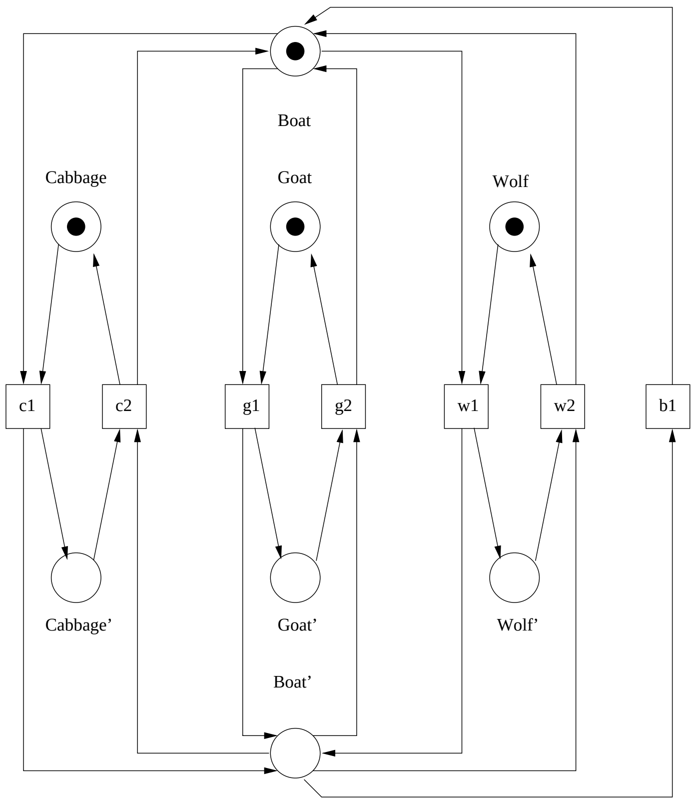
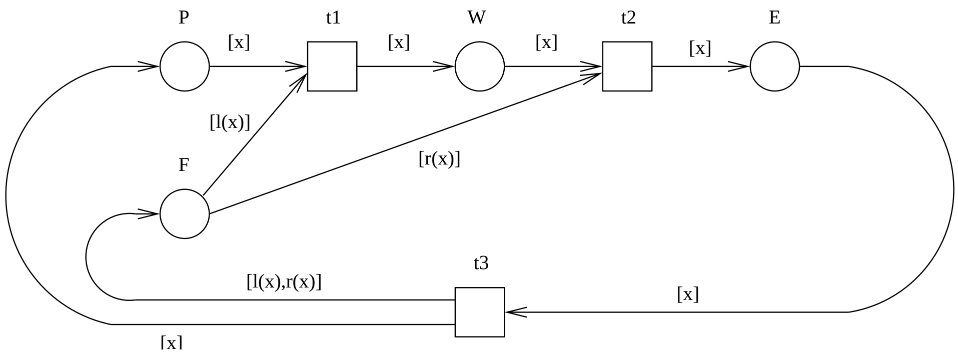
Department of Computer Science
Laboratory for Theoretical Computer Science
T-79.231 Parallel and Distributed Digital Systems

Tutorial 4
Oct 14th 2002

1. Below is a P/T net modeling the problem of ferrying a cabbage, a goat and a wolf across a river. Convert the net to the net description language of Maria. Generate the reachability graph and use a `reject` statement to find the unwanted states from the reachability graph.



2. Below is an algebraic net modeling the dining philosophers problem. Convert the net to maria and find deadlocks. Use the initial marking $P = [ph_1, ph_2, ph_3, ph_4]$, $F = [f_1, f_2, f_3, f_4]$ and $l(ph_i) = f_i$, $r(ph_i) = f_{(i \,\mathbf{mod}\, 4)+1}$.



3. In a system we have n writer processes and m reader processes. Any number of readers can read concurrently but if a single writer wants to write no other process can read or write. Below is a net modeling the system described above. Convert the net to Maria net description language and check that it works correctly. Use some reasonably small values for n and m, e.g. 3 or 4.