

t19\_qc\_lang2  
(TMZjLsNYjvEAiaFJohftUKAUFSt7nXvz5Af)

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Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k3\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $v5\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_qc\_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k21\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k22\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k15\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m2\_subset\_1 X1 (k2\_qc\_lang1 \\ X0) (k3\_qc\_lang1 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k9\_qc\_lang1 \\ X0)) \Rightarrow ((k21\_qc\_lang1 X0 (k15\_qc\_lang1 X0 X1 X2) = X1) \wedge (k22\_qc\_lang1 \\ X0 (k15\_qc\_lang1 X0 X1 X2) = X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\ (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\ X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1)) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\neg v1\_xboole\_0 (k3\_qc\_lang1 X0)) \quad (3)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (m1\_subset\_1 (k3\_qc\_lang1 X0) (k1\_zfmisc\_1 \\ (k2\_qc\_lang1 X0))) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1\_qc\_lang1 X0) \wedge ((m1\_subset\_1 \\ X1 (k3\_qc\_lang1 X0)) \wedge (m1\_subset\_1 X2 (k9\_qc\_lang1 X0)))) \Rightarrow (m1\_subset\_1 \\ (k15\_qc\_lang1 X0 X1 X2) (k9\_qc\_lang1 X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow & (\forall X1.(m2\_subset\_1\ X1\ (k2\_qc\_lang1 \\ & X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k2\_qc\_lang1 \\ & X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k9\_qc\_lang1 \\ & X0)) \Rightarrow (k6\_qc\_lang2\ X0\ X1\ X2\ X3 = k15\_qc\_lang1\ X0\ X1\ (k15\_qc\_lang1 \\ & X0\ X2\ X3)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow & (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1 \\ & X0)) \Rightarrow ((v5\_qc\_lang1\ X1\ X0) \Leftrightarrow (\exists X2.(m2\_subset\_1\ X2\ (k2\_qc\_lang1 \\ & X0)\ (k3\_qc\_lang1\ X0)) \wedge (\exists X3.(m1\_subset\_1\ X3\ (k9\_qc\_lang1 \\ & X0)) \wedge (X1 = k15\_qc\_lang1\ X0\ X2\ X3)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0)) \Rightarrow (v1\_xboole\_0\ X1)) \quad (8)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow & (\forall X1.(m2\_subset\_1\ X1\ (k2\_qc\_lang1 \\ & X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k2\_qc\_lang1 \\ & X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k9\_qc\_lang1 \\ & X0)) \Rightarrow ((v5\_qc\_lang1\ (k6\_qc\_lang2\ X0\ X1\ X2\ X3)\ X0) \wedge ((k21\_qc\_lang1 \\ & X0\ (k6\_qc\_lang2\ X0\ X1\ X2\ X3) = X1) \wedge (k22\_qc\_lang1\ X0\ (k6\_qc\_lang2 \\ & X0\ X1\ X2\ X3) = k15\_qc\_lang1\ X0\ X2\ X3)))))) \end{aligned}$$