



Fig.2.11. An extended Petri-net representation of a producers-consumers system with priority.

2.7 Formal Languages

When the transitions in a Petri net are labeled with a set of not necessarily distinct symbols, a sequence of transition firings generates a string of symbols. The set of strings generated by all possible firing sequences defines a formal language called a *Petri net language*. For example, consider all possible sequences of transition firings in the labeled Petri net shown in Fig. 2.12. It is easy to see that λ , abc , $aabbcc$, $aaabbbccc$, ... are strings of symbols generated by all of the possible firing sequences starting from the initial marking with one token in the "start place" and terminating when there are no tokens except for the "final place" and all the transitions are disabled. From this, it can be seen that the language generated by this net is given by