

Supóngase que $a+b-1 < 0$ y $b+c-1 \geq 0$. Luego:

$$T(T(a,b), c) = \max\{0, \max\{0, a+b-1\} + c-1\}$$

$$= \max\{0, c-1\}$$

$$= 0$$

$$= \max\{0, a+b-1\}$$

Claramente se tiene que:

$$a+b-1 < 0 \text{ y } c-1 < 0$$



$$a+b-1 + c-1 < 0$$

Luego: $T(T(a,b), c) = \max\{0, a+b-1 + c-1\}$

$$= \max\{0, a + (b+c-1) - 1\}$$

$$= \max\{0, a + \max\{0, b+c-1\} - 1\}$$

$$= T(a, T(b,c)) \checkmark (2)$$

Supóngase $a+b-1 \geq 0$ y $b+c-1 < 0$

$$T(T(a,b), c) = \max\{0, \max\{0, a+b-1\} + c-1\}$$

$$= \max\{0, a+b-1 + c-1\}$$

$$= \max\{0, a-1 + b+c-1\} \quad \begin{array}{l} \nearrow a-1 < 0 \\ b+c-1 < 0 \end{array} \rightarrow a-1 + b+c-1 < 0$$

$$= 0 = \max\{0, a-1\} = \max\{0, a + \max\{0, b+c-1\} - 1\}$$

$$= T(a, T(b,c)) \checkmark (3)$$