

t30\_cqc\_the1  
(TMSdi3R356WvxWsLJyNpKr9U4JtMLG2VSZR)

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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  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_cqc\_the1 : \iota$  be given. Let  $r2\_cqc\_the1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $r1\_xreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $np\_3 : \iota$  be given. Let  $np\_4 : \iota$  be given. Let  $np\_5 : \iota$  be given. Let  $np\_6 : \iota$  be given. Let  $np\_7 : \iota$  be given. Let  $np\_8 : \iota$  be given. Let  $np\_9 : \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $r1\_cqc\_the1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_cqc\_lang : \iota \Rightarrow \iota$  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  $k8\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  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  $k2\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k3\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k11\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k24\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k13\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (4)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_finseq\_1\ X1\ (k2\_zfmisc\_1 \\
& \quad (k3\_cqc\_lang\ X0)\ k2\_cqc\_the1)) \Rightarrow (\forall X2.(v7\_ordinal1\ X2) \Rightarrow \\
& \quad (\neg(r1\_xxreal\_0\ np\_1\ X2) \wedge (r1\_xxreal\_0\ X2\ (k3\_finseq\_1\ X1))) \wedge \\
& \quad ((k2\_xtuple\_0\ (k1\_funct\_1\ X1\ X2) \neq k6\_numbers) \wedge ((k2\_xtuple\_0 \\
& \quad (k1\_funct\_1\ X1\ X2) \neq np\_1) \wedge ((k2\_xtuple\_0\ (k1\_funct\_1\ X1\ X2) \neq np\_2) \wedge \\
& \quad ((k2\_xtuple\_0\ (k1\_funct\_1\ X1\ X2) \neq np\_3) \wedge ((k2\_xtuple\_0\ (k1\_funct\_1 \\
& \quad X1\ X2) \neq np\_4) \wedge ((k2\_xtuple\_0\ (k1\_funct\_1\ X1\ X2) \neq np\_5) \wedge ((k2\_xtuple\_0 \\
& \quad (k1\_funct\_1\ X1\ X2) \neq np\_6) \wedge ((k2\_xtuple\_0\ (k1\_funct\_1\ X1\ X2) \neq np\_7) \wedge \\
& \quad ((k2\_xtuple\_0\ (k1\_funct\_1\ X1\ X2) \neq np\_8) \wedge (k2\_xtuple\_0\ (k1\_funct\_1 \\
& \quad \quad X1\ X2) \neq np\_9))))))))))))) \\
& \hspace{20em} (5)
\end{aligned}$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \hspace{15em} (6)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\
& \quad (k3\_cqc\_lang\ X0))) \Rightarrow (\forall X2.(m2\_finseq\_1\ X2\ (k2\_zfmisc\_1 \\
& \quad (k3\_cqc\_lang\ X0)\ k2\_cqc\_the1)) \Rightarrow ((r2\_cqc\_the1\ X0\ X1\ X2) \Leftrightarrow ((X2 \neq \\
& \quad k1\_xboole\_0) \wedge (\forall X3.(m1\_subset\_1\ X3\ k5\_numbers) \Rightarrow (((r1\_xxreal\_0 \\
& \quad np\_1\ X3) \wedge (r1\_xxreal\_0\ X3\ (k3\_finseq\_1\ X2))) \Rightarrow (r1\_cqc\_the1\ X0 \\
& \quad \quad X2\ X3\ X1))))))))) \\
& \hspace{20em} (7)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m2\_finseq\_1 X1 (k2\_zfmisc\_1 \\
& \quad (k3\_cqc\_lang X0) k2\_cqc\_the1)) \Rightarrow (\forall X2.(v7\_ordinal1 X2) \Rightarrow \\
& \quad (\forall X3.(m1\_subset\_1 X3 (k1\_zfmisc\_1 (k3\_cqc\_lang X0))) \Rightarrow \\
& \quad \quad (((k2\_xtuple\_0 (k1\_funct\_1 X1 X2) = k6\_numbers) \Rightarrow ((r1\_cqc\_the1 \\
& \quad X0 X1 X2 X3) \Leftrightarrow (k1\_xtuple\_0 (k1\_funct\_1 X1 X2) \in X3))) \wedge (((k2\_xtuple\_0 \\
& \quad (k1\_funct\_1 X1 X2) = np\_1) \Rightarrow ((r1\_cqc\_the1 X0 X1 X2 X3) \Leftrightarrow (k1\_xtuple\_0 \\
& \quad (k1\_funct\_1 X1 X2) = k5\_cqc\_lang X0))) \wedge (((k2\_xtuple\_0 (k1\_funct\_1 \\
& \quad X1 X2) = np\_2) \Rightarrow ((r1\_cqc\_the1 X0 X1 X2 X3) \Leftrightarrow (\exists X4.(m2\_subset\_1 \\
& \quad X4 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \wedge (k1\_xtuple\_0 (k1\_funct\_1 \\
& \quad X1 X2) = k8\_cqc\_lang X0 (k8\_cqc\_lang X0 (k6\_cqc\_lang X0 X4) X4) X4)))) \wedge \\
& \quad (((k2\_xtuple\_0 (k1\_funct\_1 X1 X2) = np\_3) \Rightarrow ((r1\_cqc\_the1 X0 X1 \\
& \quad X2 X3) \Leftrightarrow (\exists X4.(m2\_subset\_1 X4 (k9\_qc\_lang1 X0) (k3\_cqc\_lang \\
& \quad X0)) \wedge (\exists X5.(m2\_subset\_1 X5 (k9\_qc\_lang1 X0) (k3\_cqc\_lang \\
& \quad X0)) \wedge (k1\_xtuple\_0 (k1\_funct\_1 X1 X2) = k8\_cqc\_lang X0 X4 (k8\_cqc\_lang \\
& \quad X0 (k6\_cqc\_lang X0 X4) X5)))))) \wedge (((k2\_xtuple\_0 (k1\_funct\_1 X1 \\
& \quad X2) = np\_4) \Rightarrow ((r1\_cqc\_the1 X0 X1 X2 X3) \Leftrightarrow (\exists X4.(m2\_subset\_1 \\
& \quad X4 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \wedge (\exists X5.(m2\_subset\_1 \\
& \quad X5 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \wedge (\exists X6.(m2\_subset\_1 \\
& \quad X6 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \wedge (k1\_xtuple\_0 (k1\_funct\_1 \\
& \quad X1 X2) = k8\_cqc\_lang X0 (k8\_cqc\_lang X0 X4 X5) (k8\_cqc\_lang X0 (k6\_cqc\_lang \\
& \quad X0 (k7\_cqc\_lang X0 X5 X6)) (k6\_cqc\_lang X0 (k7\_cqc\_lang X0 X4 X6)))))))) \wedge \\
& \quad (((k2\_xtuple\_0 (k1\_funct\_1 X1 X2) = np\_5) \Rightarrow ((r1\_cqc\_the1 X0 X1 \\
& \quad X2 X3) \Leftrightarrow (\exists X4.(m2\_subset\_1 X4 (k9\_qc\_lang1 X0) (k3\_cqc\_lang \\
& \quad X0)) \wedge (\exists X5.(m2\_subset\_1 X5 (k9\_qc\_lang1 X0) (k3\_cqc\_lang \\
& \quad X0)) \wedge (k1\_xtuple\_0 (k1\_funct\_1 X1 X2) = k8\_cqc\_lang X0 (k7\_cqc\_lang \\
& \quad X0 X4 X5) (k7\_cqc\_lang X0 X5 X4)))))) \wedge (((k2\_xtuple\_0 (k1\_funct\_1 \\
& \quad X1 X2) = np\_6) \Rightarrow ((r1\_cqc\_the1 X0 X1 X2 X3) \Leftrightarrow (\exists X4.(m2\_subset\_1 \\
& \quad X4 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \wedge (\exists X5.(m2\_subset\_1 \\
& \quad X5 (k2\_qc\_lang1 X0) (k3\_qc\_lang1 X0)) \wedge (k1\_xtuple\_0 (k1\_funct\_1 \\
& \quad X1 X2) = k8\_cqc\_lang X0 (k11\_cqc\_lang X0 X5 X4) X4)))))) \wedge (((k2\_xtuple\_0 \\
& \quad (k1\_funct\_1 X1 X2) = np\_7) \Rightarrow ((r1\_cqc\_the1 X0 X1 X2 X3) \Leftrightarrow (\exists X4. \\
& \quad (m1\_subset\_1 X4 k5\_numbers) \wedge (\exists X5.(m1\_subset\_1 X5 k5\_numbers) \wedge \\
& \quad (\exists X6.(m2\_subset\_1 X6 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \wedge \\
& \quad (\exists X7.(m2\_subset\_1 X7 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \wedge \\
& \quad ((r1\_xxreal\_0 np\_1 X4) \wedge ((\neg r1\_xxreal\_0 X2 X4) \wedge (r1\_xxreal\_0 \\
& \quad np\_1 X5) \wedge ((\neg r1\_xxreal\_0 X4 X5) \wedge ((X6 = k1\_xtuple\_0 (k1\_funct\_1 \\
& \quad X1 X5)) \wedge ((X7 = k1\_xtuple\_0 (k1\_funct\_1 X1 X2)) \wedge (k1\_xtuple\_0 (k1\_funct\_1 \\
& \quad X1 X4) = k8\_cqc\_lang X0 X6 X7)))))))))) \wedge (((k2\_xtuple\_0 (k1\_funct\_1 \\
& \quad X1 X2) = np\_8) \Rightarrow ((r1\_cqc\_the1 X0 X1 X2 X3) \Leftrightarrow (\exists X4.(m1\_subset\_1 \\
& \quad X4 k5\_numbers) \wedge (\exists X5.(m2\_subset\_1 X5 (k9\_qc\_lang1 X0) ( \\
& \quad k3\_cqc\_lang X0)) \wedge (\exists X6.(m2\_subset\_1 X6 (k9\_qc\_lang1 X0) \\
& \quad (k3\_cqc\_lang X0)) \wedge (\exists X7.(m2\_subset\_1 X7 (k2\_qc\_lang1 X0) \\
& \quad (k3\_qc\_lang1 X0)) \wedge ((r1\_xxreal\_0 np\_1 X4) \wedge ((\neg r1\_xxreal\_0 X2 \\
& \quad X4) \wedge ((k1\_xtuple\_0 (k1\_funct\_1 X1 X4) = k8\_cqc\_lang X0 X5 X6) \wedge (( \\
& \quad \neg X7 \in k24\_qc\_lang1 X0 X5) \wedge (k1\_xtuple\_0 (k1\_funct\_1 X1 X2) = k8\_cqc\_lang \\
& \quad X0 X5 (k11\_cqc\_lang X0 X7 X6)))))))))) \wedge (((k2\_xtuple\_0 (k1\_funct\_1 \\
& \quad X1 X2) = np\_9) \Rightarrow ((r1\_cqc\_the1 X0 X1 X2 X3) \Leftrightarrow (\exists X4.(m1\_subset\_1 \\
& \quad X4 k5\_numbers) \wedge (\exists X5.(m2\_subset\_1 X5 (k2\_qc\_lang1 X0) ( \\
& \quad k3\_qc\_lang1 X0)) \wedge (\exists X6.(m2\_subset\_1 X6 (k2\_qc\_lang1 X0) \\
& \quad (k3\_qc\_lang1 X0)) \wedge (\exists X7.(m1\_subset\_1 X7 (k9\_qc\_lang1 X0)) \wedge \\
& \quad ((r1\_xxreal\_0 np\_1 X4) \wedge ((\neg r1\_xxreal\_0 X2 X4) \wedge ((k13\_cqc\_lang \\
& \quad X0 X7 X5 \in k3\_cqc\_lang X0) \wedge ((k13\_cqc\_lang X0 X7 X6 \in k3\_cqc\_lang X0) \wedge \\
& \quad ((\neg X5 \in k24\_qc\_lang1 X0 X7) \wedge ((k13\_cqc\_lang X0 X7 X5 = k1\_xtuple\_0 \\
& \quad (k1\_funct\_1 X1 X4) \wedge (k13\_cqc\_lang X0 X7 X6 = k1\_xtuple\_0 (k1\_funct\_1 \\
& \quad X1 X2))
\end{aligned}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \quad (9)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v1\_xboole\_0 X1)) \quad (10)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (k3\_cqc\_lang X0))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ (k3\_cqc\_lang X0))) \Rightarrow (\forall X3.(m2\_finseq\_1 X3 (k2\_zfmisc\_1 \\ (k3\_cqc\_lang X0) k2\_cqc\_the1)) \Rightarrow (((r2\_cqc\_the1 X0 X1 X3) \wedge (r1\_tarski \\ X1 X2)) \Rightarrow (r2\_cqc\_the1 X0 X2 X3)))))) \end{aligned}$$