

Prob. 1	Prob. 2

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Problem 1.

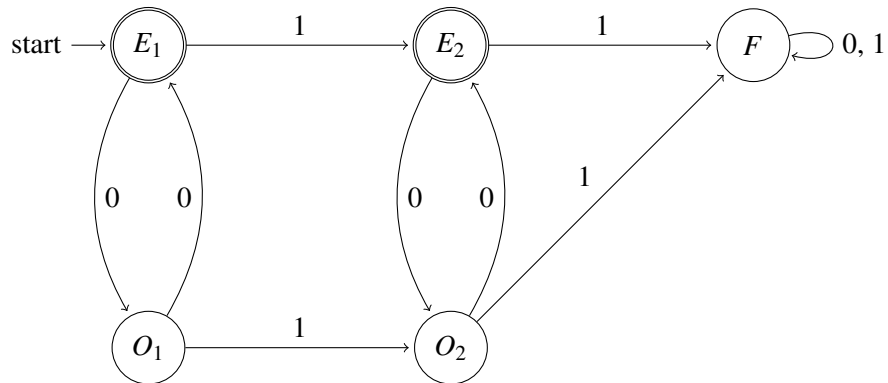


Figure 1: Problem Set1 Machine

Problem 2.

By using Observation 6 from the lecture notes we can deduce:

$$\forall x \in \Sigma^* \text{ s.t. } \hat{\delta}(q_0, x) \in F : \hat{\delta}(q_0, x) \notin \overline{F}, \text{ thus } x \in L(M) \rightarrow x \notin L(\overline{M}).$$

$$\forall y \in \Sigma^* \text{ s.t. } \hat{\delta}(q_0, y) \notin F : \hat{\delta}(q_0, y) \in \overline{F}, \text{ thus } y \notin L(M) \rightarrow y \in L(\overline{M}).$$

$$\text{Therefore, } L(\overline{M}) = \Sigma^* - L(M) = \overline{L(M)}$$