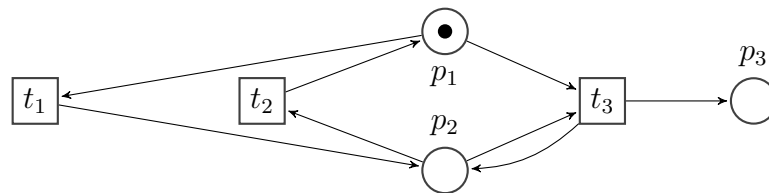


Problem 3: Towards the Enhanced Verification System

Consider the following Petri net:



- (a) Give the marking equation and a co-linear property reflecting deadlock-freedom.
- (b) Set up the trap matrix and enumerate the traps of the Petri net.

Problem 4: Family of Generating Traps

Add arcs to the Petri net N below so that its family of generating traps contains exponentially (in N 's size) many traps. Once added, describe $N = (S, T, W)$ formally and prove that the family of generating traps is exponential in N 's size.



Does the generating family of traps for N contain only minimal traps? Argue your answer.