

t22\_cqc\_lang  
(TMQX1ExkSaJMEyyqV6Bb3Rc6vM7Djxed4oD)

October 27, 2020

Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $v5\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k21\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k13\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k15\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k14\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k15\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k22\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2. (m2\_subset\_1 \\ & X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((m1\_subset\_1 \\ & X3 X0) \wedge (m1\_subset\_1 X4 X0)) \Rightarrow (k15\_funcop\_1 X0 X1 X2 X3 X4 = k14\_funcop\_1 \\ & X1 X2 X3 X4) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. (m1\_qc\_lang1 X0) \Rightarrow (\forall X1. (m2\_subset\_1 X1 (k2\_qc\_lang1 \\ & X0) (k3\_qc\_lang1 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (k9\_qc\_lang1 \\ & X0)) \Rightarrow ((v5\_qc\_lang1 X2 X0) \Rightarrow (k13\_cqc\_lang X0 X2 X1 = k15\_funcop\_1 \\ & (k9\_qc\_lang1 X0) (k21\_qc\_lang1 X0 X2) X1 X2 (k15\_qc\_lang1 X0 (k21\_qc\_lang1 \\ & X0 X2) (k13\_cqc\_lang X0 (k22\_qc\_lang1 X0 X2) X1)))))) \end{aligned} \quad (3)$$

Assume the following.

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

Assume the following.

$$\forall X0. (m1\_qc\_lang1 X0) \Rightarrow (\neg v1\_xboole\_0 (k2\_qc\_lang1 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (m1\_subset\_1\ (k3\_qc\_lang1\ X0)\ (k1\_zfmisc\_1\ (k2\_qc\_lang1\ X0))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0) \wedge (m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))) \Rightarrow (m1\_subset\_1\ (k22\_qc\_lang1\ X0\ X1)\ (k9\_qc\_lang1\ X0)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0) \wedge ((m1\_subset\_1\ X1\ (k3\_qc\_lang1\ X0)) \wedge (m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)))) \Rightarrow (m1\_subset\_1\ (k15\_qc\_lang1\ X0\ X1\ X2)\ (k9\_qc\_lang1\ X0)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0) \wedge ((m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)) \wedge (m1\_subset\_1\ X2\ (k3\_qc\_lang1\ X0)))) \Rightarrow (m1\_subset\_1\ (k13\_cqc\_lang\ X0\ X1\ X2)\ (k9\_qc\_lang1\ X0)) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((X0 = X1) \Rightarrow (k14\_funcop\_1\ X0\ X1\ X2\ X3 = X2)) \wedge ((X0 \neq X1) \Rightarrow (k14\_funcop\_1\ X0\ X1\ X2\ X3 = X3)) \quad (10)$$

**Theorem 1**

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow (((v5\_qc\_lang1\ X2\ X0) \wedge (k21\_qc\_lang1\ X0\ X2 = X1)) \Rightarrow (k13\_cqc\_lang\ X0\ X2\ X1 = X2))))$$