

Practica 3

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

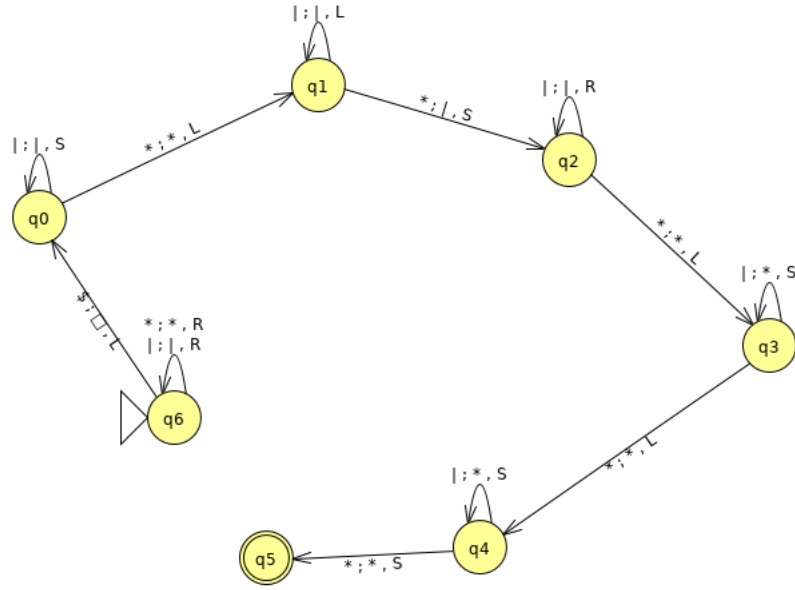


Figura 1:

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

$$\text{addition_3} = \langle \langle \pi_1^1 | \sigma(\pi_3^3) \rangle | \sigma(\pi_4^4) \rangle$$

```

octave:11> evalrecfunction('<<n^1_1|σ(n^3_3)>|σ(n^4_4)>', 1,2,3)
<<n^1_1|σ(n^3_3)>|σ(n^4_4)>(1,2,3)
<<n^1_1|σ(n^3_3)>|σ(n^4_4)>(1,2,2)
<<n^1_1|σ(n^3_3)>|σ(n^4_4)>(1,2,1)
<<n^1_1|σ(n^3_3)>|σ(n^4_4)>(1,2,0)
<n^1_1|σ(n^3_3)>(1,2)
<n^1_1|σ(n^3_3)>(1,1)
<n^1_1|σ(n^3_3)>(1,0)
n^1_1(1) = 1
σ(n^3_3)(1,0,1)
n^3_3(1,0,1) = 1

σ(1) = 2
σ(n^3_3)(1,1,2)
n^3_3(1,1,2) = 2

σ(2) = 3
σ(n^4_4)(1,2,0,3)
n^4_4(1,2,0,3) = 3

σ(3) = 4
σ(n^4_4)(1,2,1,4)
n^4_4(1,2,1,4) = 4

σ(4) = 5
σ(n^4_4)(1,2,2,5)
n^4_4(1,2,2,5) = 5

σ(5) = 6
ans = 6
octave:12>

```

Figura 2:

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=(3,4,s) s:
while X1 ≠ 0 do
    X2 := X2 + 1;
    X1 := X1 - 1
od
X4 := X2
while X2 ≠ 0 do
    X3 := X3 + 1;
    X2 := X2 - 1
od
X1 := X3

```