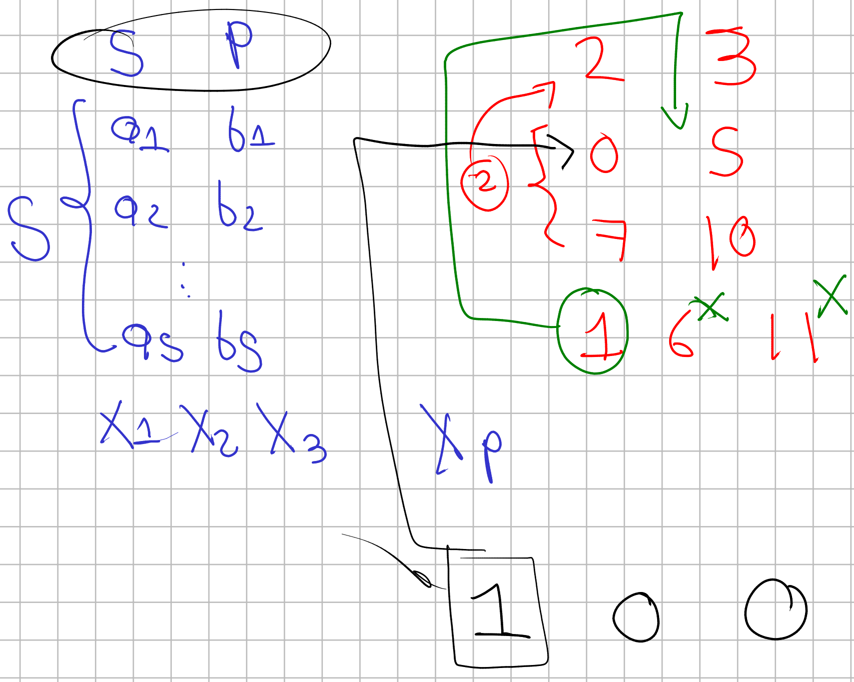
Explicación punto 1 TI



$1 \in [0,5] \cup [7, 10] = T$ 1

$6 \in [0,5] \cup [7,10) = F$ 0

$11 \in [0,5] \cup [7,10] = F$ 0

Listas:

<elemento> :: <lista>

List(1,2,3)

1::2::3::Nil

h T

Nil

$\{a, b, c\}$ $\epsilon, a, b, c, aa, ab, ac, \ldots$

$\Sigma^* = \{\epsilon, a, b, c, aa, ab, ac, b \ldots$

$$\Sigma^* = \{\lambda, a, b, c, aa, ab, \ldots$$

$$L(x\lambda) = \{\lambda, a, b, \ldots$$

$$\boxed{P(y) = l(xy) = l(x) + l(y)}$$

$$P(ya) = \underline{l(xya)} = l(x) + l(ya)$$

$$y = \{\lambda, a, b, c$$

$$ya = \{a, aa, ba,$$

$$l(xya) = l(x) + l(y) + l(a)$$

$$l(xya) = l(x) + l(y) + 1$$

$$y = \{a, b, c\}$$
$$x = \{bb, aa, cc\}$$
$$bba, aab, ccc,$$

$a_{m,n}$ *se define recursivamente para* $(m, n) \in \mathbb{N} \times \mathbb{N}$ *por* $a_{0,0} = 0$ *y*

$$a_{m,n} = \begin{cases} a_{m-1,n} + 1 & \text{si } n = 0 \text{ y } m > 0 \\ a_{m,n-1} + n & \text{si } n > 0. \end{cases}$$

ue $a_{m,n} = m + n(n+1)/2$ *para todo* $(m, n) \in \mathbb{N} \times \mathbb{N}$, *esto es, para todos*

$a_{0,0} = 0$

$a_{5,0} = a_{4,0} + 1 = 5$

$a_{4,0} = a_{3,0} + 1 = 4$

$a_{3,0} = a_{2,0} + 1 = 3$

$a_{2,0} = a_{1,0} + 1 = 2$

$a_{1,0} = \boxed{a_{0,0}} + 1 = 1$

$a_{5,0} = 5$

$a_{5,3} = a_{5,2} + 3 = 11$

$a_{5,2} = a_{5,1} + 2 = 8$

$a_{5,1} = a_{5,0} + 1 = 6$

$a_{5,0} = m + \frac{n(n+1)}{2} = 5 + \frac{0(1)}{2}$

$a_{5,3} = 5 + \frac{3(4)}{2} = 5 + 6 = 11$

Paso inductivo: *Sea* $a_{m',n'} = m' + n'(n'+1)/2$ *con* (m', n') *menor que* (m, n) *en el orde* *lexicográfico de* $\mathbb{N} \times \mathbb{N}$.

$a_{m',n'} < a_{m,n}$

$n = 0$

$a_{m,n} > a_{m-1,n}$

$m + \frac{n(n+1)}{2} > m - 1 + \frac{n(n+1)}{2}$

$m > m - 1$

$0 > -1$

$a_{m,n}$ *se define recursivamente para* $(m,n) \in \mathbb{N} \times \mathbb{N}$ *por* $a_{0,0} = 0$ *y*

$$a_{m,n} = \begin{cases} a_{m-1,n} + 1 & si\ n = 0\ y\ m > 0 \\ a_{m,n-1} + n & si\ n > 0. \end{cases}$$

ue $a_{m,n} = m + n(n+1)/2$ *para todo* $(m,n) \in \mathbb{N} \times \mathbb{N}$*, esto es, para todos*

$n > 0$ $\qquad a_{m,n} = a_{m,n-1} + n$

m

$a_{m,n} > a_{m,n-1}$

$\cancel{m} + \frac{n(n+1)}{\cancel{2}} > \cancel{m} + \frac{(n-1)n}{\cancel{2}}$

$n \cdot$

$n(n+1) > (n-1)n$

$n+1 > n-1$

$1 > -1$ ✓