

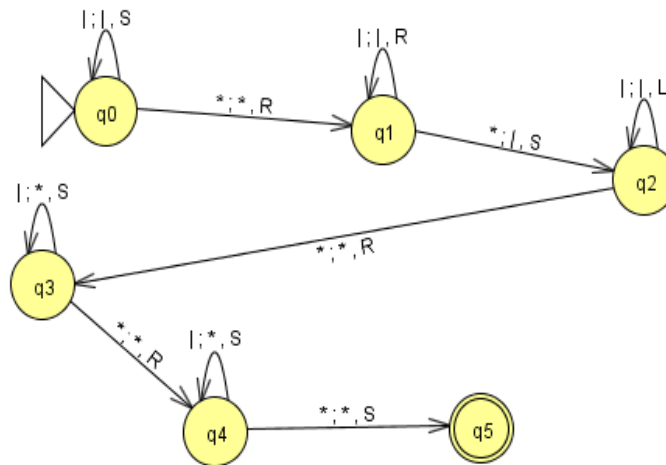
# Teoría de Autómatas y Lenguajes Formales

## Práctica 3.

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



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

$$suma \ll \pi_1^1 | \sigma(\pi_3^3) > | \sigma(\pi_4^4) > \quad (1)$$

```

Command Window
>> evalrecfunction('<<pi^1_1|sigma(pi^3_3)>|sigma(pi^4_4)>',2,2,4)
<<pi^1_1|sigma(pi^3_3)>|sigma(pi^4_4)>(2,2,4)
<<pi^1_1|sigma(pi^3_3)>|sigma(pi^4_4)>(2,2,3)
<<pi^1_1|sigma(pi^3_3)>|sigma(pi^4_4)>(2,2,2)
<<pi^1_1|sigma(pi^3_3)>|sigma(pi^4_4)>(2,2,1)
<<pi^1_1|sigma(pi^3_3)>|sigma(pi^4_4)>(2,2,0)
<pi^1_1|sigma(pi^3_3)>(2,2)
<pi^1_1|sigma(pi^3_3)>(2,1)
<pi^1_1|sigma(pi^3_3)>(2,0)
pi^1_1(2) = 2
sigma(pi^3_3)(2,0,2)
pi^3_3(2,0,2) = 2

sigma(2) = 3
sigma(pi^3_3)(2,1,3)
pi^3_3(2,1,3) = 3

sigma(3) = 4
sigma(pi^4_4)(2,2,0,4)
pi^4_4(2,2,0,4) = 4

sigma(4) = 5
sigma(pi^4_4)(2,2,1,5)
pi^4_4(2,2,1,5) = 5

sigma(5) = 6
sigma(pi^4_4)(2,2,2,6)
pi^4_4(2,2,2,6) = 6

sigma(6) = 7
sigma(pi^4_4)(2,2,3,7)
pi^4_4(2,2,3,7) = 7

sigma(7) = 8
ans = 8
>> |

```

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.

```

while X1!=0 do
  while X2!=0 do
    x3:=x3+1;
    x2:=x2-1;
  end while
  x3:=x3+1;
  x1:=x1-1;
end while

```