

Práctica 2

Diego Jesús Romero Luque

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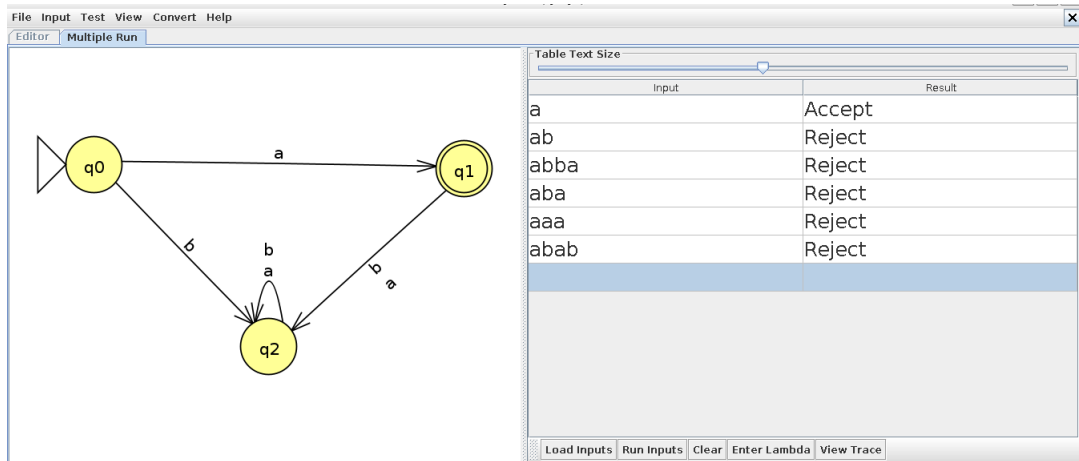
1. Consider the language over the alphabet $\{a, b\}$ that only contains the string a .

a) Build a DFA that recognizes this language and rejects all those strings that do not belong to the language.

$M = (\{q_0, q_1, q_2\}, \{a, b\}, \delta, q_0, \{q_1\})$ with:

$\delta(q, \sigma)$	a	b
q_0	q_1	q_2
q_1	q_2	q_2
q_2	q_2	q_2

b) Test the automaton that you have created by introducing 6 chains.



2. Finite automaton in Octave:

- a) Open the Octave `finiteautomata.m` script and test it with the given example (see script help) in the GitHub repository.

```
octave : 12 > finiteautomata("aa * bb * ", "ab")
```

```
M = (q0, q1, q2, a, b, q0, q2, (q0, a, q1), (q1, a, q1), (q1, b, q2), (q2, b, q2))
```

```
w = ab
```

```
(q0, ab) ⊢ (q1, b) ⊢ (q2, ε)
```

```
x ∈ L(M)
```

```
ans = 1
```

- b) Specify in `finiteautomata.json` the automaton created in Activity 1 and test it with the script! `finiteautomata.json`:

```
{
  "name" : "a",
  "representation" : {
    "K" : ["q0", "q1", "q2"],
    "A" : ["a", "b"],
    "s" : "q0",
    "F" : ["q1"],
    "t" : [
      ["q0", "a", "q1"],
      ["q0", "b", "q2"],
      ["q1", "a", "q2"],
      ["q1", "b", "q2"],
      ["q2", "a", "q2"],
      ["q2", "b", "q2"]
    ]
  }
}
```

```

octave : 15 > finiteautomata("a", "a")
M = (q0, q1, q2, a, b, q0, q1, (q0, a, q1), (q0, b, q2), (q1, a, q2), (q1, b, q2), (q2, a, q2), (q2, b, q2))
w = a
(q0, a) ⊢ (q1, ε)
x ∈ L(M)
ans = 1

```