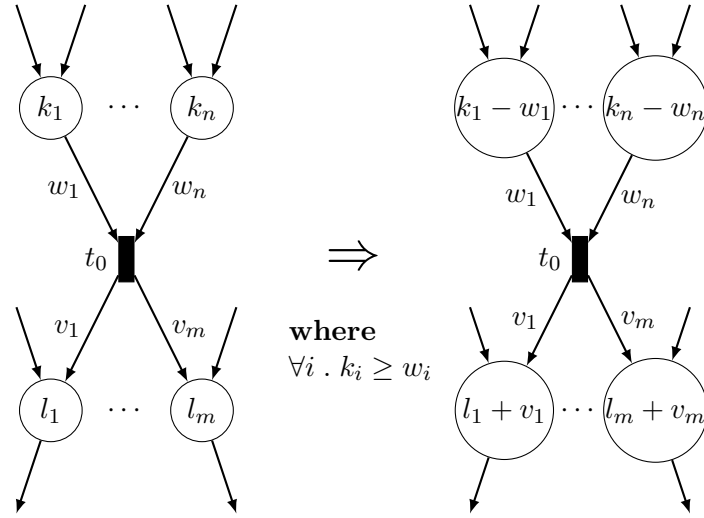


Rule Q: Preemptive transition firing

Rule Q evaluates transitions that are initially enabled and are the only consumer of all places in its pre set. The formal description of Rule Q can be found in Figure 1. Remark that Rule Q can potentially put tokens into places which will prevent other reductions. Furthermore, it can be applied infinitely if $\Xi(t_0) \leq \boxplus(t_0)$, or if the Petri net contains a loop.



Precondition	Update
Fix transition t_0 s.t.: Q1) $(\bullet t)^\bullet = \{t_0\}$ Q2) $\Xi(t_0) \leq M_0 < I(t_0)$ Q3) $(\bullet t_0 \cup t_0^\bullet) \cap places(\varphi) = \emptyset$ Q4) $(\bullet t_0)^\circ = (t_0^\bullet)^\circ = \emptyset$	UQ1) $M_0 := M_0 + E(t_0)$.

Figure 1: Rule Q: Preemptive transition firing

Theorem 1 *Rule Q in Figure 1 is correct for $CTL \setminus X$.*