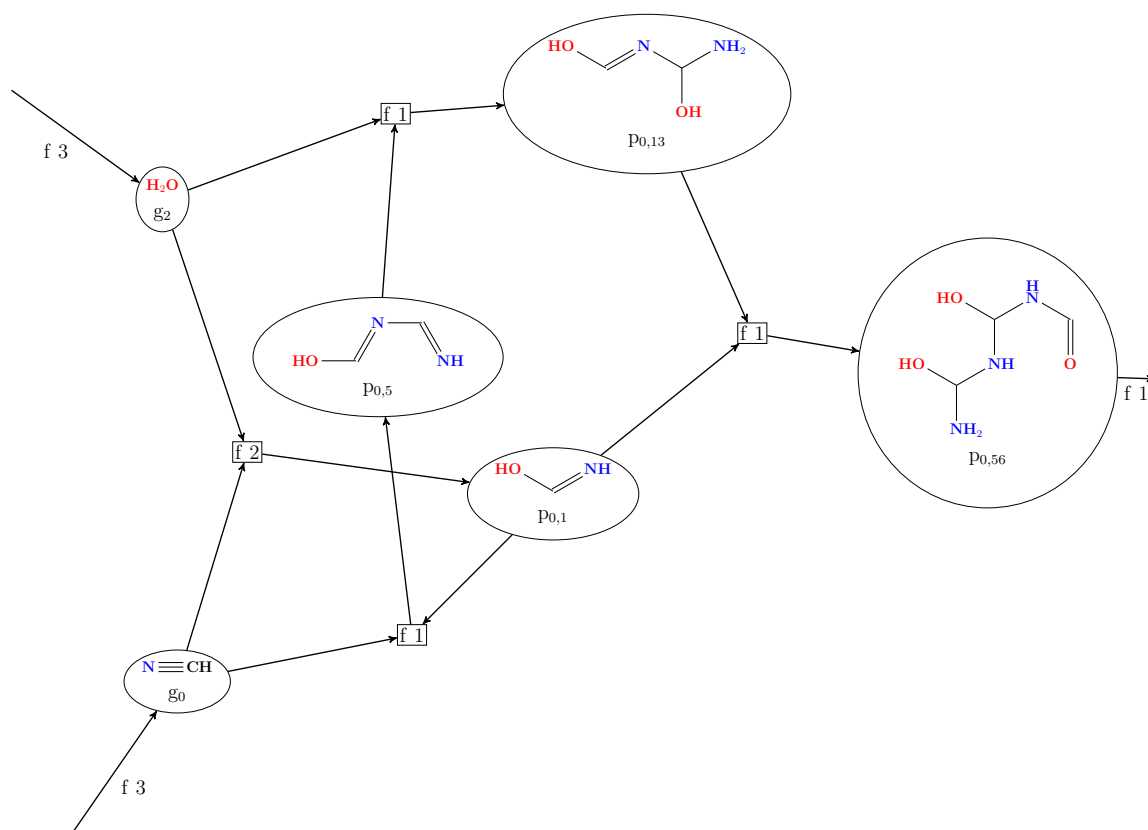
#### Overall Data

Objective value (non-integral): -0.099396

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-3.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,13\}}$	0	0	-21.240678	-3.386176	33
$p_{\{0,1\}}$	0	0	-10.610101	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67
$p_{\{0,5\}}$	0	0	-16.158998	-3.000000	2



## Filtered Graph



File: out/051\_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	-3.0	-14469.002933	0
$g_2$	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	-3.0	-27866.79441	1
$p_{0,5}$	0	0	-42425.44262	-3.0	-42435.419975	2
$p_{0,13}$	0	0	-55767.391129	-3.386176	-55778.652821	33
$p_{0,56}$	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	-54.231434	-54.231434
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-97.128294	-97.128294
123	$g_2, p_{0,5},$	$p_{0,13},$	1	0.006113	0.006113
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-59.556881	-59.556881
Sum				-260.9640461665088	

$$\Delta G = -26.514192808058493$$

$$\Delta E = -0.09939595581822083$$

$$|E| = 5$$

$$|U| = 4$$

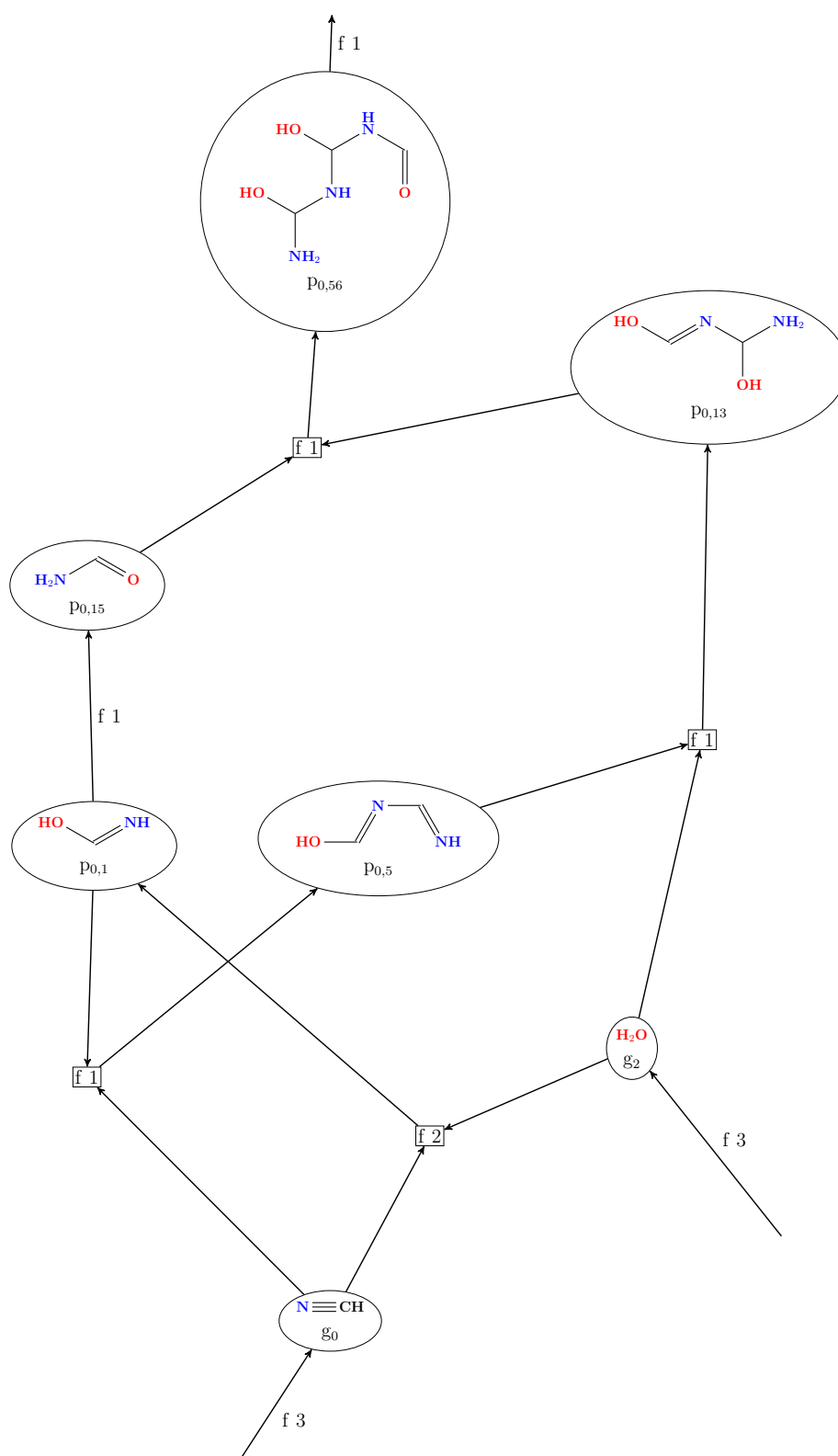
### 0.3.4 Solution 3

#### Overall Data

Objective value (non-integral): -0.099396

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	-3.365765	64
$p_{\{0,15\}}$	0	0	-10.625195	-7.815499	2
$p_{\{0,1\}}$	0	0	-10.610101	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67
$p_{\{0,5\}}$	0	0	-16.158965	-3.000000	63

## Filtered Graph



File: out/060\_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	-9.0	-14488.957643	0
$g_2$	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	-3.0	-27866.79441	1
$p_{0,5}$	0	0	-42425.357769	-3.0	-42435.335125	63
$p_{0,13}$	0	0	-55767.391129	-3.365765	-55778.584941	64
$p_{0,15}$	0	0	-27896.445756	-7.815499	-27922.438426	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	$g_0, g_2,$	$p_{0,1},$	2	-29.288046	-29.288046
14	$g_0, p_{0,1},$	$p_{0,5},$	1	-72.100056	-72.100056
36	$p_{0,1},$	$p_{0,15},$	1	-59.647845	-59.647845
123	$g_2, p_{0,5},$	$p_{0,13},$	1	0.006113	0.006113
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	0.006113	0.006113
Sum				-260.964046166509	

$$\Delta G = -19.03117620783754$$

$$\Delta E = -0.09939595581822089$$

$$|E| = 6$$

$$|U| = 5$$

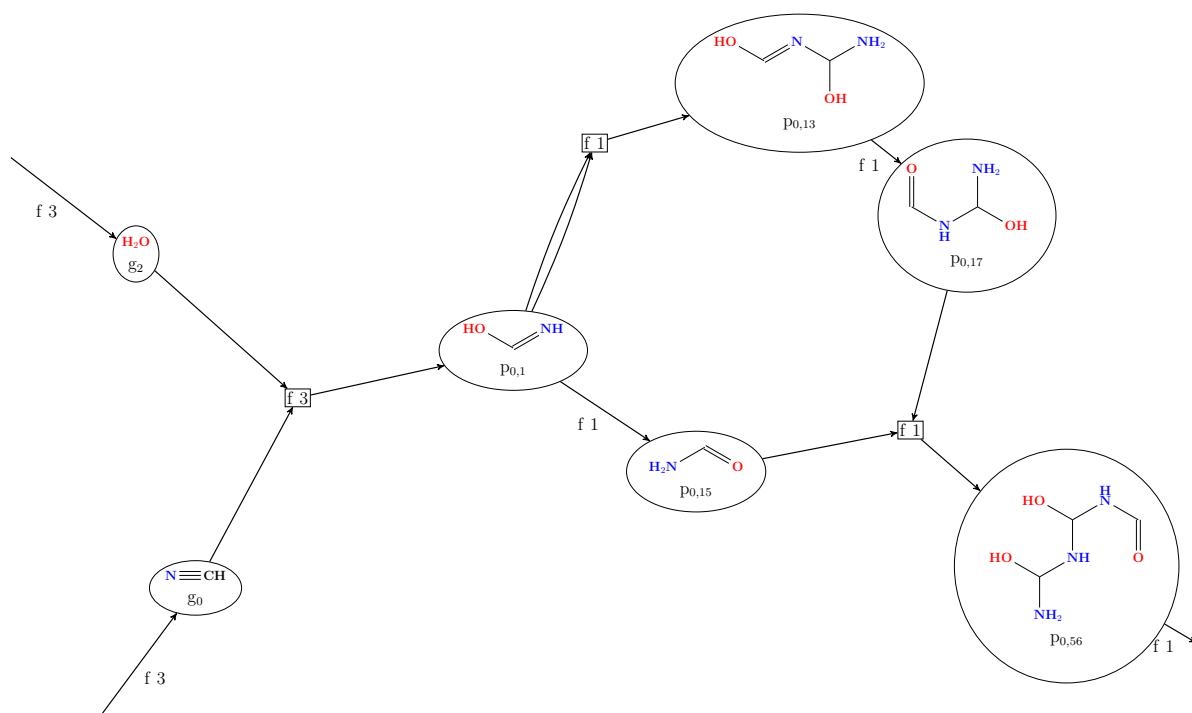
### 0.3.5 Solution 4

#### Overall Data

Objective value (non-integral): -0.0692399

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	-3.000000	3
$p_{\{0,15\}}$	0	0	-10.625174	-3.000000	2
$p_{\{0,17\}}$	0	0	-21.248844	-3.000000	64
$p_{\{0,1\}}$	0	0	-10.610101	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

## Filtered Graph



File: out/069\_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	-9.0	-14488.957643	0
$g_2$	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	-3.0	-27866.79441	1
$p_{0,13}$	0	0	-55767.279594	-3.0	-55777.256949	3
$p_{0,15}$	0	0	-27896.389963	-3.0	-27906.367318	2
$p_{0,17}$	0	0	-55788.832737	-3.0	-55798.810092	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	-29.288046	-29.288046
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-41.173792	-41.173792
36	$p_{0,1},$	$p_{0,15},$	1	-39.572909	-39.572909
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	-0.147786	-0.147786
250	$p_{0,13},$	$p_{0,17},$	1	-21.553143	-21.553143
Sum					-181.78940784652391

$$\Delta G = -19.031175420187648$$

$$\Delta E = -0.06923992870268635$$

$$|E| = 7$$

$$|U| = 5$$

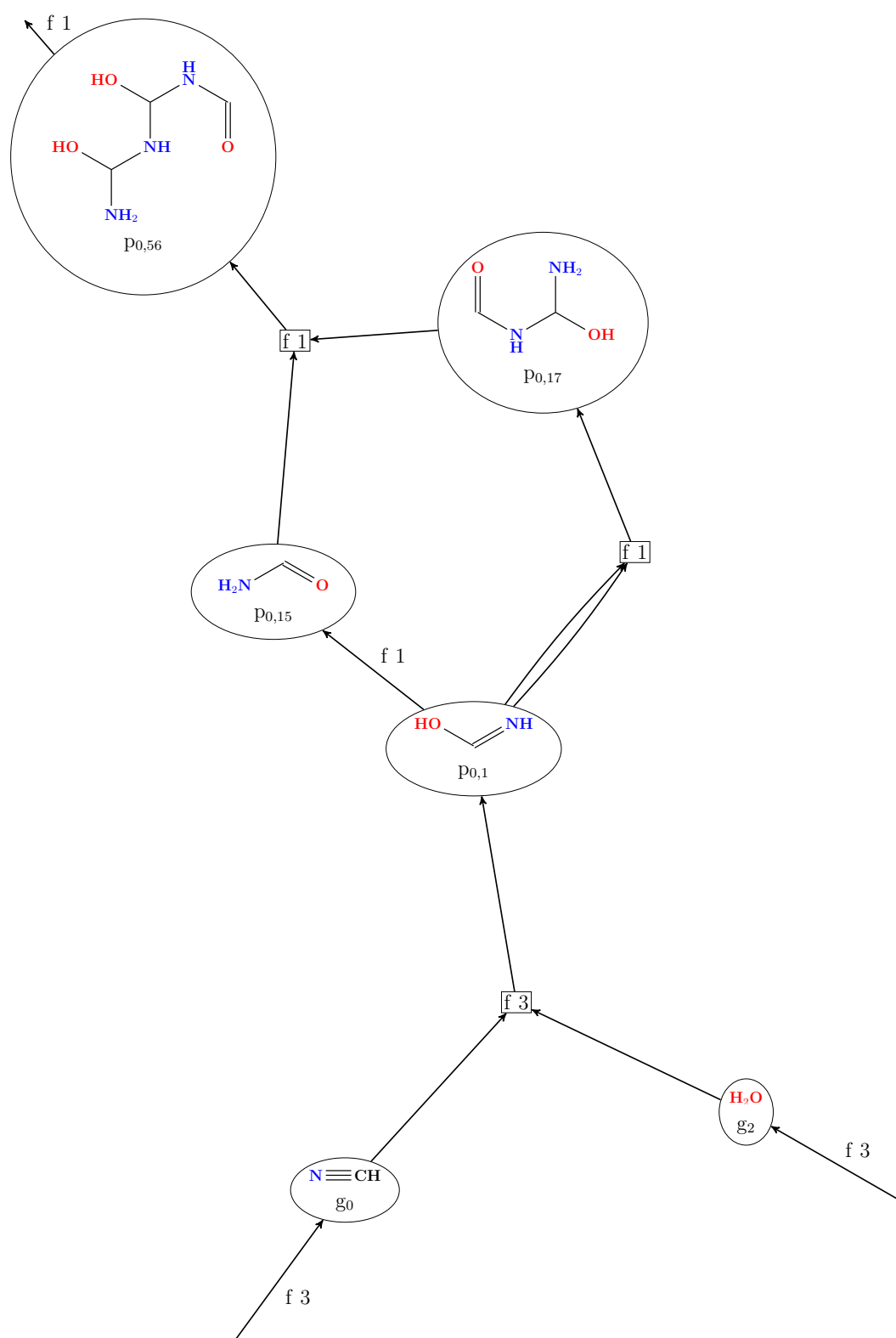
### 0.3.6 Solution 5

#### Overall Data

Objective value (non-integral): -0.0692399

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
$p_{\{0,15\}}$	0	0	-10.625174	-3.010180	2
$p_{\{0,17\}}$	0	0	-21.248887	-3.000000	64
$p_{\{0,1\}}$	0	0	-10.610101	-9.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

## Filtered Graph



File: out/078\_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	-9.0	-14488.957643	0
$g_2$	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	-9.0	-27886.74912	1
$p_{0,15}$	0	0	-27896.389963	-3.01018	-27906.401175	2
$p_{0,17}$	0	0	-55788.944315	-3.0	-55798.92167	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	-54.231434	-54.231434
36	$p_{0,1},$	$p_{0,15},$	1	-14.671842	-14.671842
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-12.951736	-12.951736
181	$p_{0,15}, p_{0,17},$	$p_{0,56},$	1	0.006113	0.006113
Sum					-181.78940784652377

$$\Delta G = -19.03117620783754$$

$$\Delta E = -0.06923992870268629$$

$$|E| = 6$$

$$|U| = 4$$

### 0.3.7 Solution 6

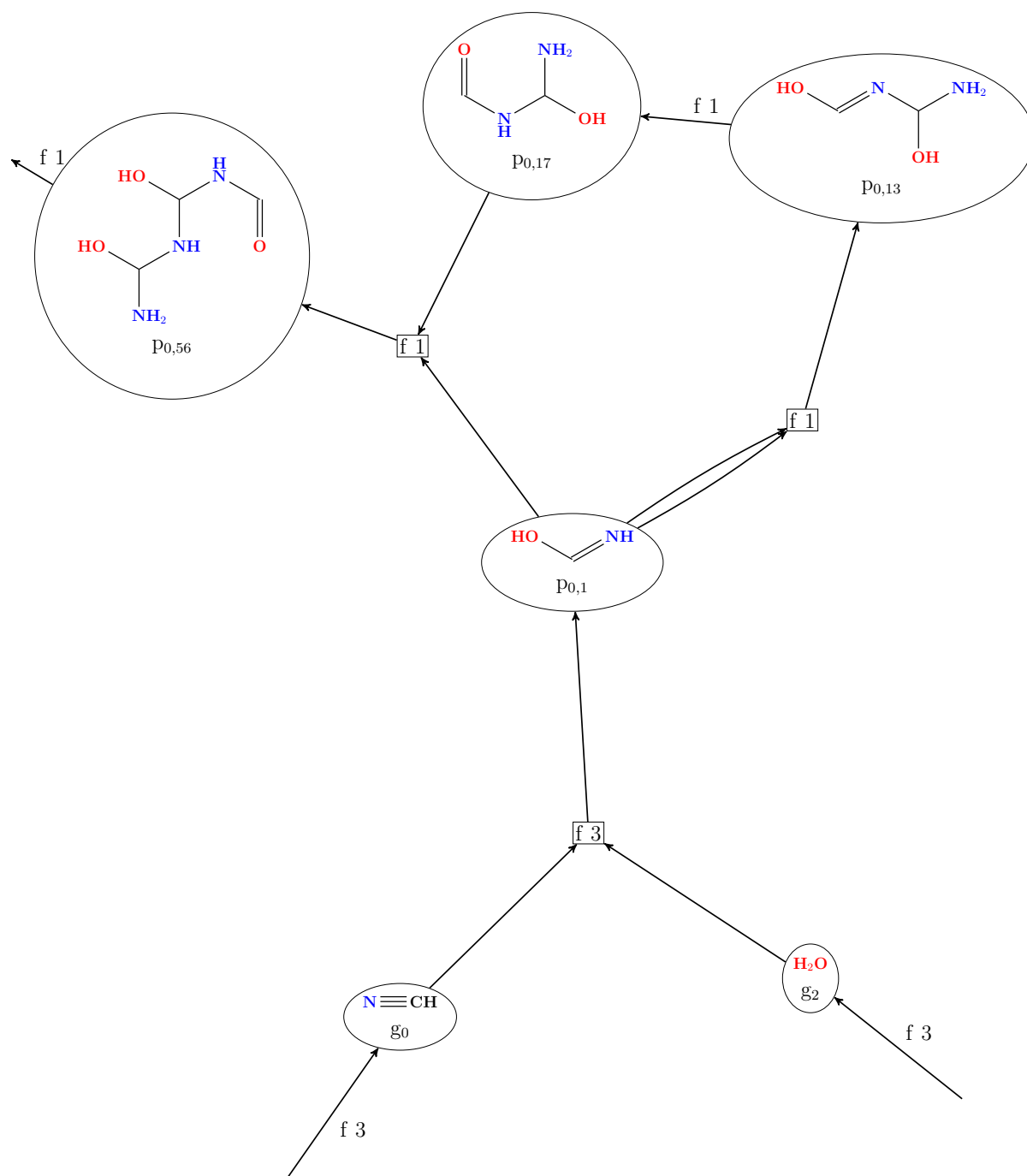
#### Overall Data

Objective value (non-integral): -0.0692399

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-3.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,13\}}$	0	0	-21.240635	-3.000000	3
$p_{\{0,17\}}$	0	0	-21.248844	-3.000000	65
$p_{\{0,1\}}$	0	0	-10.610080	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67



## Filtered Graph



File: out/087\_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	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.761341	-3.0	-27866.738696	1
$p_{0,13}$	0	0	-55767.279594	-3.0	-55777.256949	3
$p_{0,17}$	0	0	-55788.832737	-3.0	-55798.810092	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	$g_0, g_2,$	$p_{0,1},$	3	-54.17572	-54.17572
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-41.285219	-41.285219
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-39.776408	-39.776408
250	$p_{0,13},$	$p_{0,17},$	1	-21.553143	-21.553143
Sum					-181.78940784652372

$$\Delta G = -26.51419254550853$$

$$\Delta E = -0.06923992870268628$$

$$|E| = 6$$

$$|U| = 4$$

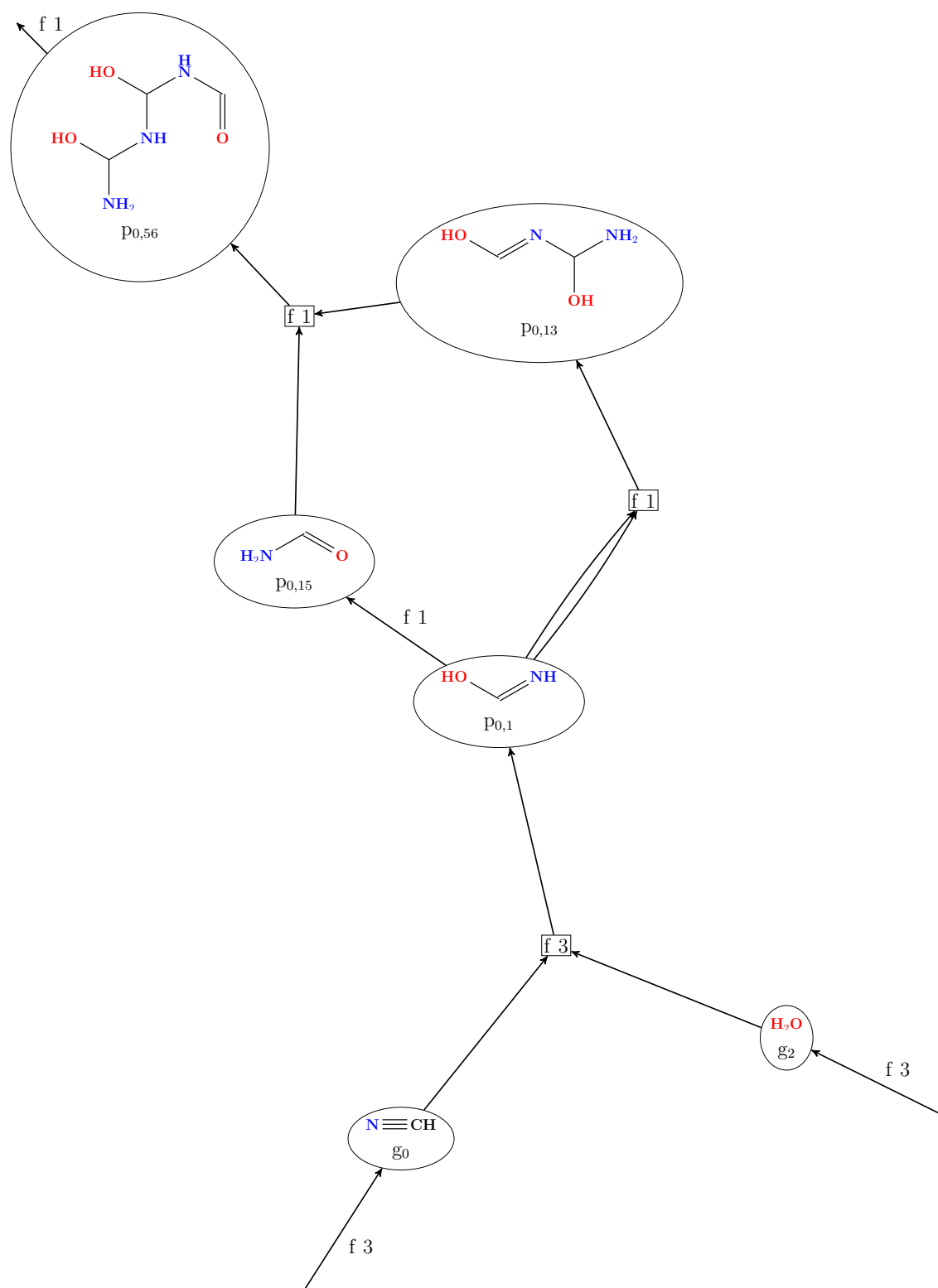
### 0.3.8 Solution 7

#### Overall Data

Objective value (non-integral): -0.0692399

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	-3.000000	44
$p_{\{0,15\}}$	0	0	-10.625195	-8.181264	22
$p_{\{0,1\}}$	0	0	-10.610101	-7.966219	21
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

## Filtered Graph



File: out/096\_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	-9.0	-14488.957643	0
$g_2$	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	-7.966219	-27883.310985	21
$p_{0,13}$	0	0	-55767.391129	-3.0	-55777.368484	44
$p_{0,15}$	0	0	-27896.445756	-8.181264	-27923.654882	22
$p_{0,56}$	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	-49.933765	-49.933765
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	0.006113	0.006113
36	$p_{0,1},$	$p_{0,15},$	1	-40.522696	-40.522696
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	0.006113	0.006113
Sum					-181.78940784652372

$$\Delta G = -19.03117594528758$$

$$\Delta E = -0.06923992870268628$$

$$|E| = 6$$

$$|U| = 4$$

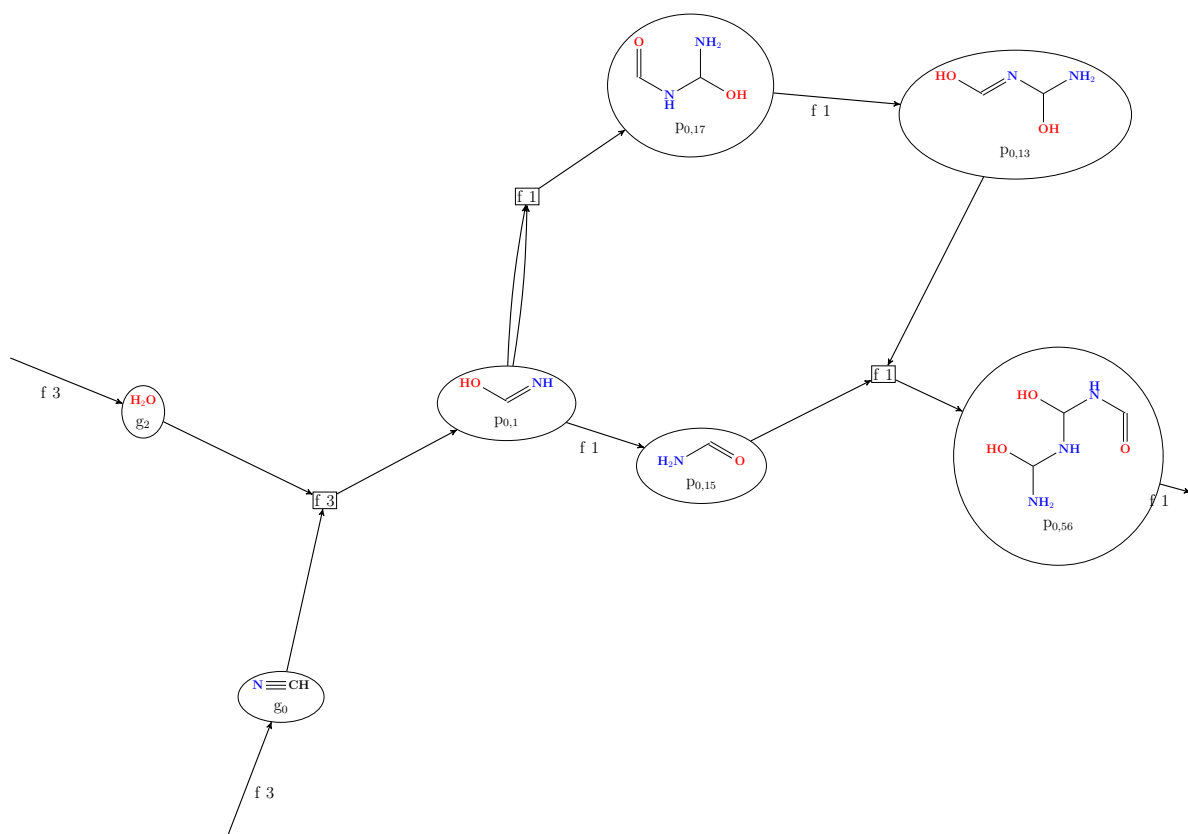
### 0.3.9 Solution 8

#### Overall Data

Objective value (non-integral): -0.0692399

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	-8.194685	45
$p_{\{0,15\}}$	0	0	-10.625174	-3.000000	21
$p_{\{0,17\}}$	0	0	-21.248887	-3.011651	44
$p_{\{0,1\}}$	0	0	-10.610101	-3.000000	20
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

## Filtered Graph



File: out/105\_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	-3.0	-14469.002933	0
$g_2$	3	0	-13306.144961	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.817054	-3.0	-27866.79441	20
$p_{0,13}$	0	0	-55767.391129	-8.194685	-55794.64489	45
$p_{0,15}$	0	0	-27896.389963	-3.0	-27906.367318	21
$p_{0,17}$	0	0	-55788.944315	-3.011651	-55798.960417	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	-79.174822	-79.174822
36	$p_{0,1},$	$p_{0,15},$	1	-39.572909	-39.572909
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-62.886946	-62.886946
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	0.006113	0.006113
253	$p_{0,17},$	$p_{0,13},$	1	0.006113	0.006113
Sum					-181.78940784652363

$$\Delta G = -33.99720835807959$$

$$\Delta E = -0.06923992870268623$$

$$|E| = 7$$

$$|U| = 5$$

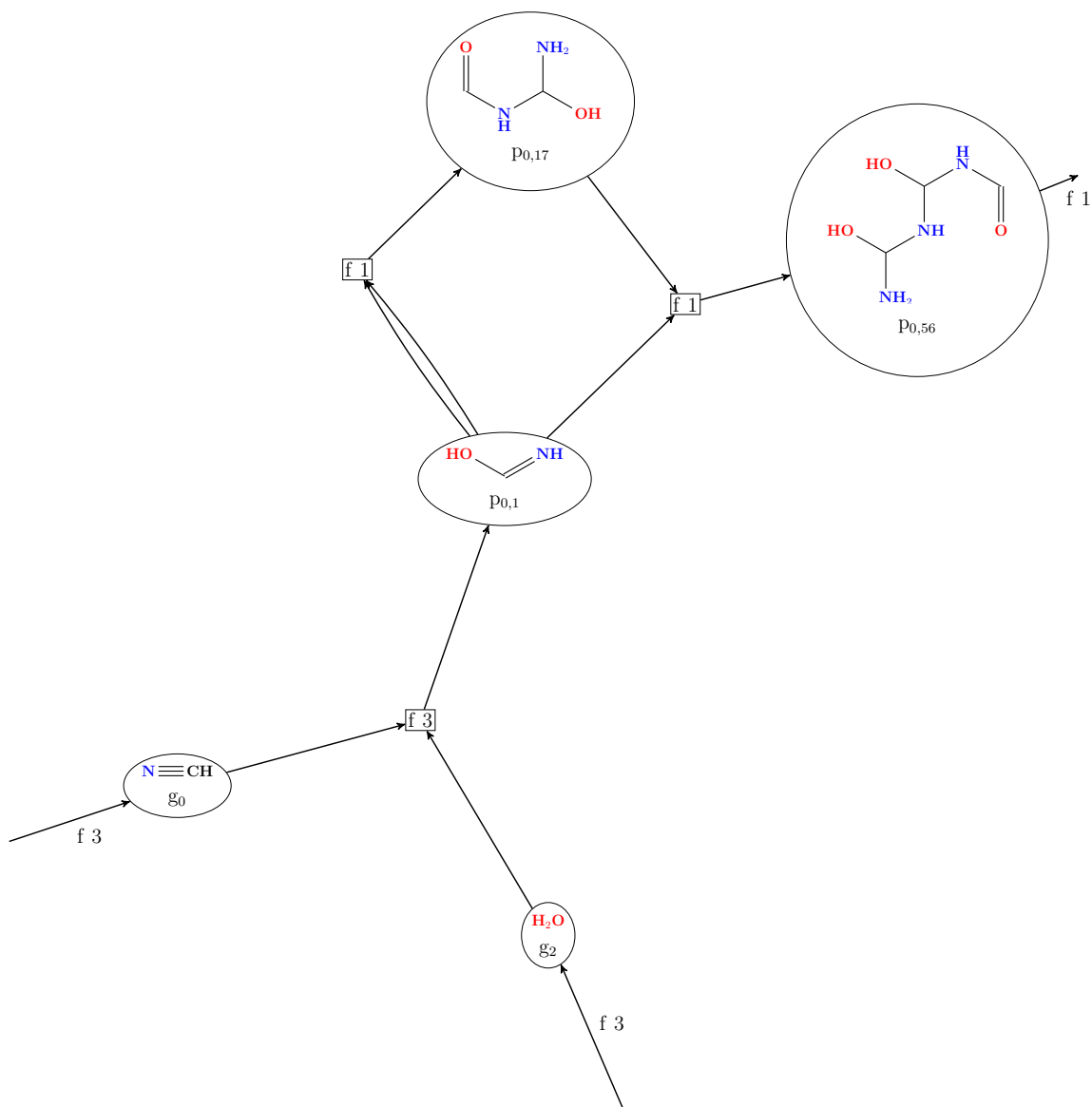
### 0.3.10 Solution 9

#### Overall Data

Objective value (non-integral): -0.0692399

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
$p_{\{0,17\}}$	0	0	-21.248844	-3.000000	45
$p_{\{0,1\}}$	0	0	-10.610080	-3.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

#### Filtered Graph



File: out/114\_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	-3.0	-14469.002933	0
$g_2$	3	0	-13306.144961	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.761341	-3.0	-27866.738696	21
$p_{0,17}$	0	0	-55788.832737	-3.0	-55798.810092	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	-79.119108	-79.119108
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-62.838362	-62.838362
196	$p_{0,1}, p_{0,17},$	$p_{0,56},$	1	-39.776408	-39.776408
Sum					-181.78940784652357

$$\Delta G = -33.99720835807959$$

$$\Delta E = -0.06923992870268622$$

$$|E| = 5$$

$$|U| = 3$$

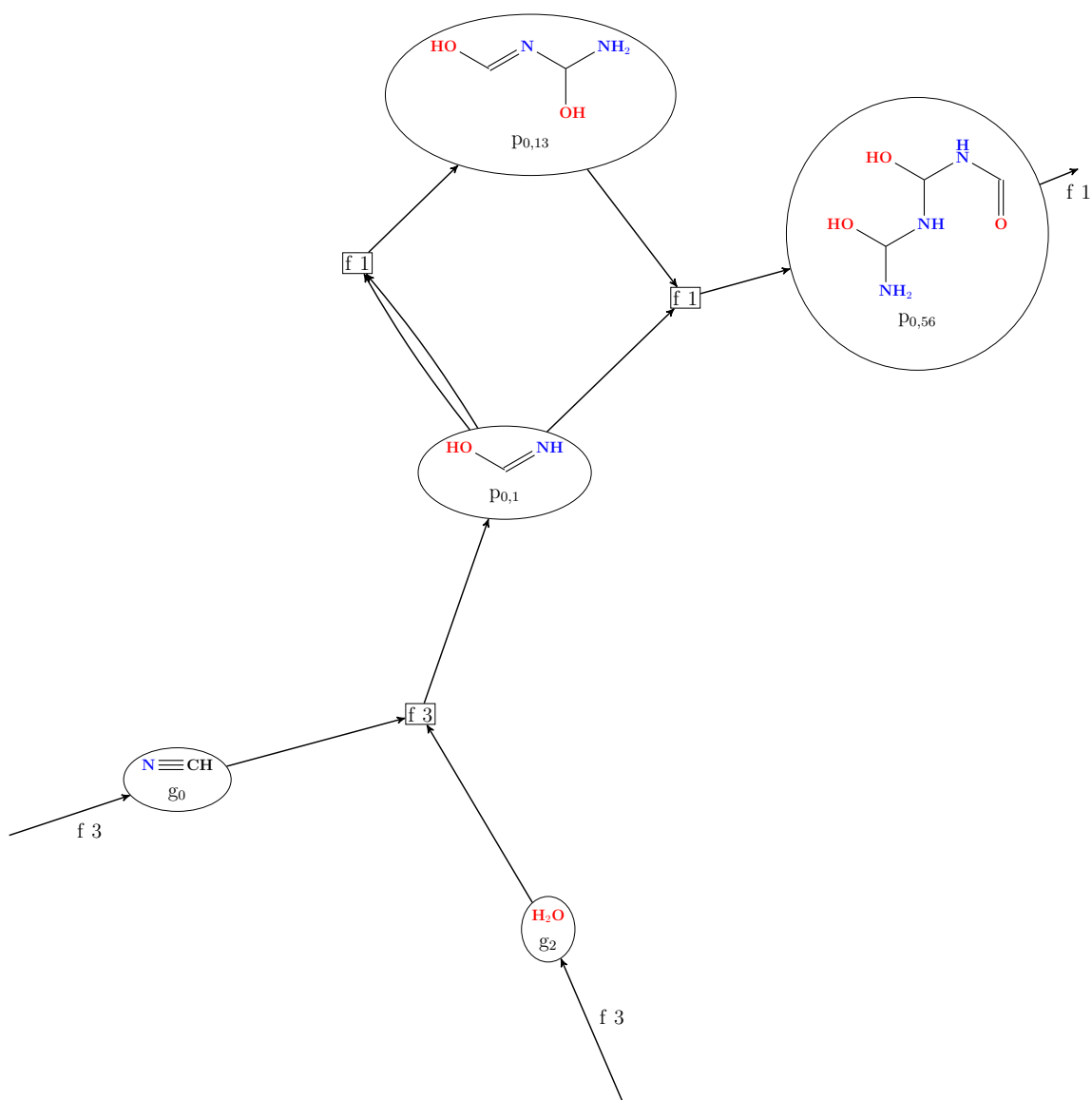
### 0.3.11 Solution 10

#### Overall Data

Objective value (non-integral): -0.0692399

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	-3.000000	65
$p_{\{0,1\}}$	0	0	-10.610080	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

## Filtered Graph



File: out/123\_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	-27856.761341	-3.0	-27866.738696	1
$p_{0,13}$	0	0	-55767.279594	-3.0	-55777.256949	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	$g_0, g_2,$	$p_{0,1},$	3	-29.232332	-29.232332
30	$p_{0,1}, p_{0,1},$	$p_{0,13},$	1	-41.285219	-41.285219
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-61.329551	-61.329551
Sum					-181.78940784652357

$$\Delta G = -19.03117620783754$$

$$\Delta E = -0.06923992870268622$$



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

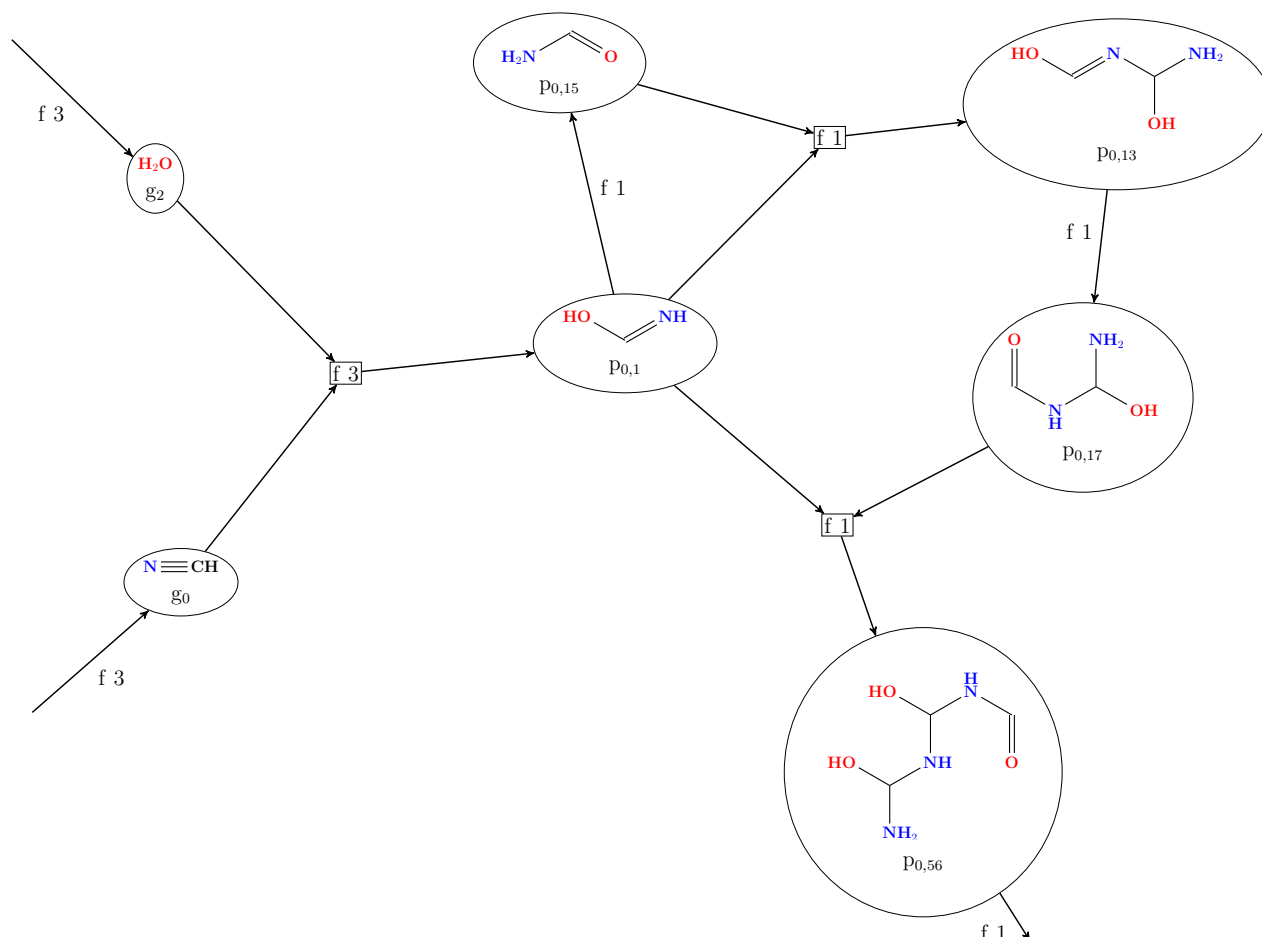
### 0.3.12 Solution 11

#### Overall Data

Objective value (non-integral): -0.0692399

Vertex/Graph	In	Out	G	logK	t_order
$g_{\{0\}}$	3	0	-5.507152	-3.000000	0
$g_{\{2\}}$	3	0	-5.068043	-9.000000	0
$p_{\{0,13\}}$	0	0	-21.240635	-3.000000	4
$p_{\{0,15\}}$	0	0	-10.625195	-3.386535	2
$p_{\{0,17\}}$	0	0	-21.248844	-3.000000	5
$p_{\{0,1\}}$	0	0	-10.610080	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

#### Filtered Graph



File: out/132\_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	-3.0	-14469.002933	0
$g_2$	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.761341	-3.0	-27866.738696	1
$p_{0,13}$	0	0	-55767.279594	-3.0	-55777.256949	4
$p_{0,15}$	0	0	-27896.445756	-3.386535	-27907.708644	2
$p_{0,17}$	0	0	-55788.832737	-3.0	-55798.810092	5
$p_{0,56}$	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	-54.17572	-54.17572
36	$p_{0,1},$	$p_{0,15},$	1	-41.291332	-41.291332
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	-39.776408	-39.776408
250	$p_{0,13},$	$p_{0,17},$	1	-21.553143	-21.553143
Sum					-181.78940784652357

$$\Delta G = -26.51419254550853$$

$$\Delta E = -0.06923992870268622$$

$$|E| = 7$$

$$|U| = 5$$

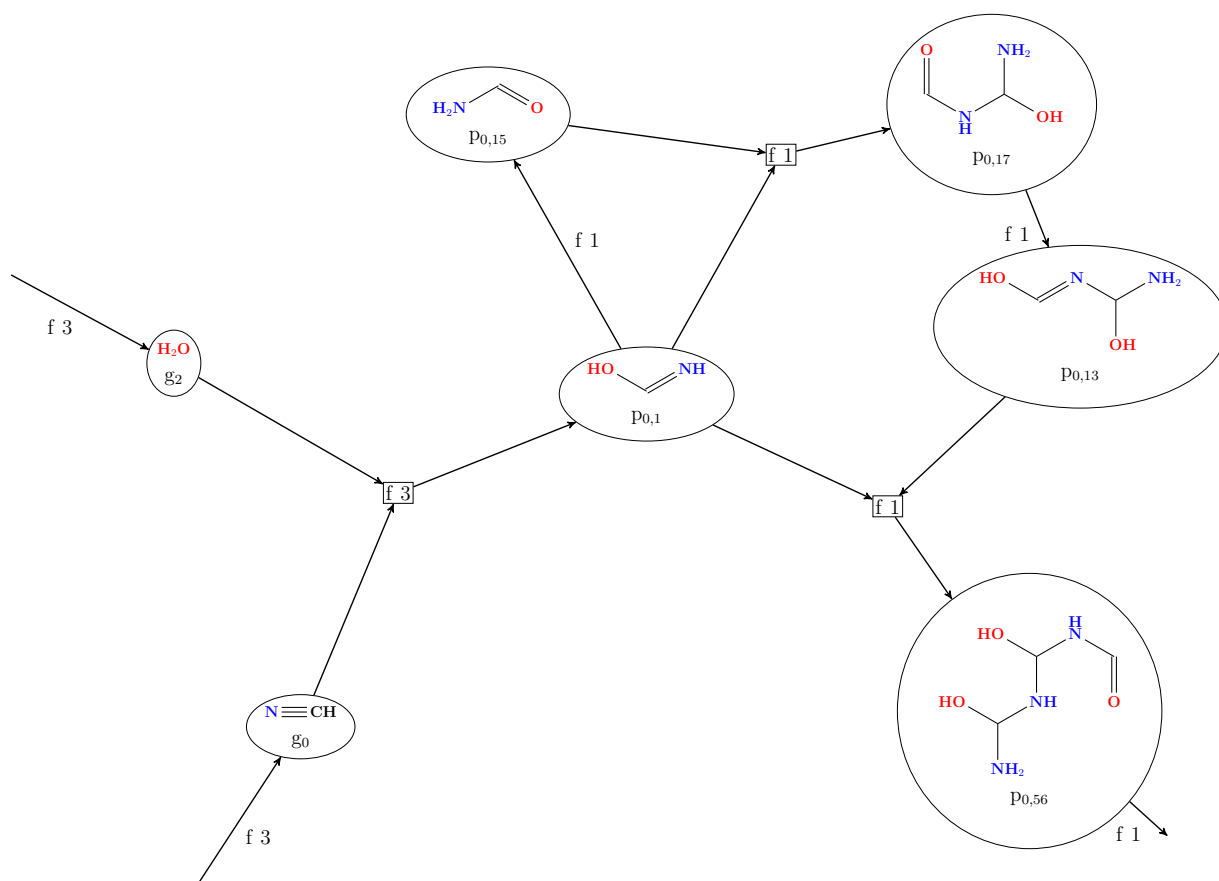
### 0.3.13 Solution 12

#### Overall Data

Objective value (non-integral): -0.0692399

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	65
$p_{\{0,15\}}$	0	0	-10.625195	-3.000000	2
$p_{\{0,17\}}$	0	0	-21.248844	-3.000000	4
$p_{\{0,1\}}$	0	0	-10.610101	-8.557628	1
$p_{\{0,56\}}$	0	1	-31.869260	-5.884144	67

## Filtered Graph



File: out/141\_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	-9.0	-14488.957643	0
$g_2$	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	-8.557628	-27885.277886	1
$p_{0,13}$	0	0	-55767.391129	-9.0	-55797.323194	65
$p_{0,15}$	0	0	-27896.445756	-3.0	-27906.423111	2
$p_{0,17}$	0	0	-55788.832737	-3.0	-55798.810092	4
$p_{0,56}$	0	1	-83672.731446	-5.884144	-83692.300843	67

Hyperedge	Source	Target	Flow	$x_e^{\Delta G}$	$\bar{x}_e^{\Delta G}$
6	$g_0, g_2$	$p_{0,1}$	3	-52.392392	-52.392392
36	$p_{0,1}$	$p_{0,15}$	1	-16.524355	-16.524355
183	$p_{0,1}, p_{0,15}$	$p_{0,17}$	1	0.006113	0.006113
253	$p_{0,17}$	$p_{0,13}$	1	-3.50178	-3.50178
263	$p_{0,1}, p_{0,13}$	$p_{0,56}$	1	0.006113	0.006113
Sum					-181.78940784652357

$$\Delta G = -17.719108230353914$$

$$\Delta E = -0.06923992870268622$$

$$|E| = 7$$

$$|U| = 5$$

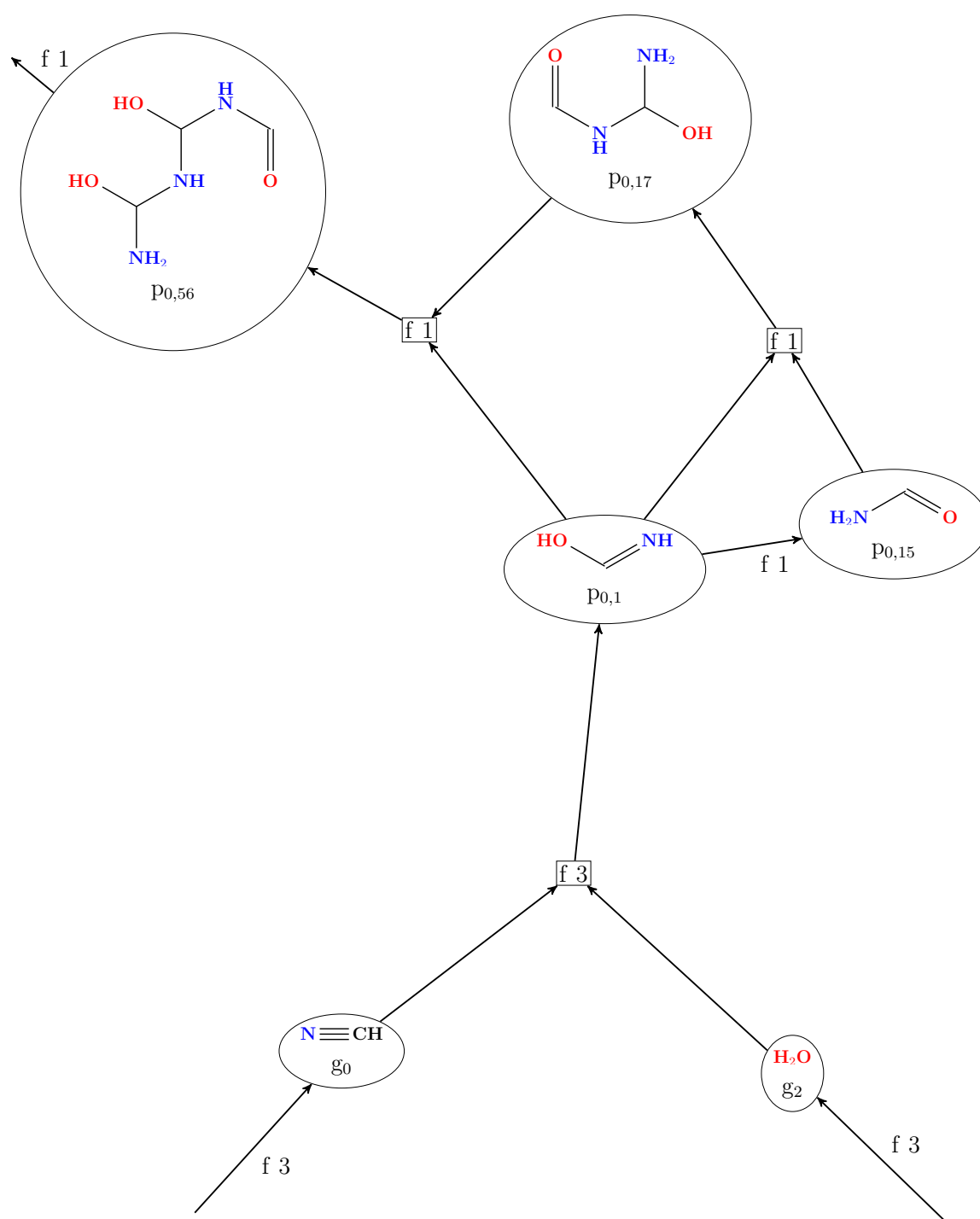
### 0.3.14 Solution 13

#### Overall Data

Objective value (non-integral): -0.0692399

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
$p_{\{0,15\}}$	0	0	-10.625195	-3.000000	2
$p_{\{0,17\}}$	0	0	-21.248844	-3.000000	4
$p_{\{0,1\}}$	0	0	-10.610080	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

## Filtered Graph



File: out/150\_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	-9.0	-14488.957643	0
$g_2$	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.761341	-3.0	-27866.738696	1
$p_{0,15}$	0	0	-27896.445756	-3.0	-27906.423111	2
$p_{0,17}$	0	0	-55788.832737	-3.0	-55798.810092	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	-29.232332	-29.232332
36	$p_{0,1},$	$p_{0,15},$	1	-39.684415	-39.684415
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	-39.776408	-39.776408
Sum					-181.78940784652372

$$\Delta G = -19.03117594528758$$

$$\Delta E = -0.06923992870268628$$

$$|E| = 6$$

$$|U| = 4$$

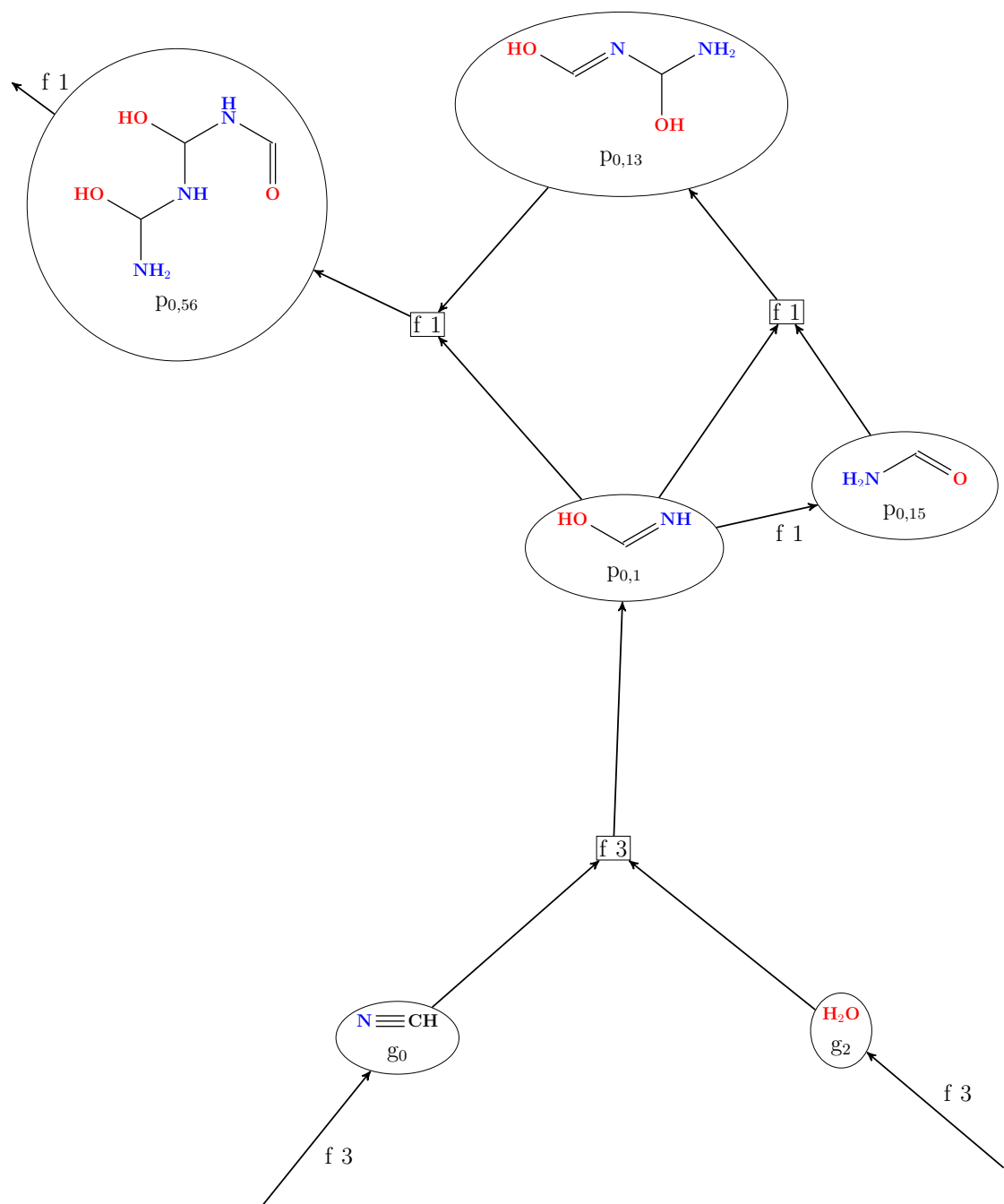
### 0.3.15 Solution 14

#### Overall Data

Objective value (non-integral): -0.0692399

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	-9.000000	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	-9.000000	67

Filtered Graph



File: out/159\_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	-3.0	-14469.002933	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	-9.0	-55797.323194	65
$p_{0,15}$	0	0	-27896.445756	-3.0	-27906.423111	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	-79.174822	-79.174822
36	$p_{0,1},$	$p_{0,15},$	1	-39.628701	-39.628701
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	-26.600013	-26.600013
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-36.218915	-36.218915
Sum					-181.78940784652343

$$\Delta G = -33.99720835807959$$

$$\Delta E = -0.06923992870268617$$

$$|E| = 6$$

$$|U| = 4$$

### 0.3.16 Solution 15

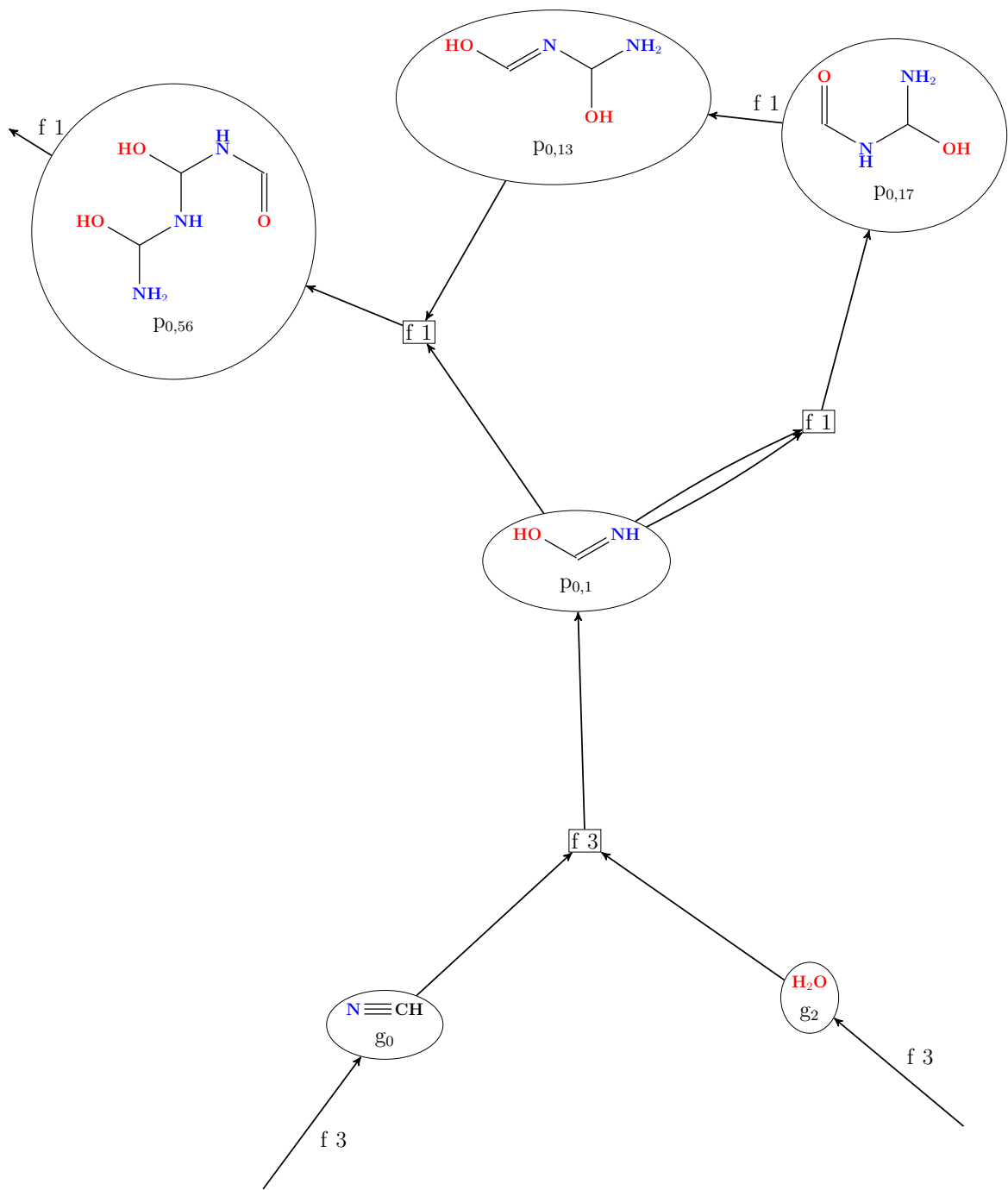
#### Overall Data

Objective value (non-integral): -0.0692399

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	-9.000000	65
$p_{\{0,17\}}$	0	0	-21.248844	-3.000000	3
$p_{\{0,1\}}$	0	0	-10.610080	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67



Filtered Graph



File: out/168\_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	-3.0	-14469.002933	0
$g_2$	3	0	-13306.144961	-3.0	-13316.122316	0
$p_{0,1}$	0	0	-27856.761341	-3.0	-27866.738696	1
$p_{0,13}$	0	0	-55767.391129	-9.0	-55797.323194	65
$p_{0,17}$	0	0	-55788.832737	-3.0	-55798.810092	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	-79.119108	-79.119108
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-62.838362	-62.838362
253	$p_{0,17},$	$p_{0,13},$	1	-3.50178	-3.50178
263	$p_{0,1}, p_{0,13},$	$p_{0,56},$	1	-36.274628	-36.274628
Sum					-181.78940784652343

$$\Delta G = -33.99720835807959$$

$$\Delta E = -0.06923992870268617$$

$$|E| = 6$$

$$|U| = 4$$

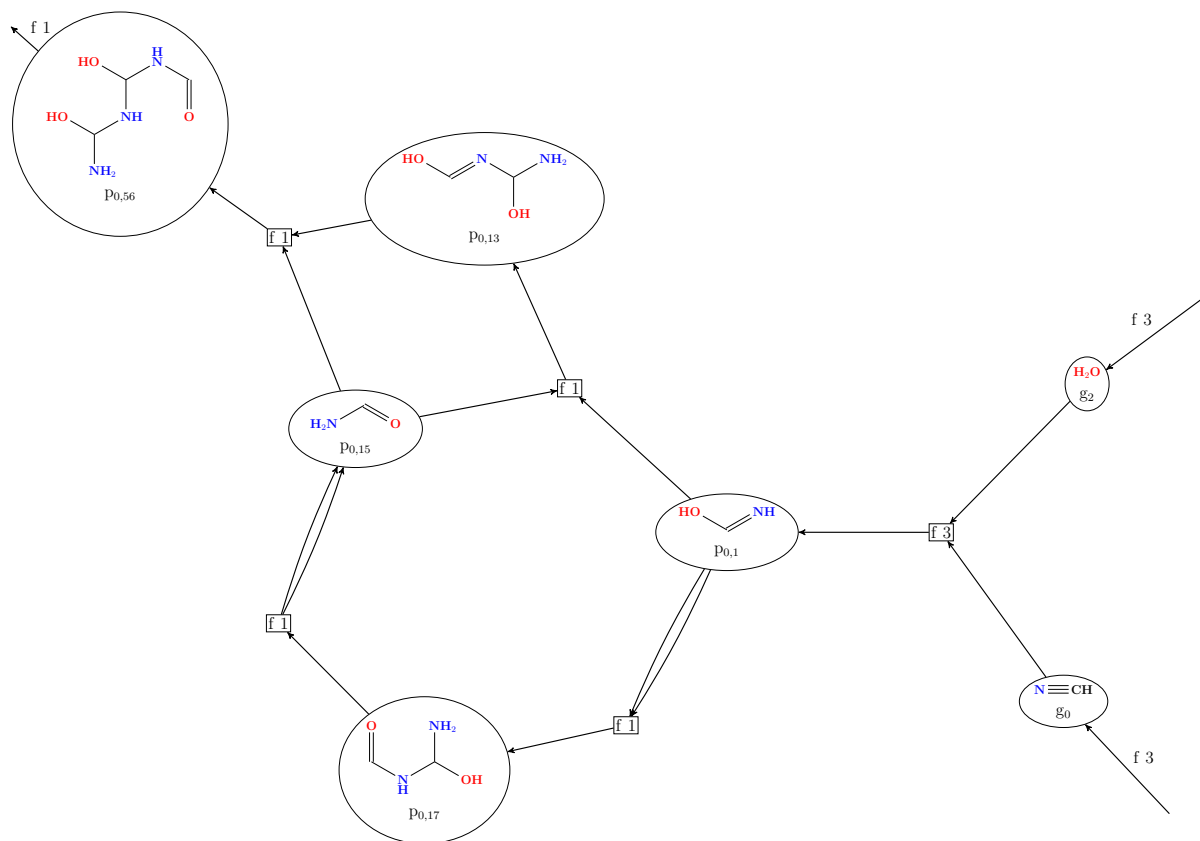
### 0.3.17 Solution 16

#### Overall Data

Objective value (non-integral): -0.0692399

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	-8.194685	6
$p_{\{0,15\}}$	0	0	-10.625174	-3.000000	4
$p_{\{0,17\}}$	0	0	-21.248887	-3.000000	3
$p_{\{0,1\}}$	0	0	-10.610101	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

## Filtered Graph



File: out/177\_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	-3.0	-14469.002933	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	-8.194685	-55794.64489	6
$p_{0,15}$	0	0	-27896.389963	-3.0	-27906.367318	4
$p_{0,17}$	0	0	-55788.944315	-3.0	-55798.92167	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	-79.174822	-79.174822
40	$p_{0,1}, p_{0,1},$	$p_{0,17},$	1	-62.838512	-62.838512
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	0.006113	0.006113
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	-23.307925	-23.307925
237	$p_{0,17},$	$p_{0,15}, p_{0,15},$	1	-16.307305	-16.307305
Sum					-181.7894078465233

$$\Delta G = -33.99720835807959$$

$$\Delta E = -0.06923992870268611$$

$$|E| = 7$$

$$|U| = 5$$

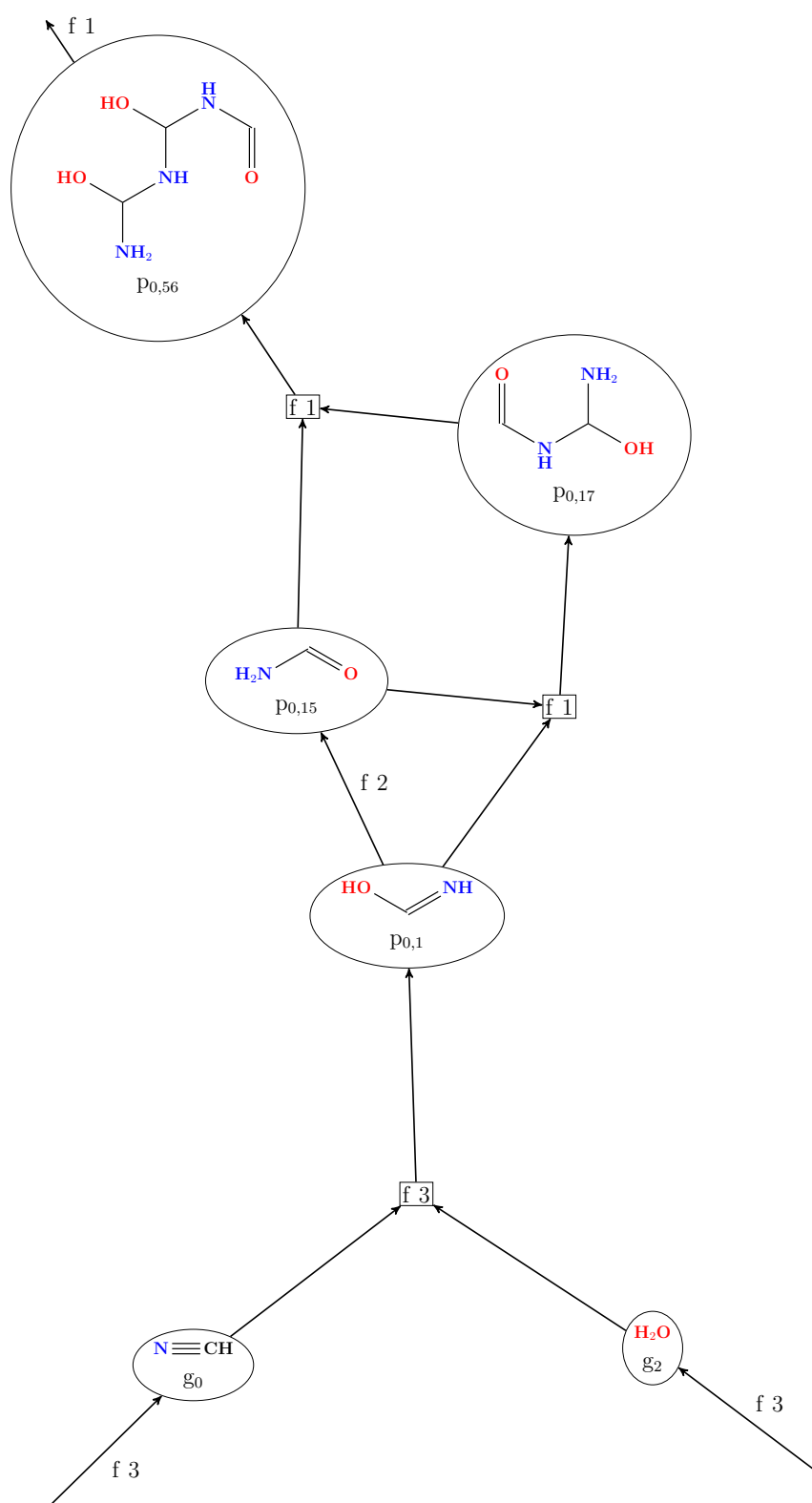
### 0.3.18 Solution 17

#### Overall Data

Objective value (non-integral): -0.0541462

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
$p_{\{0,15\}}$	0	0	-10.625195	-3.023599	2
$p_{\{0,17\}}$	0	0	-21.248844	-3.000000	4
$p_{\{0,1\}}$	0	0	-10.610101	-8.534029	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

## Filtered Graph



File: out/186\_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	-9.0	-14488.957643	0
$g_2$	3	0	-13306.144961	-9.0	-13336.077027	0
$p_{0,1}$	0	0	-27856.817054	-8.534029	-27885.199402	1
$p_{0,15}$	0	0	-27896.445756	-3.023599	-27906.501596	2
$p_{0,17}$	0	0	-55788.832737	-3.0	-55798.810092	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	-52.294286	-52.294286
36	$p_{0,1},$	$p_{0,15},$	2	-16.720567	-16.720567
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	0.006113	0.006113
Sum	-142.16078574272862				

$$\Delta G = -19.03117594528758$$

$$\Delta E = -0.05414618368444516$$

$$|E| = 7$$

$$|U| = 4$$

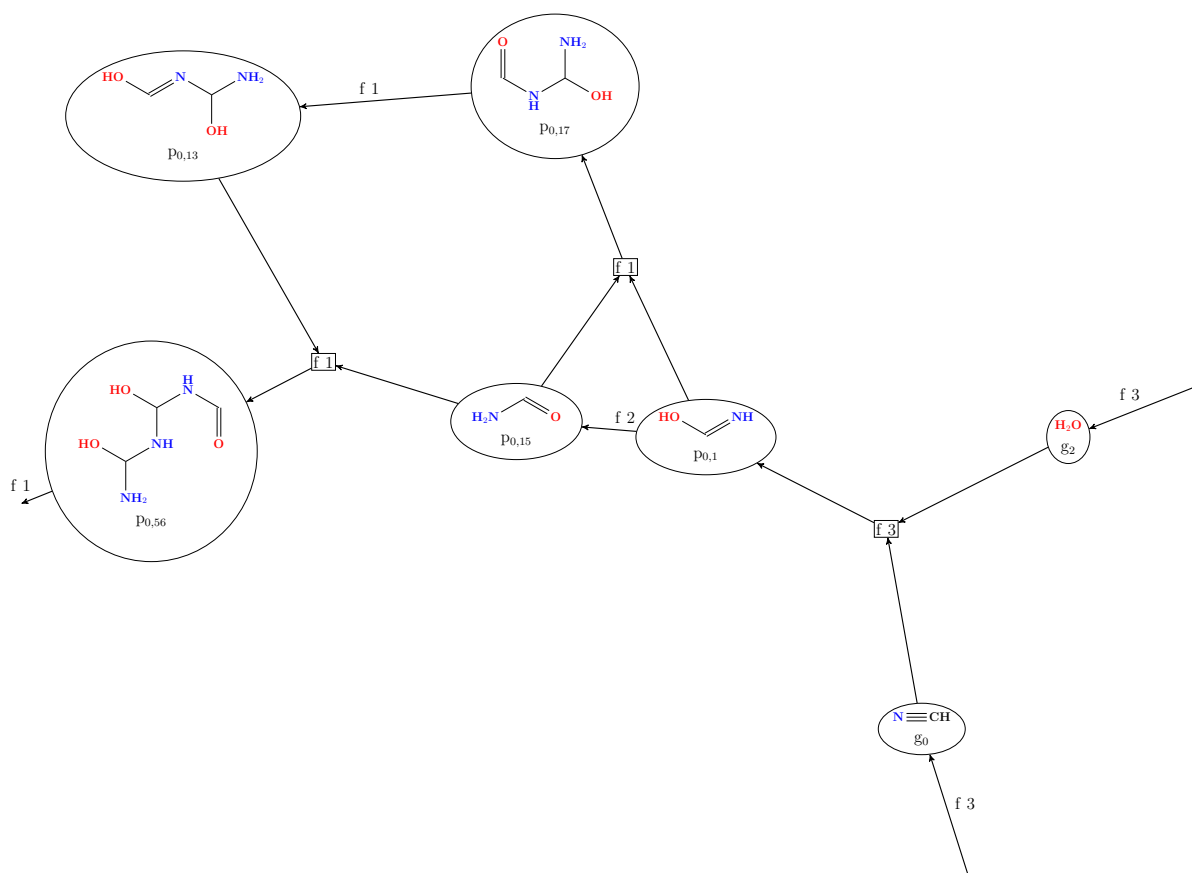
### 0.3.19 Solution 18

#### Overall Data

Objective value (non-integral): -0.0541462

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	-8.193215	64
$p_{\{0,15\}}$	0	0	-10.625174	-3.000000	2
$p_{\{0,17\}}$	0	0	-21.248844	-3.000000	4
$p_{\{0,1\}}$	0	0	-10.610101	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

## Filtered Graph



File: out/195\_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	-3.0	-27866.79441	1
$p_{0,13}$	0	0	-55767.391129	-8.193215	-55794.639999	64
$p_{0,15}$	0	0	-27896.389963	-3.0	-27906.367318	2
$p_{0,17}$	0	0	-55788.832737	-3.0	-55798.810092	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	-79.174822	-79.174822
36	$p_{0,1},$	$p_{0,15},$	2	-39.572909	-39.572909
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	0.0	0.0
183	$p_{0,1}, p_{0,15},$	$p_{0,17},$	1	-23.154026	-23.154026
253	$p_{0,17},$	$p_{0,13},$	1	-0.147786	-0.147786
Sum					-142.16078574272848

$$\Delta G = -33.99720783297966$$

$$\Delta E = -0.054146183684445105$$

$$|E| = 8$$

$$|U| = 5$$

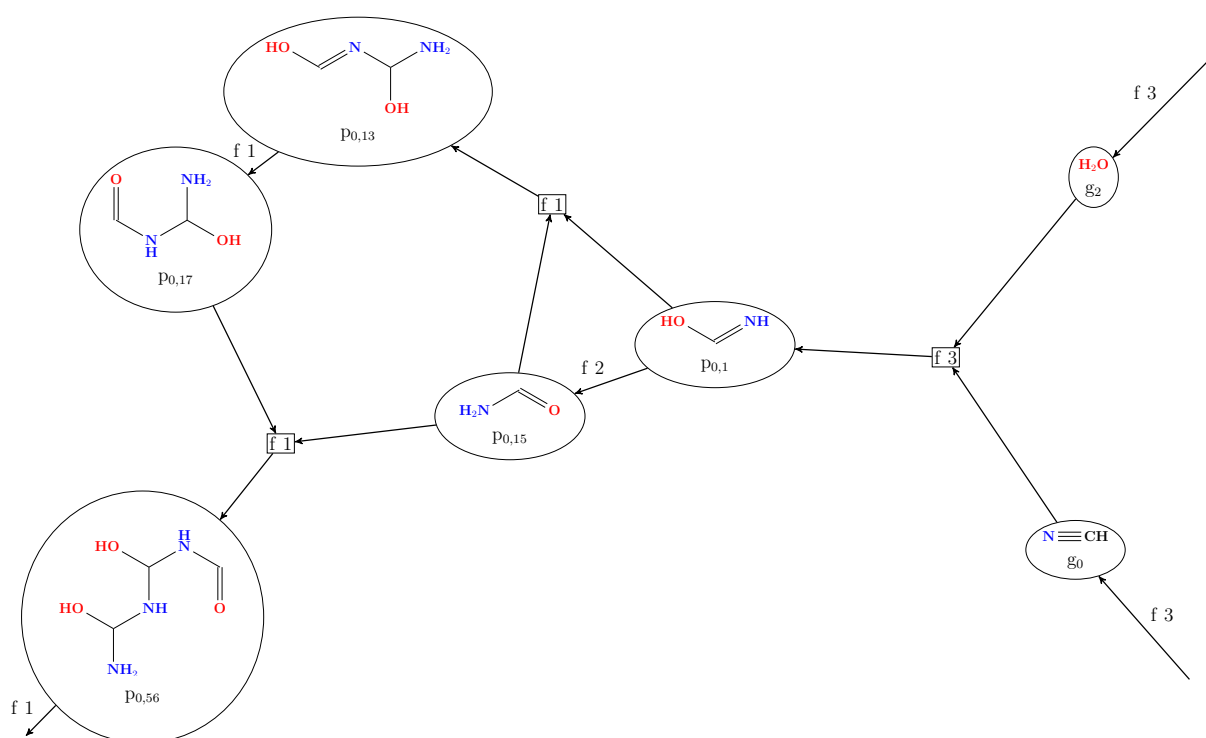
## 0.3.20 Solution 19

### Overall Data

Objective value (non-integral): -0.0541462

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	-3.000000	34
$p_{\{0,15\}}$	0	0	-10.625174	-3.000000	31
$p_{\{0,17\}}$	0	0	-21.248887	-3.008710	35
$p_{\{0,1\}}$	0	0	-10.610101	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

### Filtered Graph



File: out/204\_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	-3.0	-14469.002933	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	-3.0	-55777.256949	34
$p_{0,15}$	0	0	-27896.389963	-3.0	-27906.367318	31
$p_{0,17}$	0	0	-55788.944315	-3.00871	-55798.950637	35
$p_{0,56}$	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	-79.174822	-79.174822
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	-1.600883	-1.600883
250	$p_{0,13},$	$p_{0,17},$	1	-21.700929	-21.700929
Sum	-142.16078574272848				

$$\Delta G = -33.99720809552962$$

$$\Delta E = -0.0541461836844451$$

$$|E| = 8$$

$$|U| = 5$$

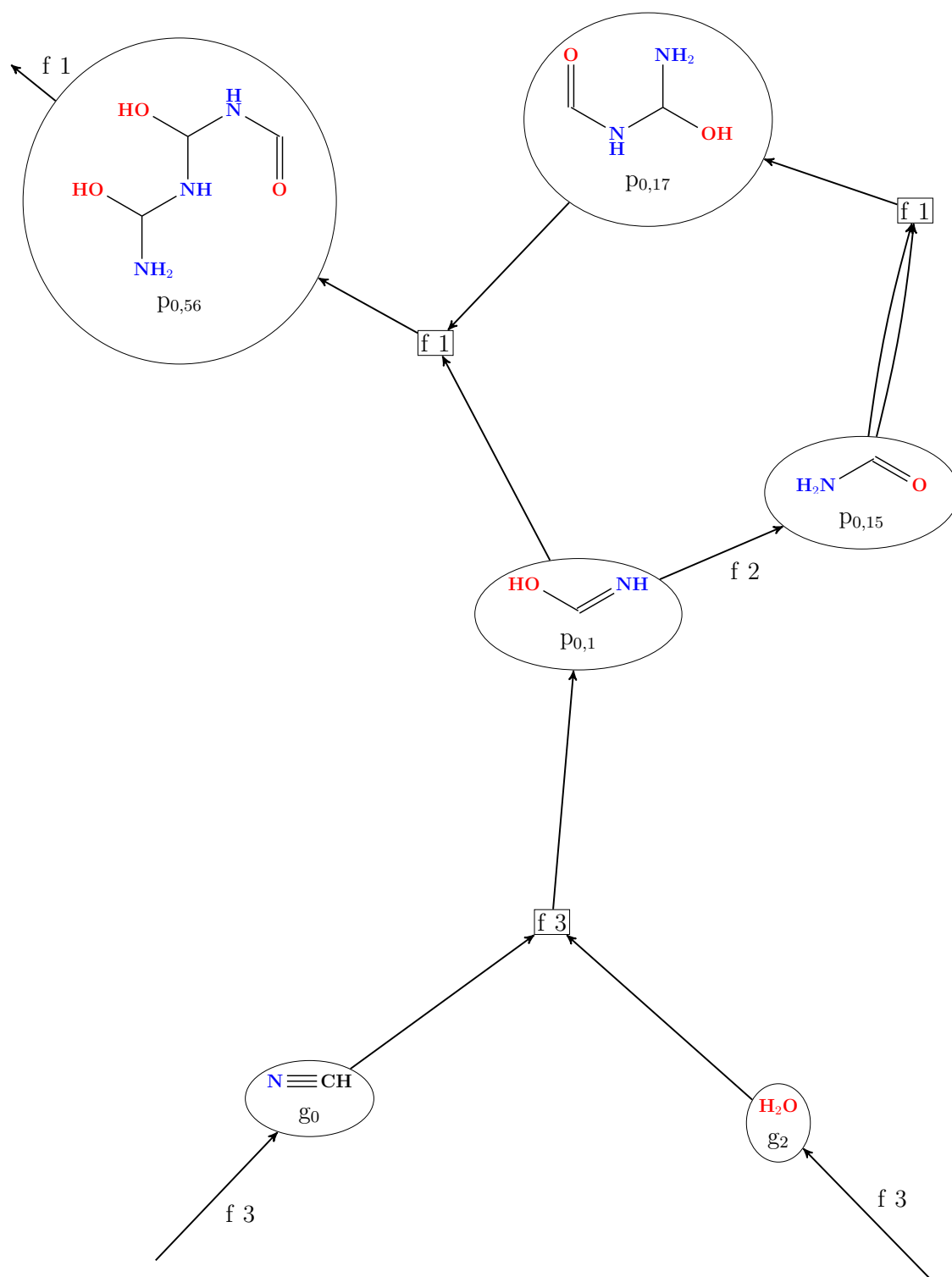
### 0.3.21 Solution 20

#### Overall Data

Objective value (non-integral): -0.0541462

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	-3.000000	2
$p_{\{0,17\}}$	0	0	-21.248844	-6.949475	5
$p_{\{0,1\}}$	0	0	-10.610080	-3.000000	1
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

## Filtered Graph



File: out/213\_dg\_0\_11100\_f\_0\_20\_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	-3.0	-27866.738696	1
$p_{0,15}$	0	0	-27896.389963	-3.0	-27906.367318	2
$p_{0,17}$	0	0	-55788.832737	-6.949475	-55811.945198	5
$p_{0,56}$	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	-79.119108	-79.119108
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	-23.357525	-23.357525
Sum	-142.16078574272848				

$$\Delta G = -33.99720862062955$$

$$\Delta E = -0.0541461836844451$$

$$|E| = 7$$

$$|U| = 4$$

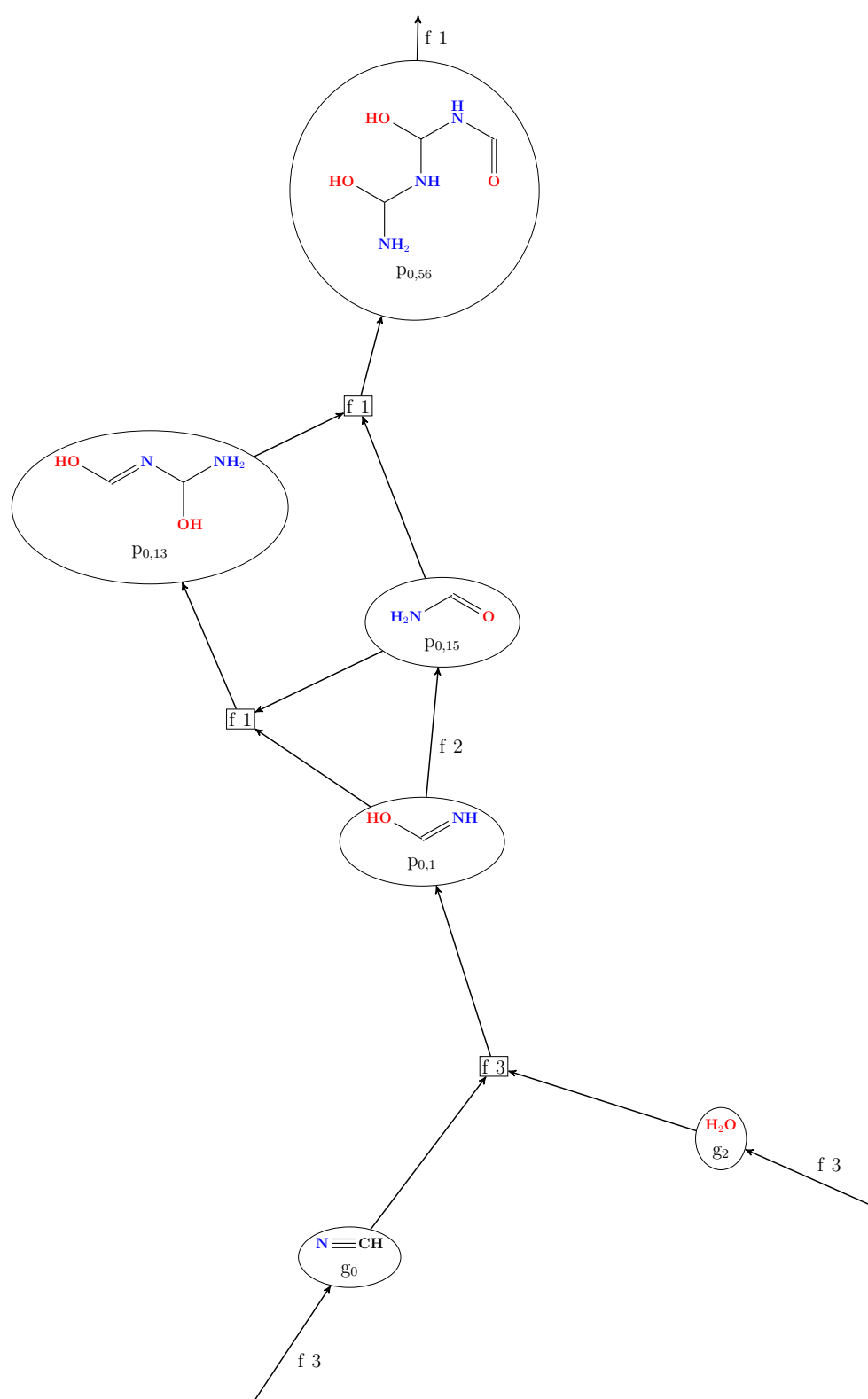
### 0.3.22 Solution 21

#### Overall Data

Objective value (non-integral): -0.0541462

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	-8.193215	44
$p_{\{0,15\}}$	0	0	-10.625174	-3.000000	22
$p_{\{0,1\}}$	0	0	-10.610080	-3.000000	21
$p_{\{0,56\}}$	0	1	-31.869324	-9.000000	67

# Filtered Graph



File: out/222\_dg\_0\_11100\_f\_0\_21\_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	-3.0	-27866.738696	21
$p_{0,13}$	0	0	-55767.391129	-8.193215	-55794.639999	44
$p_{0,15}$	0	0	-27896.389963	-3.0	-27906.367318	22
$p_{0,56}$	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	-79.119108	-79.119108
36	$p_{0,1},$	$p_{0,15},$	2	-39.628622	-39.628622
169	$p_{0,13}, p_{0,15},$	$p_{0,56},$	1	0.0	0.0
192	$p_{0,1}, p_{0,15},$	$p_{0,13},$	1	-23.357525	-23.357525
Sum					-142.1607857427283

$$\Delta G = -33.99720862062955$$

$$\Delta E = -0.054146183684445036$$

$$|E| = 7$$

$$|U| = 4$$