

## t42\_cqc\_the2

(TMXE5VPkVAAudVdGcYHY6qZkkkSTrbHmnmM)

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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  $k12\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow & (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ & X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\ & X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m2\_subset\_1\ X3\ (k2\_qc\_lang1 \\ & X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (v2\_cqc\_the1\ (k10\_cqc\_lang\ X0\ (k12\_cqc\_lang \\ & X0\ X3\ (k9\_cqc\_lang\ X0\ X1\ X2))\ (k9\_cqc\_lang\ X0\ (k12\_cqc\_lang\ X0\ X3 \\ & X1)\ (k12\_cqc\_lang\ X0\ X3\ X2))))\ X0)))) \end{aligned} \quad (1)$$

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.

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

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.

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

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.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0)\wedge((m1\_subset\_1\ X1\ (k3\_qc\_lang1\ X0))\wedge(m1\_subset\_1\ X2\ (k3\_cqc\_lang\ X0))))\Rightarrow(m2\_subset\_1\ (k12\_cqc\_lang\ X0\ X1\ X2)\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \quad (9)$$

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**

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0))\Rightarrow(\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0))\Rightarrow(\forall X3.(m2\_subset\_1\ X3\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0))\Rightarrow((v2\_cqc\_the1\ (k12\_cqc\_lang\ X0\ X3\ (k9\_cqc\_lang\ X0\ X1\ X2))\ X0)\Leftrightarrow(v2\_cqc\_the1\ (k9\_cqc\_lang\ X0\ (k12\_cqc\_lang\ X0\ X3\ X1)\ (k12\_cqc\_lang\ X0\ X3\ X2))\ X0)))))) \end{aligned}$$