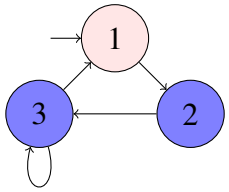
1 Transition systems

1. 2^L denotes the set of subsets of L. What is $2^{\{1,2,3\}}$?

2. A transition system is a tuple $< S, L, I, \rightarrow, \ell >$ consisting of

   - a set S of states,
   - a set L of labels,
   - a set $I \subseteq S$ of initial states,
   - a transition relation $\rightarrow \subseteq S \times S$ such that for all $s \in S$ there exists $t \in S$ such that $s \rightarrow t$, and
   - a labelling function $\ell : S \rightarrow 2^L$.

   Formally define the transition system for the following system.



2 Semantics of LTL

1. How can we express $p \models \Diamond f$ in terms of $\cdots \models f$?

2. How can we express $p \models \Box f$ in terms of $\cdots \models f$?