FSM Even integers in binary (LGR)

Multiple of 5 in binary

\( n \mod 5 = \text{remainder when } n \text{ is divided by } 5 \)
F.S.M. \((\Sigma', S, a_0, F, \delta)\)

\[
M_1 = (\{a, b\}, S, a_0, F_1, \delta_1)
\]

\[
M_2 = (\{a, b\}, T, c_0, F_2, \delta_2)
\]

\[
M = (\{a, b\}, S \times T, \delta, \delta_1, \delta_2)
\]

\[
L(M) = \text{closure of } L(M_1) \cup L(M_2)
\]
A language recognized by an FSM is called REGULAR.

Then, even integers in binary are regular.
Then, multiples of 5 in binary are regular.
Then, multiples of 10 in binary are regular.

Then, if L₁ and L₂ are regular, then $L_1 \cup L_2$ is regular.
Then, $L_1 \cup L_2$ is regular.

Then, any finite set is regular.

Then, if L contains an empty string, L is regular.
$L_1$, $L_2$, $L_1 \cup L_2$ are regular

$L_1 \cap L_2$ is irregular

$\{xy \mid x \in L_1, y \in L_2\}$

$P \neq NP$