CHRISTIAN-ALBRECHTS-UNIVERSITÄT ZU KIEL
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Engineering Secure Software Systems Winter 2020/21
Exercise Sheet 11

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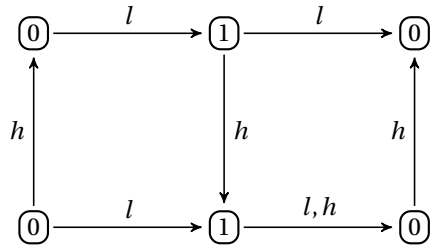
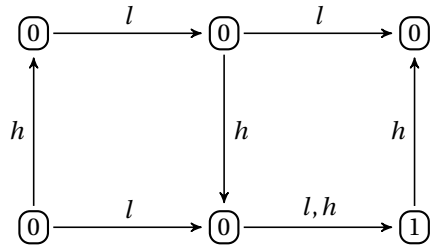
Exercise 11.1, P-Security Example I (10 Points)

Is the following system P-secure? Justify your answer.



Exercise 11.2, P-Security Example II (10 Points)

Is the following system P-secure? Justify your answer.



Exercise 11.3, alternative definition of P security I (10 Points)

Let $M = (S, s_0, A, \texttt{step}, D, O, \texttt{obs}, \texttt{dom})$ be a system and let $\rightarrowtail$ be a policy for M. Prove that the following are equivalent:

1. M is P-secure with respect to $\rightarrowtail$,
2. for all states $s \in S$, all $u \in D$, and all traces $\alpha \in A^*$, we have that

$$\texttt{obs}_u(s \cdot \alpha) = \texttt{obs}_u(s \cdot \texttt{purge}_u(\alpha)).$$

Note: The characterization from this task is in fact the original definition of P-Security, the (equivalent, by the above) definition we work with in the lecture was later user by Ron van der Meyden.