

# t7\_cqc\_the2 (TMJarzjQT- BEfM8yARMuGJCHAuyy6ydSETQU)

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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  $k9\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k3\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k24\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_qc\_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k9\_qc\_lang1 X0)) \Rightarrow (k24\_qc\_lang1 \\ X0 (k2\_qc\_lang2 X0 X1 X2) = k4\_subset\_1 (k3\_qc\_lang1 X0) (k24\_qc\_lang1 \\ X0 X1) (k24\_qc\_lang1 X0 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ X0)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 X0))) \Rightarrow (k4\_subset\_1 X0 X1 X2 = \\ k2\_xboole\_0 X1 X2) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((m1\_qc\_lang1 X0) \wedge (m1\_subset\_1 X1 (k9\_qc\_lang1 \\ X0))) \Rightarrow (m1\_subset\_1 (k24\_qc\_lang1 X0 X1) (k1\_zfmisc\_1 (k3\_qc\_lang1 \\ X0))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(X2 = k2\_xboole\_0 X0 X1) \Leftrightarrow (\forall X3. \\ (X3 \in X2) \Leftrightarrow ((X3 \in X0) \vee (X3 \in X1))) \end{aligned} \quad (4)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k9\_qc\_lang1 X0)) \Rightarrow (\forall X3. \\ (m2\_subset\_1 X3 (k2\_qc\_lang1 X0) (k3\_qc\_lang1 X0)) \Rightarrow ((X3 \in k24\_qc\_lang1 \\ X0 (k2\_qc\_lang2 X0 X1 X2)) \Leftrightarrow ((X3 \in k24\_qc\_lang1 X0 X1) \vee (X3 \in k24\_qc\_lang1 \\ X0 X2)))))) \end{aligned}$$