DFA additional formal definitions

- multi-step transition function \( \hat{\delta} \)
  a.k.a. extended transition function

\[
\hat{\delta}(q, \epsilon) = q \\
\hat{\delta}(q, aw) = \hat{\delta}(\delta(q, a), w)
\]

- language recognized by a DFA

\( L(\overline{D}) = \{ w | \hat{\delta}(q_0, w) \in F \} \)

- regular languages

\( L \) is regular \( \equiv \exists \text{ DFA } D \text{ s.t. } L(D) = L \)