

## t37\_cqc\_the2 (TMU AUwPCkAbdu- JmT1Xt2X2F122d1QL8qasp)

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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  $k9\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k3\_cqc\_lang : \iota \Rightarrow \iota$  be given. Let  $k2\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k3\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $v2\_cqc\_the1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k10\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow & (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ & X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\ & X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m2\_subset\_1\ X3\ (k2\_qc\_lang1 \\ & X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow ((v2\_cqc\_the1\ (k8\_cqc\_lang\ X0\ (k11\_cqc\_lang \\ & X0\ X3\ (k7\_cqc\_lang\ X0\ X1\ X2)))\ (k7\_cqc\_lang\ X0\ (k11\_cqc\_lang\ X0\ X3 \\ & X1)\ (k11\_cqc\_lang\ X0\ X3\ X2)))\ X0) \wedge (v2\_cqc\_the1\ (k8\_cqc\_lang\ X0 \\ & (k7\_cqc\_lang\ X0\ (k11\_cqc\_lang\ X0\ X3\ X1)\ (k11\_cqc\_lang\ X0\ X3\ X2))) \\ & (k11\_cqc\_lang\ X0\ X3\ (k7\_cqc\_lang\ X0\ X1\ X2)))\ X0)))) \end{aligned} \quad (1)$$

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.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow & (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ & X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\ & X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (((v2\_cqc\_the1\ (k8\_cqc\_lang\ X0\ X1\ X2)\ X0) \wedge \\ & (v2\_cqc\_the1\ (k8\_cqc\_lang\ X0\ X2\ X1)\ X0)) \Leftrightarrow (v2\_cqc\_the1\ (k10\_cqc\_lang \\ & X0\ X1\ X2)\ X0)))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\neg v1\_xboole\_0\ (k3\_qc\_lang1\ X0)) \quad (4)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\neg v1\_xboole\_0 (k3\_cqc\_lang X0)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1 X0) \wedge ((m1\_subset\_1 X1 (k3\_cqc\_lang X0)) \wedge (m1\_subset\_1 X2 (k3\_cqc\_lang X0)))) \Rightarrow (m2\_subset\_1 (k7\_cqc\_lang X0 X1 X2) (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \quad (6)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (m1\_subset\_1 (k3\_qc\_lang1 X0) (k1\_zfmisc\_1 (k2\_qc\_lang1 X0))) \quad (7)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (m1\_subset\_1 (k3\_cqc\_lang X0) (k1\_zfmisc\_1 (k9\_qc\_lang1 X0))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1 X0) \wedge ((m1\_subset\_1 X1 (k3\_qc\_lang1 X0)) \wedge (m1\_subset\_1 X2 (k3\_cqc\_lang X0)))) \Rightarrow (m2\_subset\_1 (k11\_cqc\_lang X0 X1 X2) (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \quad (9)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v1\_xboole\_0 X1)) \quad (10)$$

**Theorem 1**

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m2\_subset\_1 X1 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \Rightarrow (\forall X2.(m2\_subset\_1 X2 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \Rightarrow (\forall X3.(m2\_subset\_1 X3 (k2\_qc\_lang1 X0) (k3\_qc\_lang1 X0)) \Rightarrow (v2\_cqc\_the1 (k10\_cqc\_lang X0 (k11\_cqc\_lang X0 X3 (k7\_cqc\_lang X0 X1 X2)) (k7\_cqc\_lang X0 (k11\_cqc\_lang X0 X3 X1) (k11\_cqc\_lang X0 X3 X2)))) X0))))$$