t_2 and t_3 model the memory choice: firing t_3 corresponds to choosing the memory that is being accessed by the processor in p_4 . The choice of any other memory corresponds to the firing of t_2.

Actually, the net model shown in Fig. 2.13 can represent a two-bus multiprocessor system with any number of processors and memories. A generalized stochastic net version of this and more detailed models has been used for performance study of multiprocessor architectures [30, 31].

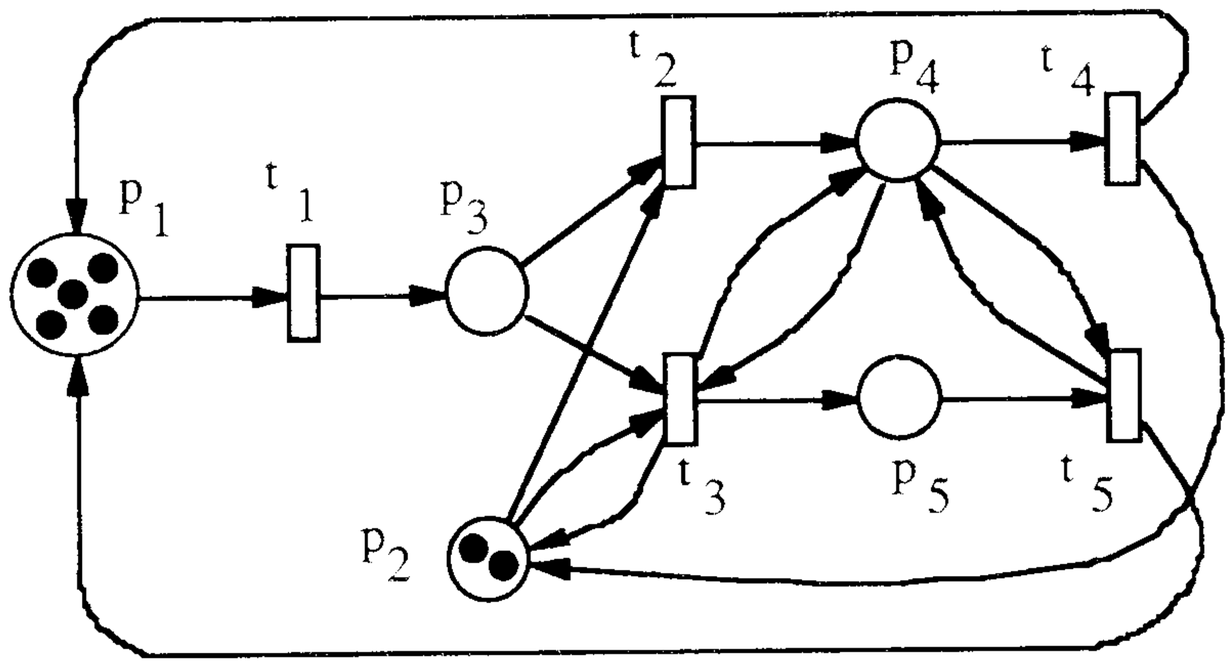

Fig.2.13. A Petri-net model of a multiprocessor system, where tokens in p_1 represent active processors, p_2 available buses, p_3, p_4, and p_5 processors waiting for, having access to, queued for common memories, respectively.

2.9 Problems

Prob.2.1 Find a Petri net modeling a vending machine which accepts nickels, dimes, or quarters; and sells 20 cents or 25 cents candy bars. To simplify, assume that the machine holds up to 25 cents, and omit coin return transitions.

Prob.2.2. Find three more examples of concurrent events that are reflexive and symmetric, but not transitive.