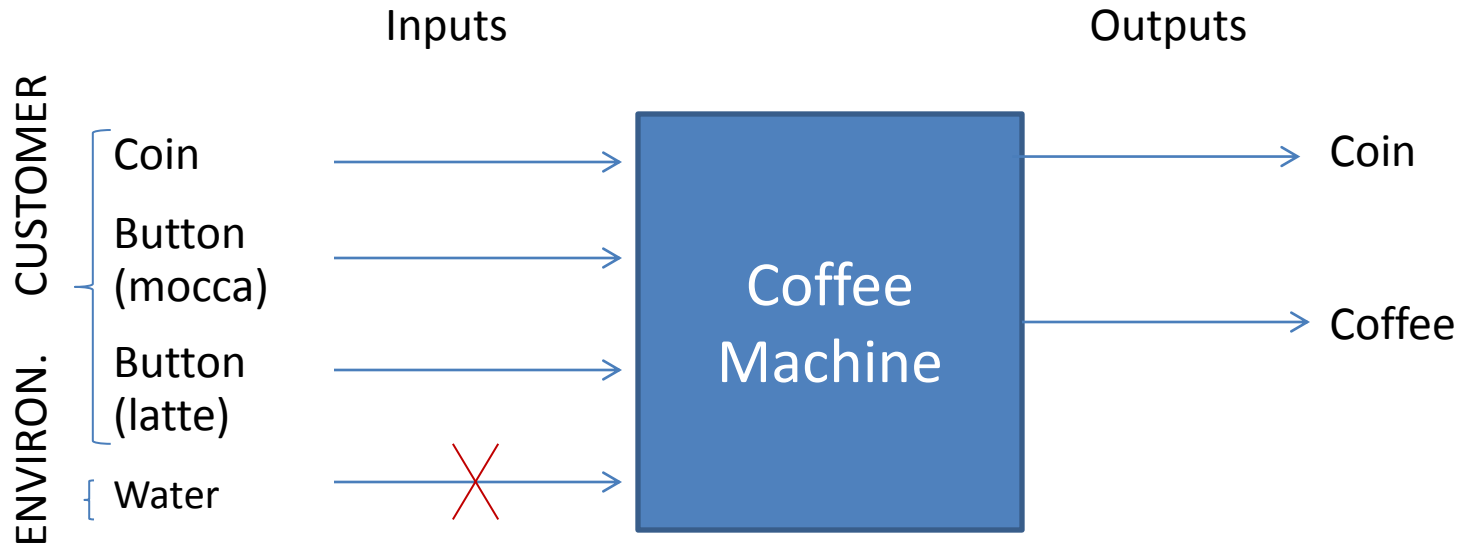


Formal methods

Lab no 1

Goal: Learning main principles of modelling abstract state machines

Case-study: coffee machine



Required I/O behaviour:

After inserting the coin and pressing the mocca or latte button following reaction is expected:

- if water tank is not empty the coffee is poured in 5 time units
- if water tank is empty then the coin is returned immediately

Model data

State variables

- `bool coin;` % true when coin inserted
- `bool want_mocca;` % true when “mocca” button pushed
- `bool want_latte;` % true when “latte” button pushed
- `bool water;` % true when water tank is not empty

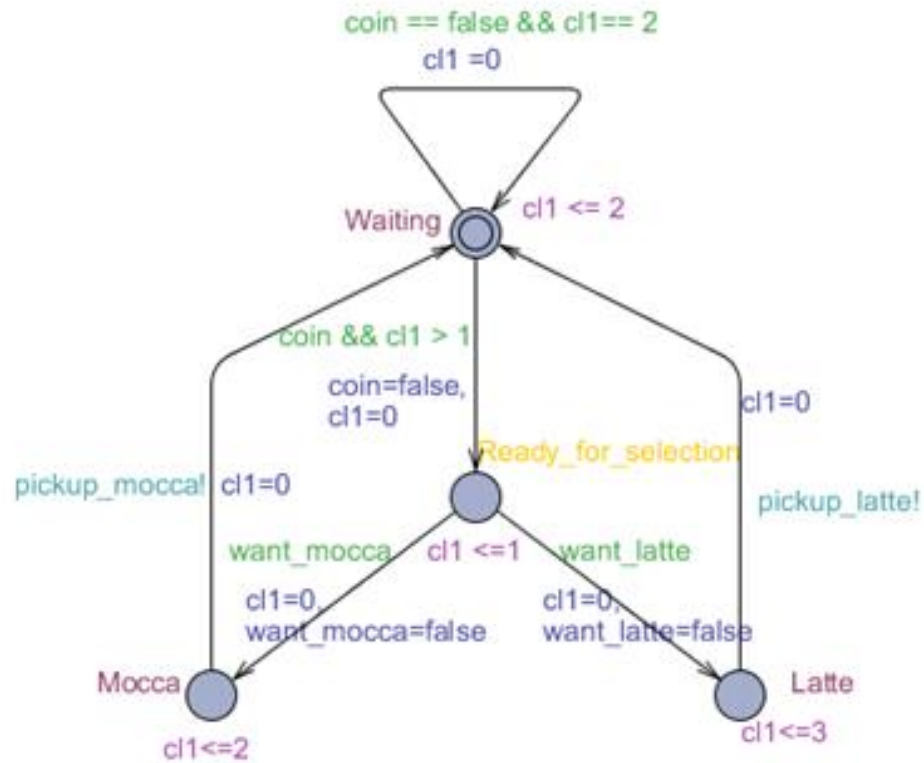
Synchronization signals:

- `chan pickup_mocca`
- `chan pickup_latte;`

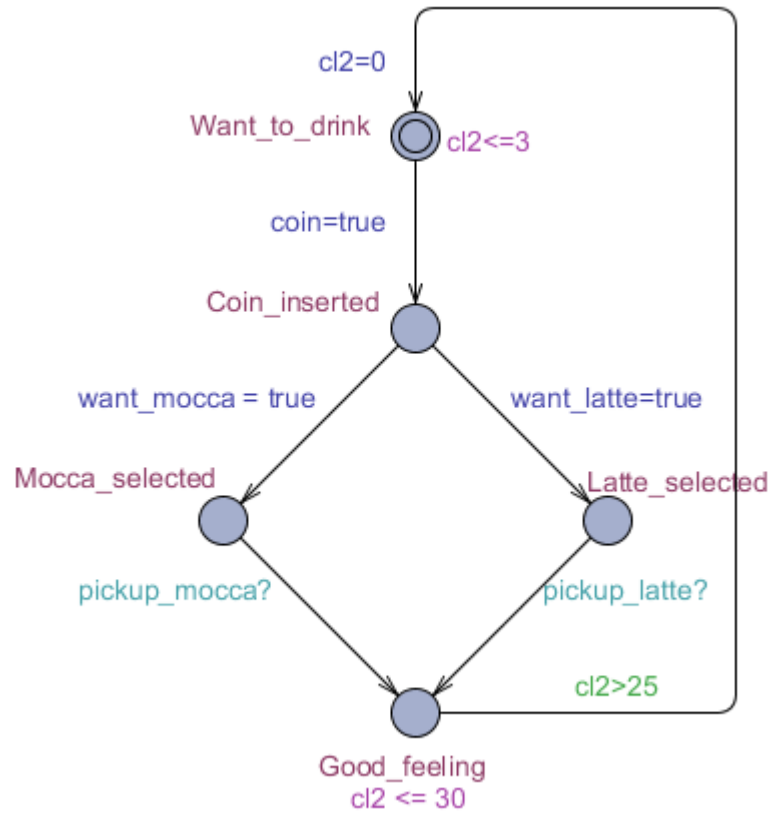
Model clocks:

- `clock cl1;` % local clock of the Coffee Machine
- `clock cl2;` % local clock of the Customer

Coffee machine



Customer



Assignment

- Add behavior to the coffee machine model such that the coin is returned when water tank is empty.