TS-semantics of a program graph

Let $\mathcal{P} = (Loc, Act, Effect, \hookrightarrow, Loc_0, g_0)$ be a PG.

transition system $\mathcal{T}_{\mathcal{P}} \;=\; (S, Act, \longrightarrow, S_0, AP, L)$

- state space: $S = Loc \times Eval(Var)$
- initial states: $S_0 = \{\langle \ell, \eta \rangle : \ell \in Loc_0, \eta \models g_0\}$
- $\longrightarrow$ is given by the following rule:

$$\frac{\ell \overset{g:\alpha}{\hookrightarrow} \ell' \;\wedge\; \eta \models g}{\langle \ell, \eta \rangle \overset{\alpha}{\longrightarrow} \langle \ell', Effect(\eta, \alpha) \rangle}$$

- atomic propositions: $AP = Loc \cup Cond(Var)$
- labeling function:

  $L(\langle \ell, \eta \rangle) \;=\; \{\ell\} \cup \{g \in Cond(Var) : \eta \models g\}$