

## t5\_cqc\_sim1

(TMassVhXH9URCoVcqi3ohwVJu4Xb7G3F2E2)

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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  $v2\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k6\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k8\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $v3\_card\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k4\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_1 : \iota$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k5\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 k5\_numbers) \Rightarrow \\
 & (\forall X2.(m2\_subset\_1 X2 (k6\_qc\_lang1 X0) (k8\_qc\_lang1 X0 X1)) \Rightarrow \\
 & (\forall X3.((v3\_card\_1 X3 X1) \wedge (m2\_finseq\_1 X3 (k2\_qc\_lang1 X0))) \Rightarrow \\
 & ((m2\_subset\_1 (k10\_qc\_lang1 X0 X2 X3) (k9\_qc\_lang1 X0) (k3\_cqc\_lang \\
 & X0)) \Leftrightarrow ((ReplSep (toset (\lambda X4 : \iota.m1\_subset\_1 X4 k5\_numbers)) \\
 & (\lambda X4 : \iota.(r1\_xxreal\_0 np\_1 X4) \wedge ((r1\_xxreal\_0 X4 (k3\_finseq\_1 \\
 & X3)) \wedge (k1\_funct\_1 X3 X4 \in k5\_qc\_lang1 X0))) (\lambda X4 : \iota.k1\_funct\_1 \\
 & X3 X4) = k1\_xboole\_0) \wedge (ReplSep (toset (\lambda X4 : \iota.m1\_subset\_1 \\
 & X4 k5\_numbers)) (\lambda X4 : \iota.(r1\_xxreal\_0 np\_1 X4) \wedge ((r1\_xxreal\_0 \\
 & X4 (k3\_finseq\_1 X3)) \wedge (k1\_funct\_1 X3 X4 \in k4\_qc\_lang1 X0))) (\lambda X4 : \\
 & \iota.k1\_funct\_1 X3 X4) = k1\_xboole\_0))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ k5\_numbers) \Rightarrow \\
& (\forall X2.((v3\_card\_1\ X2\ X1) \wedge (m2\_finseq\_1\ X2\ (k2\_qc\_lang1\ X0))) \Rightarrow \\
& (((v5\_relat\_1\ X2\ (k3\_qc\_lang1\ X0)) \wedge ((v3\_card\_1\ X2\ X1) \wedge (m2\_finseq\_1 \\
& X2\ (k2\_qc\_lang1\ X0)))) \Leftrightarrow ((ReplSep\ (toset\ (\lambda X3 : \iota.m1\_subset\_1 \\
& X3\ k5\_numbers))\ (\lambda X3 : \iota.(r1\_xxreal\_0\ np\_1\ X3) \wedge ((r1\_xxreal\_0 \\
& X3\ (k3\_finseq\_1\ X2)) \wedge (k1\_funct\_1\ X2\ X3 \in k5\_qc\_lang1\ X0)))\ (\lambda X3 : \\
& \iota.k1\_funct\_1\ X2\ X3) = k1\_xboole\_0) \wedge (ReplSep\ (toset\ (\lambda X3 : \\
& \iota.m1\_subset\_1\ X3\ k5\_numbers))\ (\lambda X3 : \iota.(r1\_xxreal\_0\ np\_1 \\
& X3) \wedge ((r1\_xxreal\_0\ X3\ (k3\_finseq\_1\ X2)) \wedge (k1\_funct\_1\ X2\ X3 \in k4\_qc\_lang1 \\
& X0)))\ (\lambda X3 : \iota.k1\_funct\_1\ X2\ X3) = k1\_xboole\_0))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v1\_xboole\_0\ X0) \wedge ((\neg v1\_xboole\_0\ X1) \wedge \\
& (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\
& X2\ X0\ X1) \Leftrightarrow (m1\_subset\_1\ X2\ X1))
\end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1\ X1\ X0) \Leftrightarrow (m1\_finseq\_1\ X1\ X0) \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1\ X0 \\
& k5\_numbers) \wedge ((m1\_qc\_lang1\ X1) \wedge ((m1\_subset\_1\ X2\ (k8\_qc\_lang1 \\
& X1\ X0)) \wedge ((v5\_relat\_1\ X3\ (k3\_qc\_lang1\ X1)) \wedge ((v3\_card\_1\ X3\ X0) \wedge \\
& (m1\_finseq\_1\ X3\ (k2\_qc\_lang1\ X1)))))) \Rightarrow (k4\_cqc\_lang\ X0\ X1\ X2\ X3 = \\
& k10\_qc\_lang1\ X1\ X2\ X3)
\end{aligned} \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1\ X0\ k5\_numbers) \wedge (m1\_qc\_lang1\ X1)) \Rightarrow (\neg v1\_xboole\_0\ (k8\_qc\_lang1\ X1\ X0)) \tag{6}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\neg v1\_xboole\_0\ (k3\_cqc\_lang\ X0)) \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v1\_xboole\_0\ X0) \wedge ((\neg v1\_xboole\_0\ X1) \wedge \\
& (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\
& X2\ X0\ X1) \Rightarrow (m1\_subset\_1\ X2\ X0))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((m1\_qc\_lang1\ X0) \wedge (m1\_subset\_1\ X1\ k5\_numbers)) \Rightarrow \\
& (m1\_subset\_1\ (k8\_qc\_lang1\ X0\ X1)\ (k1\_zfmisc\_1\ (k6\_qc\_lang1\ X0)))
\end{aligned} \tag{9}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (m1\_subset\_1 (k3\_cqc\_lang X0) (k1\_zfmisc\_1 (k9\_qc\_lang1 X0))) \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ X0)) \Rightarrow ((v2\_qc\_lang1 X1 X0) \Leftrightarrow (\exists X2.(m1\_subset\_1 X2 k5\_numbers) \wedge \\ (\exists X3.(m2\_subset\_1 X3 (k6\_qc\_lang1 X0) (k8\_qc\_lang1 X0 X2)) \wedge \\ (\exists X4.((v3\_card\_1 X4 X2) \wedge (m2\_finseq\_1 X4 (k2\_qc\_lang1 X0)) \wedge \\ (X1 = k10\_qc\_lang1 X0 X3 X4))))))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v1\_xboole\_0 X1)) \quad (12)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m2\_subset\_1 X1 (k9\_qc\_lang1 \\ X0) (k3\_cqc\_lang X0)) \Rightarrow (\neg(v2\_qc\_lang1 X1 X0) \wedge (\forall X2.(m1\_subset\_1 \\ X2 k5\_numbers) \Rightarrow (\forall X3.(m2\_subset\_1 X3 (k6\_qc\_lang1 X0) ( \\ k8\_qc\_lang1 X0 X2)) \Rightarrow (\forall X4.((v5\_relat\_1 X4 (k3\_qc\_lang1 \\ X0)) \wedge ((v3\_card\_1 X4 X2) \wedge (m2\_finseq\_1 X4 (k2\_qc\_lang1 X0)))) \Rightarrow \\ (X1 \neq k4\_cqc\_lang X2 X0 X3 X4)))))) \end{aligned}$$