

t30\_qc\_lang1  
 (TMTEq5aVTqbfMaQ9X4cQDrkd9kEzdBz2F2j)

October 27, 2020

Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $r2\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_qc\_lang1 \\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_qc\_lang1 X0)) \Rightarrow ((r2\_qc\_lang1 \\ X0 X1 X2) \Leftrightarrow (\neg r1\_qc\_lang1 X0 X2 X1)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_qc\_lang1 \\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_qc\_lang1 X0)) \Rightarrow (\forall X3. \\ (m1\_subset\_1 X3 (k1\_qc\_lang1 X0)) \Rightarrow (((r1\_qc\_lang1 X0 X1 X2) \wedge (r1\_qc\_lang1 \\ X0 X2 X3)) \Rightarrow (r1\_qc\_lang1 X0 X1 X3)))))) \end{aligned} \quad (2)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_qc\_lang1 \\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_qc\_lang1 X0)) \Rightarrow (\forall X3. \\ (m1\_subset\_1 X3 (k1\_qc\_lang1 X0)) \Rightarrow (((r2\_qc\_lang1 X0 X1 X2) \wedge (r1\_qc\_lang1 \\ X0 X2 X3)) \Rightarrow (r2\_qc\_lang1 X0 X1 X3)))))) \end{aligned}$$