

t31\_procal\_1  
(TManweJj82wFucAC53Cgs2HwBP9oKnFwrYx)

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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  $k9\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_cqc\_lang : \iota \Rightarrow \iota$  be given. Let  $k8\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_cqc\_the1 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m2\_subset\_1 X1 (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)) \Rightarrow (\forall X2.(m2\_subset\_1 X2 (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)) \Rightarrow (\forall X3.(m2\_subset\_1 X3 (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)) \Rightarrow (k8\_cqc\_lang X0 (k8\_cqc\_lang X0 X1 (k8\_cqc\_lang \\ X0 X2 X3)) (k8\_cqc\_lang X0 X2 (k8\_cqc\_lang X0 X1 X3)) \in k4\_cqc\_the1 \\ X0)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m2\_subset\_1 X1 (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)) \Rightarrow (\forall X2.(m2\_subset\_1 X2 (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)) \Rightarrow (((X1 \in k4\_cqc\_the1 X0) \wedge (k8\_cqc\_lang X0 \\ X1 X2 \in k4\_cqc\_the1 X0)) \Rightarrow (X2 \in k4\_cqc\_the1 X0)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m2\_subset\_1 X1 (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)) \Rightarrow (\forall X2.(m2\_subset\_1 X2 (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)) \Rightarrow (k8\_cqc\_lang X0 X1 (k8\_cqc\_lang X0 X2 (k7\_cqc\_lang \\ X0 X1 X2)) \in k4\_cqc\_the1 X0))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m2\_subset\_1 X1 (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)) \Rightarrow (\forall X2.(m2\_subset\_1 X2 (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)) \Rightarrow (\forall X3.(m2\_subset\_1 X3 (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)) \Rightarrow (((k8\_cqc\_lang X0 X1 (k8\_cqc\_lang X0 X2 X3) \in \\ k4\_cqc\_the1 X0) \wedge (k8\_cqc\_lang X0 X1 X2 \in k4\_cqc\_the1 X0)) \Rightarrow (k8\_cqc\_lang \\ X0 X1 X3 \in k4\_cqc\_the1 X0)))))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m2\_subset\_1\ X3\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (k8\_cqc\_lang\ X0\ (k8\_cqc\_lang\ X0\ X1\ X2)\ (k8\_cqc\_lang \\ X0\ (k8\_cqc\_lang\ X0\ X2\ X3)\ (k8\_cqc\_lang\ X0\ X1\ X3)) \in k4\_cqc\_the1\ X0)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow ((X1 \in k4\_cqc\_the1\ X0) \Rightarrow (k8\_cqc\_lang\ X0\ X2 \\ X1 \in k4\_cqc\_the1\ X0)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1\_xboole\_0\ X0) \wedge ((\neg v1\_xboole\_0\ X1) \wedge \\ (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\ X2\ X0\ X1) \Leftrightarrow (m1\_subset\_1\ X2\ X1)) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\neg v1\_xboole\_0\ (k3\_cqc\_lang\ X0)) \quad (8)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\neg v1\_xboole\_0\ (k9\_qc\_lang1\ X0)) \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0) \wedge ((m1\_subset\_1 \\ X1\ (k3\_cqc\_lang\ X0)) \wedge (m1\_subset\_1\ X2\ (k3\_cqc\_lang\ X0)))) \Rightarrow (m2\_subset\_1 \\ (k8\_cqc\_lang\ X0\ X1\ X2)\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0) \wedge ((m1\_subset\_1 \\ X1\ (k3\_cqc\_lang\ X0)) \wedge (m1\_subset\_1\ X2\ (k3\_cqc\_lang\ X0)))) \Rightarrow (m2\_subset\_1 \\ (k7\_cqc\_lang\ X0\ X1\ X2)\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (m1\_subset\_1\ (k3\_cqc\_lang\ X0)\ (k1\_zfmisc\_1 \\ (k9\_qc\_lang1\ X0))) \end{aligned} \quad (12)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m2\_subset\_1\ X3\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (k8\_cqc\_lang\ X0\ (k8\_cqc\_lang\ X0\ (k7\_cqc\_lang \\ X0\ X1\ X2)\ X3)\ (k8\_cqc\_lang\ X0\ X1\ (k8\_cqc\_lang\ X0\ X2\ X3)) \in k4\_cqc\_the1 \\ X0)))) \end{aligned}$$