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COSC 312

Exam 1

Problem: Create a state diagram for an oven with the following controls.

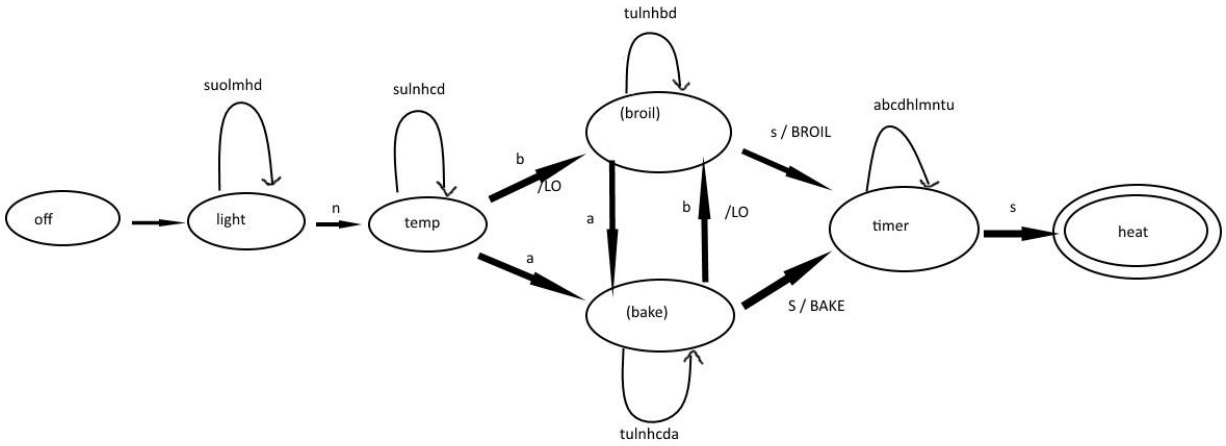
a	bake
b	broil
c	clear
d	down
h	hour
l	light
m	minute
n	on
o	off
s	start
t	temp
u	up

My oven consists of several individual state diagrams working in parallel: One state diagram that controls the overall function of the oven and several others that manipulate the features of the oven.

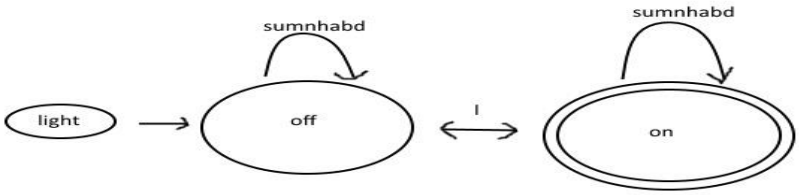
<u>Generalizations:</u>

- If the off control is hit at any time then everything is returned to their initial state and the oven is powered down.
- Clear while time is active will clear just the timer and leaves the oven on and heated.
- Clear while setting the states will return to the temp state unless otherwise stated

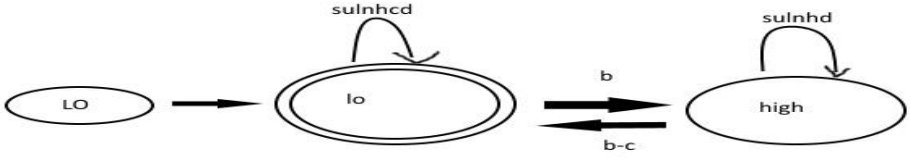
Main Control sate diagram: controls the overall flow of controls. Each intermediate state refers to the underling function state diagrams. As a user progresses through the states it activates the individual functions.



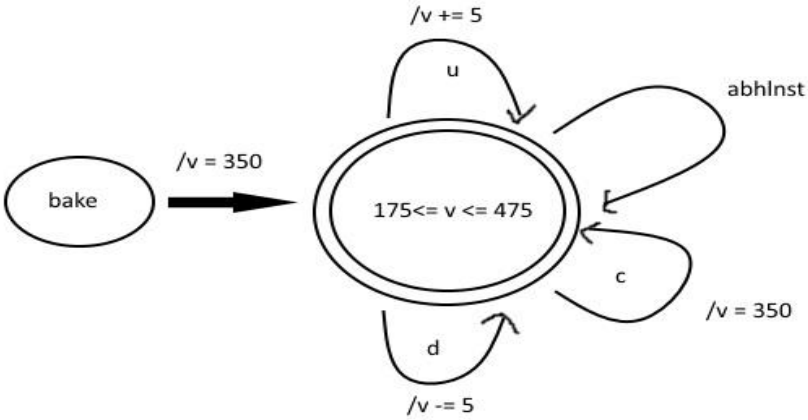
Light Control: active whenever the oven is on and can receive the l signal at any time to transition between the states. Ignores all commands but l.



Broil Control: active from time b is selected until either s or a is inputted. If a is inputted then main control transitions to bake and broil state is ignored. When s is inputted then the broil state is locked



Bake temp control: active from time bake (a) is selected and is active until the off command.



Timer control: timer is active from time of first s input until the timer runs out. Timer sets a decrementing counter that is a separate piece of logic that keeps track of time. When the timer runs out it outputs the off command.