

t30\_cqc\_sim1  
(TMXNM7B6QyXJiTXjmxRbFGiMmZYrwKvifjb)

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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  $k5\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k5\_finsub\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k13\_cqc\_sim1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_setwiseo : \iota \Rightarrow \iota$  be given. Let  $k11\_cqc\_sim1 : \iota \Rightarrow \iota$  be given. Let  $k15\_cqc\_sim1 : \iota \Rightarrow \iota \Rightarrow \iota$  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. Let  $k4\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_cqc\_sim1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k30\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_cqc\_sim1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k11\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_xtuple\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k28\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k16\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_qc\_lang3 : \iota \Rightarrow \iota \Rightarrow \iota$  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.

$$\forall X0. (m1\_qc\_lang1 X0) \Rightarrow (\neg v1\_xboole\_0 (k3\_cqc\_lang X0)) \quad (2)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k3\_cqc\_lang \\ X0)))\Rightarrow(m1\_subset\_1\ (k15\_cqc\_sim1\ X0\ X1)\ (k1\_zfmisc\_1\ (k4\_zfmisc\_1 \\ (k3\_cqc\_lang\ X0)\ (k1\_qc\_lang1\ X0)\ (k5\_finsub\_1\ (k3\_qc\_lang1\ X0)) \\ (k9\_funct\_2\ (k3\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1 \\ (k4\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ (k1\_qc\_lang1\ X0)\ (k5\_finsub\_1\ ( \\ k3\_qc\_lang1\ X0))\ (k9\_funct\_2\ (k3\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0))))))\Rightarrow \\ ((X2 = k15\_cqc\_sim1\ X0\ X1)\Leftrightarrow((r1\_cqc\_sim1\ X0\ X1\ X2)\wedge(\forall X3. \\ (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k4\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ (k1\_qc\_lang1 \\ X0)\ (k5\_finsub\_1\ (k3\_qc\_lang1\ X0))\ (k9\_funct\_2\ (k3\_qc\_lang1\ X0) \\ (k3\_qc\_lang1\ X0))))))\Rightarrow((r1\_cqc\_sim1\ X0\ X1\ X3)\Rightarrow(r1\_tarski\ X2\ X3)))))) \end{aligned} \quad (5)$$

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.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k4\_zfmisc\_1 (k3\_cqc\_lang X0) (k1\_qc\_lang1 X0) (k5\_finsub\_1 ( \\
& k3\_qc\_lang1 X0) (k9\_funct\_2 (k3\_qc\_lang1 X0) (k3\_qc\_lang1 X0)))))) \Rightarrow \\
& ((r1\_cqc\_sim1 X0 X1 X2) \Leftrightarrow ((k5\_domain\_1 (k3\_cqc\_lang X0) (k1\_qc\_lang1 \\
& X0) (k5\_finsub\_1 (k3\_qc\_lang1 X0) (k1\_funct\_2 (k3\_qc\_lang1 X0) \\
& (k3\_qc\_lang1 X0)) X1 (k13\_cqc\_sim1 X0 X1) (k1\_setwiseo (k3\_qc\_lang1 \\
& X0) (k11\_cqc\_sim1 (k3\_qc\_lang1 X0) \in X2) \wedge ((\forall X3.(m2\_subset\_1 \\
& X3 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \Rightarrow (\forall X4.(m1\_subset\_1 \\
& X4 (k1\_qc\_lang1 X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (k5\_finsub\_1 \\
& (k3\_qc\_lang1 X0)) \Rightarrow (\forall X6.(m2\_funct\_2 X6 (k3\_qc\_lang1 X0) \\
& (k3\_qc\_lang1 X0) (k9\_funct\_2 (k3\_qc\_lang1 X0) (k3\_qc\_lang1 X0))) \Rightarrow \\
& ((k5\_domain\_1 (k3\_cqc\_lang X0) (k1\_qc\_lang1 X0) (k5\_finsub\_1 \\
& (k3\_qc\_lang1 X0) (k9\_funct\_2 (k3\_qc\_lang1 X0) (k3\_qc\_lang1 X0)) \\
& (k6\_cqc\_lang X0 X3) X4 X5 X6 \in X2) \Rightarrow (k5\_domain\_1 (k3\_cqc\_lang X0) \\
& (k1\_qc\_lang1 X0) (k5\_finsub\_1 (k3\_qc\_lang1 X0) (k9\_funct\_2 ( \\
& k3\_qc\_lang1 X0) (k3\_qc\_lang1 X0)) X3 X4 X5 X6 \in X2)))))) \wedge ((\forall X3. \\
& (m2\_subset\_1 X3 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \Rightarrow (\forall X4. \\
& (m2\_subset\_1 X4 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \Rightarrow (\forall X5. \\
& (m1\_subset\_1 X5 (k1\_qc\_lang1 X0)) \Rightarrow (\forall X6.(m1\_subset\_1 X6 \\
& (k5\_finsub\_1 (k3\_qc\_lang1 X0)) \Rightarrow (\forall X7.(m2\_funct\_2 X7 ( \\
& k3\_qc\_lang1 X0) (k3\_qc\_lang1 X0) (k9\_funct\_2 (k3\_qc\_lang1 X0) \\
& (k3\_qc\_lang1 X0))) \Rightarrow ((k5\_domain\_1 (k3\_cqc\_lang X0) (k1\_qc\_lang1 \\
& X0) (k5\_finsub\_1 (k3\_qc\_lang1 X0) (k9\_funct\_2 (k3\_qc\_lang1 X0) \\
& (k3\_qc\_lang1 X0)) (k7\_cqc\_lang X0 X3 X4) X5 X6 X7 \in X2) \Rightarrow ((k5\_domain\_1 \\
& (k3\_cqc\_lang X0) (k1\_qc\_lang1 X0) (k5\_finsub\_1 (k3\_qc\_lang1 X0) \\
& (k9\_funct\_2 (k3\_qc\_lang1 X0) (k3\_qc\_lang1 X0)) X3 X5 X6 X7 \in X2) \wedge \\
& (k5\_domain\_1 (k3\_cqc\_lang X0) (k1\_qc\_lang1 X0) (k5\_finsub\_1 ( \\
& k3\_qc\_lang1 X0) (k9\_funct\_2 (k3\_qc\_lang1 X0) (k3\_qc\_lang1 X0)) \\
& X4 (k30\_qc\_lang1 X0 X5 (k7\_cqc\_sim1 X0 X3)) X6 X7 \in X2)))))) \wedge (\forall X3. \\
& (m2\_subset\_1 X3 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \Rightarrow (\forall X4. \\
& (m2\_subset\_1 X4 (k2\_qc\_lang1 X0) (k3\_qc\_lang1 X0)) \Rightarrow (\forall X5. \\
& (m1\_subset\_1 X5 (k1\_qc\_lang1 X0)) \Rightarrow (\forall X6.(m1\_subset\_1 X6 \\
& (k5\_finsub\_1 (k3\_qc\_lang1 X0)) \Rightarrow (\forall X7.(m2\_funct\_2 X7 ( \\
& k3\_qc\_lang1 X0) (k3\_qc\_lang1 X0) (k9\_funct\_2 (k3\_qc\_lang1 X0) \\
& (k3\_qc\_lang1 X0))) \Rightarrow ((k5\_domain\_1 (k3\_cqc\_lang X0) (k1\_qc\_lang1 \\
& X0) (k5\_finsub\_1 (k3\_qc\_lang1 X0) (k9\_funct\_2 (k3\_qc\_lang1 X0) \\
& (k3\_qc\_lang1 X0)) (k11\_cqc\_lang X0 X4 X3) X5 X6 X7 \in X2) \Rightarrow (k6\_xtuple\_0 \\
& X3 (k28\_qc\_lang1 X0 X5) (k2\_xboole\_0 X6 (k6\_domain\_1 (k3\_qc\_lang1 \\
& X0) X4) (k1\_funct\_4 X7 (k16\_funcop\_1 X4 (k2\_qc\_lang3 X0 X5))) \in \\
& X2))))))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v1\_xboole\_0 X1)) \quad (7)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m2\_subset\_1 X1 (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)) \Rightarrow (k5\_domain\_1 (k3\_cqc\_lang X0) (k1\_qc\_lang1 \\ X0) (k5\_finsub\_1 (k3\_qc\_lang1 X0)) (k1\_funct\_2 (k3\_qc\_lang1 X0) \\ (k3\_qc\_lang1 X0)) X1 (k13\_cqc\_sim1 X0 X1) (k1\_setwiseo (k3\_qc\_lang1 \\ X0)) (k11\_cqc\_sim1 (k3\_qc\_lang1 X0)) \in k15\_cqc\_sim1 X0 X1)) \end{aligned}$$