Chapter II Paths,Trees and Cycles

几种典型的网络数据表示方式

1 节点-弧关联矩阵

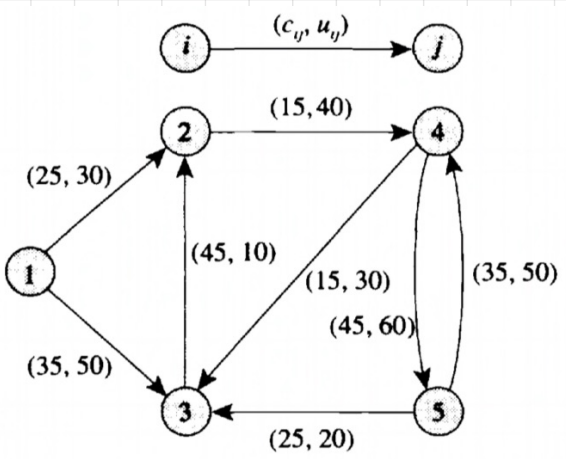

Figure 2.13 Network example.

	(1, 2)	(1, 3)	(2, 4)	(3, 2)	(4, 3)	(4, 5)	(5, 3)	(5, 4)
1	1	1	0	0	0	0	0	0
2	−1	0	1	−1	0	0	0	0
3	0	−1	0	1	−1	0	−1	0
4	0	0	−1	0	1	1	0	−1
5	0	0	0	0	0	−1	1	1

Figure 2.14 Node–arc incidence matrix of the network example.

2 节点邻接矩阵

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

Figure 2.15 Node–node adjacency matrix of the network example.

3 邻接表

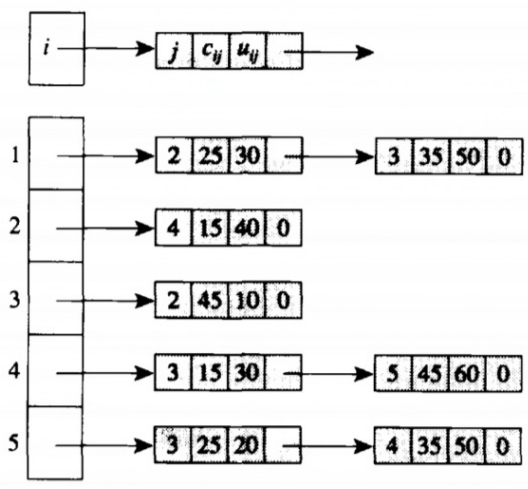

Figure 2.16 Adjacency list representation of the network example.

4 正反星表示法

	point
1	1
2	3
3	4
4	5
5	7
6	9

	tail	head	cost	capacity
1	1	2	25	30
2	1	3	35	50
3	2	4	15	40
4	3	2	45	10
5	4	3	15	30
6	4	5	45	60
7	5	3	25	20
8	5	4	35	50

(a)

	cost	capacity	tail	head		rpoint	
	45	10	3	2	1	1	1
	25	30	1	2	2	1	2
	35	50	1	3	3	3	3
	15	30	4	3	4	6	4
	25	20	5	3	5	8	5
	35	50	5	4	6	9	6
	15	40	2	4	7		
	45	60	4	5	8		

(b)

Figure 2.17 (a) Forward star and (b) reverse star representations of the network example.

	point
1	1
2	3
3	4
4	5
5	7
6	9

	tail	head	cost	capacity	trace		rpoint	
1	1	2	25	30	4	1	1	1
2	1	3	35	50	1	2	1	2
3	2	4	15	40	2	3	3	3
4	3	2	45	10	5	4	6	4
5	4	3	15	30	7	5	8	5
6	4	5	45	60	8	6	9	6
7	5	3	25	20	3	7		
8	5	4	35	50	6	8		

Figure 2.18 Compact forward and reverse star representation of the network example.