These are instances proposed in P. Fattahi, M. Mehrabad, and F. Jolai. Mathematical modeling and   heuristic approaches to flexible job shop scheduling problems. Journal of Intelligent Manufacturing, 18:331-342, 2007, for the Flexible Job-Shop Scheduling Problem. The format is different from the original. In our format, the only information needed is about the operations of the jobs, precedence relations and machines.

Let N be the total number of operations of all jobs, A be the number of precedence relations and K be the number of machines. The operations are labeled from 0 to N-1 and the machines are labeled from 0 to K-1.

The description of each instance starts with a line that contains the numbers M(machines), J (jobs), and O (operations). Each of the next J lines contains two distinct operations, U and V, indicating that U must be processed before V.
Finally, the last O lines describe the operations: the (J + 2)-th line corresponds to operation 0, the (J + 3)-th line corresponds to operation 1 and so on. The description of operations begins with the number of alternative machines (A) that can process the operation followed by "A" pairs of numbers indicating, respectively, the label of a machine and the time that machine takes to process the operation.

sfjs01 2*2*4 (M*J*O)

0 1
2 3

2	0	25	1	37
2	0	32	1	24
2	0	45	1	65
2	0	21	1	65

sfjs02 2*2*4 (M*J*O)

0 1
2 3

1	0	43		
2	0	64	1	71
2	0	21	1	35
1	1	43		

sfjs03 2*3*6 (M*J*O)

0 1
2 3
4 5

1	0	43		
2	0	87	1	95
2	0	63	1	53
1	1	73		
2	0	125	1	135
2	0	43	1	61

sfjs04 2*3*6 (M*J*O)

0 1
2 3
4 5

2	0	54	1	63
2	0	87	1	95
1	1	120		
1	1	152		
2	0	125	1	135
2	0	143	1	124

[sfjs05](#) `2*3*6 (M*J*O)`

```
0 1
2 3
4 5
```

2	0	43	1	36
2	0	64	1	71
2	0	34	1	53
2	0	36	1	21
2	0	21	1	35
2	0	43	1	37

[sfjs06](#) `3*3*9 (M*J*O)`

```
0 1
1 2
3 4
4 5
6 7
7 8
```

1	0	17		
2	0	40	1	130
2	1	50	2	60
1	0	30		
2	0	150	1	160
1	2	70		
2	0	50	1	60
2	1	170	2	180
2	1	90	2	100

[sfjs07](#) `5*3*9 (M*J*O)`

```
0 1
1 2
3 4
4 5
6 7
7 8
```

2	0	117	1	125
2	3	140	1	130
2	3	150	4	160
2	0	214	2	150
2	2	55	1	66
2	4	78	2	65
2	0	87	1	62
2	3	70	2	80
2	3	190	4	100

[sfjs08](#) `4*3*9 (M*J*O)`

```
0 1
1 2
3 4
4 5
6 7
7 8
```

2	0	17	1	25
2	3	40	1	30
2	3	150	2	160
2	0	30	2	50

2	3	55	1	66
2	3	78	2	65
2	0	56	1	62
2	1	70	2	80
2	3	90	2	100

sfjs09 3*3*9 (M*J*O)

```
0 1
1 2
3 4
4 5
6 7
7 8
```

2	0	17	1	25
2	0	40	1	30
2	1	50	2	60
2	0	30	2	50
2	0	50	1	60
2	1	70	2	60
2	0	50	1	60
2	1	70	2	80
2	1	90	2	100

sfjs10 5*4*12 (M*J*O)

```
0 1
1 2
3 4
4 5
6 7
7 8
9 10
10 11
```

1	0	147			
2	3	140	1	130	
2	3	150	4	160	
2	0	214	2	150	
2	2	87		1	66
1	4	178			
2	0	87		1	62
1	2	180			
2	3	190	4	100	
2	0	87		1	65
1	4	173			
2	3	145	2	136	

mfjs01 6*5*15 (M*J*O)

```
0 1
1 2
3 4
4 5
6 7
7 8
9 10
10 11
12 13
13 14
```

3	0	147	1	123	2	145

2	3	140	1	130			
2	3	150	4	160			
2	0	214	2	150			
2	2	87	1	66			
2	4	178	5	95			
2	0	87	1	62			
2	2	180	3	105			
3	3	190	4	100	5	153	
2	0	87	1	65			
1	4	173					
2	3	145	5	136			
3	1	123	2	145	0	128	
3	2	86	3	65	4	47	
2	4	110	5	85			

mfjs02 7*5*15 (M*J*O)

```
0  1
1  2
3  4
4  5
6  7
7  8
9  10
10 11
12 13
13 14
```

3	0	147	1	123	2	145
3	3	140	1	130	0	123
3	3	150	4	160	6	200
2	0	214	2	150		
3	2	87	1	66	3	99
3	4	178	5	95	6	150
2	0	87	1	62		
3	6	145	2	180	3	105
3	3	190	4	100	5	153
2	0	87	1	65		
2	2	250	4	173		
2	3	145	5	136		
3	1	123	2	145	0	128
3	2	86	3	65	4	47
2	4	110	5	85		

mfjs03 7*6*18 (M*J*O)

```
0  1
1  2
3  4
4  5
6  7
7  8
9  10
10 11
12 13
13 14
15 16
16 17
```

3	0	147	1	123	2	145
3	3	140	1	130	0	123
3	3	150	4	160	6	200
2	0	214	2	150		
3	2	87	1	66	3	99
3	4	178	5	95	6	150
2	0	87	1	62		
3	6	145	2	180	3	105
3	3	190	4	100	5	153
2	0	87	1	65		
2	2	250	4	173		
2	3	145	5	136		
3	1	123	2	145	0	128
3	2	86	3	65	4	47
2	4	110	5	85		
3	1	145	2	320	3	154
3	3	150	2	123	4	192
3	4	120	5	240	6	180

mfjs04 7*7*21 (M*J*O)

0 1
1 2
3 4
4 5
6 7
7 8
9 10
10 11
12 13
13 14
15 16
16 17
18 19
19 20

2	0	247	1	223		
3	3	140	1	130	6	123
3	3	150	4	160	6	200
2	0	214	2	150		
3	2	87	1	66	3	99
3	4	178	5	95	6	150
2	0	87	1	62		
3	6	145	2	180	3	105
3	3	190	4	100	5	153
2	0	87	1	65		
2	2	250	4	173		
2	3	145	5	136		
3	1	123	2	145	0	128
3	6	86	3	65	4	47
2	4	110	5	85		
3	1	145	2	320	3	154
3	3	150	2	123	4	192
3	4	120	5	240	6	180
3	2	145	1	210	0	157
3	2	124	3	168	4	154
3	4	145	5	165	6	178

mfjs05 7*7*21 (M*J*O)

0 1
1 2
3 4
4 5
6 7
7 8
9 10
10 11
12 13
13 14
15 16
16 17
18 19
19 20

3	0	247	1	223	2	100
3	3	140	1	130	6	123
3	3	150	4	160	6	200
2	0	214	2	150		
2	2	87	1	66		
3	4	178	5	95	6	150
2	0	87	1	62		
3	6	145	2	180	3	105
3	3	190	4	100	5	153
2	0	87	1	65		
2	2	250	4	173		
2	3	145	5	136		
3	1	123	2	145	0	128
3	6	86	3	65	4	47
3	4	110	5	85	1	100
3	1	145	2	320	3	154
3	3	150	2	123	4	192
3	4	120	5	240	6	180
2	2	145	1	157		
2	2	124	4	168		
3	4	145	5	165	6	178

mfjs06 7*8*24 (M*J*O)

0 1
1 2
3 4
4 5
6 7
7 8
9 10
10 11
12 13
13 14
15 16
16 17
18 19
19 20
21 22
22 23

3	0	247	1	223	2	100
3	3	140	1	130	6	123
3	3	150	4	160	6	200
2	0	214	2	150		
2	2	87	1	66		
3	4	178	5	95	6	150
2	0	87	1	62		
3	6	145	2	180	3	105
3	3	190	4	100	5	153
2	0	87	1	65		
2	2	250	4	173		
2	3	145	5	136		
3	1	123	2	145	0	128
3	6	86	3	65	4	47
3	4	110	5	85	1	100
3	1	145	2	320	3	154
3	3	150	2	123	4	192
3	4	120	5	240	6	180
2	2	145	1	157		
2	2	124	4	168		
3	4	145	5	165	6	178
2	3	245	2	257		
2	5	224	4	268		
3	4	145	5	165	6	178

mfjs07 7*8*32 (M*J*O)

```
0 1
1 2
2 3
4 5
5 6
6 7
8 9
9 10
10 11
12 13
13 14
14 15
16 17
17 18
18 19
20 21
21 22
22 23
24 25
25 26
26 27
28 29
29 30
30 31
```

3	0	247	1	223	2	100
3	3	140	1	130	6	123
3	3	150	4	160	6	200
2	6	210	5	145		
2	0	214	2	150		
2	2	87	1	66		
3	4	178	5	95	6	150

2	4	120	6	150		
2	0	87	1	62		
3	6	145	2	180	3	105
3	3	190	4	100	5	153
2	5	170	6	165		
2	0	87	1	65		
2	2	250	4	173		
2	3	145	5	136		
2	4	250	5	170		
3	1	123	2	145	0	128
3	6	86	3	65	4	47
3	4	110	5	85	1	100
2	3	165	5	180		
3	1	145	2	320	3	154
3	3	150	2	123	4	192
3	4	120	5	240	6	180
2	3	120	6	50		
2	2	145	1	157		
2	2	124	4	168		
3	4	145	5	165	6	178
2	6	230	4	140		
2	3	245	2	257		
2	5	224	4	268		
3	4	145	5	165	6	178
2	6	150	5	150		

mfjs08 8*9*36 (M*J*O)

```
0 1
1 2
2 3
4 5
5 6
6 7
8 9
9 10
10 11
12 13
13 14
14 15
16 17
17 18
18 19
20 21
21 22
22 23
24 25
25 26
26 27
28 29
29 30
30 31
32 33
33 34
34 35
```

3	0	247	1	123	2	100
3	3	140	1	130	6	123
3	3	150	4	160	6	200

2	6	210	7	145			
2	0	214	2	150			
2	2	87	1	66			
3	4	178	5	95	6	150	
2	4	120	7	150			
2	0	87	1	62			
3	6	145	2	180	3	105	
3	3	190	4	100	5	153	
2	5	170	7	165			
2	0	87	1	65			
2	2	250	4	173			
2	3	145	5	136			
2	4	250	5	170			
3	1	123	2	145	0	128	
3	6	86	3	65	4	47	
3	4	110	5	85	1	100	
2	7	165	5	180			
3	1	145	2	320	3	154	
3	3	150	2	123	4	192	
3	4	120	5	240	6	180	
2	3	120	6	50			
2	2	145	1	157			
2	2	124	4	168			
3	4	145	5	165	6	178	
2	7	230	4	140			
2	3	245	2	257			
2	5	224	4	268			
3	4	145	5	165	6	178	
2	6	150	7	150			
2	1	150	2	150			
2	2	180	3	220			
2	4	40	6	50			
2	5	150	7	170			

mfjs09 8*11*44 (M*J*O)
```
0 1
1 2
2 3
4 5
5 6
6 7
8 9
9 10
10 11
12 13
13 14
14 15
16 17
17 18
18 19
20 21
21 22
22 23
24 25
25 26
26 27
28 29
```

```
29 30
30 31
32 33
33 34
34 35
36 37
37 38
38 39
40 41
41 42
42 43
```

3	0	247	1	123	2	100
3	3	140	1	130	6	123
3	3	150	4	160	6	200
2	6	210	7	145		
2	0	214	2	150		
2	2	87	1	66		
3	4	178	5	95	6	150
2	4	120	7	150		
2	0	87	1	62		
3	6	145	2	180	3	105
3	3	190	4	100	5	153
2	5	170	7	165		
2	0	87	1	65		
2	2	250	4	173		
2	3	145	5	136		
2	4	250	5	170		
3	1	123	2	145	0	128
3	6	86	3	65	4	47
3	4	110	5	85	1	100
2	7	165	5	180		
3	1	145	2	320	3	154
3	3	150	2	123	4	192
3	4	120	5	240	6	180
2	3	120	6	50		
2	2	145	1	157		
2	2	124	4	168		
3	4	145	5	165	6	178
2	7	230	4	140		
2	3	245	2	257		
2	5	224	4	268		
3	4	145	5	165	6	178
2	6	150	7	150		
2	1	150	2	150		
2	2	180	3	220		
2	4	40	6	50		
2	5	150	7	170		
2	3	245	2	257		
2	5	224	4	268		
3	4	145	5	165	6	178
2	6	150	7	150		
2	1	150	2	150		
2	2	180	3	220		
2	4	40	6	50		
2	5	150	7	170		

0 1
1 2
2 3
4 5
5 6
6 7
8 9
9 10
10 11
12 13
13 14
14 15
16 17
17 18
18 19
20 21
21 22
22 23
24 25
25 26
26 27
28 29
29 30
30 31
32 33
33 34
34 35
36 37
37 38
38 39
40 41
41 42
42 43
44 45
45 46
46 47

3	0	247	1	223	2	100
3	3	140	1	130	6	123
3	3	150	4	160	6	200
2	6	210	7	145		
2	0	214	2	150		
2	2	87	1	66		
3	4	178	5	95	6	150
2	4	120	7	150		
2	0	87	1	62		
3	6	145	2	180	3	105
3	3	190	4	100	5	153
2	5	170	7	165		
2	0	87	1	65		
2	2	250	4	173		
2	3	145	5	136		
2	4	250	5	170		
3	1	123	2	145	0	128
3	6	86	3	65	4	47
3	4	110	5	85	1	100
2	7	165	5	180		
3	1	145	2	320	3	154

3	3	150	2	123	4	192
3	4	120	5	240	6	180
2	3	120	6	50		
2	2	145	1	157		
2	2	124	4	168		
3	4	145	5	165	6	178
2	7	230	4	140		
2	3	245	2	257		
2	5	224	4	268		
3	4	145	5	165	6	178
2	6	150	7	150		
2	1	150	2	150		
2	2	180	3	220		
2	4	40	6	50		
2	5	150	7	170		
2	3	245	2	257		
2	5	224	4	268		
3	4	145	5	165	6	178
2	6	150	7	150		
2	1	150	2	150		
2	2	180	3	220		
2	4	40	6	50		
2	5	150	7	170		
2	2	345	1	357		
2	2	224	4	268		
3	4	145	5	165	6	178
2	7	230	4	340		