

t36\_substut1  
(TMUUvfcWADvrKz9JtAGeE2nfiqmsH5P7ght)

October 27, 2020

Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k16\_substut1 : \iota \Rightarrow \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k37\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k3\_cqc\_lang : \iota \Rightarrow \iota$  be given. Let  $k20\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k13\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ X0)) \Rightarrow ((m2\_subset\_1 (k13\_qc\_lang1 X0 X1) (k9\_qc\_lang1 X0) (k3\_cqc\_lang \\ X0)) \Leftrightarrow (m2\_subset\_1 X1 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k16\_substut1 \\ X0)) \Rightarrow (k37\_substut1 X0 (k20\_substut1 X0 X1) = k13\_qc\_lang1 X0 (k37\_substut1 \\ X0 X1))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((m1\_qc\_lang1 X0) \wedge (m1\_subset\_1 X1 (k16\_substut1 \\ X0))) \Rightarrow (m1\_subset\_1 (k37\_substut1 X0 X1) (k9\_qc\_lang1 X0)) \end{aligned} \quad (3)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k16\_substut1 \\ X0)) \Rightarrow ((m2\_subset\_1 (k37\_substut1 X0 X1) (k9\_qc\_lang1 X0) (k3\_cqc\_lang \\ X0)) \Rightarrow (m2\_subset\_1 (k37\_substut1 X0 (k20\_substut1 X0 X1)) (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)))) \end{aligned}$$