

t59\_qc\_lang3  
(TMVzQYgumgE4ebXQE6SKFko8GZMREkwVguE)

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Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k5\_qc\_lang3 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_qc\_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k14\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k13\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ & X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k9\_qc\_lang1 X0)) \Rightarrow (k5\_qc\_lang3 \\ & X0 (k14\_qc\_lang1 X0 X1 X2) = k4\_subset\_1 (k5\_qc\_lang1 X0) (k5\_qc\_lang3 \\ & X0 X1) (k5\_qc\_lang3 X0 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ & X0)) \Rightarrow (k5\_qc\_lang3 X0 (k13\_qc\_lang1 X0 X1) = k5\_qc\_lang3 X0 X1)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1\_qc\_lang1 X0) \wedge ((m1\_subset\_1 \\ & X1 (k9\_qc\_lang1 X0)) \wedge (m1\_subset\_1 X2 (k9\_qc\_lang1 X0)))) \Rightarrow (m1\_subset\_1 \\ & (k14\_qc\_lang1 X0 X1 X2) (k9\_qc\_lang1 X0)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((m1\_qc\_lang1 X0) \wedge (m1\_subset\_1 X1 (k9\_qc\_lang1 \\ & X0))) \Rightarrow (m1\_subset\_1 (k13\_qc\_lang1 X0 X1) (k9\_qc\_lang1 X0)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ & X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k9\_qc\_lang1 X0)) \Rightarrow (k3\_qc\_lang2 \\ & X0 X1 X2 = k13\_qc\_lang1 X0 (k14\_qc\_lang1 X0 (k13\_qc\_lang1 X0 X1) ( \\ & k13\_qc\_lang1 X0 X2)))))) \end{aligned} \quad (5)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1 \\ & X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow (k5\_qc\_lang3 \\ & X0\ (k3\_qc\_lang2\ X0\ X1\ X2) = k4\_subset\_1\ (k5\_qc\_lang1\ X0)\ (k5\_qc\_lang3 \\ & X0\ X1)\ (k5\_qc\_lang3\ X0\ X2)))) \end{aligned}$$