# Summary

December 22, 2023

# Contents

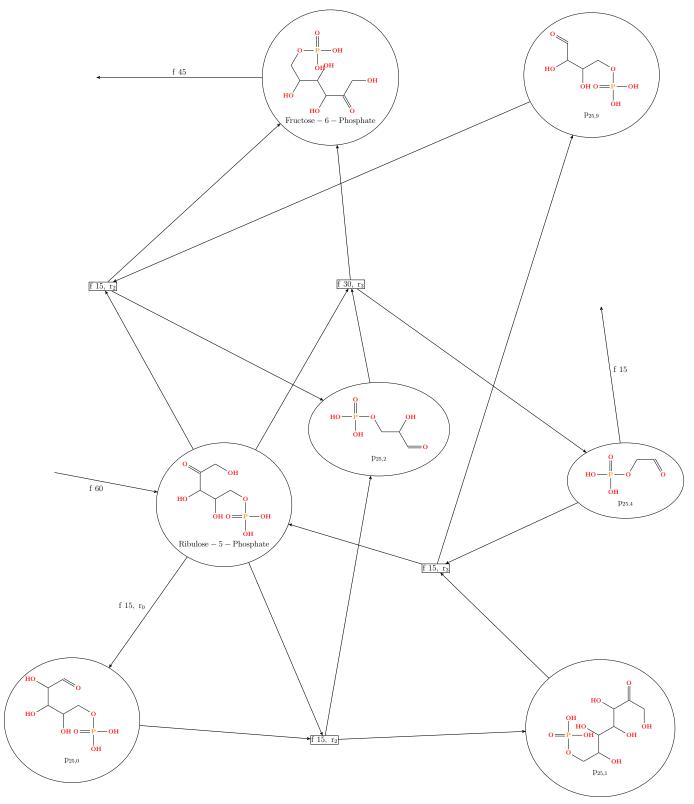
0.1	Enzymes: [Aldose-Ketose textless-(0), Transketolase(2), Transaldolase(3)]	2
0.2	Flow Solutions, id 25	2
	0.2.1 Solution 0	2
0.3	Enzymes: [Aldose-Ketose textless-(0), Aldose-Ketose -textgreater(1), Transketolase(2),	
	Transaldolase(3)]	4
0.4	Flow Solutions, id 41	4
	0.4.1 Solution 0	4
0.5	Enzymes: [Aldose-Ketose textless-(0), Transketolase(2), Transaldolase(3), Aldolase(4)]	5
0.6	Flow Solutions, id 47	5
	0.6.1 Solution 0	5
0.7	Enzymes: [Aldose-Ketose textless-(0), Transketolase(2), Transaldolase(3), Phophohydrolase(5)]	7
0.8	Flow Solutions, id 48	7
	0.8.1 Solution 0	7
0.9	Enzymes: [Aldose-Ketose textless-(0), Aldose-Ketose -textgreater(1), Transketolase(2),	
	$Transaldolase(3), Aldolase(4)] \dots \dots$	8
0.10	Flow Solutions, id 56	8
	0.10.1 Solution 0	8
0.11	Enzymes: [Aldose-Ketose textless-(0), Aldose-Ketose -textgreater(1), Transketolase(2),	
	( // 1 0 ( /)	10
0.12	,	10
0.40		10
0.13	Enzymes: [Aldose-Ketose textless-(0), Aldose-Ketose -textgreater(1), Transketolase(2),	
0.14	( / / 1	11
0.14	,	11
0.15		11
0.15	Enzymes: [Aldose-Ketose textless-(0), Aldose-Ketose -textgreater(1), Transaldolase(3),	<b>1</b> /
0.16	( / / 1	14
0.10	,	14 14
0.17	0.16.1 Solution 0	14
0.17		15
N 18		15
0.10	,	15
0.19	Enzymes: [Aldose-Ketose textless-(0), Aldose-Ketose -textgreater(1), Transketolase(2),	10
5.15		17
0.20		$\frac{1}{17}$
2.20	·	$\frac{1}{17}$
0.21		18

- $\begin{array}{ll} 0.1 & Enzymes: \ [Aldose-Ketose\ textless-(0),\ Transketolase(2),\\ & Transaldolase(3)] \end{array}$
- 0.2 Flow Solutions, id 25

### **0.2.1** Solution 0

### Overall Data

Objective value (integral): -45
Vertex/Graph In Out
Fructose-6-Phosphate 0 45
Ribulose-5-Phosphate 60 0
p\_{25,4} 0 15



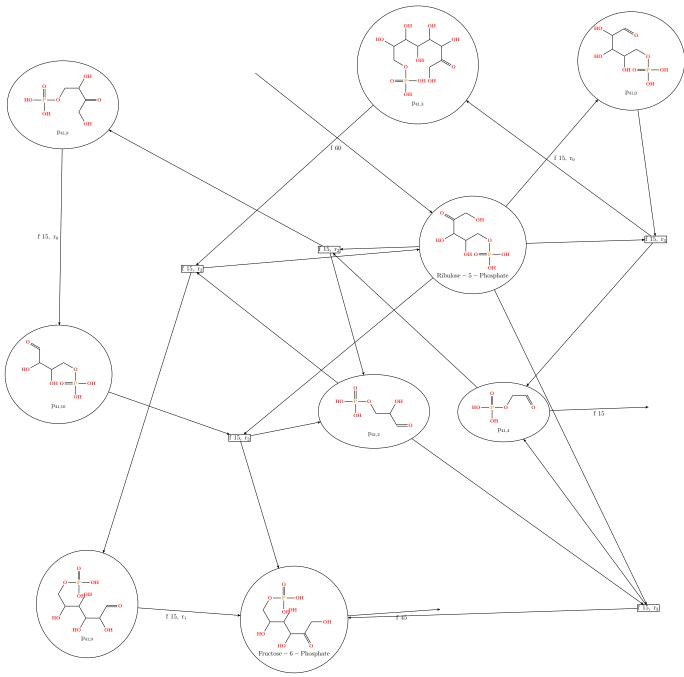
 $File: \ {\tt out/017\_dg\_25\_11100\_f\_25\_0\_filt}$ 

- 0.3 Enzymes: [Aldose-Ketose textless-(0), Aldose-Ketose textgreater(1), Transketolase(2), Transaldolase(3)]
- 0.4 Flow Solutions, id 41

### **0.4.1** Solution 0

### Overall Data

Objective value (integral): -45
Vertex/Graph In Out
Fructose-6-Phosphate 0 45
Ribulose-5-Phosphate 60 0
p\_{41,4} 0 15



 $File: \ out/035\_dg\_41\_11100\_f\_41\_0\_filt$ 

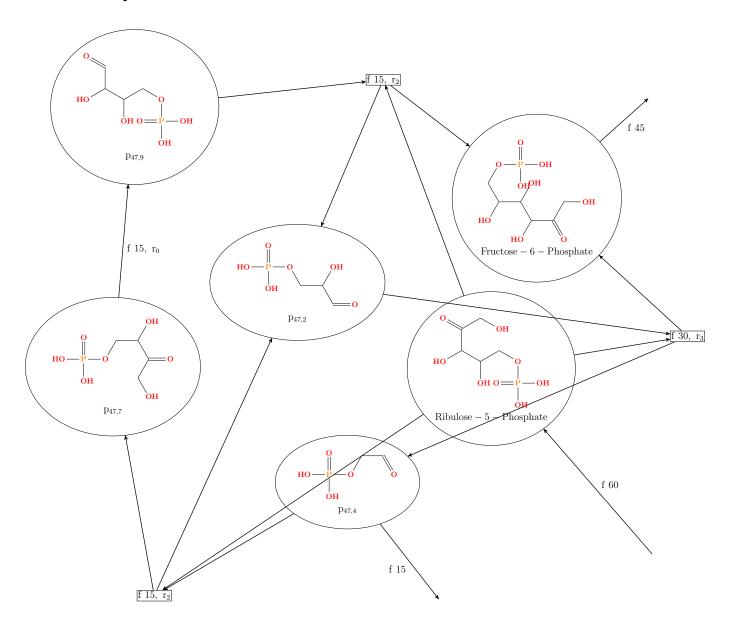
- 0.5 Enzymes: [Aldose-Ketose textless-(0), Transketolase(2), Transaldolase(3), Aldolase(4)]
- 0.6 Flow Solutions, id 47
- 0.6.1 Solution 0

Overall Data

Objective value (integral): -45

Vertex/Graph In Out Fructose-6-Phosphate 0 45 Ribulose-5-Phosphate 60 0 p\_{47,4} 0 15

### Filtered Graph



File: out/047\_dg\_47\_11100\_f\_47\_0\_filt

# 0.7 Enzymes: [Aldose-Ketose textless-(0), Transketolase(2), Transaldolase(3), Phophohydrolase(5)]

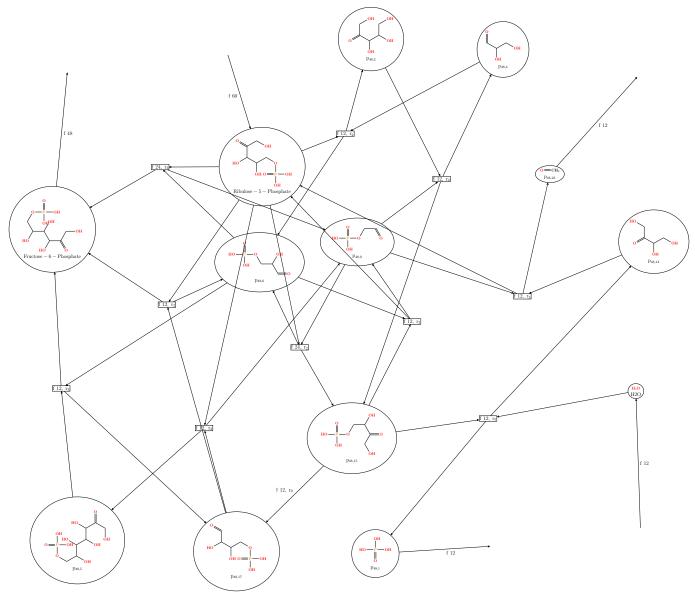
## 0.8 Flow Solutions, id 48

### 0.8.1 Solution 0

### Overall Data

Objective value (integral): -48 Vertex/Graph In Out Fructose-6-Phosphate 0 48 H2O 12 0 Ribulose-5-Phosphate 60 0 p\_{48,1} 0 12 p\_{48,23} 0 12

### Filtered Graph



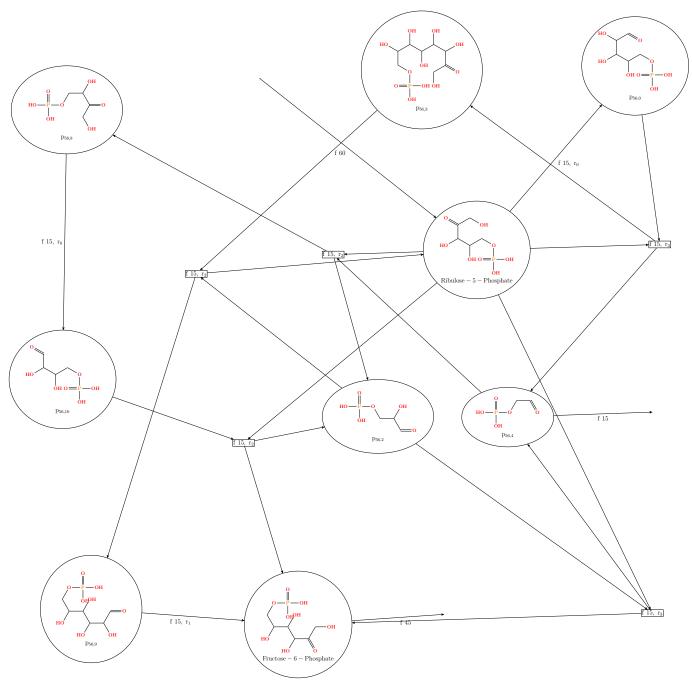
File: out/073\_dg\_48\_11100\_f\_48\_0\_filt

- 0.9 Enzymes: [Aldose-Ketose textless-(0), Aldose-Ketose textgreater(1), Transketolase(2), Transaldolase(3), Aldolase(4)]
- 0.10 Flow Solutions, id 56

### 0.10.1 Solution 0

### Overall Data

Objective value (integral): -45 Vertex/Graph In Out Fructose-6-Phosphate 0 45 Ribulose-5-Phosphate 60 0 p\_{56,4} 0 15



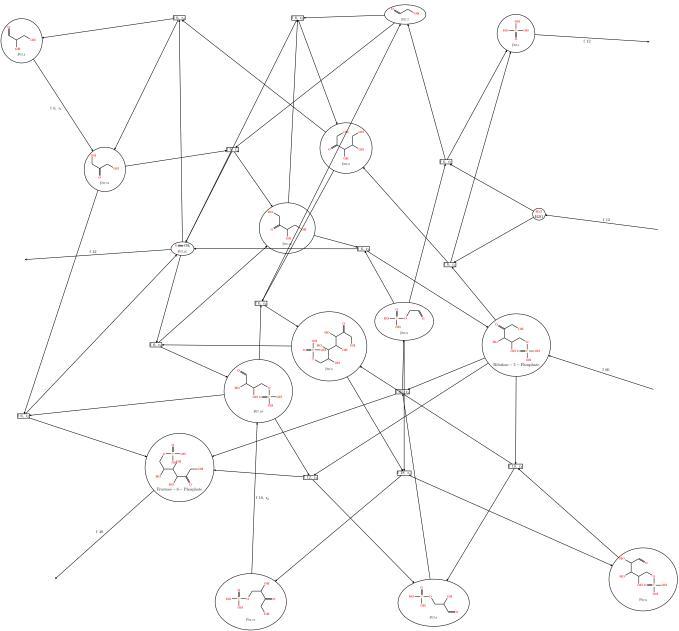
 $File: \ {\tt out/091\_dg\_56\_11100\_f\_56\_0\_filt}$ 

- 0.11 Enzymes: [Aldose-Ketose textless-(0), Aldose-Ketose textgreater(1), Transketolase(2), Transaldolase(3), Phophohydrolase(5)]
- 0.12 Flow Solutions, id 57

### 0.12.1 Solution 0

### Overall Data

Objective value (integral): -48
Vertex/Graph In Out
Fructose-6-Phosphate 0 48
H2O 12 0
Ribulose-5-Phosphate 60 0
p\_{57,1} 0 12
p\_{57,25} 0 12



File: out/121\_dg\_57\_11100\_f\_57\_0\_filt

# 0.13 Enzymes: [Aldose-Ketose textless-(0), Aldose-Ketose - textgreater(1), Transketolase(2), Aldolase(4), Phophohydrolase(5)]

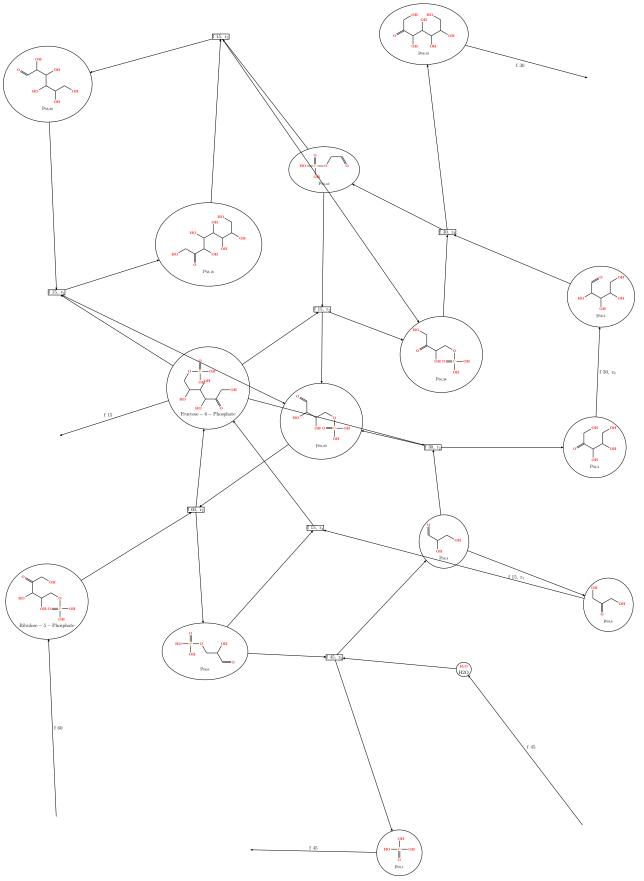
## 0.14 Flow Solutions, id 58

### 0.14.1 Solution 0

### Overall Data

Objective value (integral): -15 Vertex/Graph In Out

Fructose-6-Phosphate	0	15
H20	45	0
Ribulose-5-Phosphate	60	0
p_{58,10}	0	30
p {58,1}	0	45



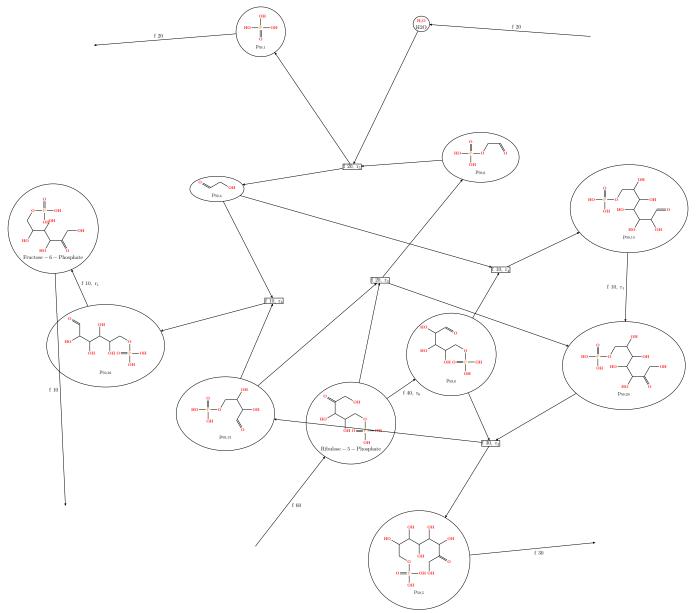
 $File: \ {\tt out/149\_dg\_58\_11100\_f\_58\_0\_filt}$ 

- 0.15 Enzymes: [Aldose-Ketose textless-(0), Aldose-Ketose textgreater(1), Transaldolase(3), Aldolase(4), Phophohydrolase(5)]
- 0.16 Flow Solutions, id 59

### 0.16.1 Solution 0

### Overall Data

Objective value (integral): -10
Vertex/Graph In Out
Fructose-6-Phosphate 0 10
H2O 20 0
Ribulose-5-Phosphate 60 0
p\_{59,1} 0 20
p\_{59,5} 0 30



File: out/171\_dg\_59\_11100\_f\_59\_0\_filt

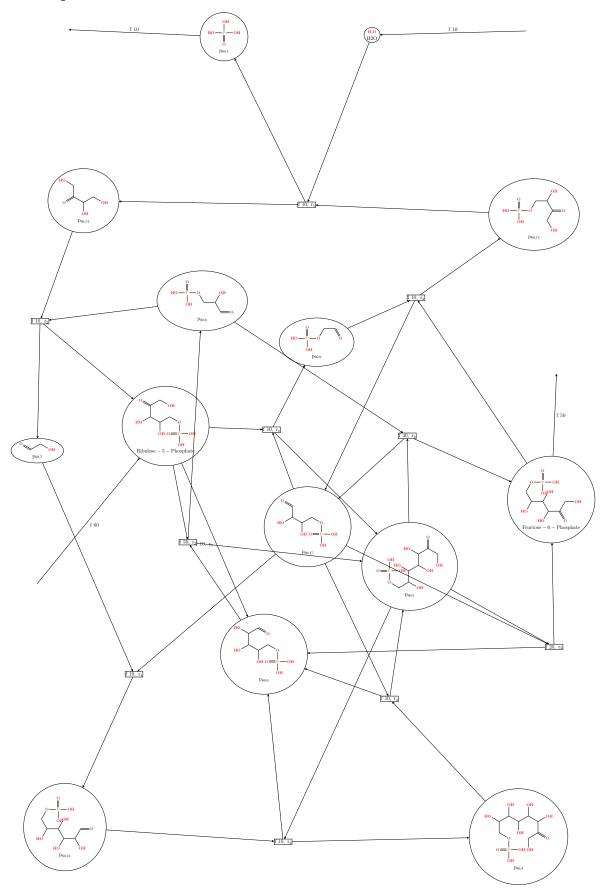
# 0.17 Enzymes: [Aldose-Ketose textless-(0), Transketolase(2), Transaldolase(3), Aldolase(4), Phophohydrolase(5)]

# 0.18 Flow Solutions, id 60

### 0.18.1 Solution 0

### Overall Data

Objective value (integral): -50 Vertex/Graph In Out Fructose-6-Phosphate 0 50 H2O 10 0

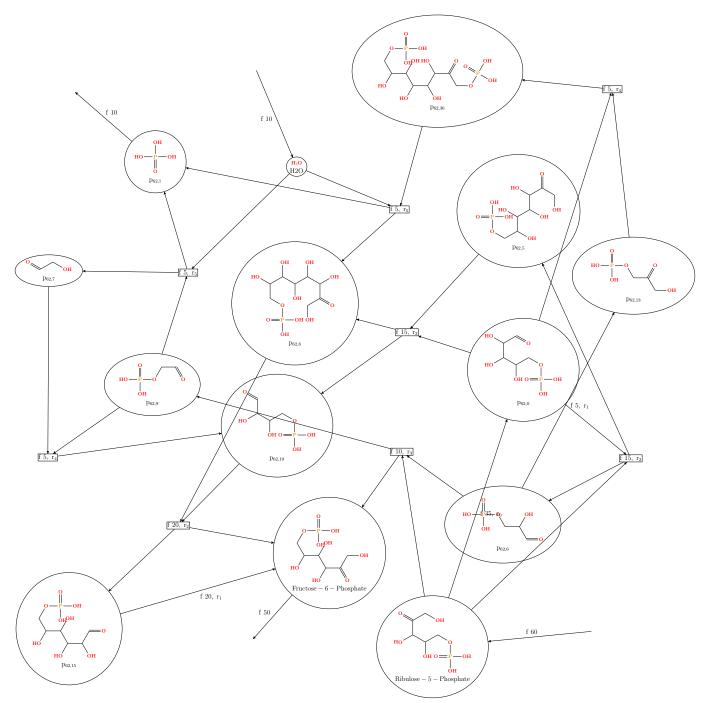


- 0.19 Enzymes: [Aldose-Ketose textless-(0), Aldose-Ketose textgreater(1), Transketolase(2), Transaldolase(3), Aldolase(4), Phophohydrolase(5)]
- 0.20 Flow Solutions, id 62

### 0.20.1 Solution 0

### Overall Data

Objective value (integral): -50
Vertex/Graph In Out
Fructose-6-Phosphate 0 50
H2O 10 0
Ribulose-5-Phosphate 60 0
p\_{62,1} 0 10



 $File: \ {\tt out/223\_dg\_62\_11100\_f\_62\_0\_filt}$ 

# 0.21 Results

id	#enzymes	enzymes	#fructose	#waste	#w/#f	#reactions
		'Aldose-Ketose <-'				
		'Aldose-Ketose ->'				
		'Transketolase'				
		'Transaldolase'				
		'Aldolase'				

0	6	'Phophohydrolase'	50	10	0.2	140
		'Aldose-Ketose <-'				
		'Transketolase'				
		'Transaldolase'				
		'Aldolase'				
1	5	'Phophohydrolase'	50	10	0.2	190
		'Aldose-Ketose <-'				
		'Aldose-Ketose ->'				
		'Transaldolase'				
		'Aldolase'				
2	5	'Phophohydrolase'	10	50	5.0	150
		'Aldose-Ketose <-'				
		'Aldose-Ketose ->'				
		'Transketolase'				
		'Aldolase'				
3	5	'Phophohydrolase'	15	75	5.0	270
		'Aldose-Ketose <-'				
		'Aldose-Ketose ->'				
		'Transketolase'				
		'Transaldolase'				
4	5	'Phophohydrolase'	48	24	0.5	156
		'Aldose-Ketose <-'				
		'Aldose-Ketose ->'				
		'Transketolase'				
		'Transaldolase'				
5	5	'Aldolase'	45	15	0.3333	120
		'Aldose-Ketose <-'				
		'Transketolase'				
		'Transaldolase'				
6	4	'Phophohydrolase'	48	24	0.5	156
		'Aldose-Ketose <-'				
		'Transketolase'				
		'Transaldolase'				
7	4	'Aldolase'	45	15	0.3333	75
		'Aldose-Ketose <-'				
		'Aldose-Ketose ->'				
		'Transketolase'				
8	4	'Transaldolase'	45	15	0.3333	120
		'Aldose-Ketose <-'				
		'Transketolase'				
9	3	'Transaldolase'	45	15	0.3333	90