

## t44\_cqc\_the3

(TMTk2sfa2pTaWBK9tLJDAYQyJywCnV7NAJ6)

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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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v6\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r3\_cqc\_the1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\ (k3\_cqc\_lang\ X0))) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m2\_subset\_1\ X3\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (((v6\_qc\_lang1\ X2\ X0) \wedge (r3\_cqc\_the1\ X0\ ( \\ k4\_subset\_1\ (k3\_cqc\_lang\ X0)\ X1\ (k6\_domain\_1\ (k3\_cqc\_lang\ X0)\ X2))\ X3)) \Rightarrow (r3\_cqc\_the1\ X0\ X1\ (k8\_cqc\_lang\ X0\ X2\ X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1 \\ (k3\_cqc\_lang\ X0))) \Rightarrow ((r3\_cqc\_the1\ X0\ X3\ (k8\_cqc\_lang\ X0\ (k6\_cqc\_lang \\ X0\ X1)\ (k6\_cqc\_lang\ X0\ X2))) \Leftrightarrow (r3\_cqc\_the1\ X0\ X3\ (k8\_cqc\_lang\ X0 \\ X2\ X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k1\_zfmisc\_1 \\ (k3\_cqc\_lang\ X0))) \Rightarrow ((r3\_cqc\_the1\ X0\ X3\ (k8\_cqc\_lang\ X0\ X1\ X2)) \Rightarrow \\ (r3\_cqc\_the1\ X0\ (k4\_subset\_1\ (k3\_cqc\_lang\ X0)\ X3\ (k6\_domain\_1 \\ (k3\_cqc\_lang\ X0)\ X1))\ X2)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))))\Rightarrow(\forall X2.(m2\_subset\_1 X2 X0 X1)\Leftrightarrow(m1\_subset\_1 X2 X1)) \quad (4)$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1 X0)\wedge(m1\_subset\_1 X1 (k3\_cqc\_lang X0)))\Rightarrow(m2\_subset\_1 (k6\_cqc\_lang X0 X1) (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \quad (6)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0)\Rightarrow(m1\_subset\_1 (k3\_cqc\_lang X0) (k1\_zfmisc\_1 (k9\_qc\_lang1 X0))) \quad (7)$$

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**

$$\forall X0.(m1\_qc\_lang1 X0)\Rightarrow(\forall X1.(m2\_subset\_1 X1 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0))\Rightarrow(\forall X2.(m2\_subset\_1 X2 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k3\_cqc\_lang X0))\Rightarrow(((v6\_qc\_lang1 X1 X0)\wedge(r3\_cqc\_the1 X0 (k4\_subset\_1 (k3\_cqc\_lang X0) X3 (k6\_domain\_1 (k3\_cqc\_lang X0) X1)) X2))\Rightarrow(r3\_cqc\_the1 X0 (k4\_subset\_1 (k3\_cqc\_lang X0) X3 (k6\_domain\_1 (k3\_cqc\_lang X0) (k6\_cqc\_lang X0 X2))) (k6\_cqc\_lang X0 X1)))))))$$