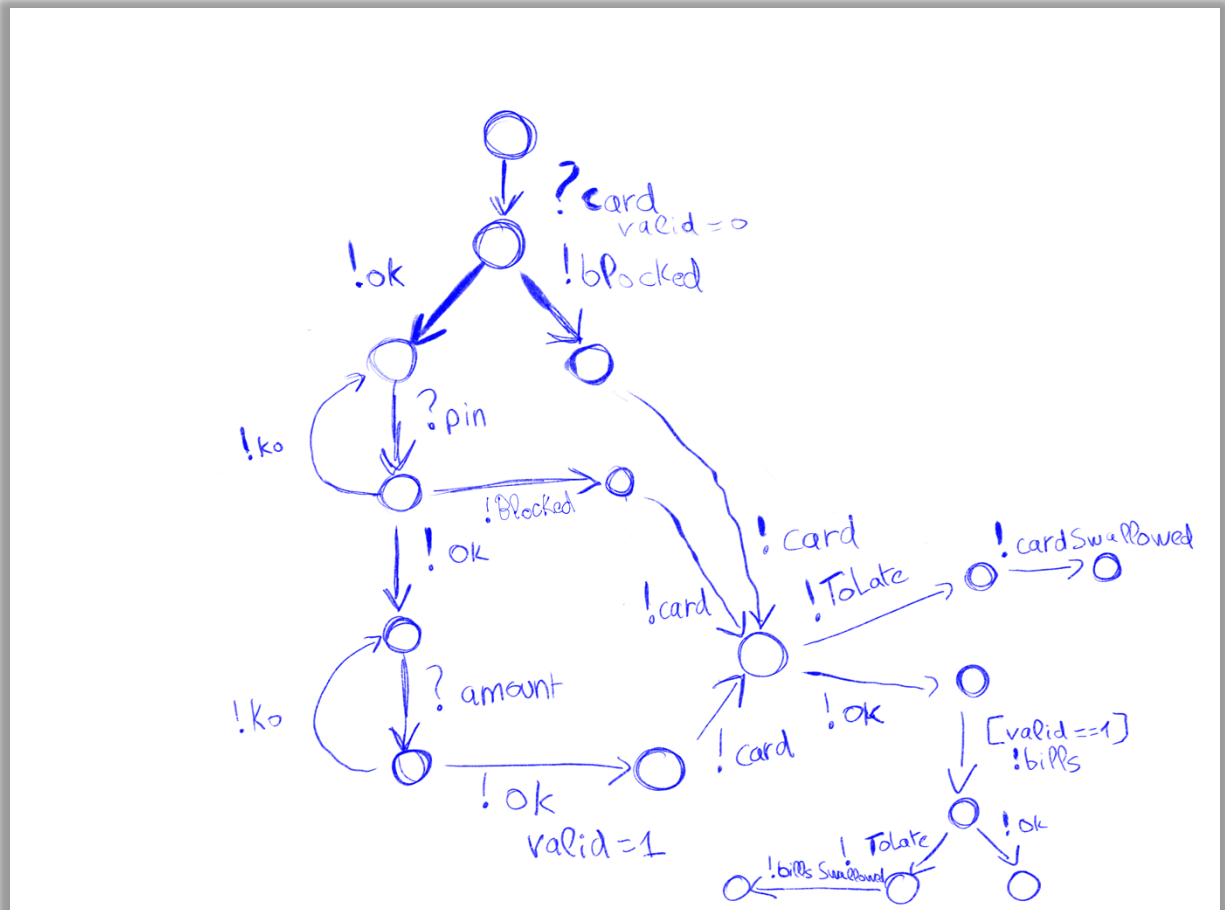


Temporal properties for testing

Specification of the automated Teller Machine

Exercise 1:



Exercise 2:

"It is not possible to get the bills without a correct authentication"

- Property 1:

never GET_BILLS
before PIN_OK

- Property 2:

never GET_BILLS
after GET_BILLS
until PIN_OK

"After the delay has expired, the ejected bills are swallowed by the ATM"

- Property 1:

SWALLOWS_BILLS directly follows TIME_PASSED

- Property 2:

never SWALLOWS_BILLS
before TIME_PASSED

Exercise 3:

never GET_BILLS
before PIN_OK

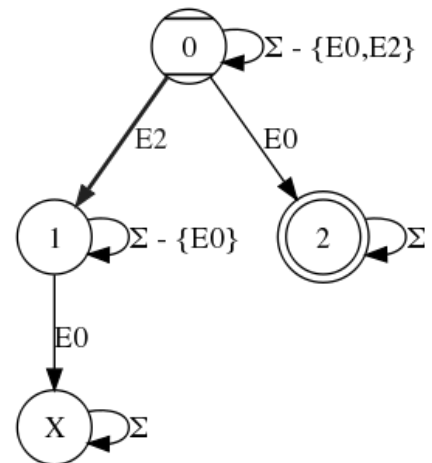
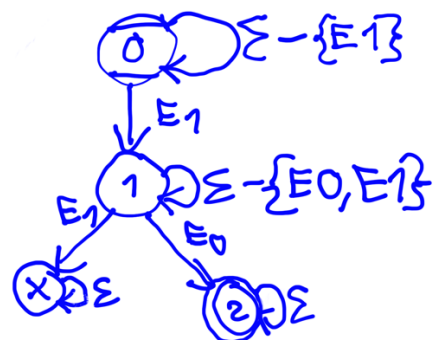


Figure 1- $E0 = \text{PIN_OK}$ & $E2 = \text{GET_BILLS}$

Figure 2 $E0 = \text{PIN_OK}$ & $E1 = \text{GET_BILLS}$

never GET_BILLS
after GET_BILLS
until PIN_OK



SWALLOWS_BILLS directly
follows TIME_PASSED

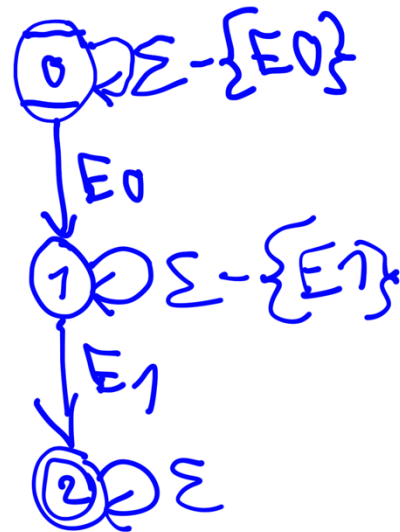


Figure 3 $E1 = \text{TIME_PASSED}$ & $E1 = \text{SWALLOWS_BILLS}$

never SWALLOWS_BILLS
before TIME_PASSED

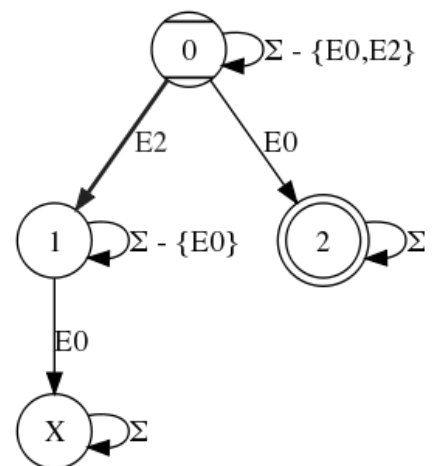


Figure 4 $E0 = \text{TIME_PASSED}$ & $E2 = \text{SWALLOWS_BILLS}$