1. Show that $\sim$ is a bisimulation.

2. Show that for these coffee machines, $s_1 \sim t_1$ does not hold.

3. What is the largest set closed forward under these rules? What is the smallest set closed backward?

\[
\begin{align*}
&\text{nil} \in \mathcal{L} \\
&l \in \mathcal{L} \quad a \in A \\
&\text{cons}(a, l) \in \mathcal{L}
\end{align*}
\]