Summary

October 7, 2024

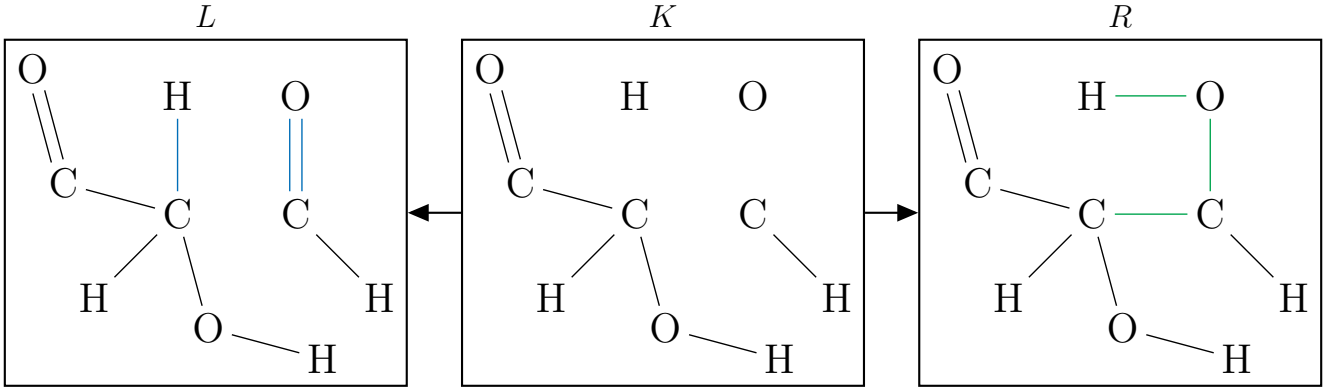
Contents

0.1 Loaded Rules . . . 3
0.1.1 AL . . . 3
0.1.2 AlKe . . . 3
0.1.3 KeAl . . . 4
0.1.4 PHL . . . 5
0.1.5 PKL . . . 5
0.1.6 TAL . . . 6
0.1.7 TKL . . . 6
0.1.8 `H_20` . . . 7
0.1.9 `p_{0,6}` . . . 7
0.1.10 `p_{0,7}` . . . 8
0.1.11 `p_{0,8}` . . . 8
0.1.12 `p_{0,9}` . . . 8
0.1.13 `p_{0,10}` . . . 9
0.1.14 `p_{0,11}` . . . 9
0.1.15 `p_{0,12}` . . . 10
0.1.16 `p_{0,13}` . . . 10
0.1.17 `p_{0,17}` . . . 11
0.1.18 `p_{0,27}` . . . 11
0.1.19 `p_{0,29}` . . . 12
0.1.20 `p_{0,30}` . . . 12
0.1.21 `p_{0,34}` . . . 13
0.1.22 `p_{0,36}` . . . 13
0.1.23 `p_{0,37}` . . . 14
0.1.24 `p_{0,44}` . . . 14
0.1.25 `p_{0,45}` . . . 15
0.1.26 `p_{0,47}` . . . 15
0.1.27 `p_{0,56}` . . . 16
0.1.28 `p_{0,57}` . . . 16
0.1.29 `p_{0,60}` . . . 17
0.1.30 `p_{0,61}` . . . 17
0.1.31 `p_{0,62}` . . . 18
0.1.32 `p_{0,63}` . . . 18
0.1.33 `p_{0,68}` . . . 19
0.1.34 `p_{0,69}` . . . 19
0.2 Derivation Graph . . . 20
0.2.1 DG Hyper, `dg_0` . . . 20
0.3 Enumerated Flows with 7 reactions . . . 20
0.4 Enumerated Flows with 7 unique reactions . . . 20
0.5 Enumerated Flows with 8 unique reactions . . . 20
0.6 Enumerated Flows with 9 unique reactions . . . 20

0.7 Enumerated Flows with 10 unique reactions . . . 20
0.8 Enumerated Flows with 11 unique reactions . . . 20
0.9 Enumerated Flows with 8 reactions . . . 20
0.10 Enumerated Flows with 7 unique reactions . . . 20
0.11 Enumerated Flows with 8 unique reactions . . . 20
0.11.1 Solution 0 . . . 20
0.11.2 Solution 1 . . . 21
0.12 Enumerated Flows with 9 unique reactions . . . 22
0.13 Enumerated Flows with 10 unique reactions . . . 22
0.14 Enumerated Flows with 11 unique reactions . . . 22
0.15 Enumerated Flows with 9 reactions . . . 22
0.16 Enumerated Flows with 7 unique reactions . . . 22
0.17 Enumerated Flows with 8 unique reactions . . . 22
0.17.1 Solution 2 . . . 22
0.17.2 Solution 3 . . . 23
0.17.3 Solution 5 . . . 24
0.17.4 Solution 8 . . . 25
0.17.5 Solution 12 . . . 26
0.17.6 Solution 13 . . . 27
0.17.7 Solution 14 . . . 28
0.17.8 Solution 17 . . . 29
0.17.9 Solution 18 . . . 30
0.17.10 Solution 21 . . . 31
0.17.11 Solution 27 . . . 32
0.17.12 Solution 30 . . . 33
0.18 Enumerated Flows with 9 unique reactions . . . 34
0.18.1 Solution 4 . . . 34
0.18.2 Solution 6 . . . 35
0.18.3 Solution 7 . . . 36
0.18.4 Solution 9 . . . 37
0.18.5 Solution 10 . . . 38
0.18.6 Solution 11 . . . 39
0.18.7 Solution 15 . . . 40
0.18.8 Solution 16 . . . 41
0.18.9 Solution 19 . . . 42
0.18.10 Solution 20 . . . 43
0.18.11 Solution 22 . . . 44
0.18.12 Solution 23 . . . 45
0.18.13 Solution 24 . . . 46
0.18.14 Solution 25 . . . 47
0.18.15 Solution 26 . . . 48
0.18.16 Solution 28 . . . 49
0.18.17 Solution 29 . . . 50
0.19 Enumerated Flows with 10 unique reactions . . . 52
0.20 Enumerated Flows with 11 unique reactions . . . 52

0.1 Loaded Rules

0.1.1 AL



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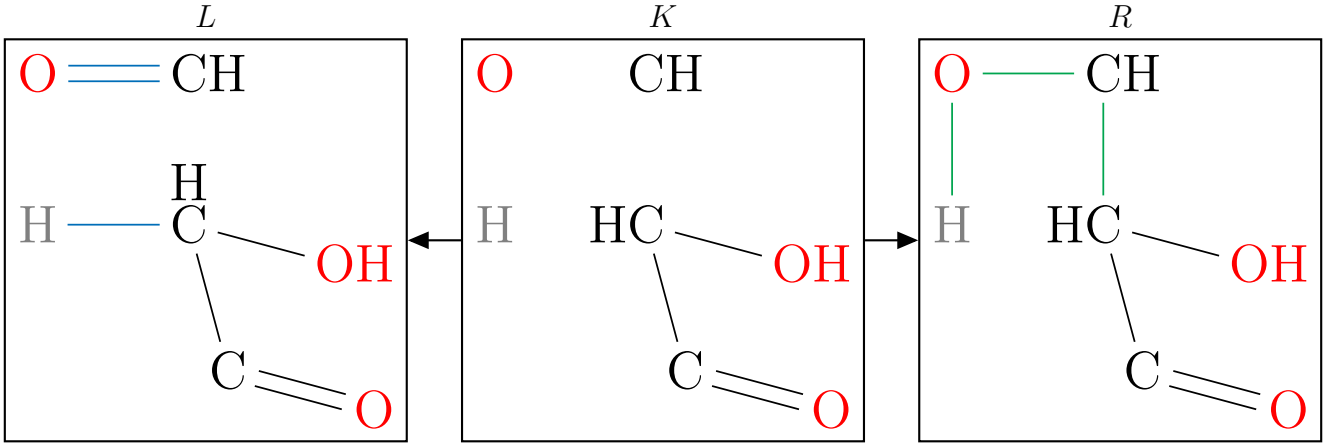

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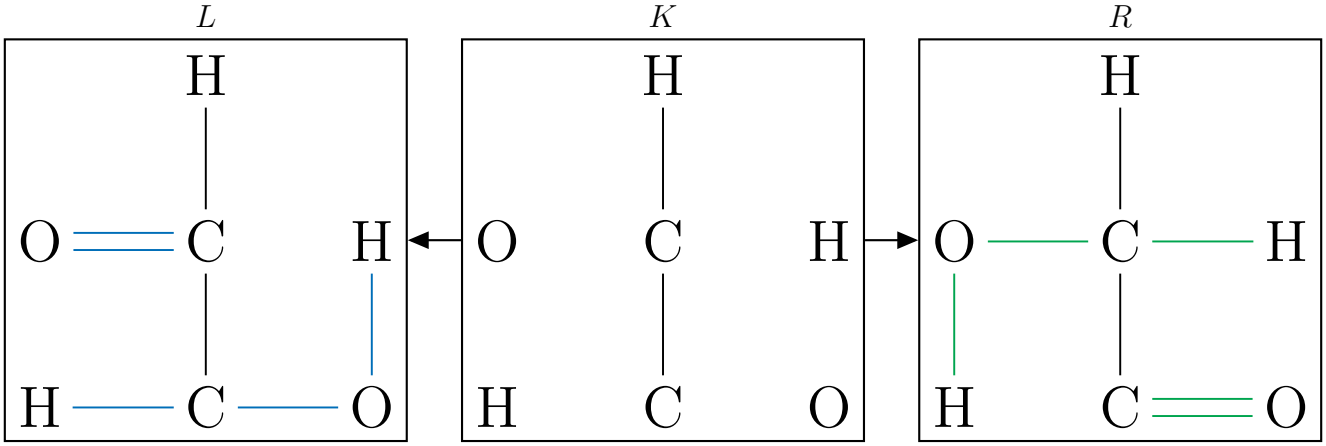

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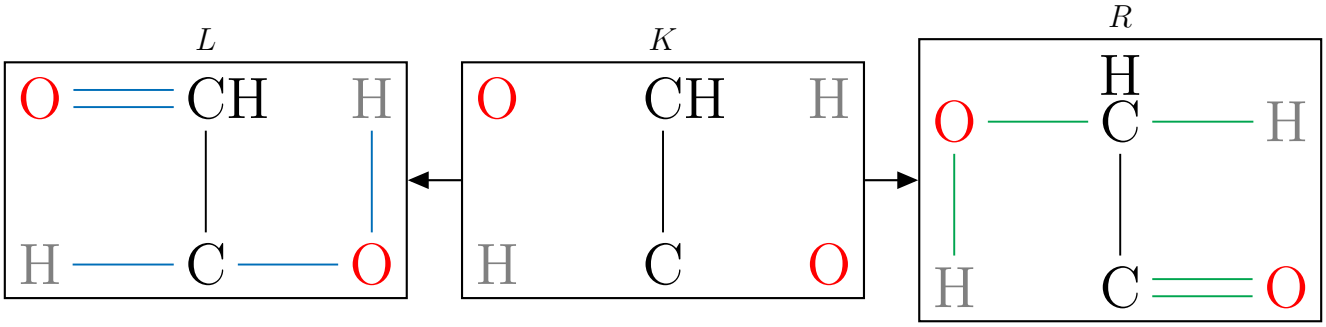

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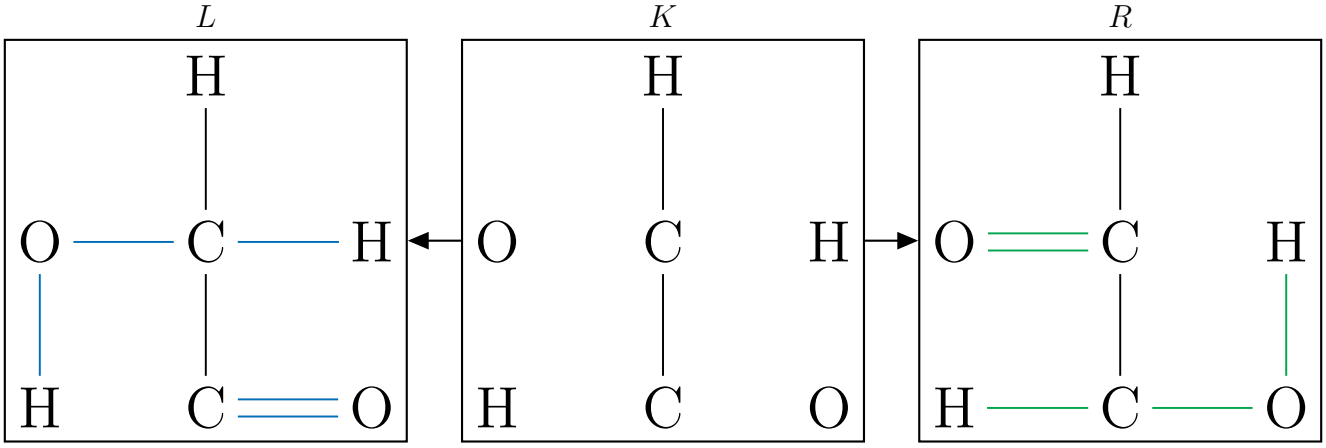

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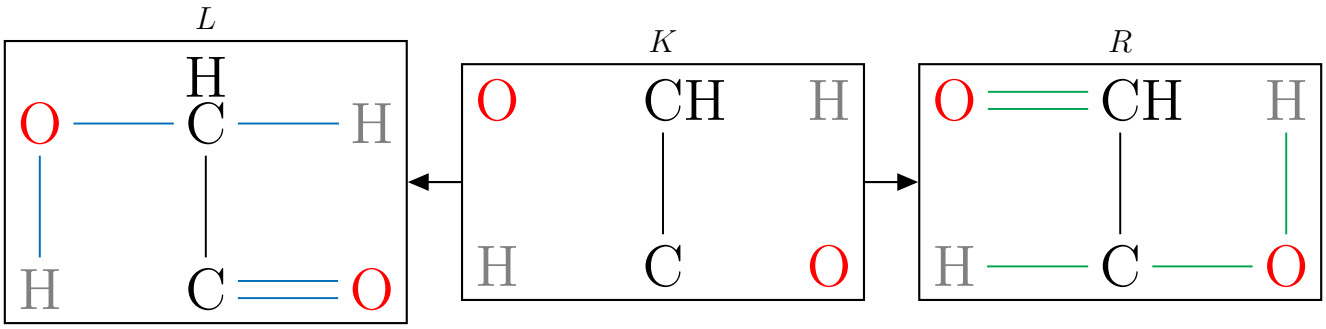

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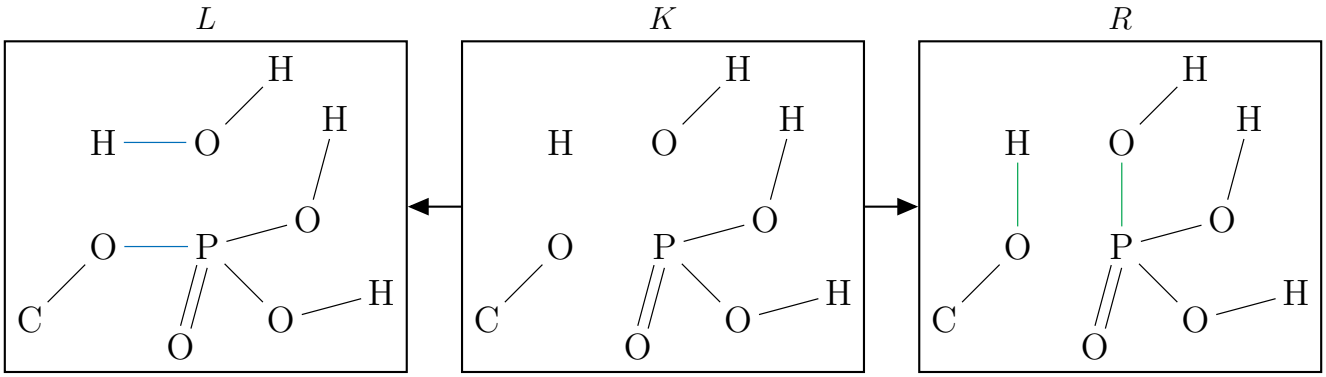

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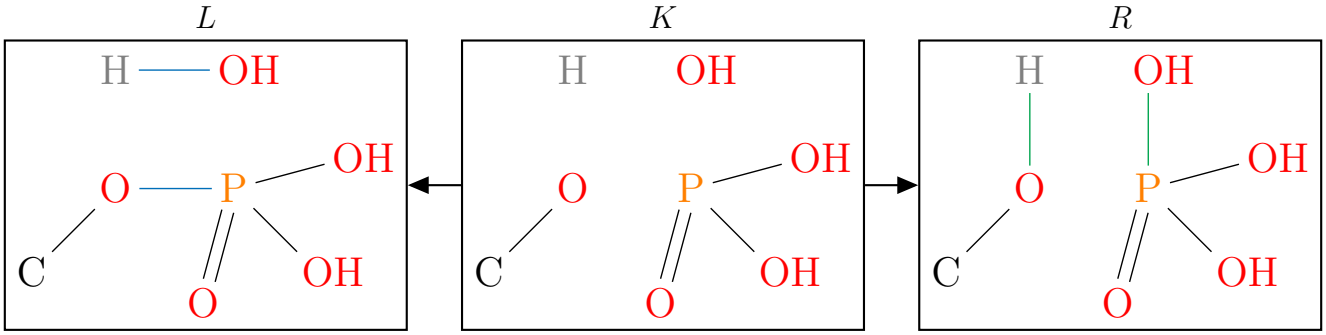

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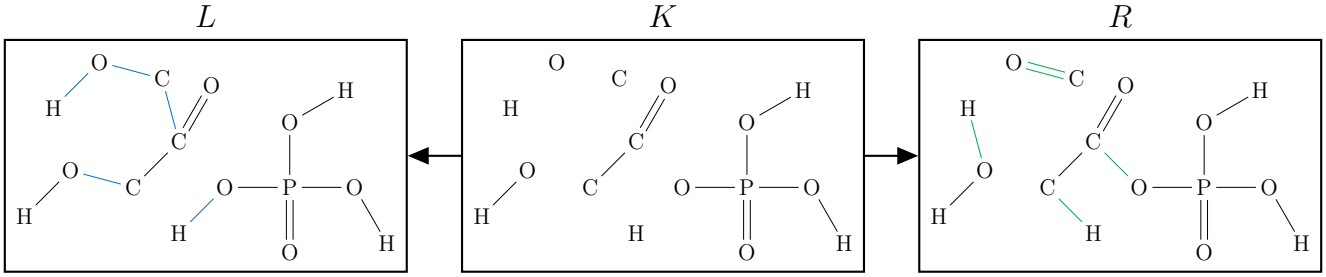

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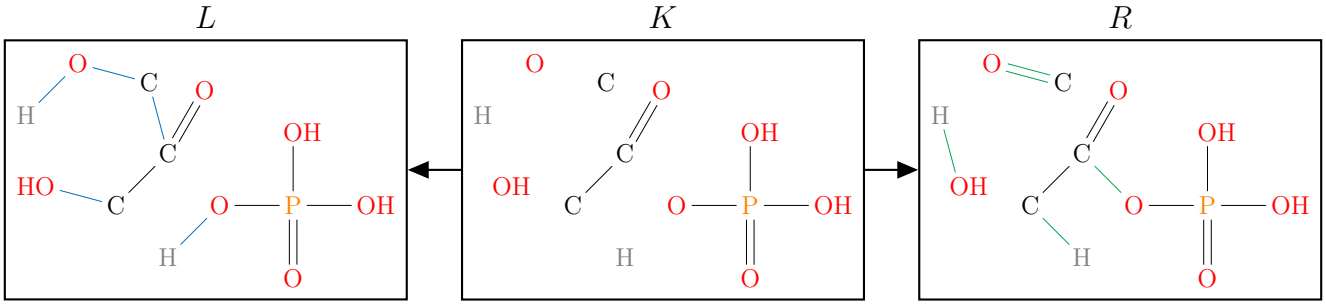

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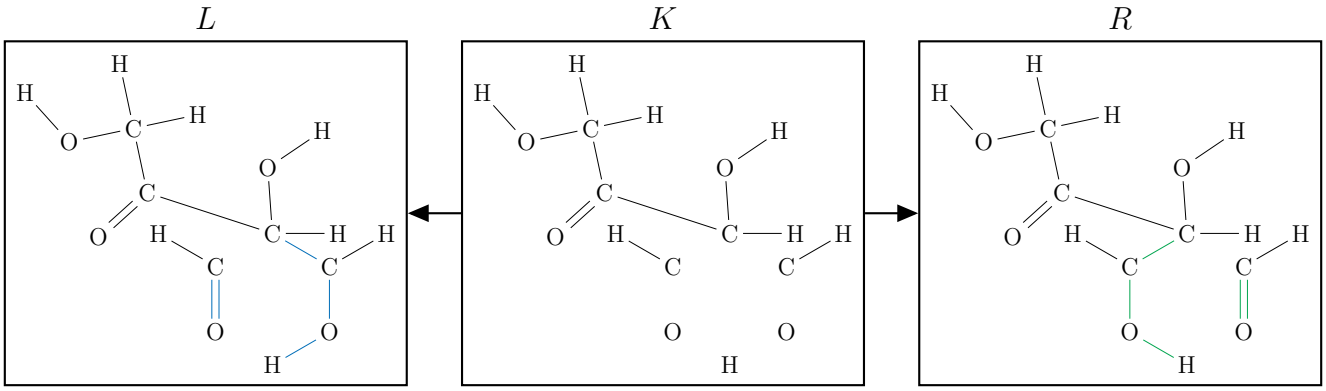

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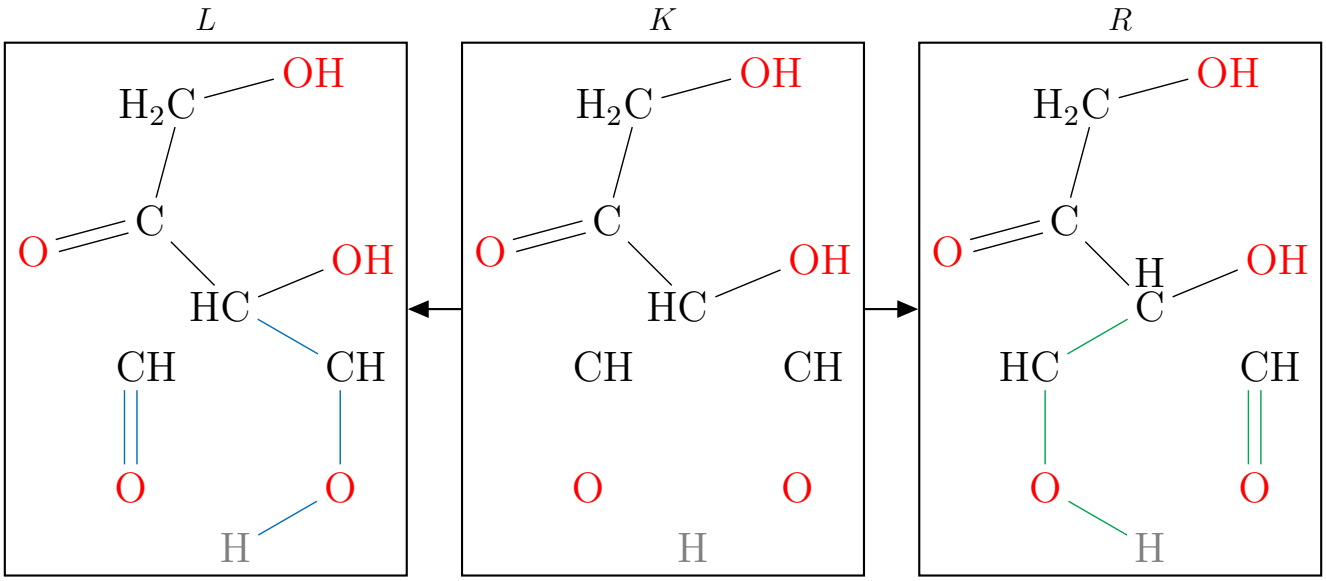

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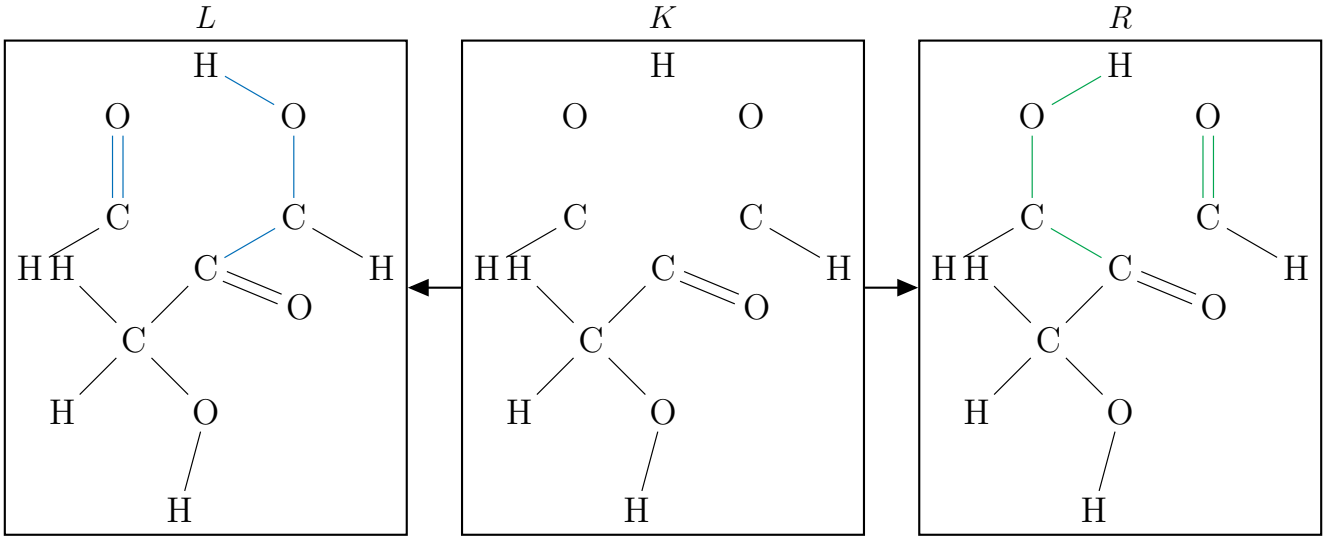

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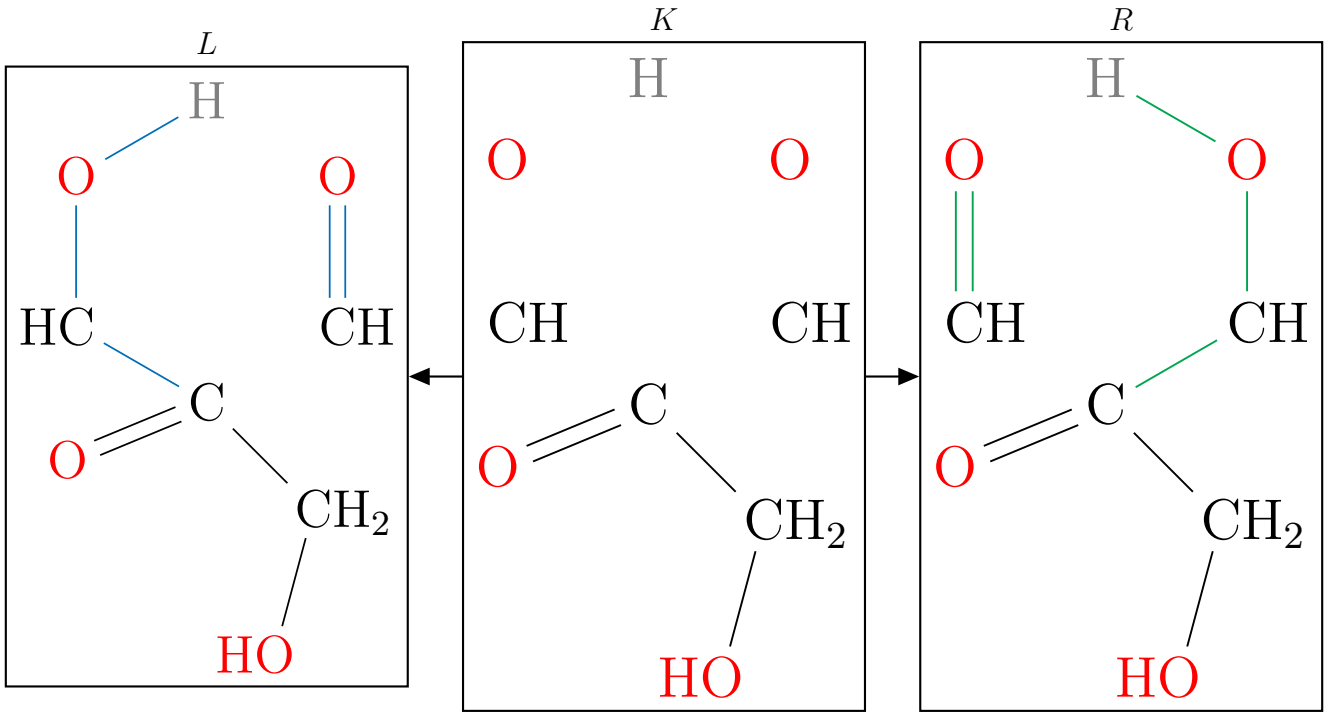

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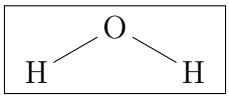

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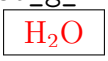

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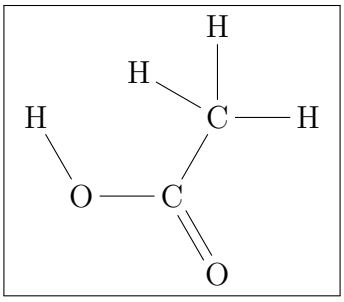

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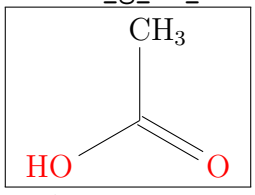

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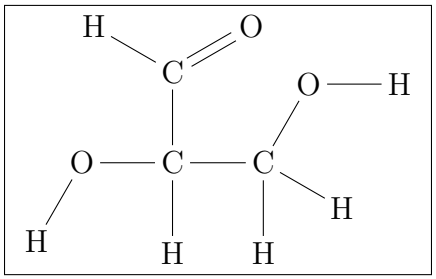
0.1.10 p_{0,7}



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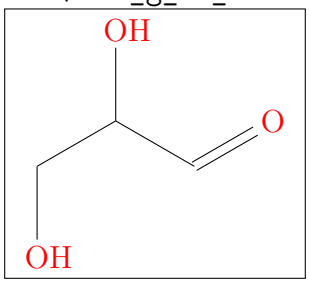

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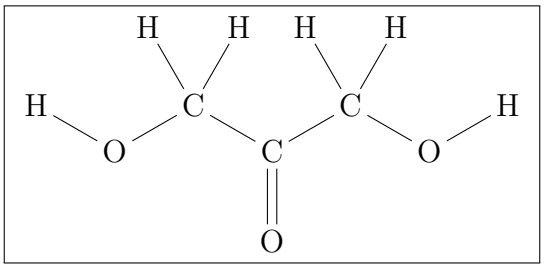

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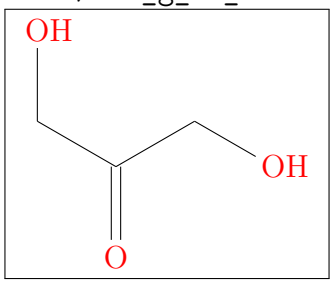

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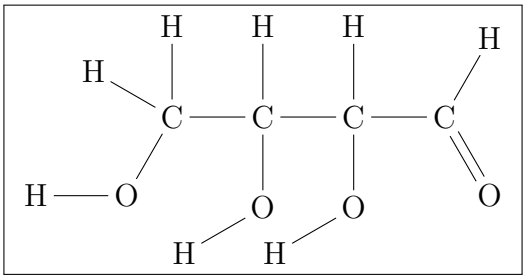

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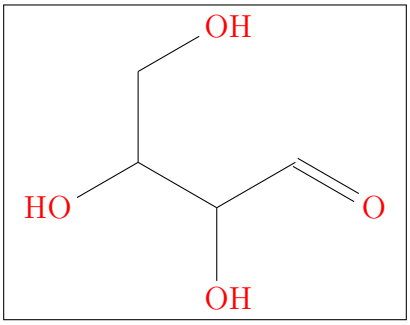

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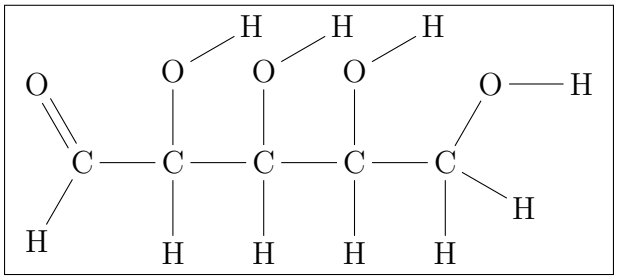

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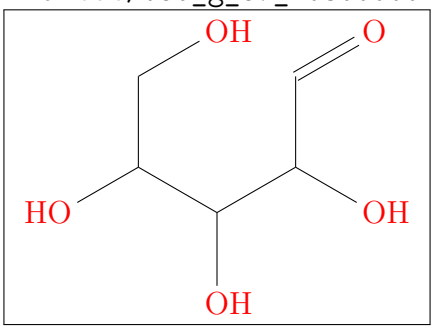

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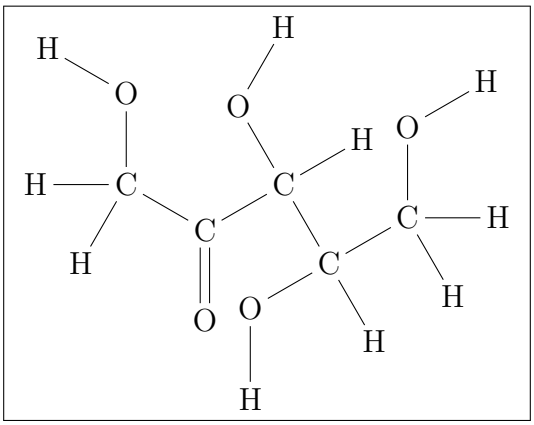

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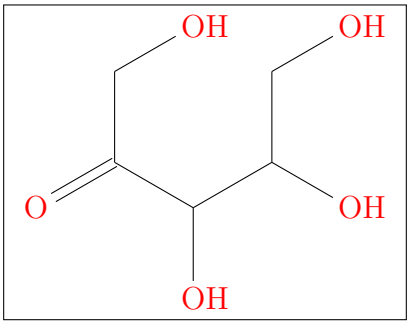

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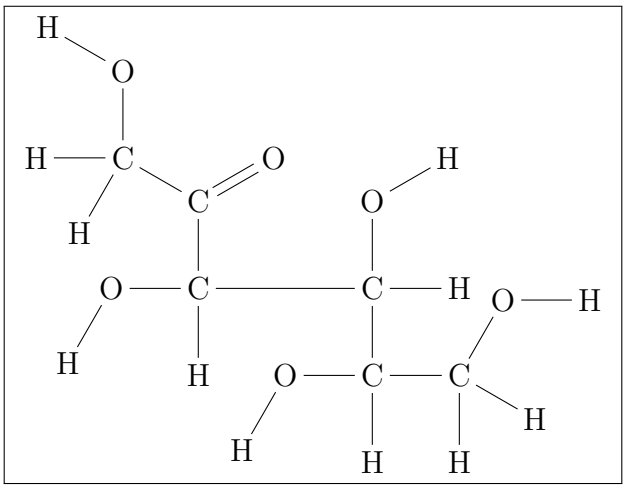

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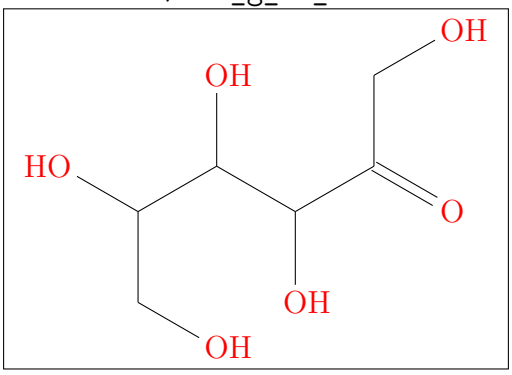

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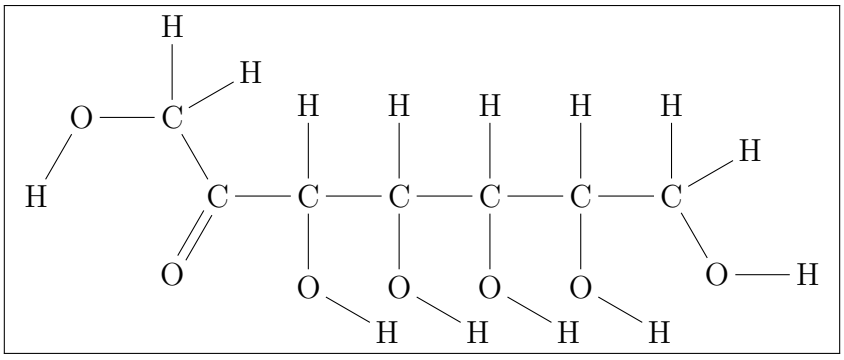

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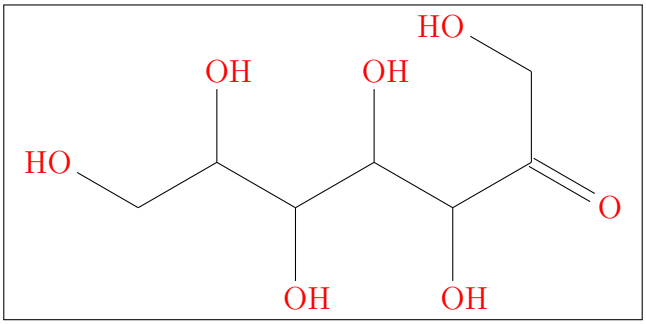

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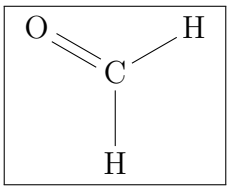

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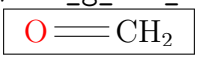

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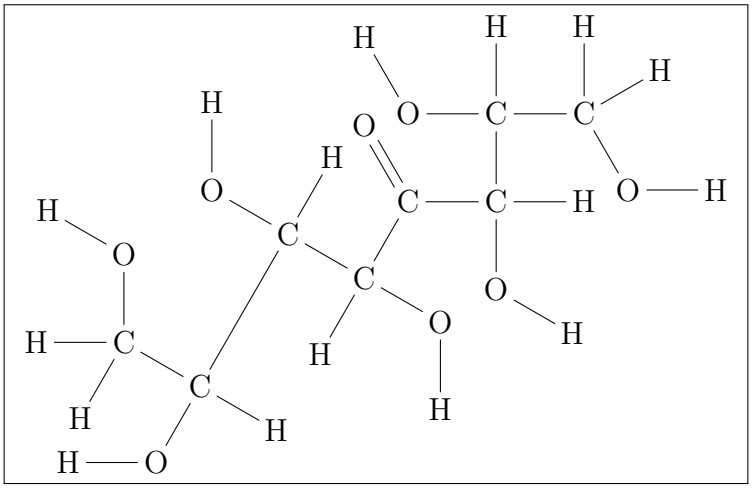

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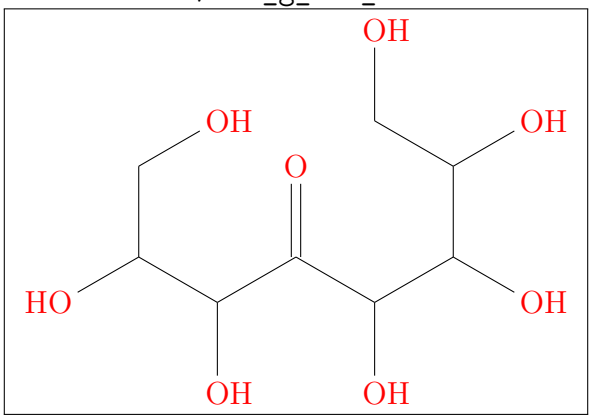

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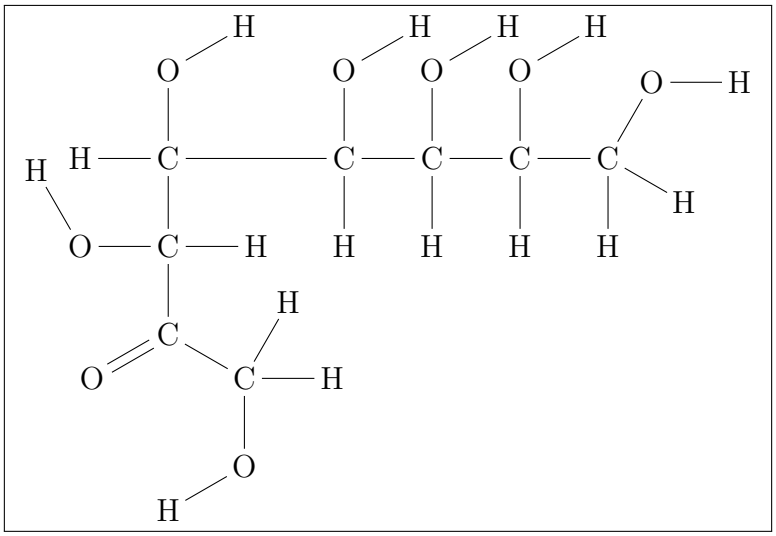

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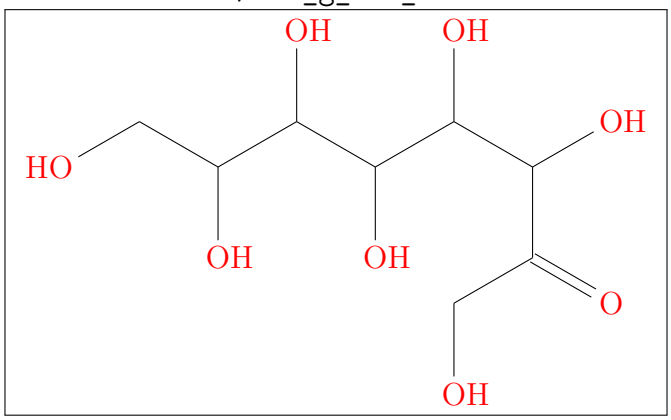

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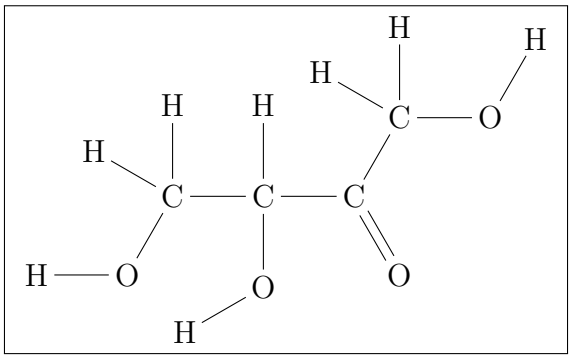

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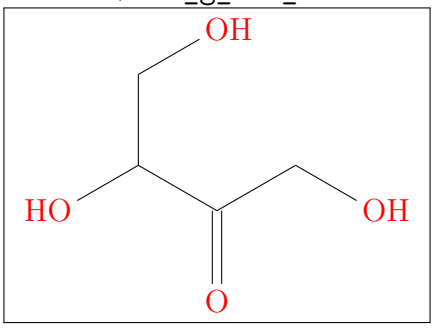

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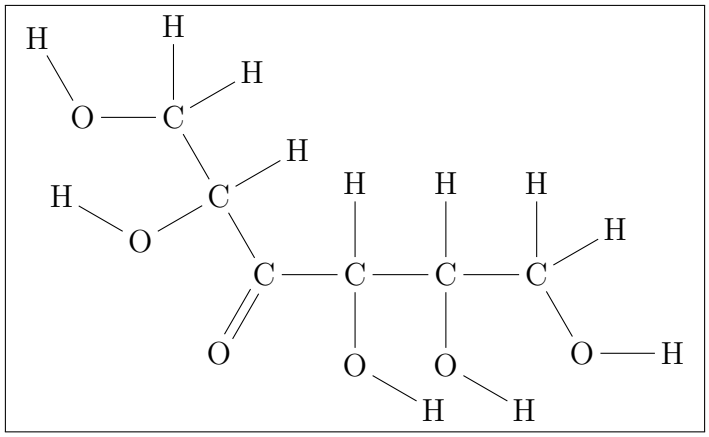
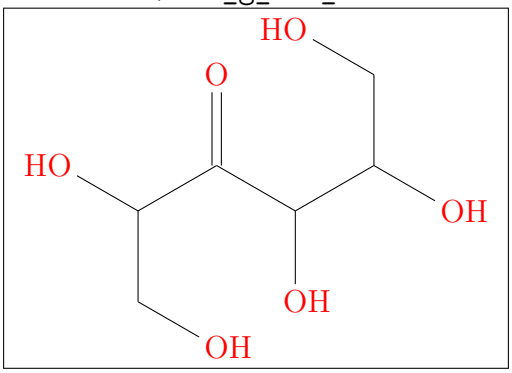
0.1.21 p_{0,34}

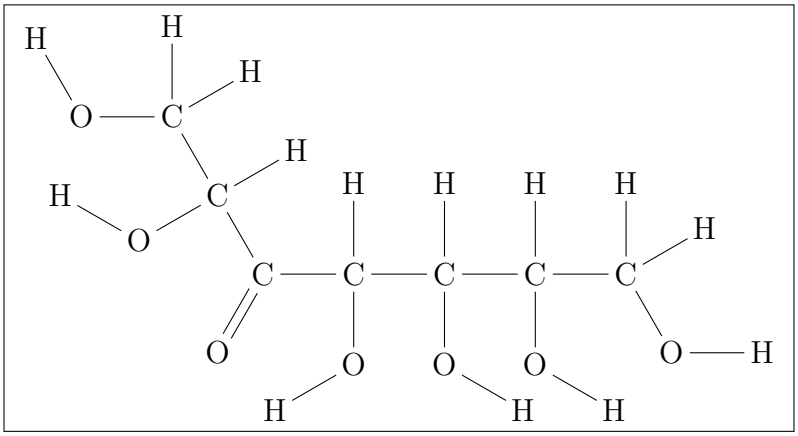


File: out/088_g_312_10300000

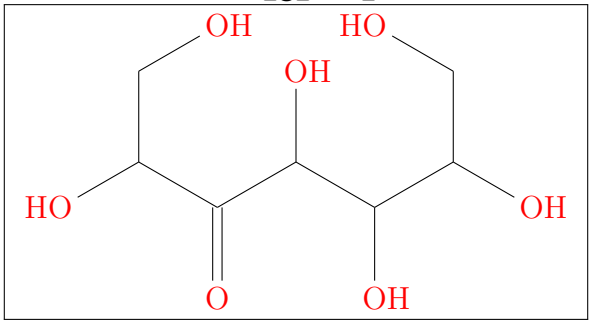


File: out/090_g_312_11310100

0.1.22 p_{0,36}

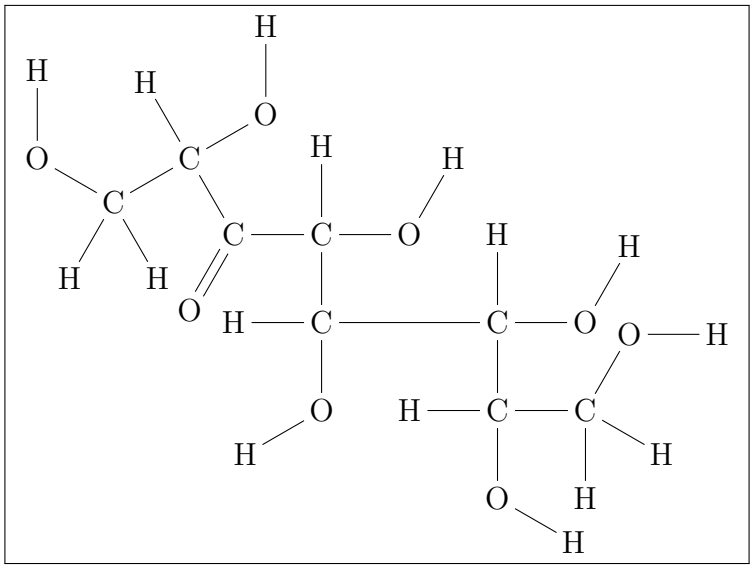


File: out/092_g_318_10300000

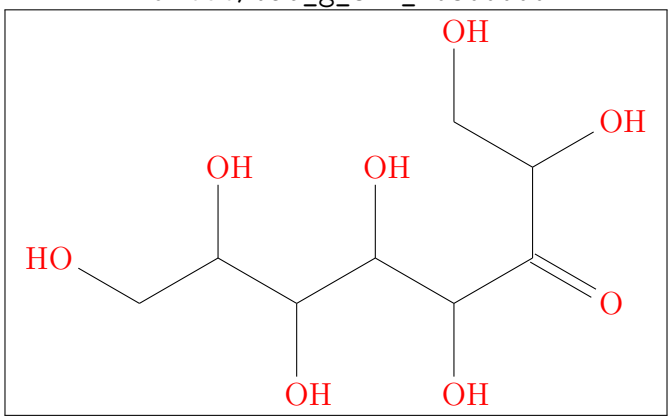


File: out/094_g_318_11310100

0.1.23 p_{0,37}

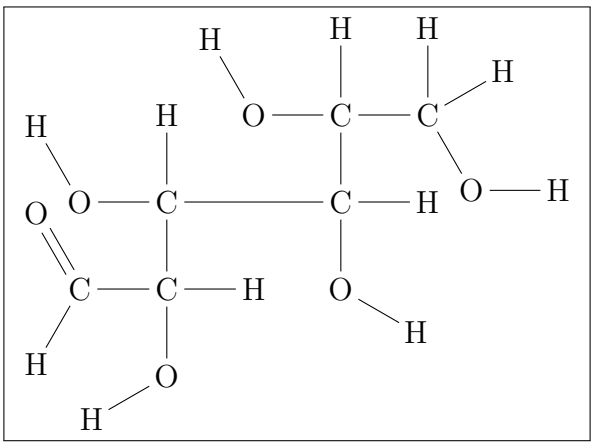


File: out/096_g_324_10300000

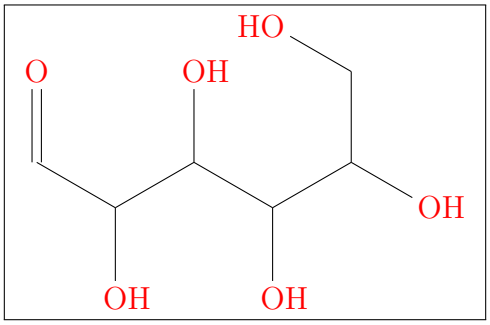


File: out/098_g_324_11310100

0.1.24 p_{0,44}

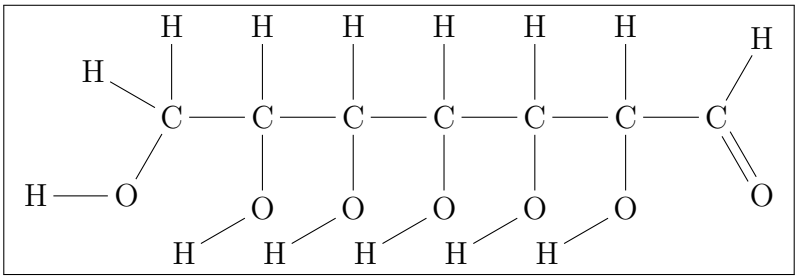


File: out/100_g_365_10300000

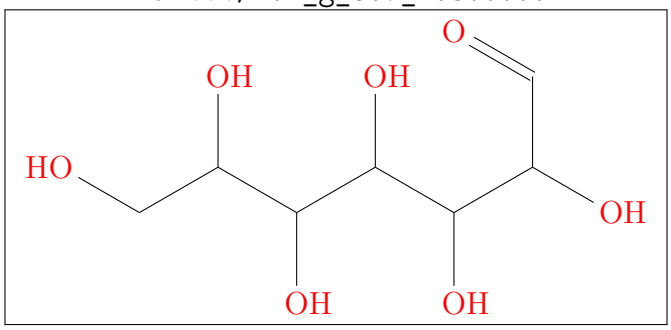


File: out/102_g_365_11310100

0.1.25 p_{0,45}

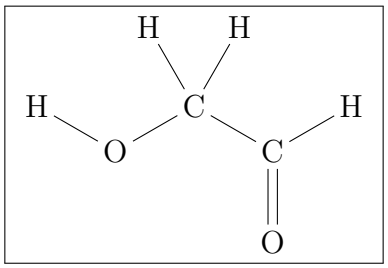


File: out/104_g_367_10300000

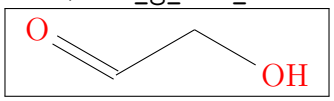


File: out/106_g_367_11310100

0.1.26 p_{0,47}

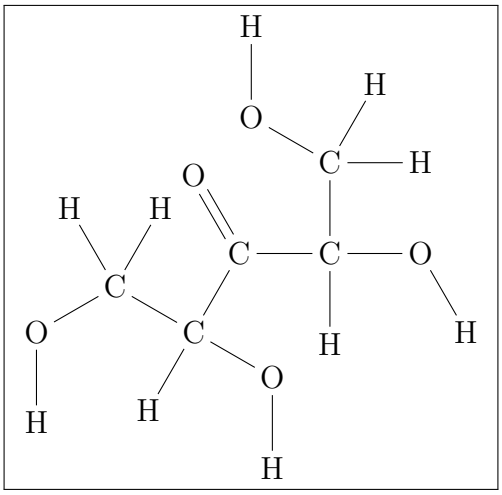


File: out/108_g_412_10300000

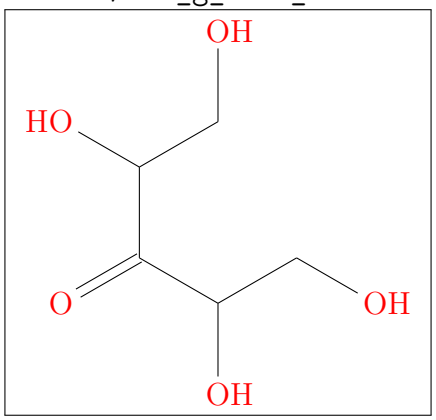


File: out/110_g_412_11310100

0.1.27 p_{0,56}

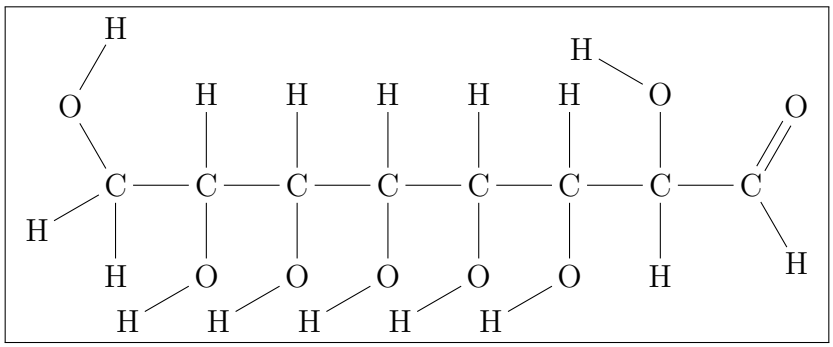


File: out/112_g_1218_10300000

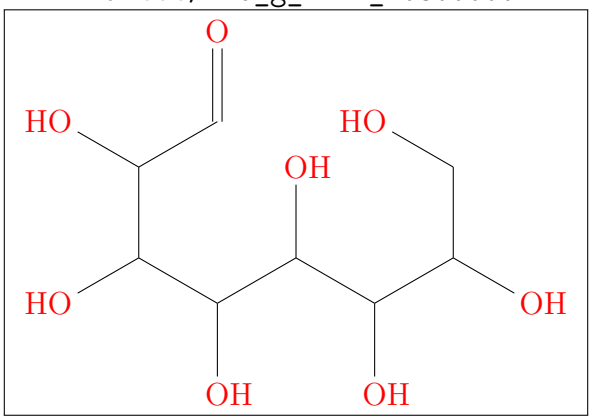


File: out/114_g_1218_11310100

0.1.28 p_{0,57}

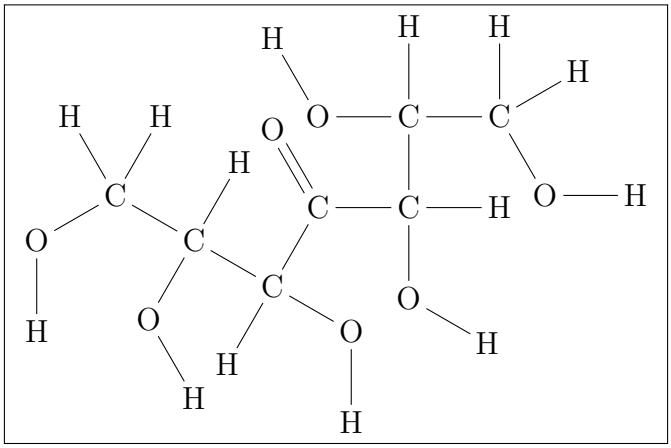


File: out/116_g_1221_10300000

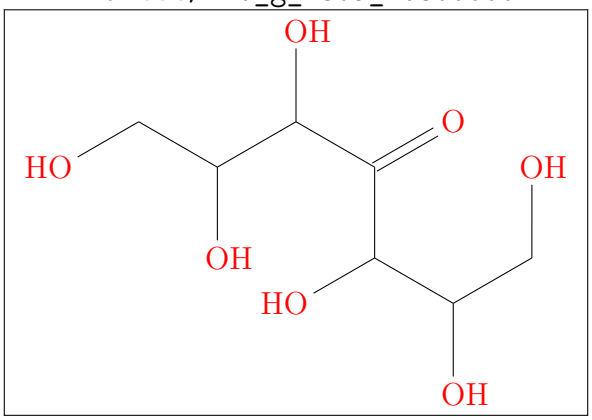


File: out/118_g_1221_11310100

0.1.29 p_{0,60}

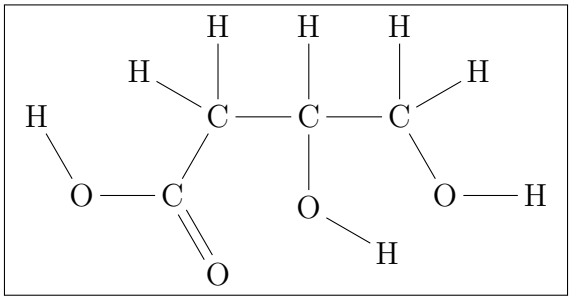


File: out/120_g_1309_10300000

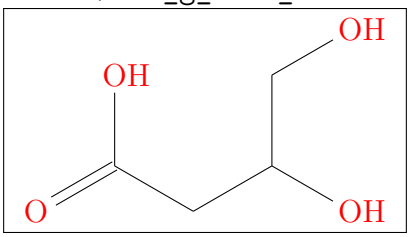


File: out/122_g_1309_11310100

0.1.30 p_{0,61}

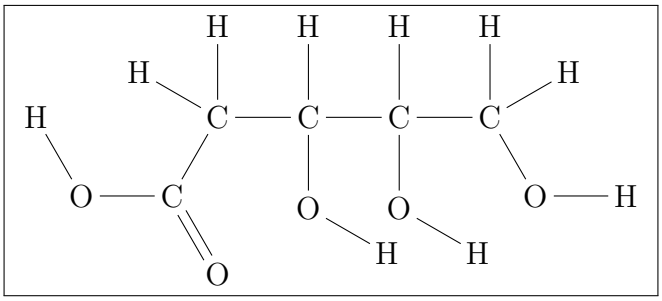


File: out/124_g_1429_10300000

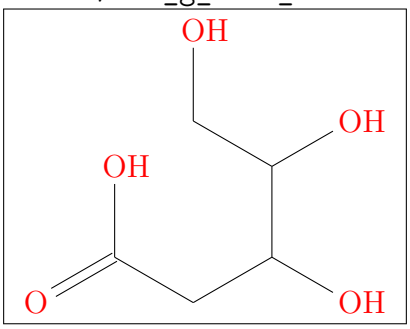


File: out/126_g_1429_11310100

0.1.31 p_{0,62}

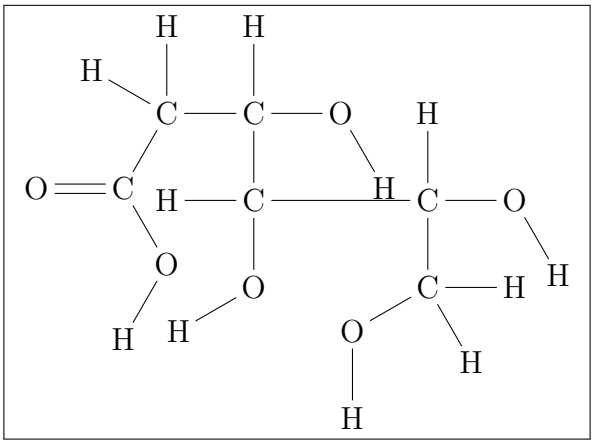


File: out/128_g_1437_10300000

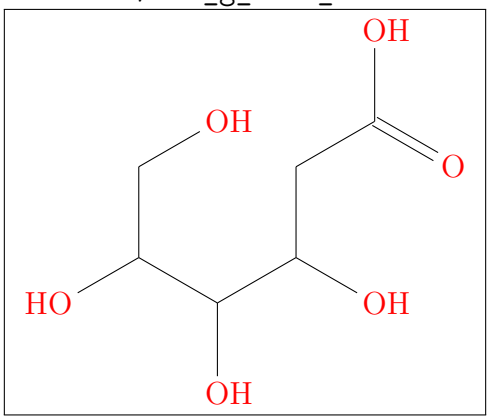


File: out/130_g_1437_11310100

0.1.32 p_{0,63}

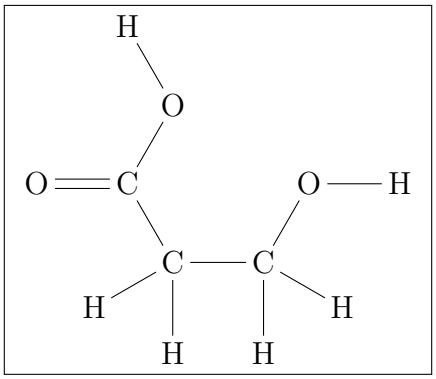


File: out/132_g_1445_10300000

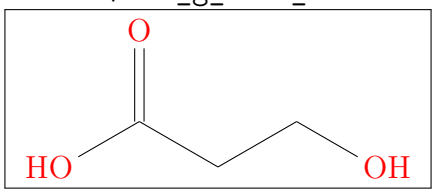


File: out/134_g_1445_11310100

0.1.33 p_{0,68}

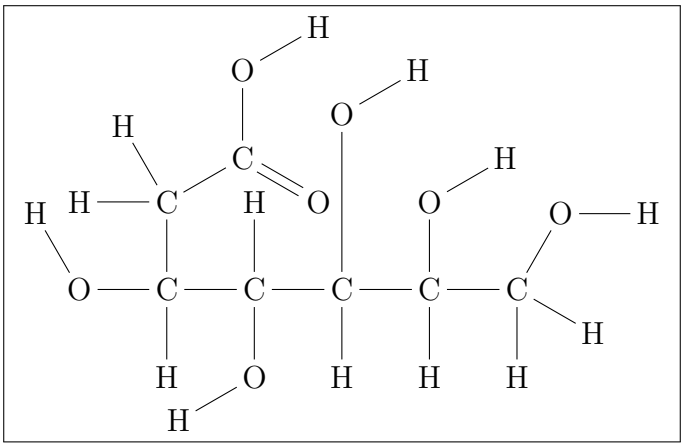


File: out/136_g_2596_10300000

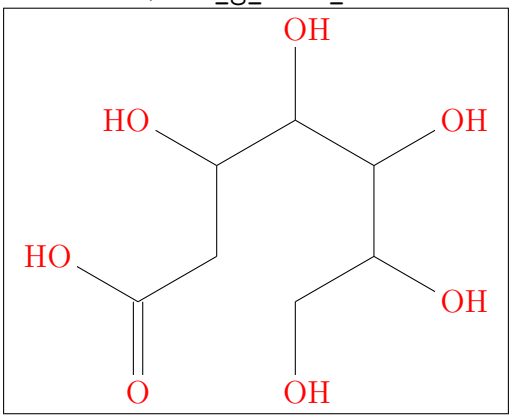


File: out/138_g_2596_11310100

0.1.34 p_{0,69}



File: out/140_g_2604_10300000



File: out/142_g_2604_11310100

0.2 Derivation Graph

0.2.1 DG Hyper, dg_0

Figure too large, see out/143_dg_0_11100_coord.pdf

File: out/279_dg_0_11100

|V| = 81
|E| = 414

0.3 Enumerated Flows with 7 reactions

0.4 Enumerated Flows with 7 unique reactions

0.5 Enumerated Flows with 8 unique reactions

0.6 Enumerated Flows with 9 unique reactions

0.7 Enumerated Flows with 10 unique reactions

0.8 Enumerated Flows with 11 unique reactions

0.9 Enumerated Flows with 8 reactions

0.10 Enumerated Flows with 7 unique reactions

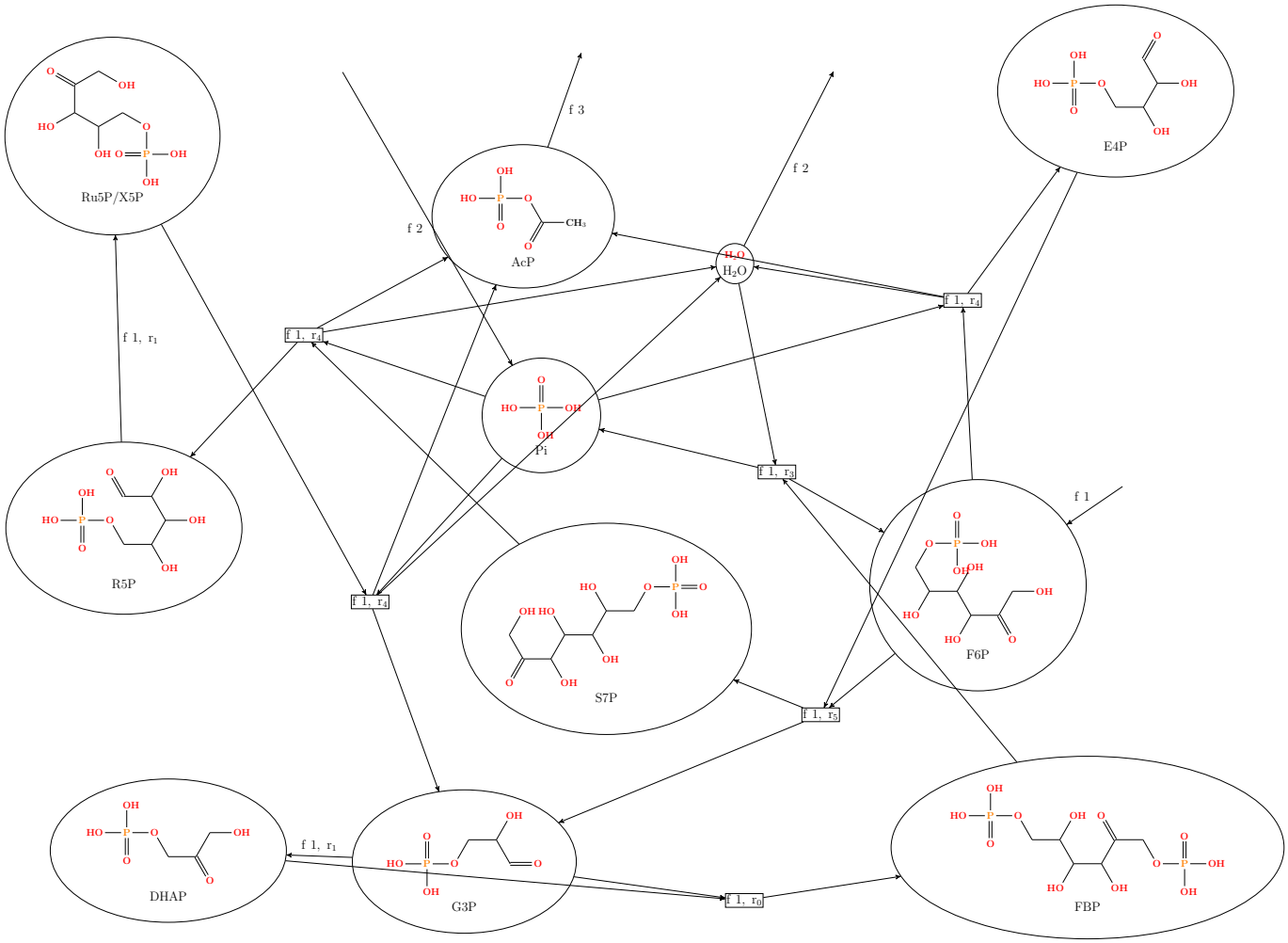
0.11 Enumerated Flows with 8 unique reactions

0.11.1 Solution 0

Overall Data

```
Objective value (integral): 8
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/284_dg_0_11100_f_0_0_filt`

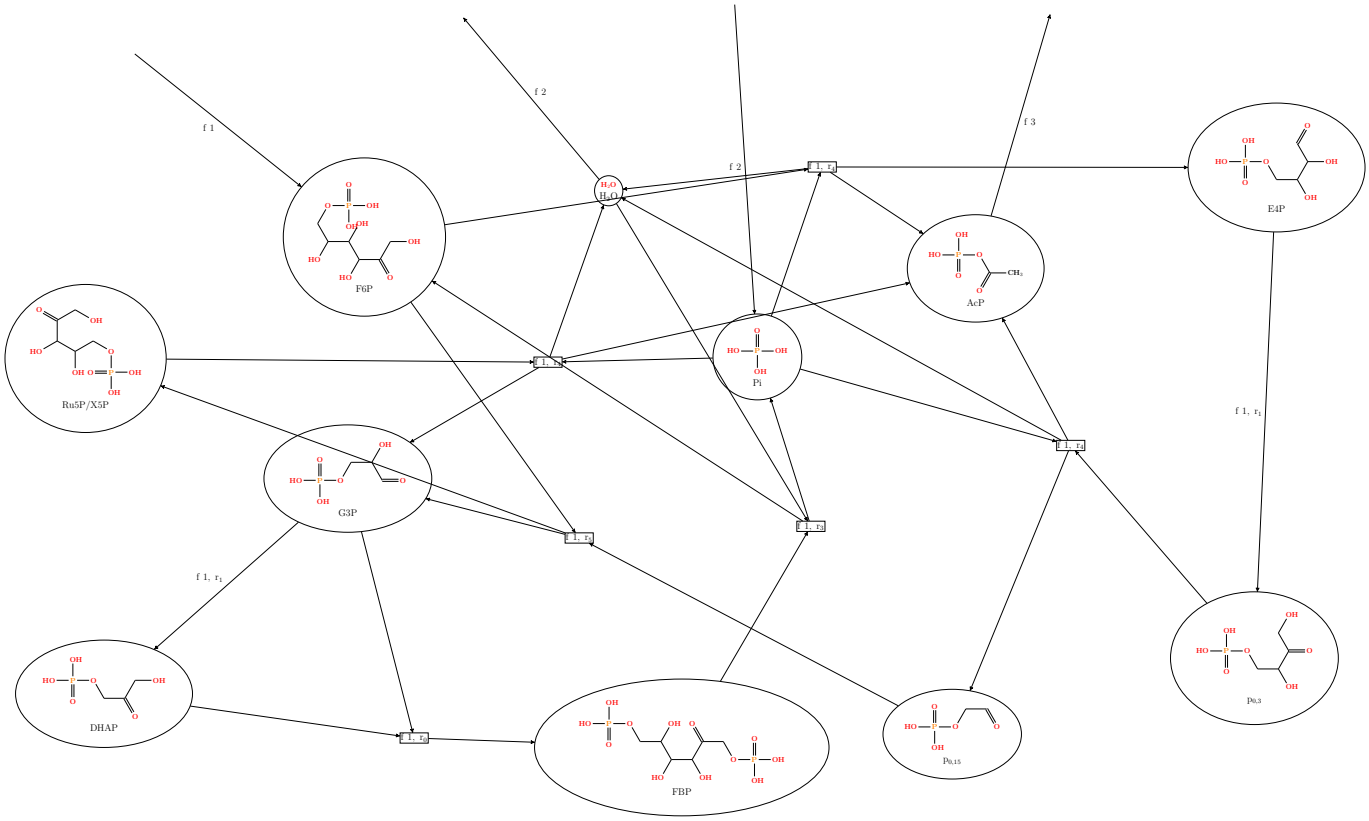
$|\mathrm{E}| = 8 \quad |\mathrm{P}| = 8$

0.11.2 Solution 1

Overall Data

```
Objective value (integral): 8
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/289_dg_0_11100_f_0_1_filt`

$|\mathrm{E}| = 8 \quad |\mathrm{P}| = 8$

0.12 Enumerated Flows with 9 unique reactions

0.13 Enumerated Flows with 10 unique reactions

0.14 Enumerated Flows with 11 unique reactions

0.15 Enumerated Flows with 9 reactions

0.16 Enumerated Flows with 7 unique reactions

0.17 Enumerated Flows with 8 unique reactions

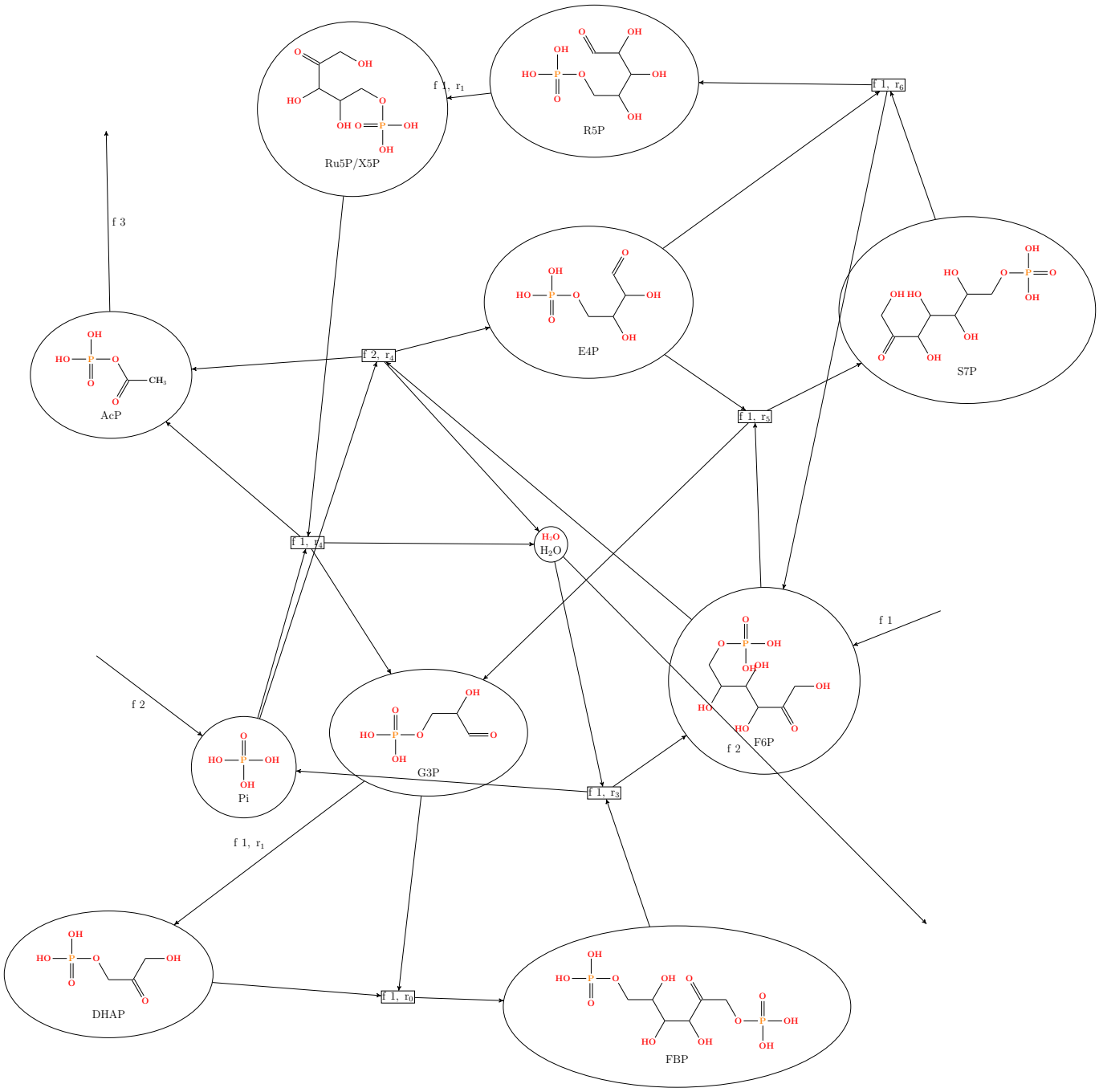
0.17.1 Solution 2

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP           0  3
F6P           1  0
```

```
H_2O            0  2
Pi              2  0
```

Filtered Graph



File: `out/294_dg_0_11100_f_0_2_filt`

$|E| = 8 \quad |P| = 9$

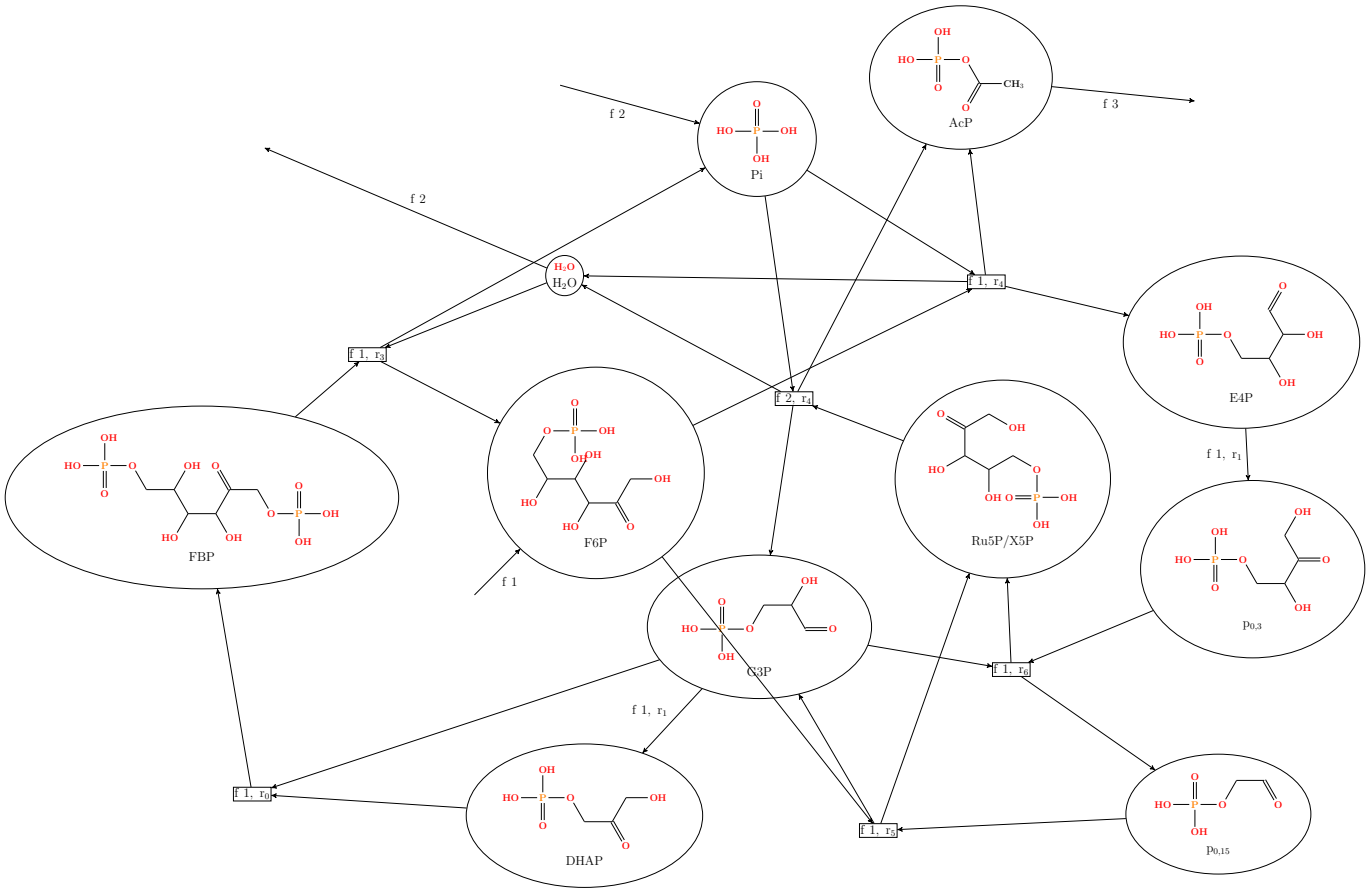
0.17.2 Solution 3

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP             0  3
```

```
F6P             1  0
H_2O            0  2
Pi              2  0
```

Filtered Graph



File: `out/299_dg_0_11100_f_0_3_filt`

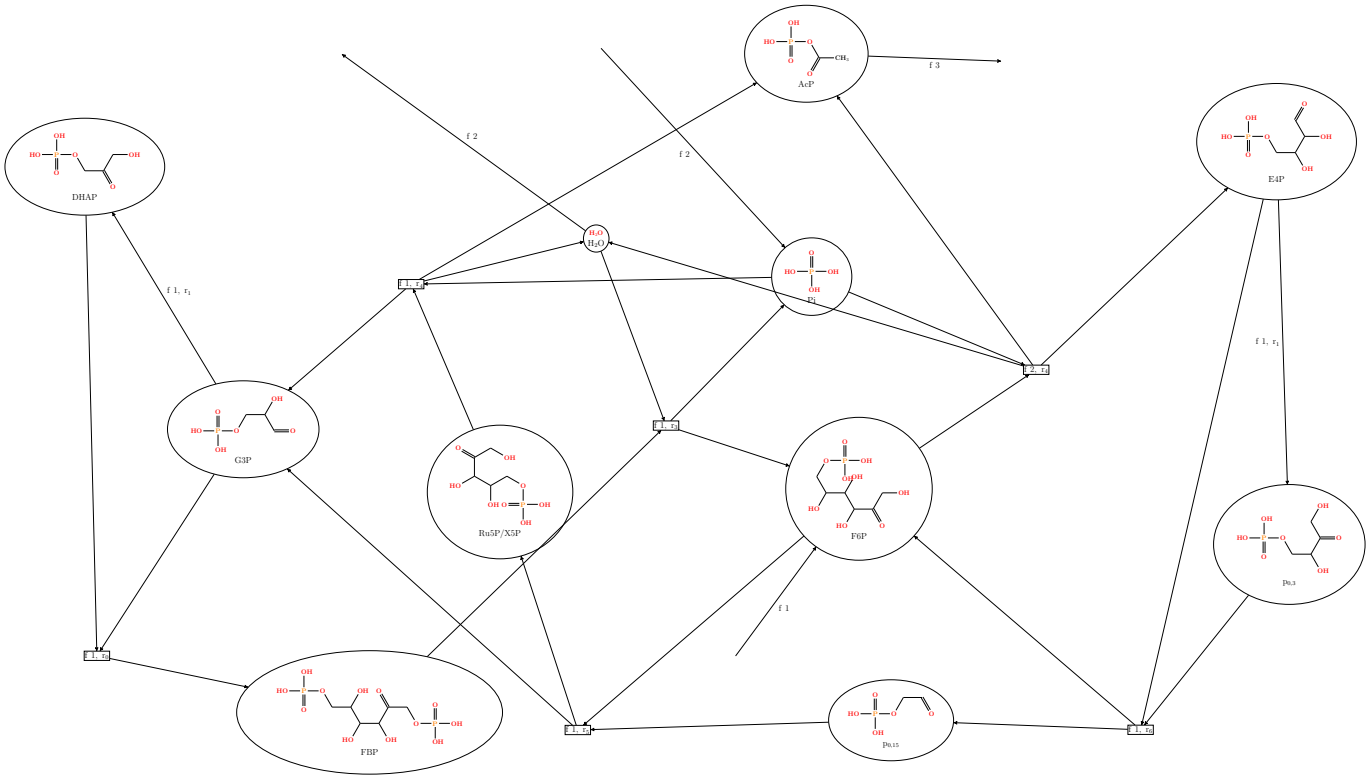
$|\mathrm{E}| = 8 \quad |\mathrm{P}| = 9$

0.17.3 Solution 5

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP             0  3
F6P             1  0
H_2O            0  2
Pi              2  0
```

Filtered Graph



File: `out/304_dg_0_11100_f_0_5_filt`

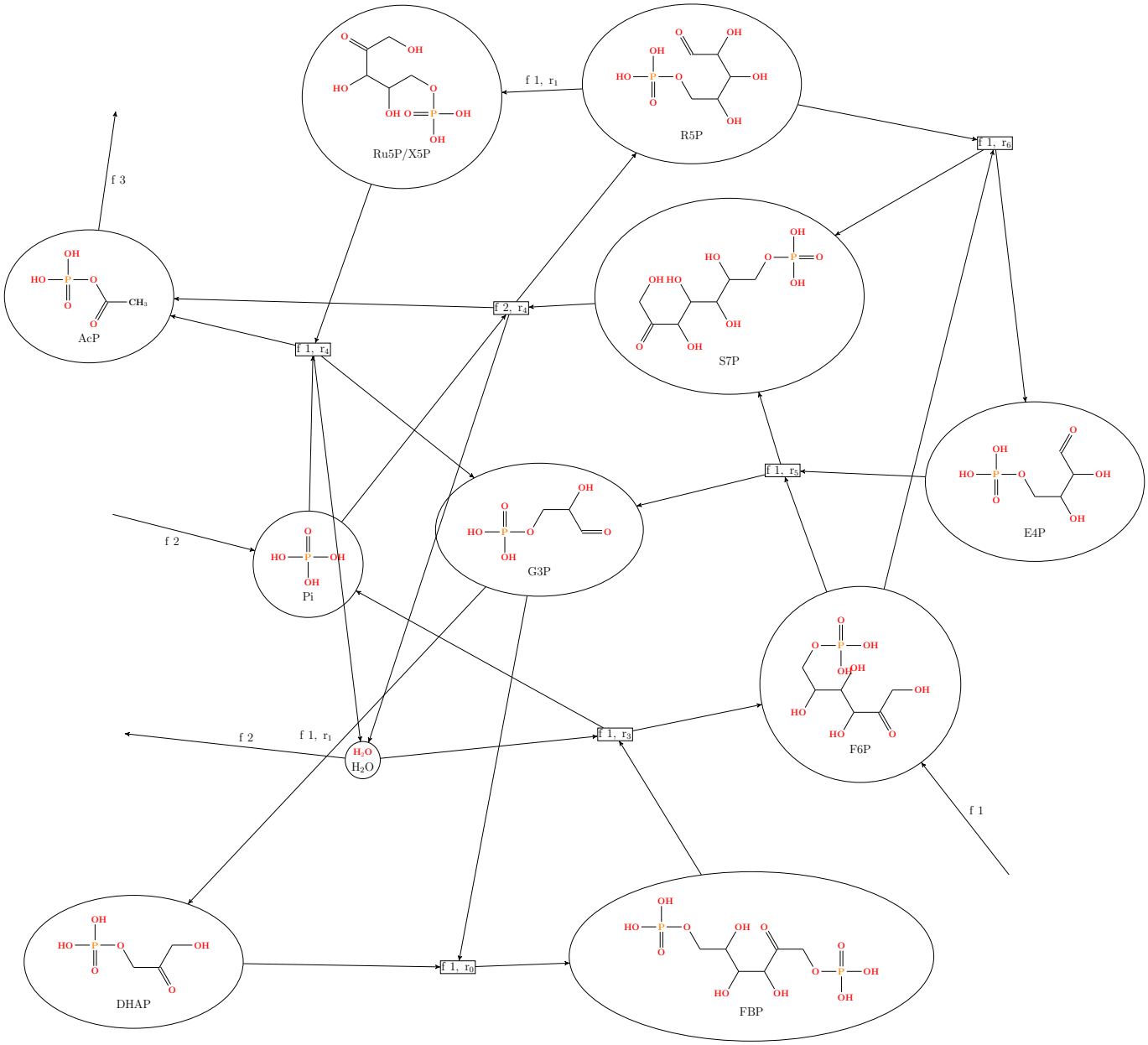
$|\mathrm{E}| = 8 \quad |\mathrm{P}| = 9$

0.17.4 Solution 8

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/309_dg_0_11100_f_0_8_filt`

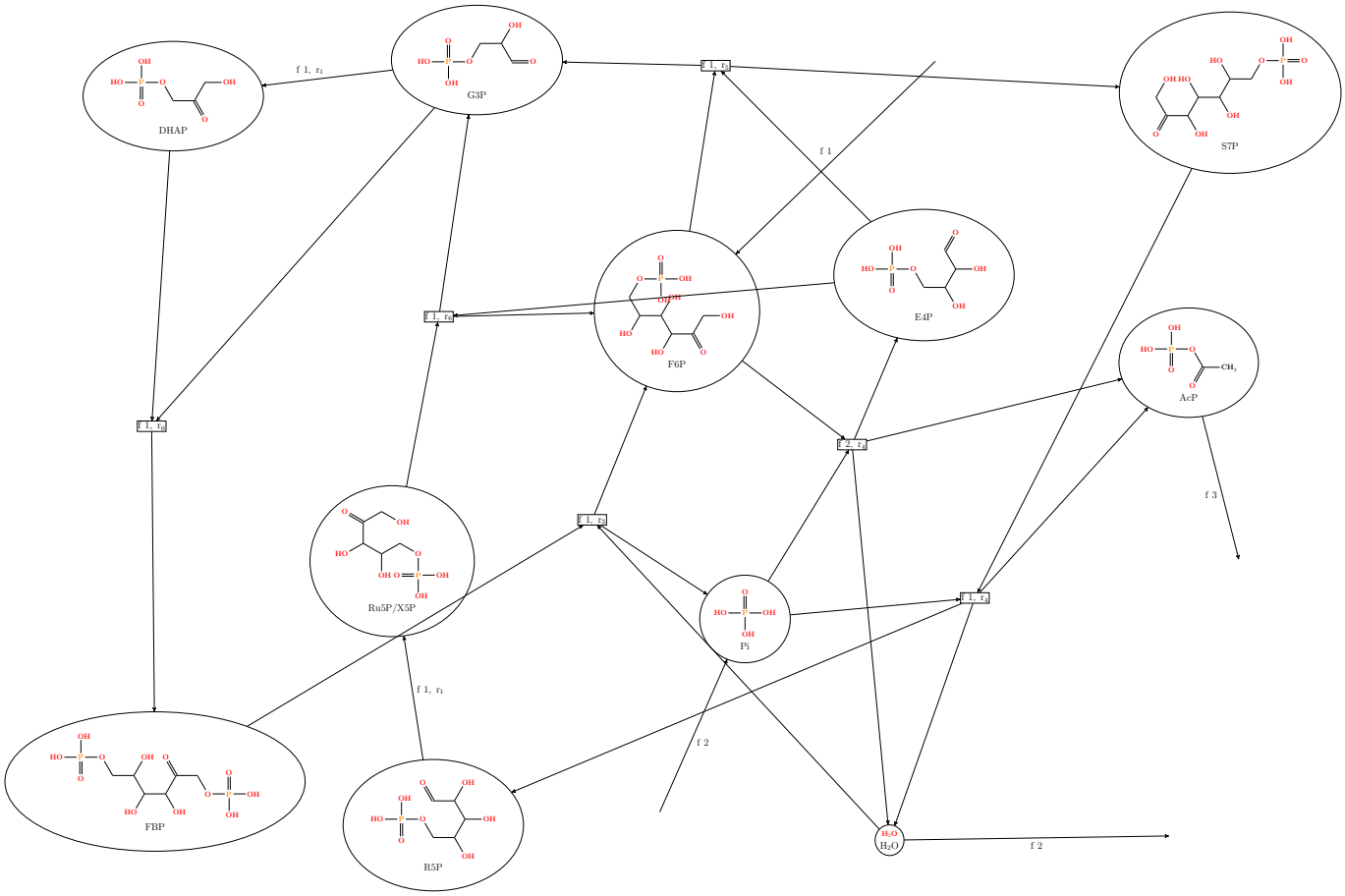
$|E| = 8 \quad |P| = 9$

0.17.5 Solution 12

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/314_dg_0_11100_f_0_12_filt`

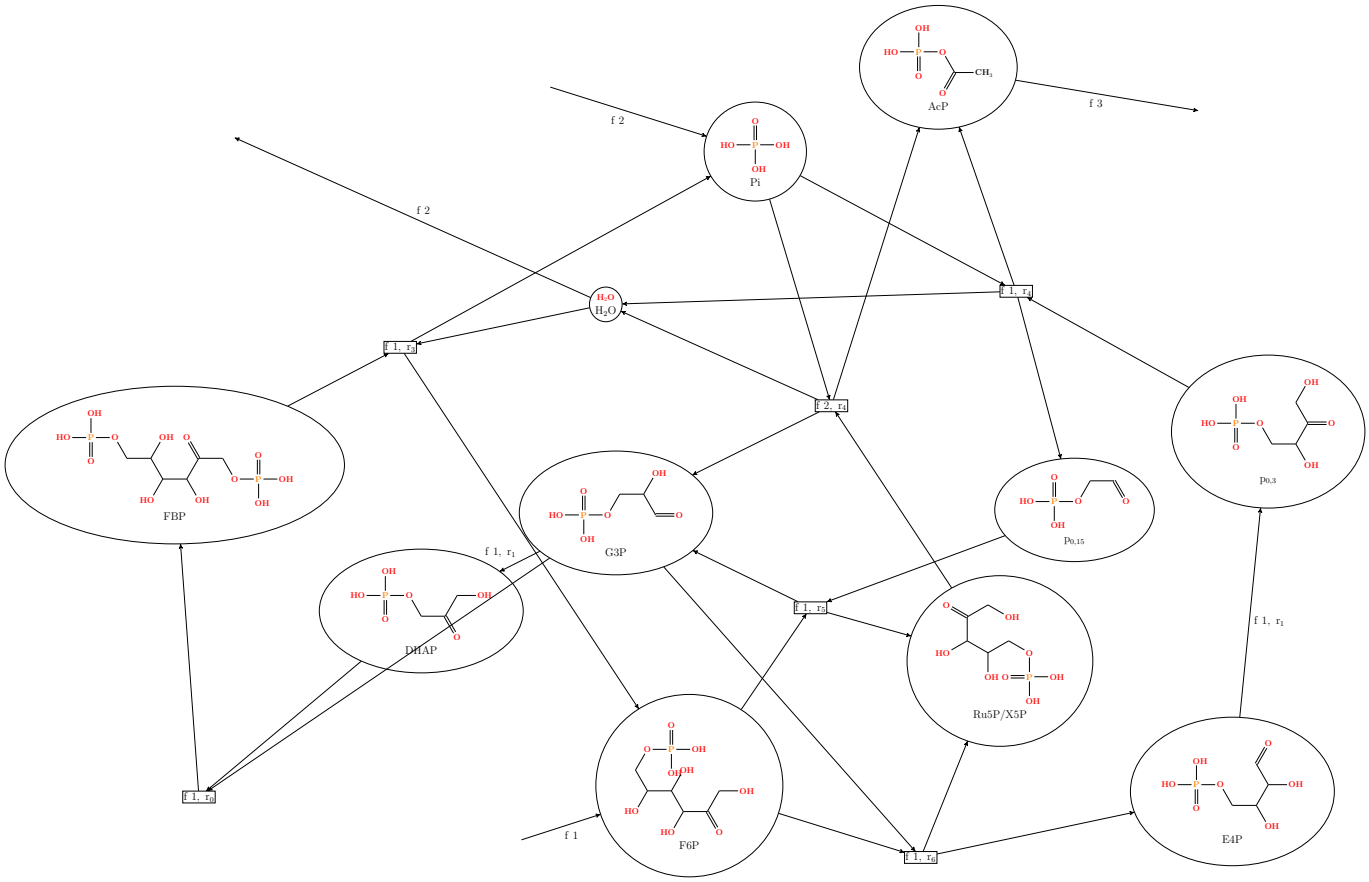
$|\mathrm{E}| = 8 \quad |\mathrm{P}| = 9$

0.17.6 Solution 13

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/319_dg_0_11100_f_0_13_filt`

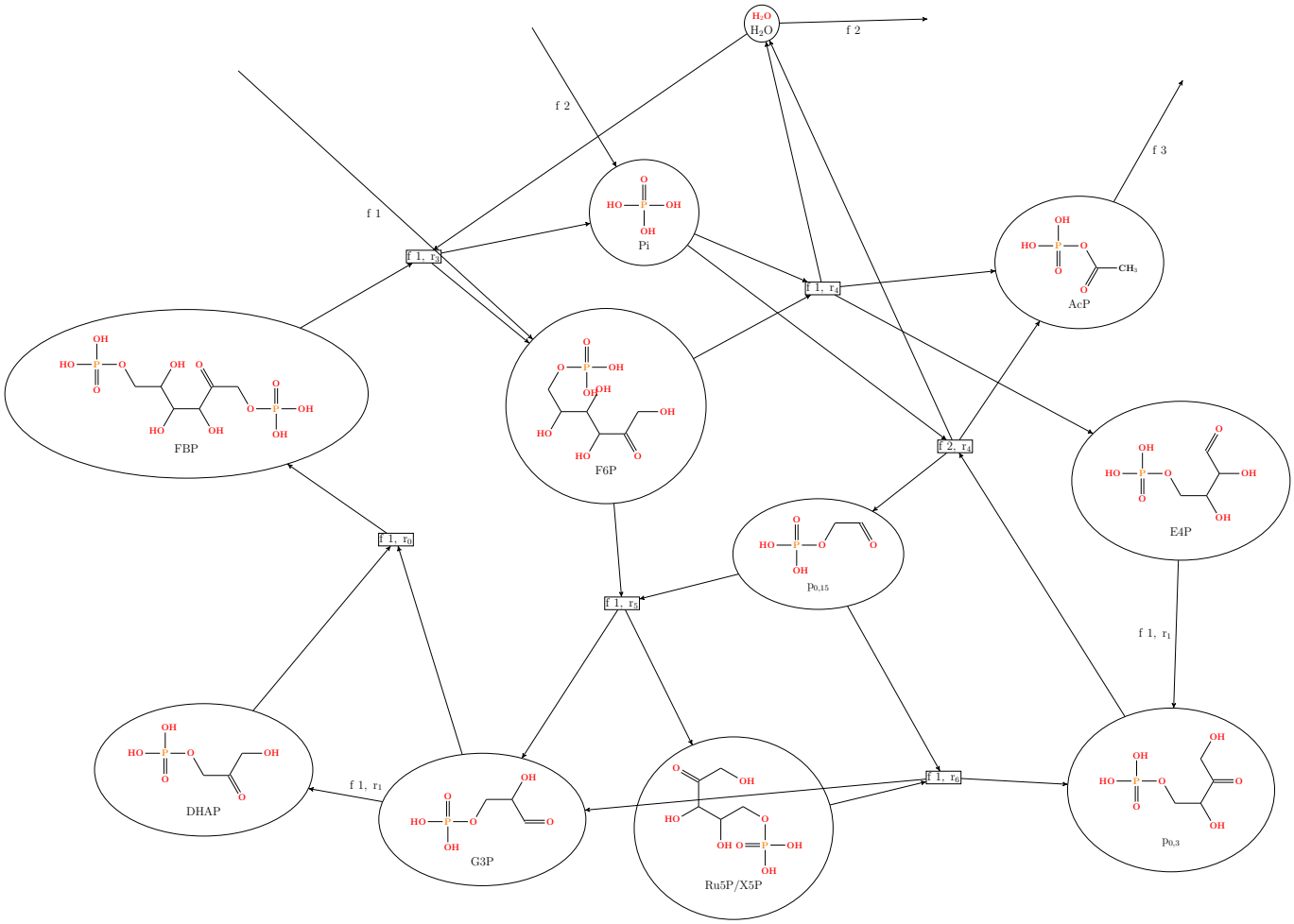
$|\mathrm{E}| = 8 \quad |\mathrm{P}| = 9$

0.17.7 Solution 14

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/324_dg_0_11100_f_0_14_filt`

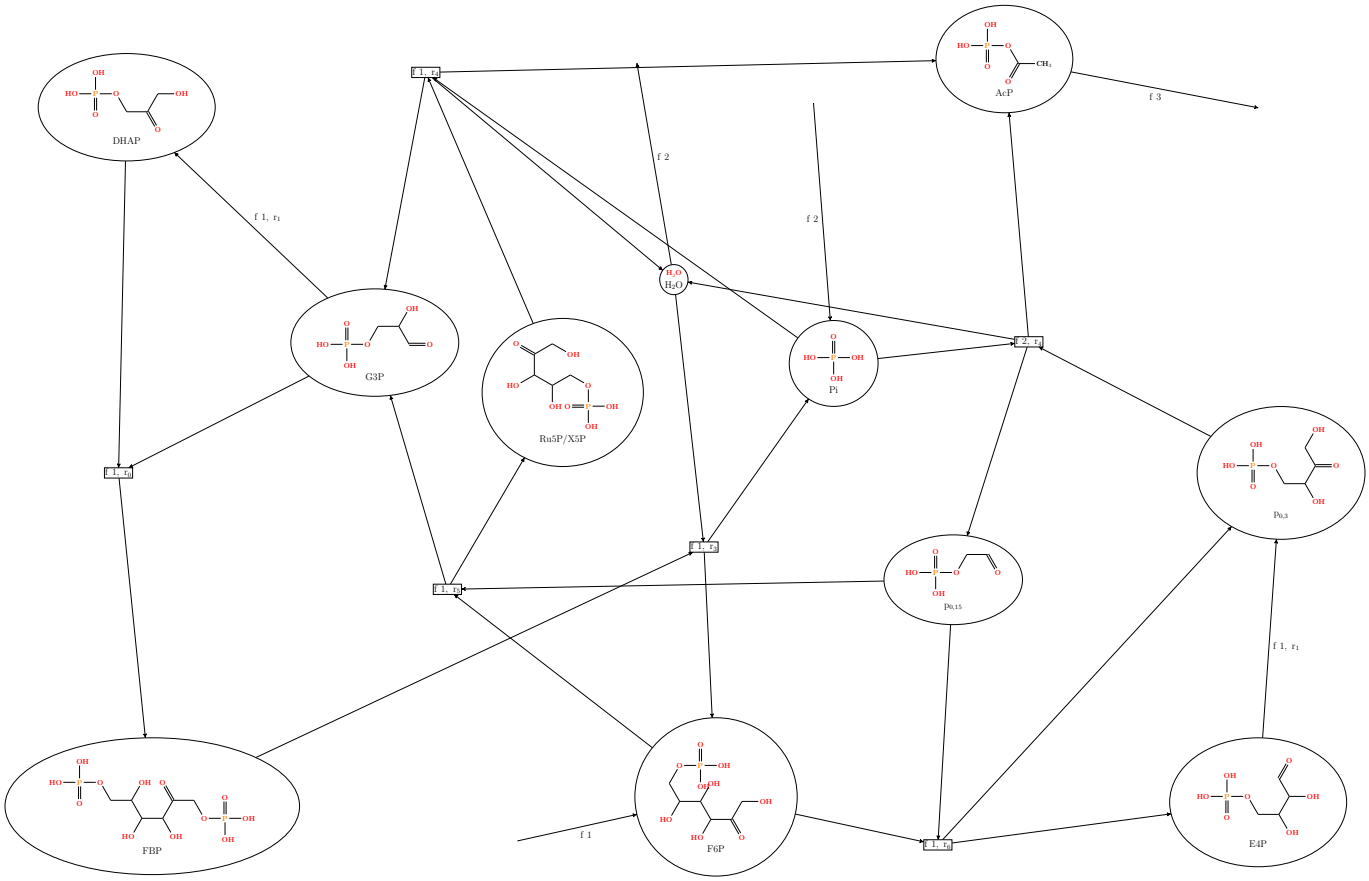
$|\mathrm{E}| = 8 \quad |\mathrm{P}| = 9$

0.17.8 Solution 17

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/329_dg_0_11100_f_0_17_filt`

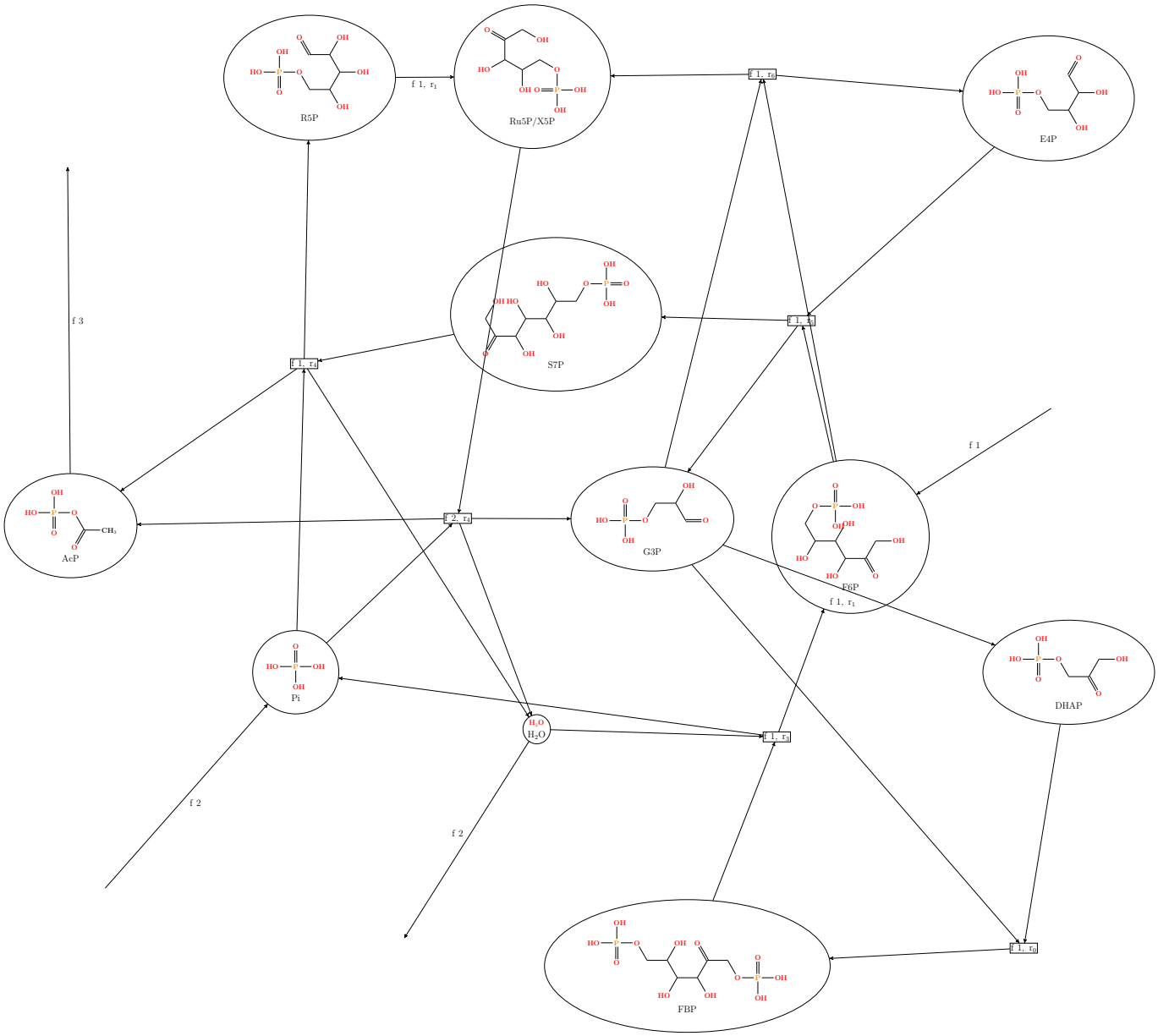
$|\mathrm{E}| = 8 \quad |\mathrm{P}| = 9$

0.17.9 Solution 18

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/334_dg_0_11100_f_0_18_filt`

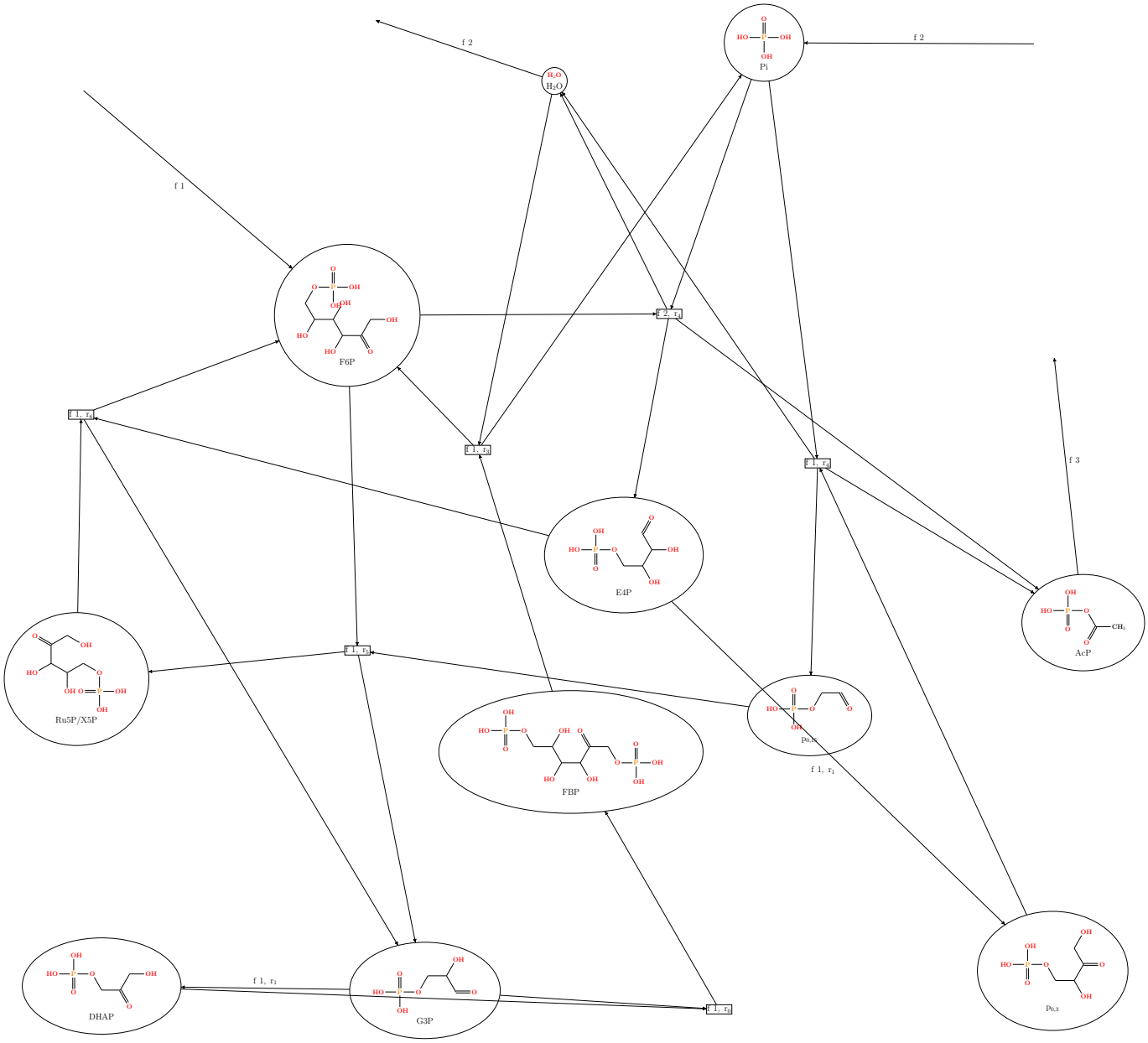
$|\mathrm{E}| = 8 \quad |\mathrm{P}| = 9$

0.17.10 Solution 21

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/339_dg_0_11100_f_0_21_filt`

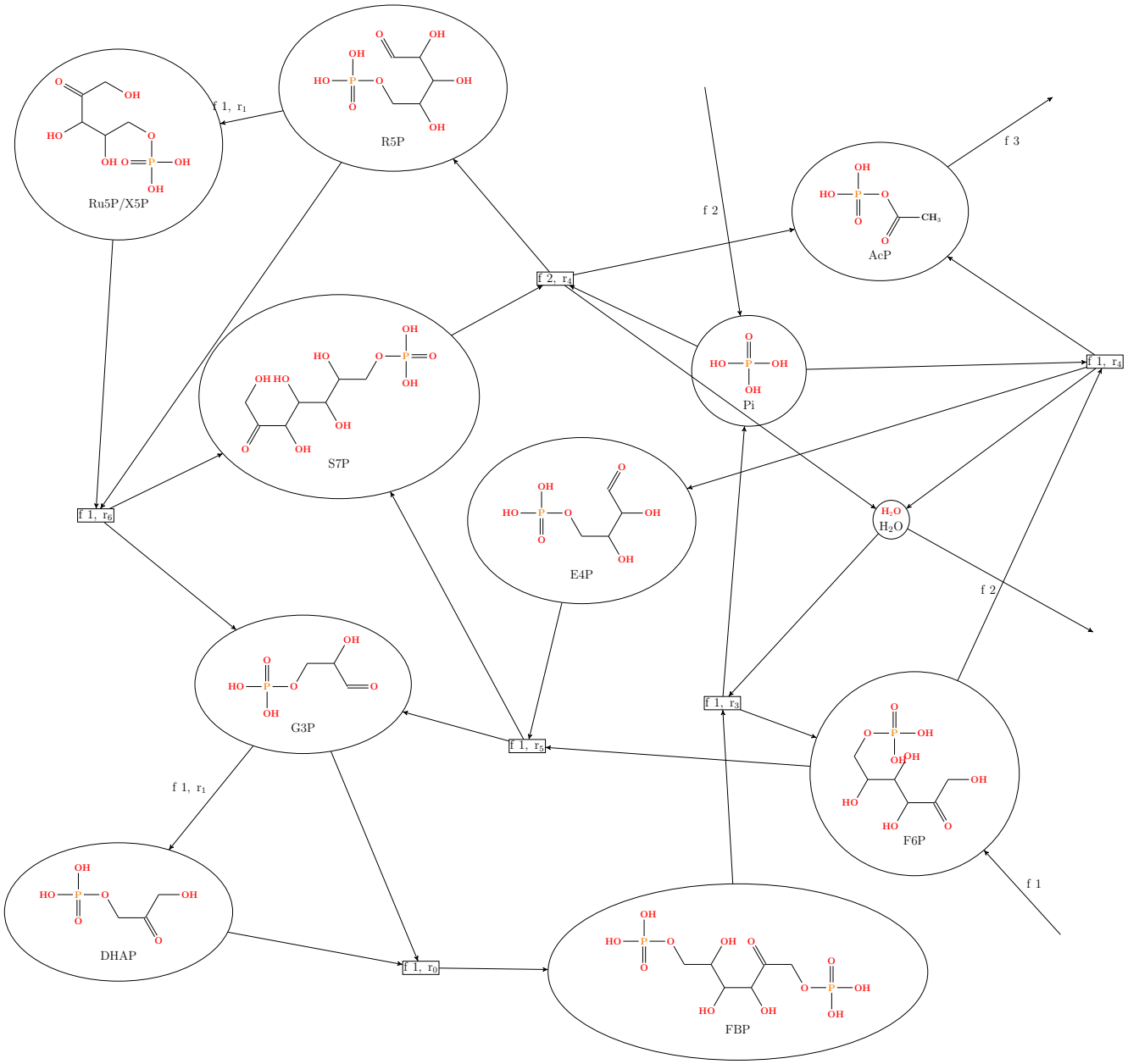
$|\mathrm{E}| = 8 \quad |\mathrm{P}| = 9$

0.17.11 Solution 27

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/344_dg_0_11100_f_0_27_filt`

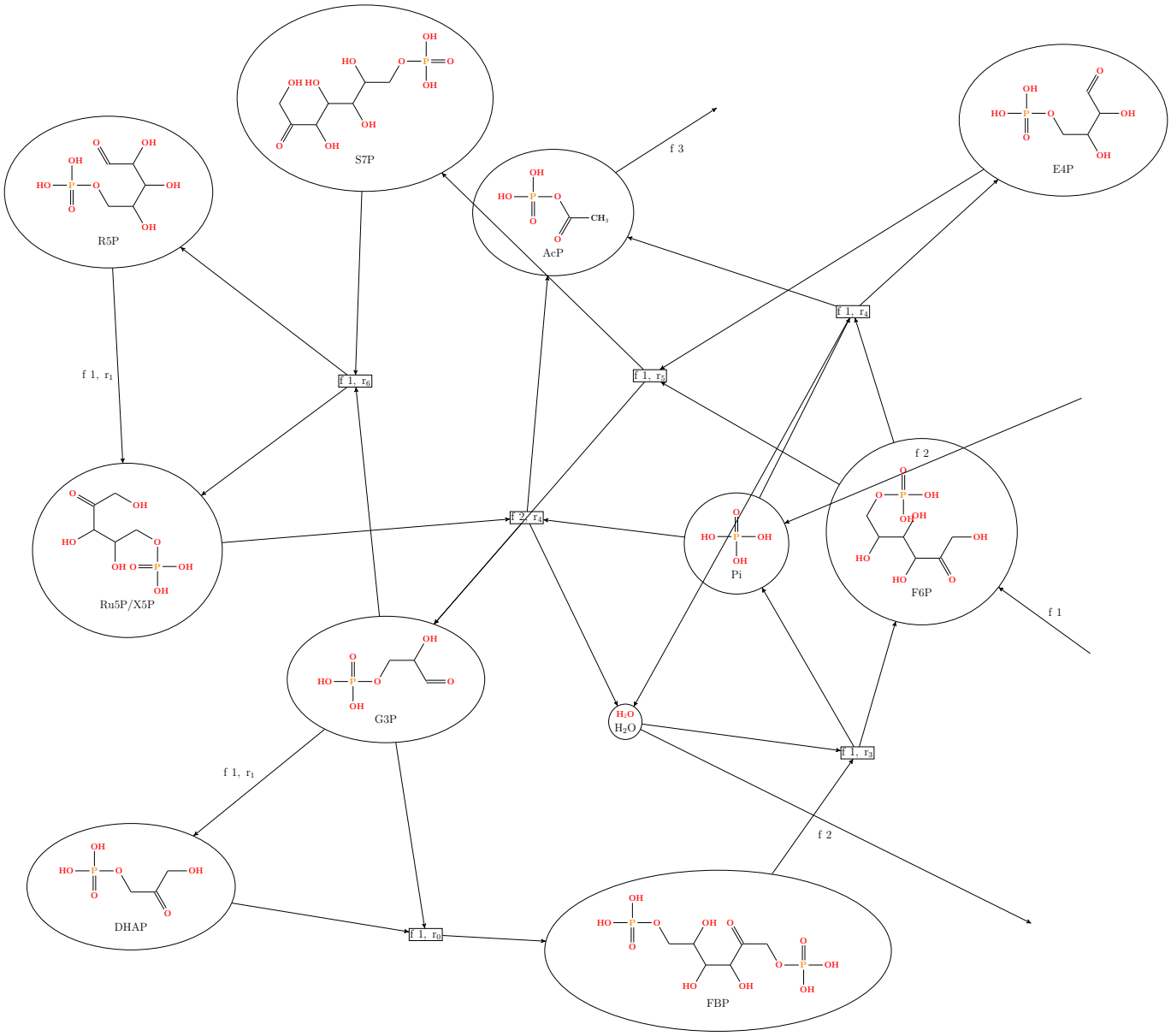
$|E| = 8 \quad |P| = 9$

0.17.12 Solution 30

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/349_dg_0_11100_f_0_30_filt`

$|\mathrm{E}| = 8 \quad |\mathrm{P}| = 9$

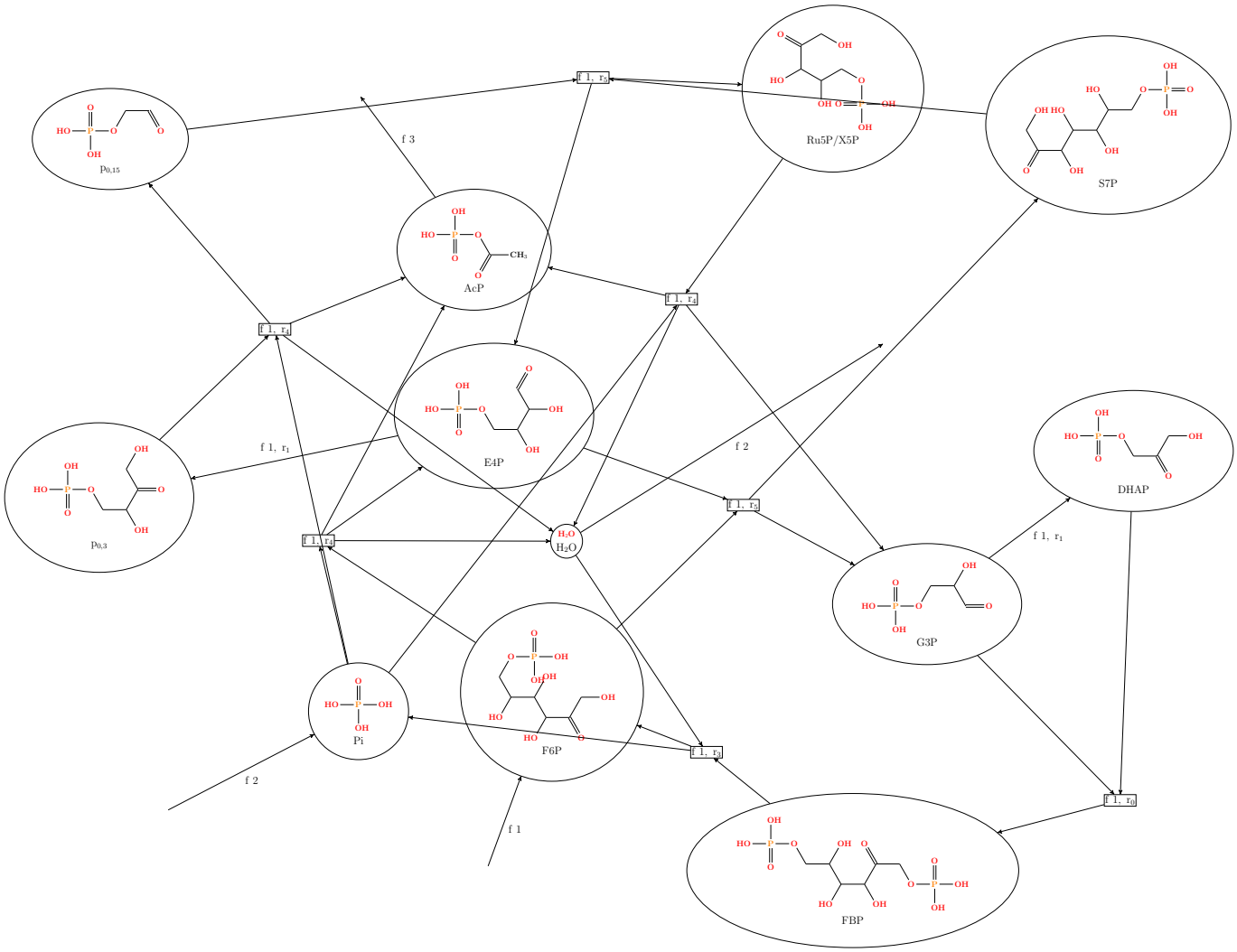
0.18 Enumerated Flows with 9 unique reactions

0.18.1 Solution 4

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/354_dg_0_11100_f_0_4_filt`

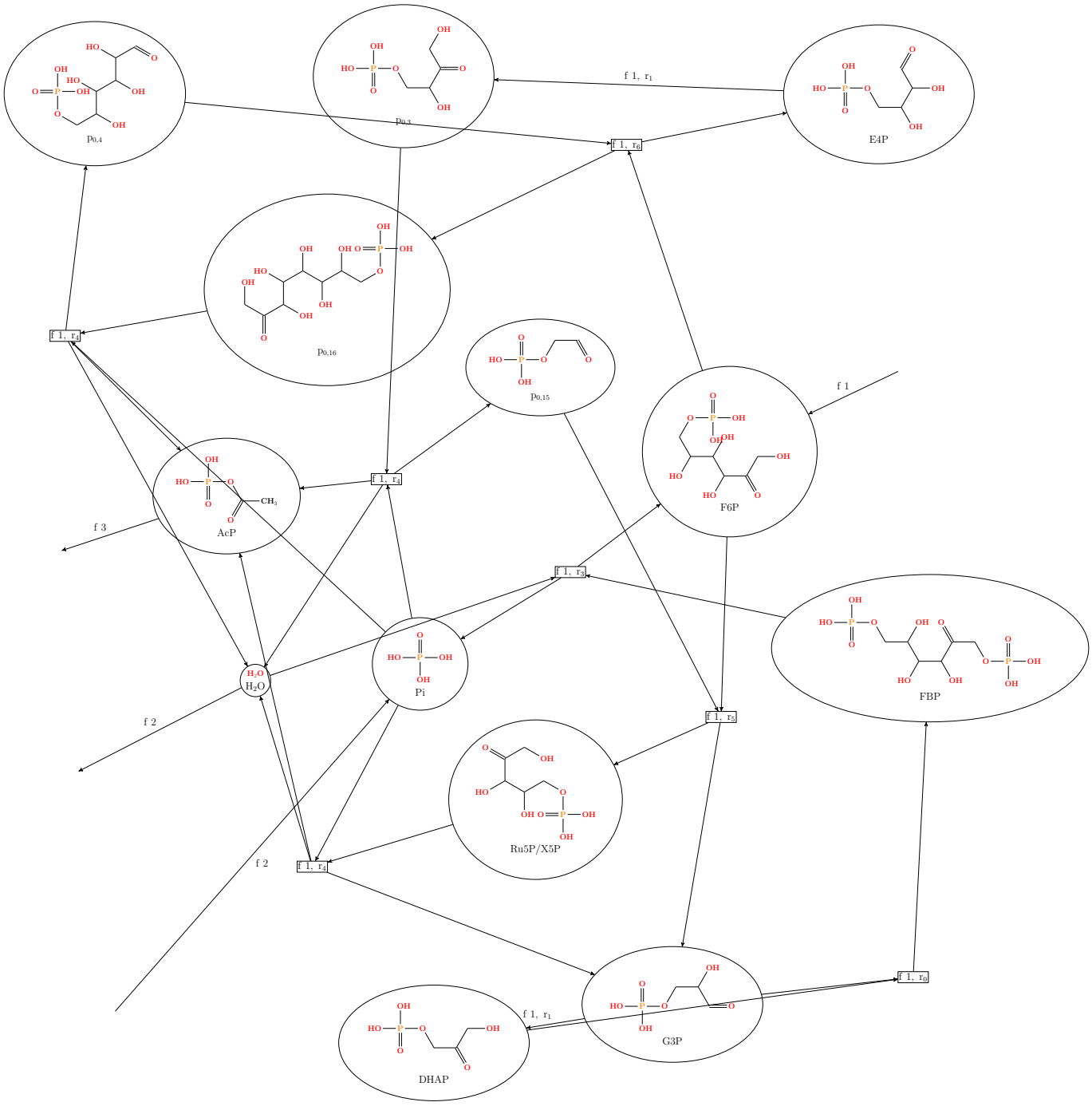
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.2 Solution 6

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/359_dg_0_11100_f_0_6_filt`

$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

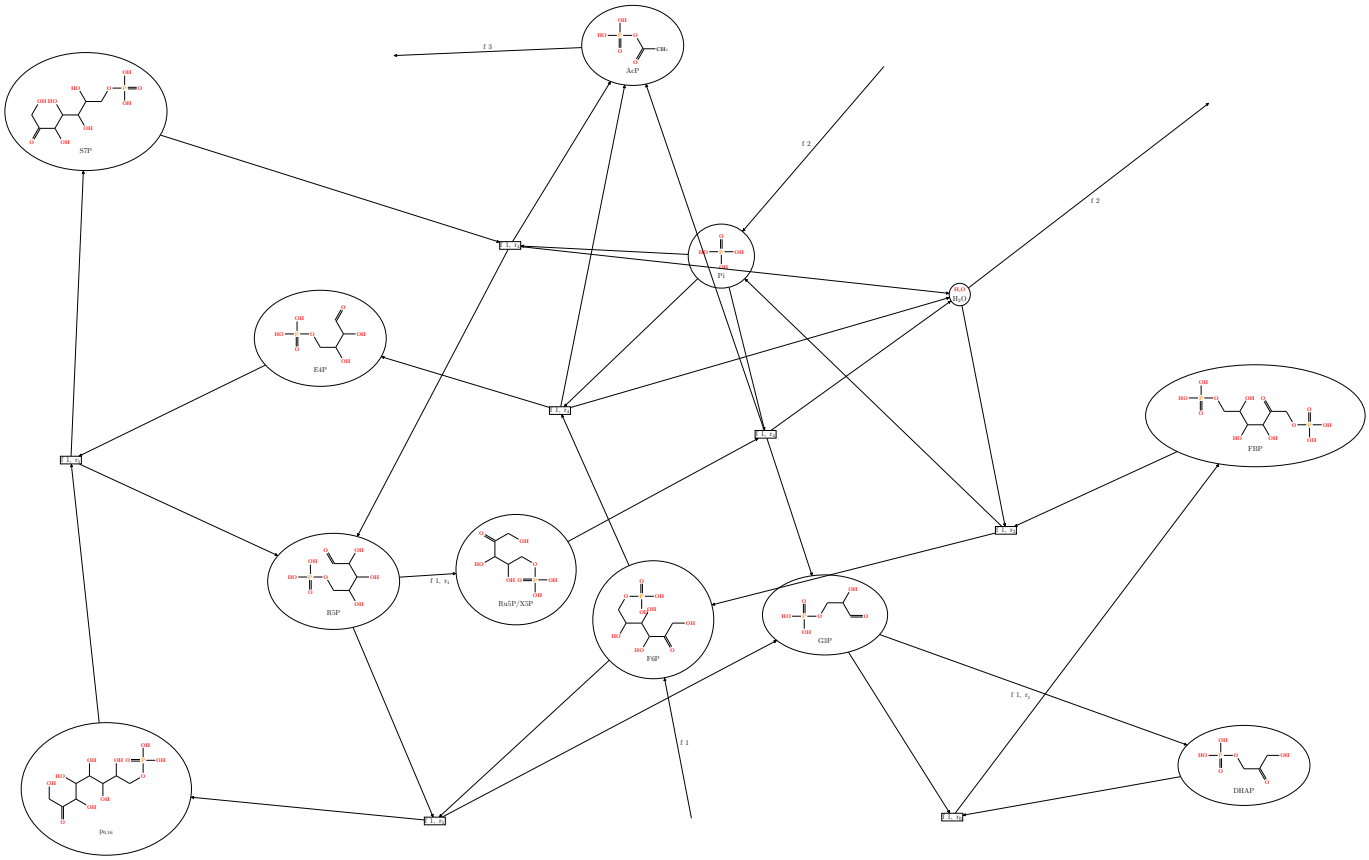
0.18.3 Solution 7

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP           0  3
F6P           1  0
H_2O          0  2
```

```
Pi              2  0
```

Filtered Graph



File: `out/364_dg_0_11100_f_0_7_filt`

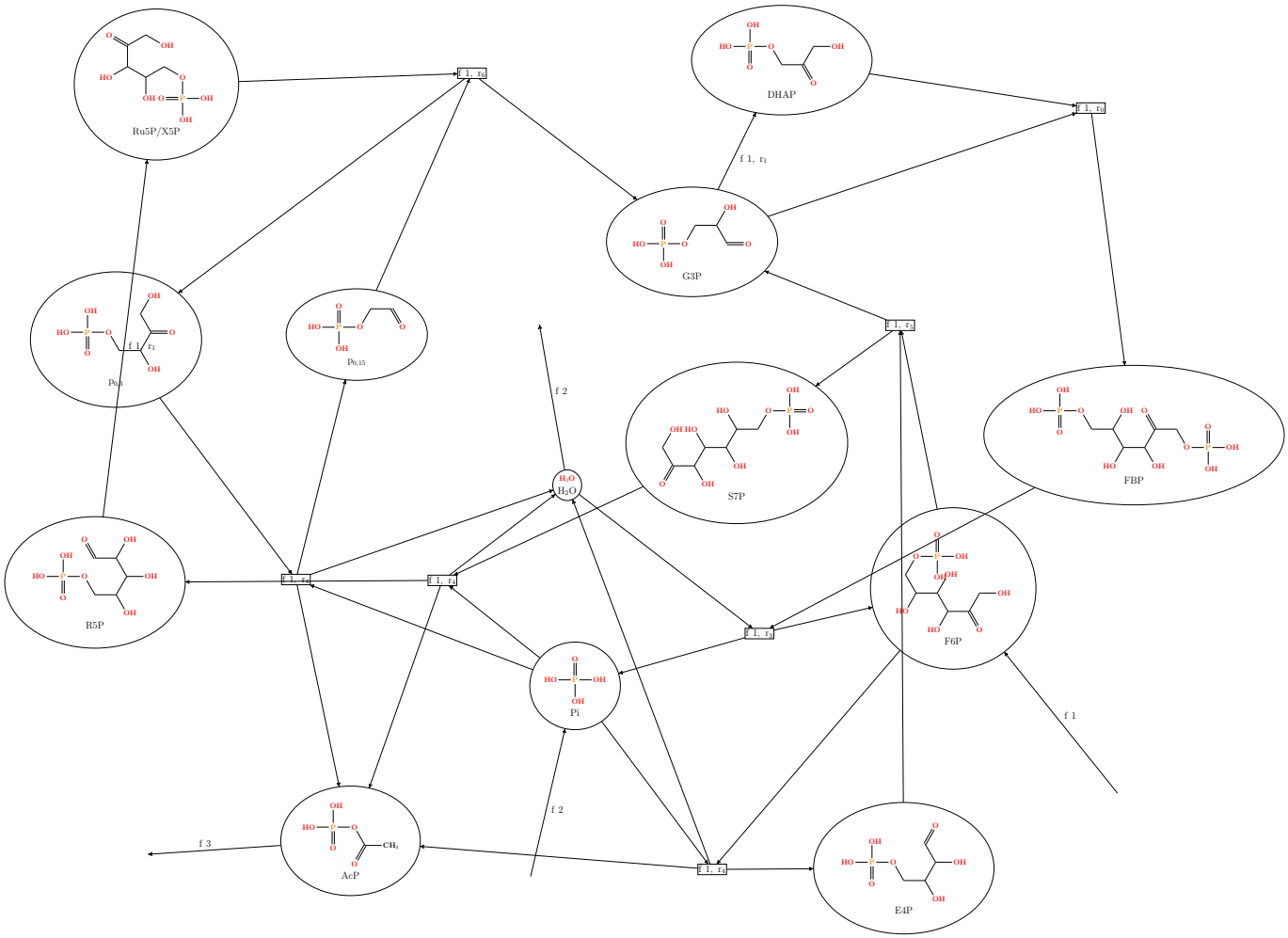
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.4 Solution 9

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP             0  3
F6P             1  0
H_2O            0  2
Pi              2  0
```

Filtered Graph



File: `out/369_dg_0_11100_f_0_9_filt`

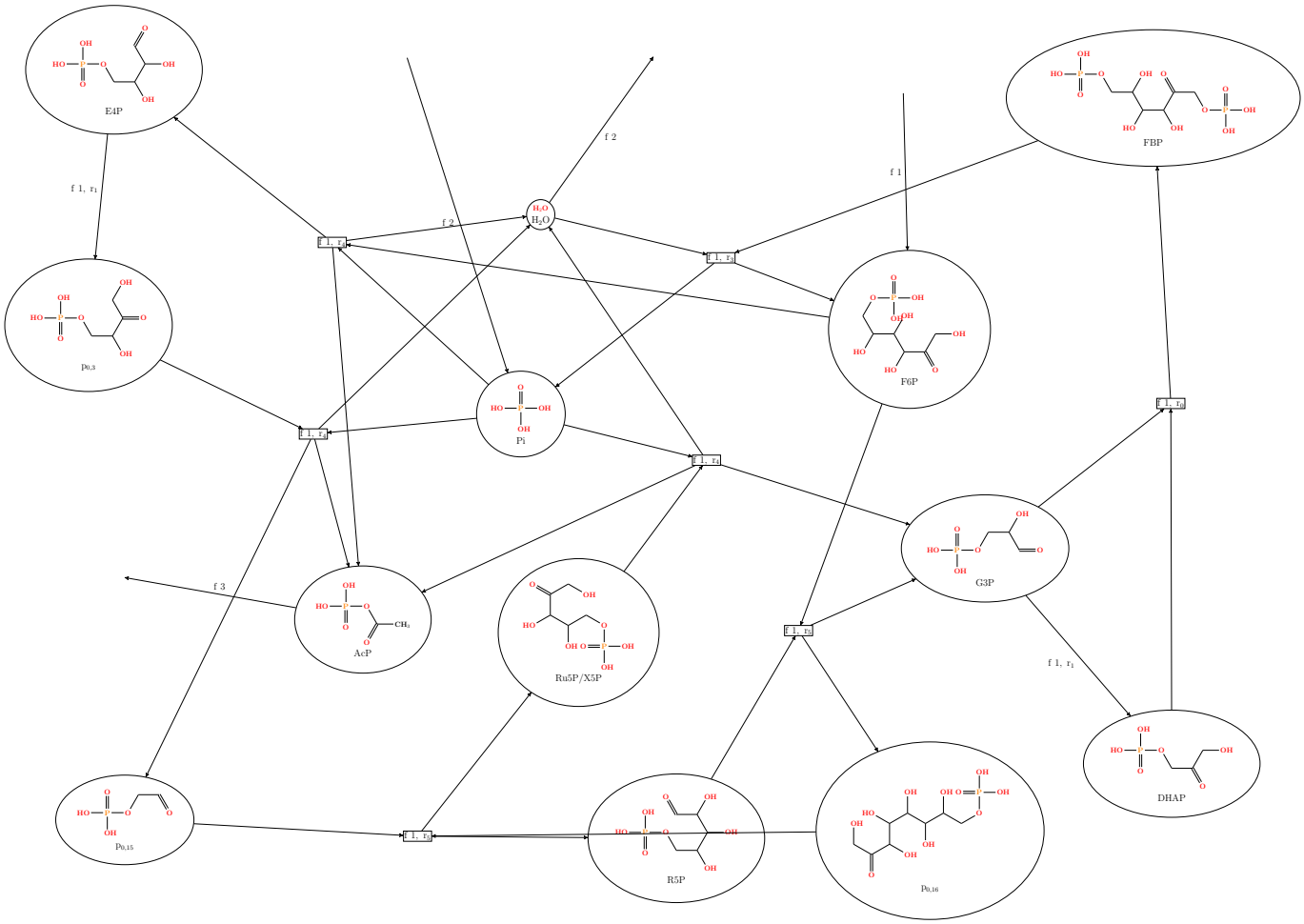
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.5 Solution 10

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/374_dg_0_11100_f_0_10_filt`

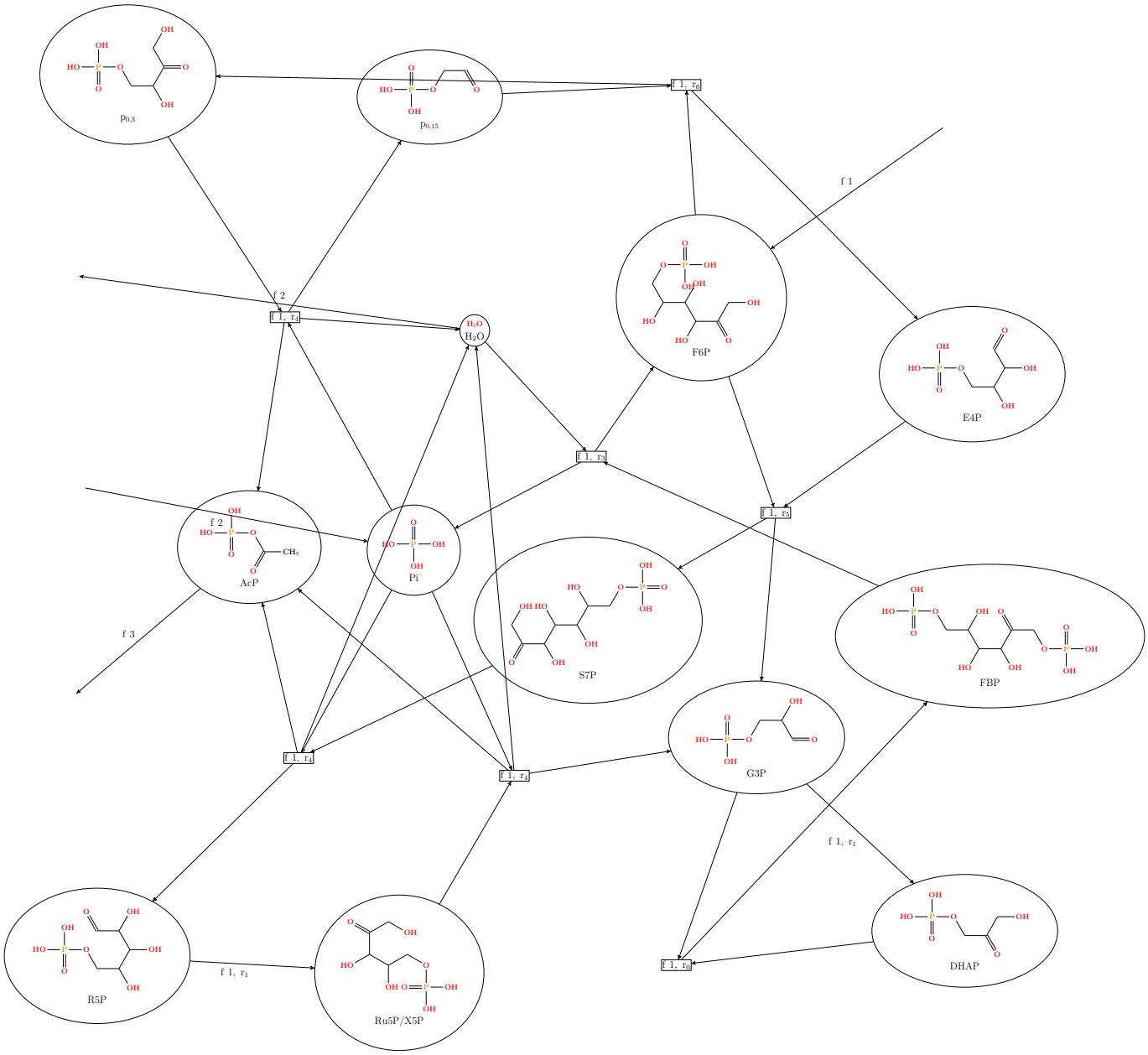
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.6 Solution 11

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/379_dg_0_11100_f_0_11_filt`

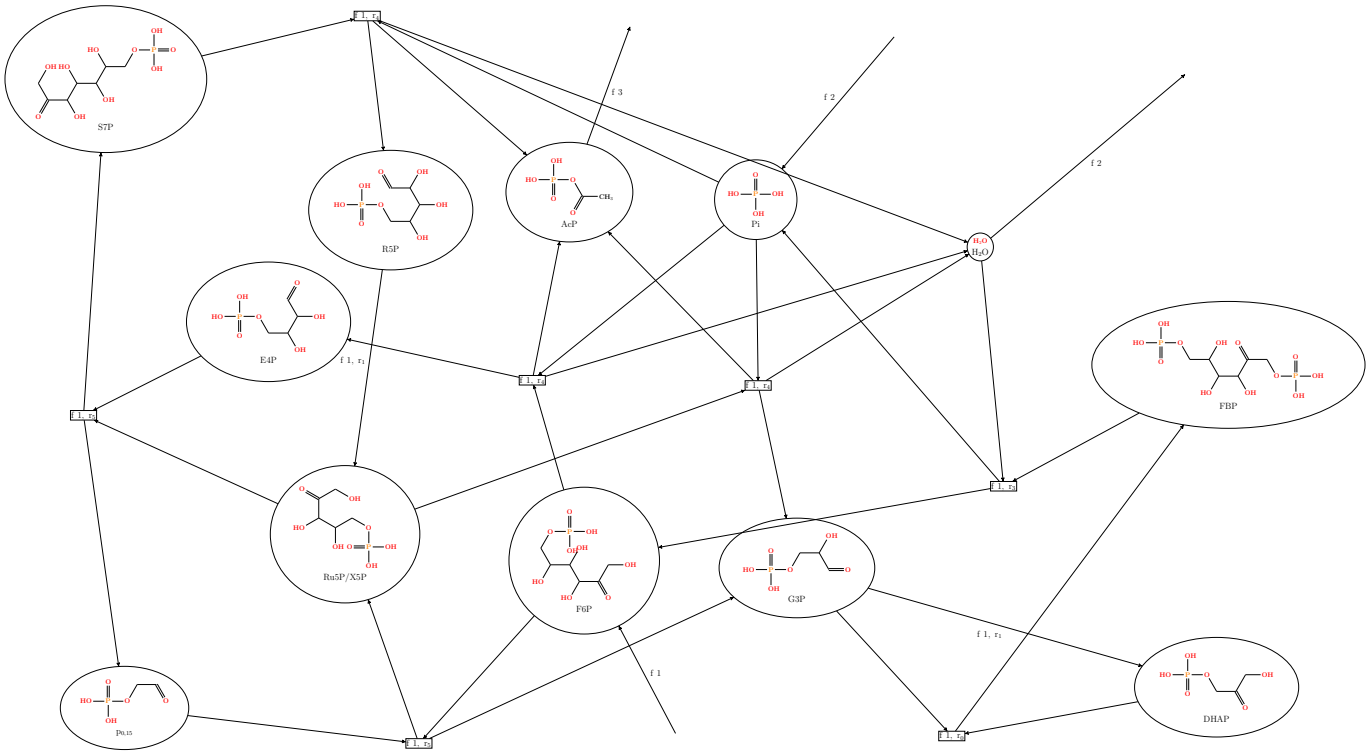
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.7 Solution 15

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/384_dg_0_11100_f_0_15_filt`

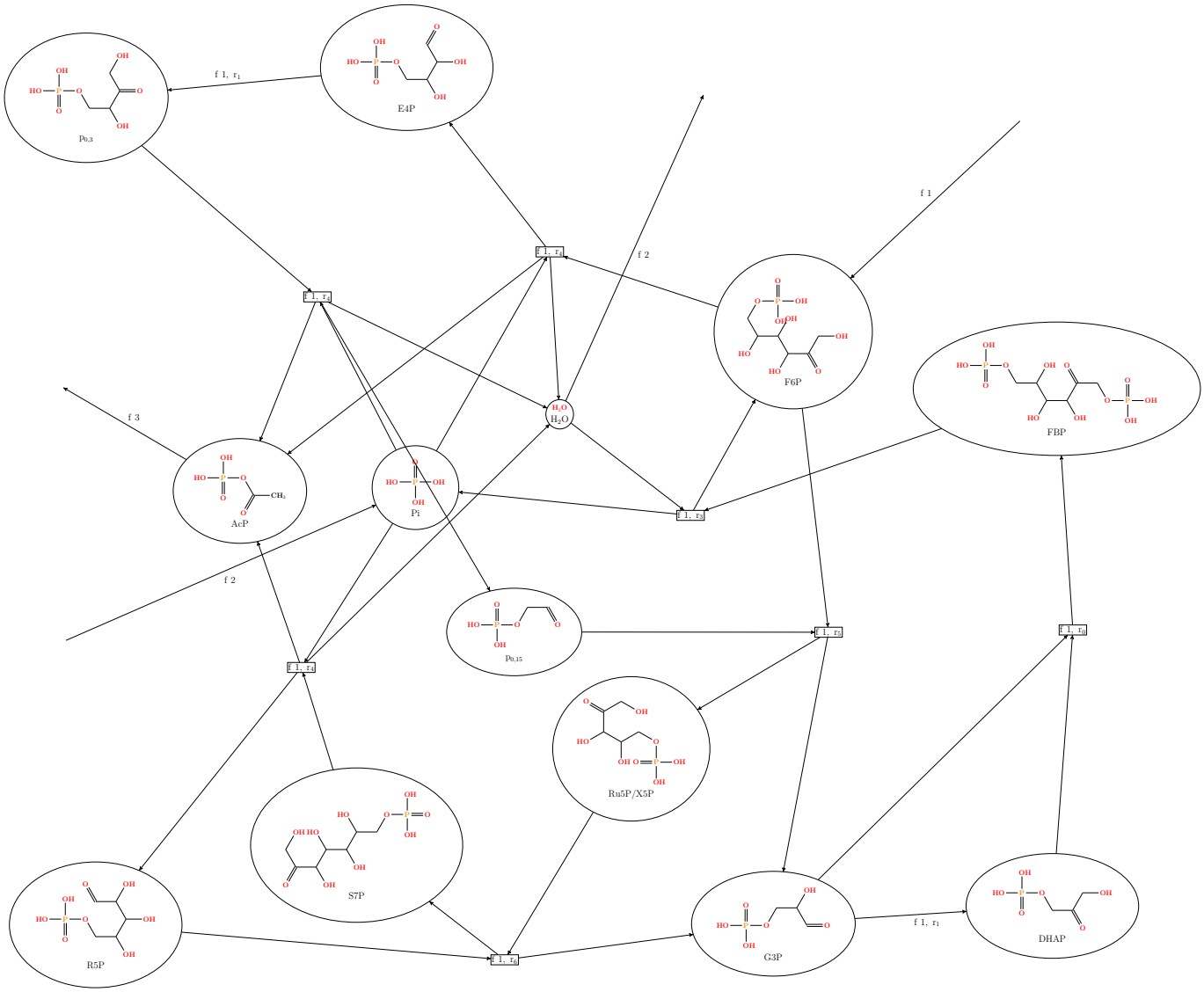
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.8 Solution 16

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/389_dg_0_11100_f_0_16_filt`

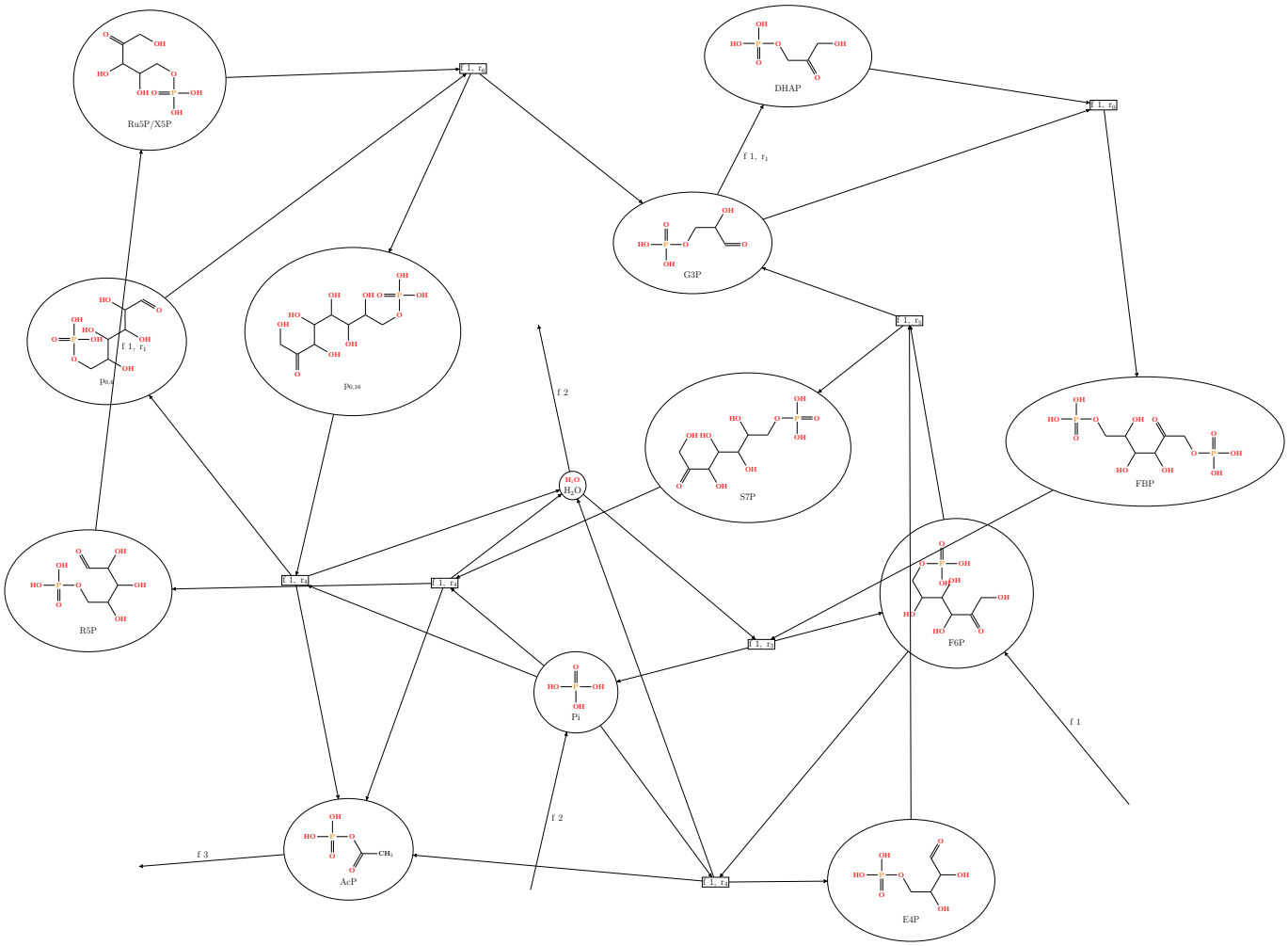
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.9 Solution 19

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/394_dg_0_11100_f_0_19_filt`

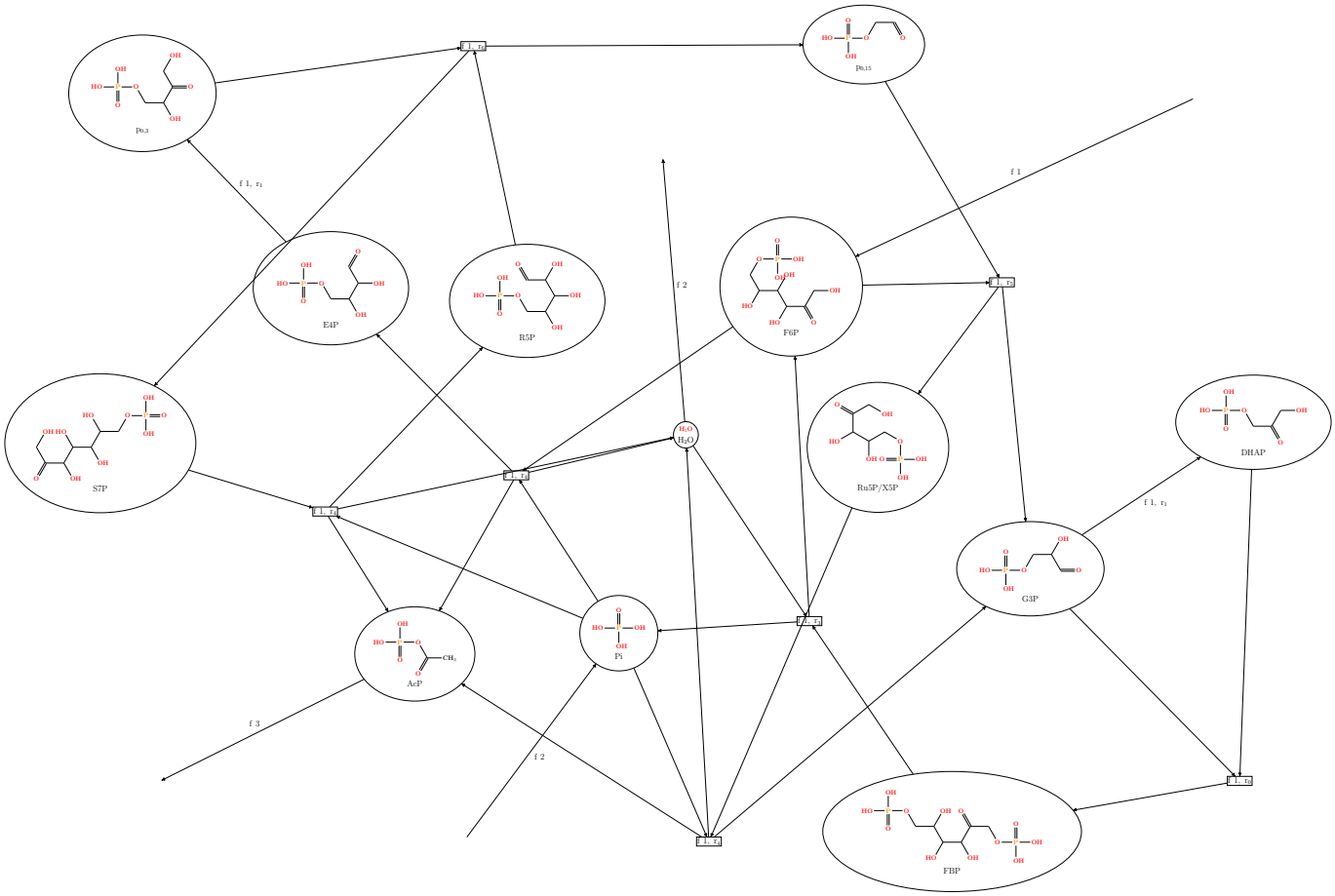
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.10 Solution 20

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/399_dg_0_11100_f_0_20_filt`

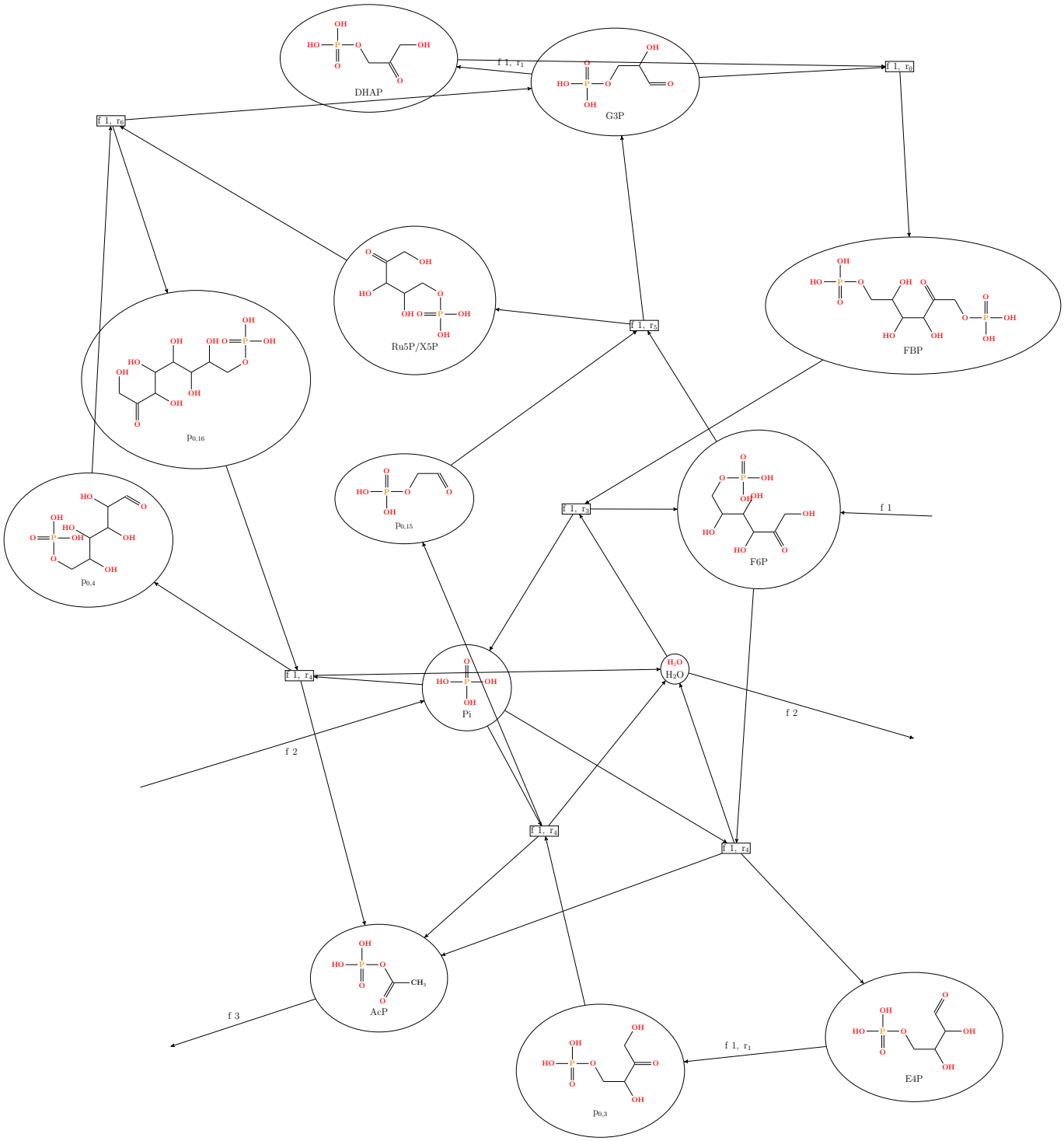
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.11 Solution 22

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/404_dg_0_11100_f_0_22_filt`

$|E| = 9 \quad |P| = 9$

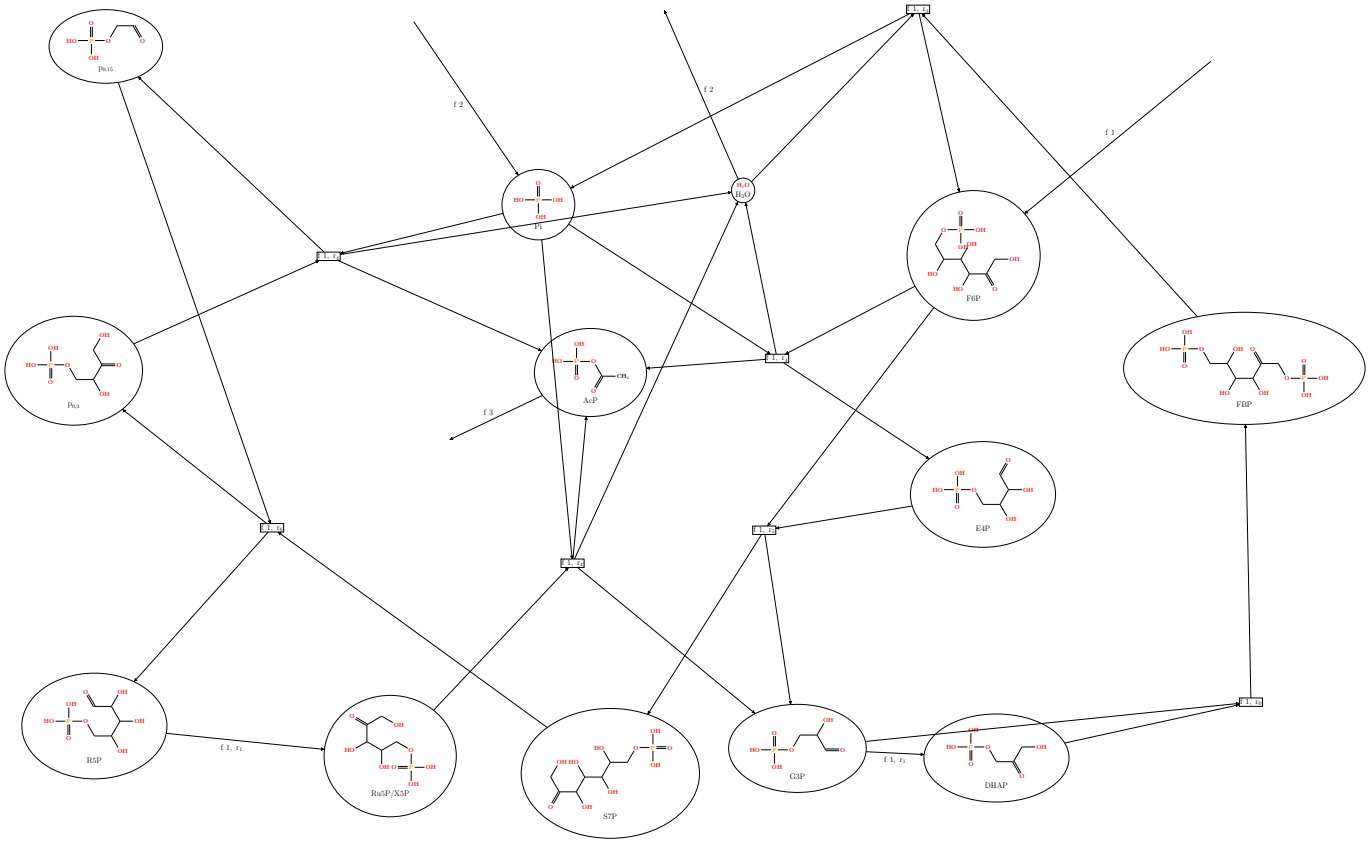
0.18.12 Solution 23

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
```

```
AcP             0  3
F6P             1  0
H_2O            0  2
Pi              2  0
```

Filtered Graph



File: `out/409_dg_0_11100_f_0_23_filt`

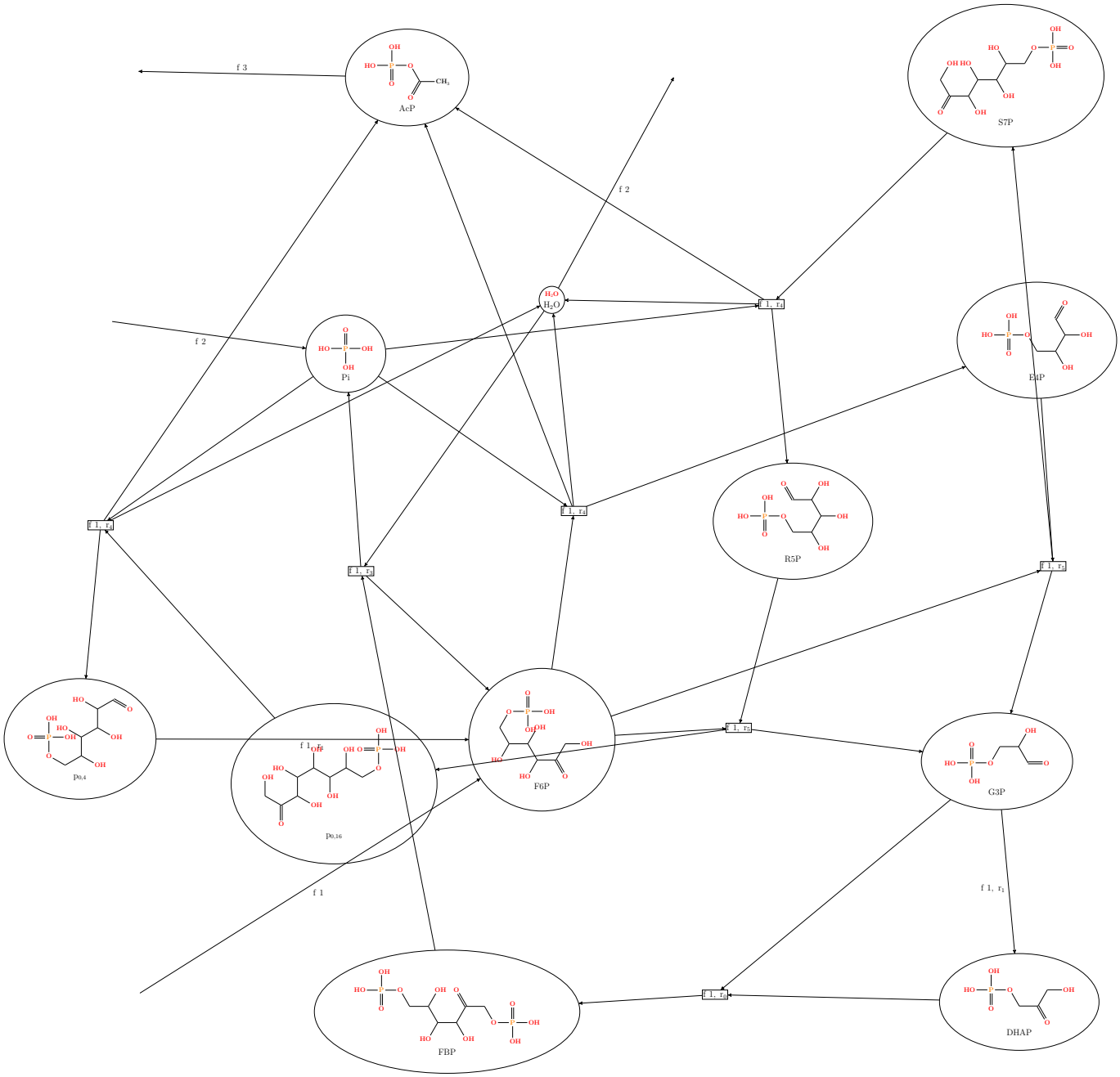
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.13 Solution 24

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP             0  3
F6P             1  0
H_2O            0  2
Pi              2  0
```

Filtered Graph



File: `out/414_dg_0_11100_f_0_24_filt`

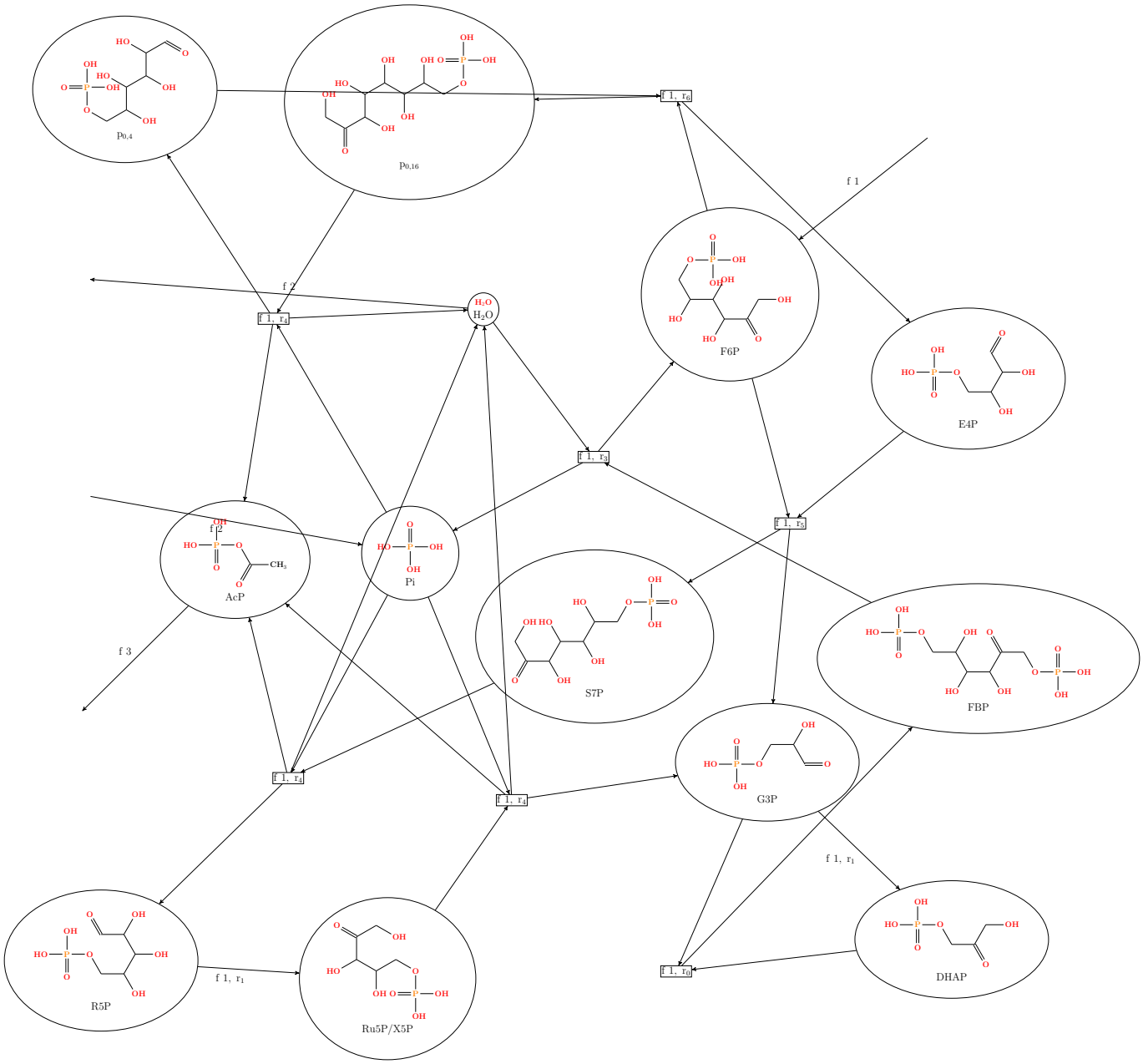
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.14 Solution 25

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/419_dg_0_11100_f_0_25_filt`

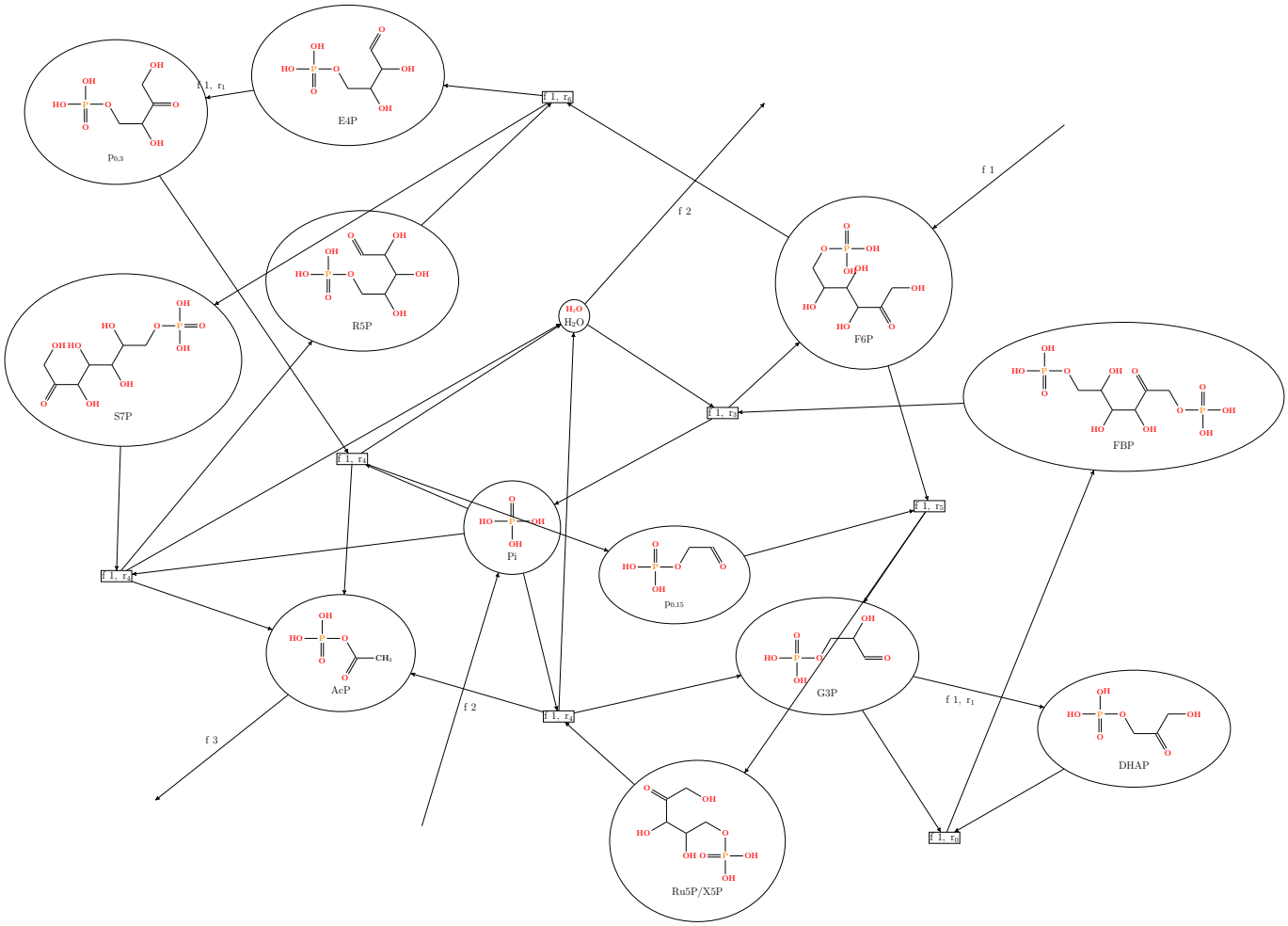
$|E| = 9 \quad |P| = 9$

0.18.15 Solution 26

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/424_dg_0_11100_f_0_26_filt`

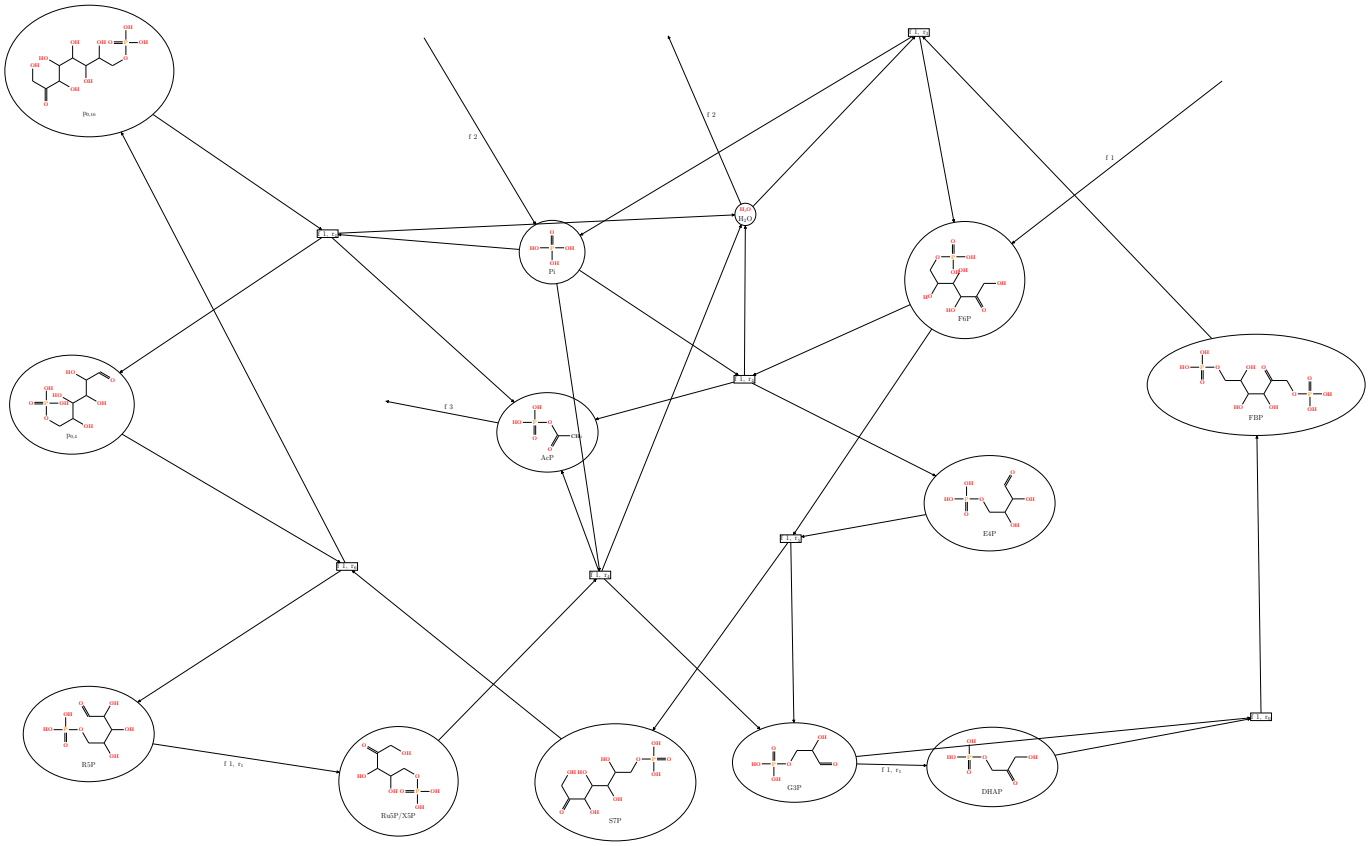
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.16 Solution 28

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP           0  3
F6P           1  0
H_2O          0  2
Pi            2  0
```

Filtered Graph



File: `out/429_dg_0_11100_f_0_28_filt`

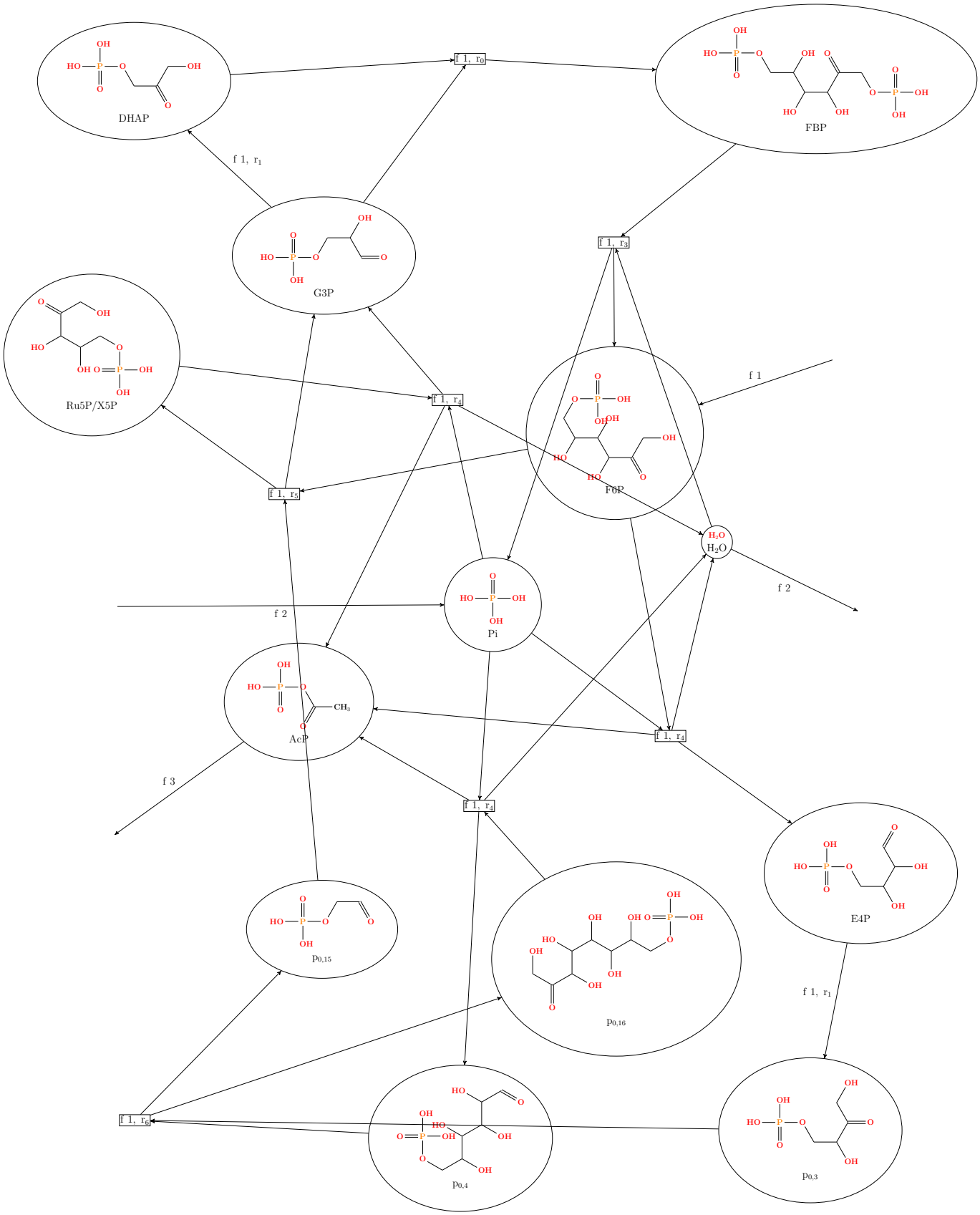
$|\mathrm{E}| = 9 \quad |\mathrm{P}| = 9$

0.18.17 Solution 29

Overall Data

```
Objective value (integral): 9
Vertex/Graph In Out
AcP          0  3
F6P          1  0
H_2O         0  2
Pi           2  0
```

Filtered Graph



File: `out/434_dg_0_11100_f_0_29_filt`

$|E| = 9 \quad |P| = 9$

0.19 Enumerated Flows with 10 unique reactions

0.20 Enumerated Flows with 11 unique reactions