

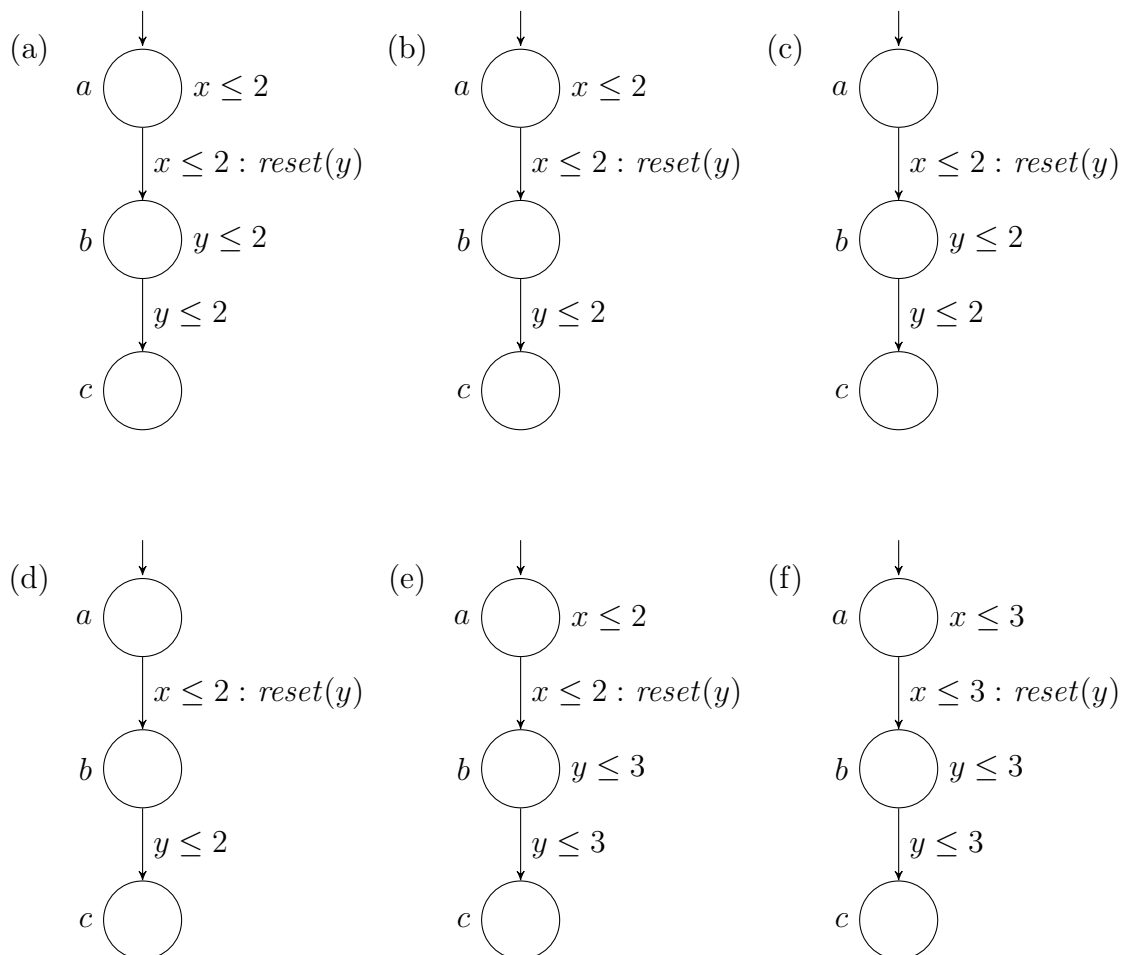


Modeling and Analysis of Hybrid Systems - SS 2009

Series 1

Exercise 1

Consider the following six timed automata:



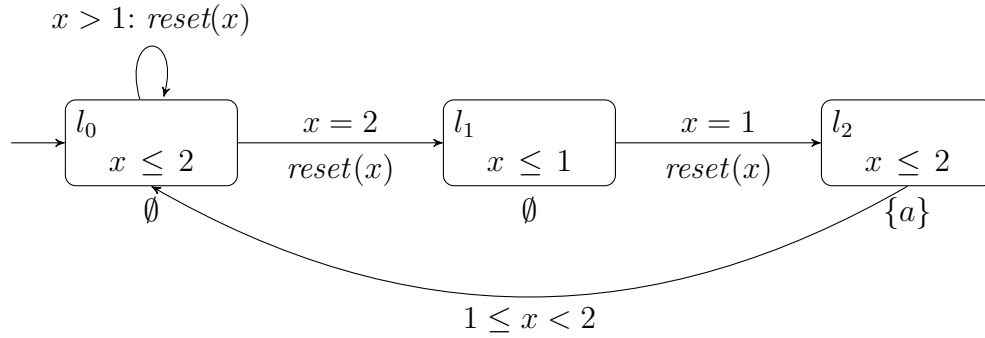
Give for each automaton a TCTL formula that distinguishes it from all other ones. It is only allowed to use the atomic propositions  $a$ ,  $b$  and  $c$  and clock constraints.

6 points

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## Exercise 2

Consider the following timed automaton  $TA$ :



- (a) Determine the set of reachable values for clock  $x$ .
- (b) Determine the set of states  $Sat(\exists \diamond^{<4} a)$ .
- (c) Determine the region transition system  $RTS(TA, true)$ .

6 points