

# t15\_cqc\_sim1 (TMPDBFNoaeAp- wgs1AKYCrSb7hXB3edc8uMT)

October 27, 2020

Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  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  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k8\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_cqc\_sim1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  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. Let  $k10\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_cqc\_lang : \iota \Rightarrow \iota$  be given. Let  $k5\_cqc\_lang : \iota \Rightarrow \iota$  be given. Let  $k9\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_recldef\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  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  $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  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.

$$\forall X0. \forall X1. (m2\_finseq\_1 X1 X0) \Leftrightarrow (m1\_finseq\_1 X1 X0) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((m1\_subset\_1 X0 \\ & k5\_numbers) \wedge ((m1\_qc\_lang1 X1) \wedge ((m1\_subset\_1 X2 (k8\_qc\_lang1 \\ & X1 X0)) \wedge ((v5\_relat\_1 X3 (k3\_qc\_lang1 X1)) \wedge ((v3\_card\_1 X3 X0) \wedge \\ & (m1\_finseq\_1 X3 (k2\_qc\_lang1 X1))))))) \Rightarrow (k4\_cqc\_lang X0 X1 X2 X3 = \\ & k10\_qc\_lang1 X1 X2 X3) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. ((m1\_subset\_1 X0 k5\_numbers) \wedge (m1\_qc\_lang1 X1)) \Rightarrow (\neg v1\_xboole\_0 (k8\_qc\_lang1 X1 X0)) \quad (4)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\neg v1\_xboole\_0 (k3\_qc\_lang1 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\neg v1\_xboole\_0 (k3\_cqc\_lang X0)) \quad (6)$$

Assume the following.

$$\forall X0.\exists X1.m1\_subset\_1 X1 X0 \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1 X0) \wedge (m1\_subset\_1 X1 k5\_numbers)) \Rightarrow (m1\_subset\_1 (k8\_qc\_lang1 X0 X1) (k1\_zfmisc\_1 (k6\_qc\_lang1 X0))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1 X0) \wedge (m1\_subset\_1 X1 (k3\_cqc\_lang X0))) \Rightarrow (m1\_subset\_1 (k7\_cqc\_sim1 X0 X1) k5\_numbers) \quad (9)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (m2\_subset\_1 (k5\_cqc\_lang X0) (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1 X0 k5\_numbers) \wedge ((m1\_qc\_lang1 X1) \wedge ((m1\_subset\_1 X2 (k8\_qc\_lang1 X1 X0)) \wedge ((v5\_relat\_1 X3 (k3\_qc\_lang1 X1)) \wedge ((v3\_card\_1 X3 X0) \wedge (m1\_finseq\_1 X3 (k2\_qc\_lang1 X1))))))) \Rightarrow (m2\_subset\_1 (k4\_cqc\_lang X0 X1 X2 X3) (k9\_qc\_lang1 X1) (k3\_cqc\_lang X1)) \quad (11)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (m1\_subset\_1 (k3\_qc\_lang1 X0) (k1\_zfmisc\_1 (k2\_qc\_lang1 X0))) \quad (12)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (m1\_subset\_1 (k3\_cqc\_lang X0) (k1\_zfmisc\_1 (k9\_qc\_lang1 X0))) \quad (13)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\
& \quad X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ k5\_numbers) \Rightarrow \\
& ((X2 = k7\_cqc\_sim1\ X0\ X1) \Leftrightarrow (\exists X3.((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2 \\
& \quad X3\ (k3\_cqc\_lang\ X0)\ k5\_numbers) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1 \\
& \quad k2\_zfmisc\_1\ (k3\_cqc\_lang\ X0)\ k5\_numbers)))))) \wedge ((X2 = k1\_recdef\_1 \\
& \quad X3\ X1) \wedge ((k1\_recdef\_1\ X3\ (k5\_cqc\_lang\ X0) = k6\_numbers) \wedge (\forall X4. \\
& \quad (m2\_subset\_1\ X4\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X5. \\
& \quad (m2\_subset\_1\ X5\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X6. \\
& \quad (m2\_subset\_1\ X6\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (\forall X7. \\
& \quad (m1\_subset\_1\ X7\ k5\_numbers) \Rightarrow (\forall X8.((v5\_relat\_1\ X8\ (k3\_qc\_lang1 \\
& \quad X0)) \wedge ((v3\_card\_1\ X8\ X7) \wedge (m2\_finseq\_1\ X8\ (k2\_qc\_lang1\ X0)))))) \Rightarrow \\
& \quad (\forall X9.(m2\_subset\_1\ X9\ (k6\_qc\_lang1\ X0)\ (k8\_qc\_lang1\ X0\ X7)) \Rightarrow \\
& \quad ((k1\_recdef\_1\ X3\ (k4\_cqc\_lang\ X7\ X0\ X9\ X8) = k6\_numbers) \wedge ((k1\_recdef\_1 \\
& \quad X3\ (k6\_cqc\_lang\ X0\ X4) = k1\_recdef\_1\ X3\ X4) \wedge ((k1\_recdef\_1\ X3\ (k7\_cqc\_lang \\
& \quad X0\ X4\ X5) = k2\_nat\_1\ (k1\_recdef\_1\ X3\ X4)\ (k1\_recdef\_1\ X3\ X5)) \wedge (k1\_recdef\_1 \\
& \quad X3\ (k11\_cqc\_lang\ X0\ X6\ X4) = k2\_nat\_1\ (k1\_recdef\_1\ X3\ X4)\ np\_1))))))))))))) \\
& \hspace{15em} (14)
\end{aligned}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0)) \Rightarrow (v1\_xboole\_0\ X1)) \quad (15)$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ k5\_numbers) \Rightarrow \\
& \quad (\forall X2.((v5\_relat\_1\ X2\ (k3\_qc\_lang1\ X0)) \wedge ((v3\_card\_1\ X2 \\
& \quad X1) \wedge (m2\_finseq\_1\ X2\ (k2\_qc\_lang1\ X0)))) \Rightarrow (\forall X3.(m2\_subset\_1 \\
& \quad X3\ (k6\_qc\_lang1\ X0)\ (k8\_qc\_lang1\ X0\ X1)) \Rightarrow (k7\_cqc\_sim1\ X0\ (k4\_cqc\_lang \\
& \quad X1\ X0\ X3\ X2) = k6\_numbers))))
\end{aligned}$$