

# t55\_cqc\_the1 (TMb- WQiJh7AY2deNigYjqLFjUMaCPSkMHVYW)

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Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_cqc\_lang : \iota \Rightarrow \iota$  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  $r3\_cqc\_the1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k8\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_cqc\_the1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Assume the following.

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

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.

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

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\ (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\ X2 X0 X1) \Rightarrow (m1\_subset\_1 X2 X0)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\neg v1\_xboole\_0 (k9\_qc\_lang1 X0)) \quad (5)$$

Assume the following.

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

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.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k3\_cqc\_lang\ X0))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow ((r3\_cqc\_the1\ X0\ X1\ X2) \Leftrightarrow (X2 \in k1\_cqc\_the1\ X0\ X1)))) \end{aligned} \quad (8)$$

**Theorem 1**

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