

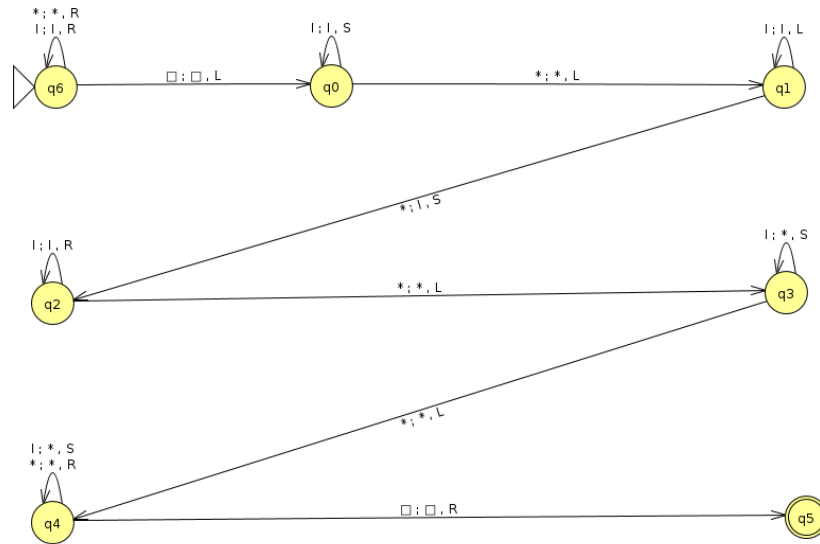
Actividad Practica 3

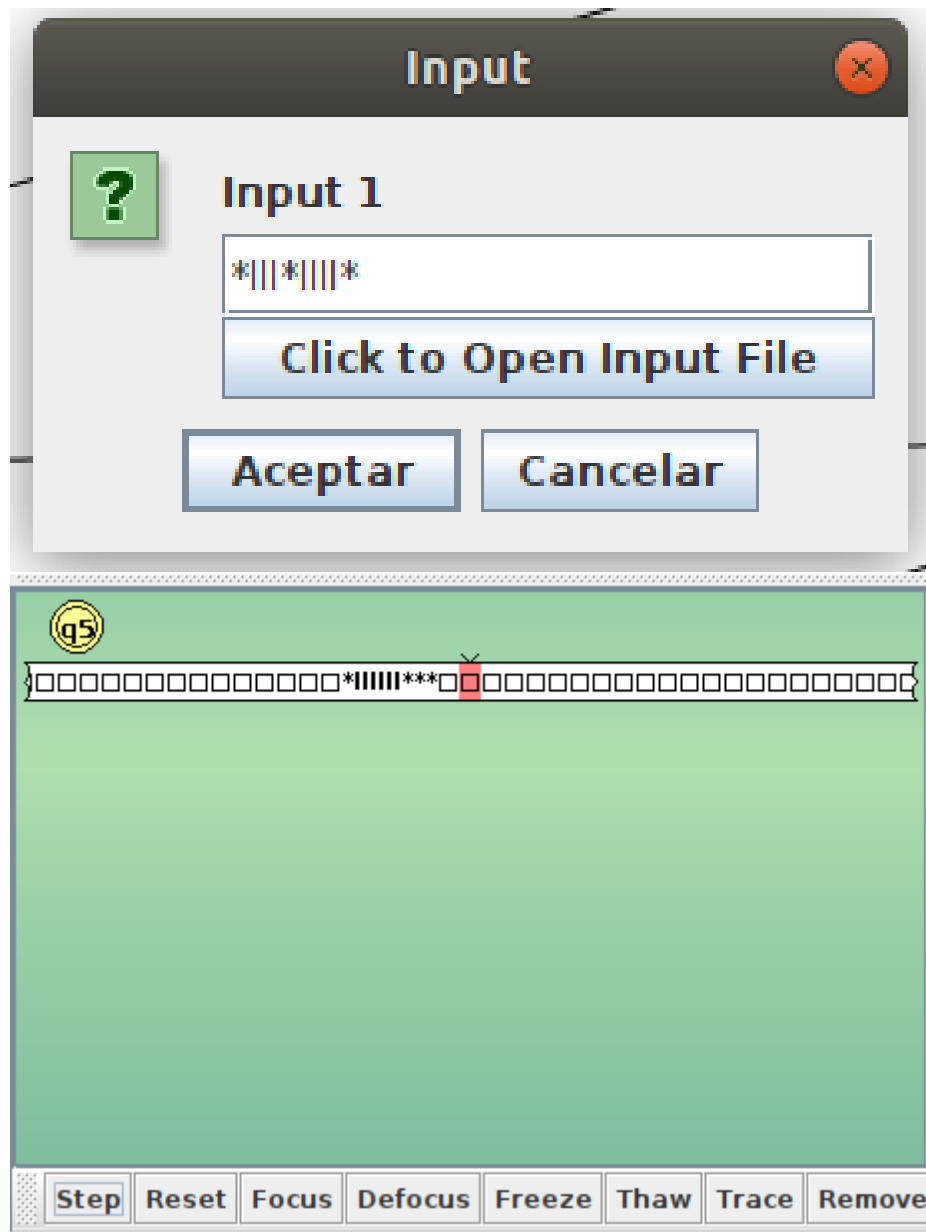
Juan Diaz-Flores Merino

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EJERCICIO 1. Define the TM solution of exercise 3.4 of the problem list and test its correct behaviour.

3.4. Prove that the function $\text{add}(x, y) = x + y$, with $x, y \in \mathbb{N}$ is Turing-computable using the unary notation $_$. You have to create a TM with two arguments separated by a blank symbol that starts and ends behind the strings.





EJERCICIO 2. Define a recursive function for the sum of three values.

$$add(x, y, z) = \langle \pi_1^1 | \sigma(\pi_3^3) \rangle > (\langle \pi_1^1 | \sigma(\pi_3^3) \rangle > (x, y), z)$$

EJERCICIO 3. Implement a WHILE program that computes the sum of three values. You must use an auxiliary variable that accumulates the result of the sum.

```

Q=(3, s)
s:
X4 := X1
while X2 ≠ 0 do
    X4 := X4 + 1
X2 := X2 - 1
od;
    while X3 ≠ 0
    X4 := X4 + 1
X3 := X3 - 1
od;
X1 := X4

```