

## t20\_cqc\_the2

(TMJVz4jGY8ze2Dq8PimBEMBgWDsBF1EJu06)

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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  $k2\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k3\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k24\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_cqc\_the1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k8\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k12\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X3.(m2\_subset\_1\ X3\ (k2\_qc\_lang1 \\ X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow ((v2\_cqc\_the1\ (k8\_cqc\_lang\ X0\ X1\ X2)\ X0) \Rightarrow \\ ((X3 \in k24\_qc\_lang1\ X0\ X2) \vee (v2\_cqc\_the1\ (k8\_cqc\_lang\ X0\ (k12\_cqc\_lang \\ X0\ X3\ X1)\ X2)\ X0)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (((v2\_cqc\_the1\ (k8\_cqc\_lang\ X0\ X1\ X2)\ X0) \wedge \\ (v2\_cqc\_the1\ (k8\_cqc\_lang\ X0\ X2\ X1)\ X0)) \Leftrightarrow (v2\_cqc\_the1\ (k10\_cqc\_lang \\ X0\ X1\ X2)\ X0)))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (v2\_cqc\_the1\ (k10\_cqc\_lang\ X0\ X1\ X1)\ X0)) \quad (3)$$

### Theorem 1

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1 \\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k2\_qc\_lang1 \\ X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow ((\neg X2 \in k24\_qc\_lang1\ X0\ X1) \Rightarrow (v2\_cqc\_the1 \\ (k8\_cqc\_lang\ X0\ (k12\_cqc\_lang\ X0\ X2\ X1)\ X1)\ X0)))) \end{aligned}$$