**Prob.2.3**. Find two more Petri net examples of your own for each of the following systems or situations that contain: (a) symmetric confusion ; and (b) asymmetric confusion, the structures shown in Fig.2.5.

**Prob.2.4**. Find a Petri net model that generates each of the following languages:

**(a)** x(x+y)*y, a regular expression. [Notomi]

**(b)** $L(M_0) = \{ a^n b^{2n} \mid n \geq 0 \}$ [Meng]

**(c)** $L(M_0) = \{ a^i b^j a^i b^j \mid i, j \geq 0 \}$ [Yamamoto]

**Prob.2.5**. Find a Petri net model of a producer-consumer problem with one producer and three consumers. The buffer between the producer and consumers is of capacity five (tokens). [Upp]

**Prob.2.6**. Find a Petri net representing a dataflow computation for finding the roots x of the quadratic equation, $ax^2 + bx + c = 0$. [Kurian]

**Prob.2.7**. For the net of a multiprocessor system shown in Fig. 2.13, when the marking is M = (0 0 0 2 3), i.e. when two processors are having access to common memories and three processors are queued, can transition $t_4$ or $t_5$ or both be fired? Explain what is happening in the multiprocessor system for each case of firing.

## Turing-Machine Equivalent Petri Nets

The following problems are appropriate for the reader who has some knowledge on the Turing machines and colored Petri nets. There are several ways to make the modeling power of Petri nets equivalent to that of a Turing machine. For example, the following modified Petri nets have the modeling power of a Turing machine.

A) Extended Petri Nets