Automaton equivalence software.

User Guide.

The following are the instructions of use for the GUI of the automaton equivalence software build for class. You will be presented with a step by step guide on how to use the program in a correct way.

1. First, you will have to choose which type of automatons you’ll like to compare. The GUI is divides into tabs, one for “Mealy Machine” and one for “Moore Machine”. Click on the one you will like to use.
2. Once you are in a tab, you will be presented with a few options to choose the size of the machines you will like to compare. The software by default builds both machines with 2 inputs and 2 states. However, using the text fields labeled “# of inputs” and “# of states” you can change the size of each machine. Simply by changing the value of each field, the inputs matrix will update its size. Note that both machines must have the same amount of inputs, so there is only one field for this option.

On each field, you must enter a numerical value.

1. Once you’ve set up the size of your automatons, you can then continue to add the tables for each machine.

For Mealy machines, you’ll be presented with a (states+1)x(inputs+1) size matrix. On the first column of the matrix, enter the state names for the machine. Note that the first state will always be the initial state. All state names must be unique. On the first row, enter the inputs symbols for the machine. All input states must be unique. Do not use a dash (‘-’) in your states nor in your input symbols.

Now, on each state-inputs intersection of the matrix, enter the go-to state/output symbol pair, following the “q-r” format. This is, enter the go-to state, followed by a dash (‘-’), followed by the output symbol. All states symbols must be contained in the alphabet entered above.

Follow the exact same procedure to fill machine 2’s matrix.

For Moore machines, you’ll be presented with a (states+1)x(inputs+2) size matrix. On the first column of the matrix, enter the state names for the machine. Note that the first state will always be the initial state. All state names must be unique. On the first row, enter the inputs symbols for the machine. All input states must be unique. Do not use a dash (‘-’) in your states nor in your input symbols. On the last column of the matrix, named “Outs”, you must enter the output symbol for each state.

Now, on each state-inputs intersection of the matrix, enter the go-to state. All states symbols must be contained in the alphabet entered above.

Follow the exact same procedure to fill machine 2’s matrix.

No input data in any of both matrices can be the empty string.

1. Press “Calculate equivalence” button. In the case that you entered all information in the correct manner, you’ll be presented with a true or false result. In the case that you didn’t, you’ll be presented with an error alert, telling you where you entered incorrect data.

Note: The software will check for errors in the size input tabs. It will correct you a set the table to its last valid size. Input errors on the input matrices will only be checked after the button is pressed.