

t43\_valuat\_1 (TMFN-  
pEzqQ56ZAhJM7eYx3aUenTUjp7WEUtJ)

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Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  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  $m1\_valuat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_valuat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  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  $m2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k2\_valuat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_valuat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0 X1) \Rightarrow ( \\
& \forall X2.(m2\_funct\_2 X2 (k3\_qc\_lang1 X0) X1 (k2\_valuat\_1 X0 X1)) \Rightarrow \\
& (\forall X3.(m2\_subset\_1 X3 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \Rightarrow \\
& (\forall X4.(m2\_subset\_1 X4 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \Rightarrow \\
& (\forall X5.(m2\_subset\_1 X5 (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \Rightarrow \\
& (\forall X6.(m1\_valuat\_1 X6 X0 X1) \Rightarrow (r1\_valuat\_1 X0 X1 (k8\_cqc\_lang \\
& X0 (k8\_cqc\_lang X0 X3 X4) (k8\_cqc\_lang X0 (k6\_cqc\_lang X0 (k7\_cqc\_lang \\
& X0 X4 X5)) (k6\_cqc\_lang X0 (k7\_cqc\_lang X0 X3 X5)))) X6 X2)))))) \\
& \tag{1}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\
& X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1)) \\
& \tag{2}
\end{aligned}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\neg v1\_xboole\_0 (k3\_cqc\_lang X0)) \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.((m1\_qc\_lang1 X0) \wedge ((m1\_subset\_1 \\
& X1 (k3\_cqc\_lang X0)) \wedge (m1\_subset\_1 X2 (k3\_cqc\_lang X0)))) \Rightarrow (m2\_subset\_1 \\
& (k8\_cqc\_lang X0 X1 X2) (k9\_qc\_lang1 X0) (k3\_cqc\_lang X0)) \\
& \tag{4}
\end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((m1\_qc\_lang1\ X0) \wedge ((m1\_subset\_1 \\ & X1\ (k3\_cqc\_lang\ X0)) \wedge (m1\_subset\_1\ X2\ (k3\_cqc\_lang\ X0)))) \Rightarrow (m2\_subset\_1 \\ & (k7\_cqc\_lang\ X0\ X1\ X2)\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((m1\_qc\_lang1\ X0) \wedge (m1\_subset\_1\ X1\ (k3\_cqc\_lang \\ & X0))) \Rightarrow (m2\_subset\_1\ (k6\_cqc\_lang\ X0\ X1)\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang \\ & X0)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. (m1\_qc\_lang1\ X0) \Rightarrow (m1\_subset\_1\ (k3\_cqc\_lang\ X0)\ (k1\_zfmisc\_1 \\ & (k9\_qc\_lang1\ X0))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. (m1\_qc\_lang1\ X0) \Rightarrow (\forall X1. (\neg v1\_xboole\_0\ X1) \Rightarrow ( \\ & \forall X2. (m1\_valuat\_1\ X2\ X0\ X1) \Rightarrow (\forall X3. (m2\_subset\_1\ X3 \\ & (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow ((r2\_valuat\_1\ X0\ X1\ X2\ X3) \Leftrightarrow \\ & (\forall X4. (m2\_funct\_2\ X4\ (k3\_qc\_lang1\ X0)\ X1\ (k2\_valuat\_1\ X0 \\ & X1)) \Rightarrow (r1\_valuat\_1\ X0\ X1\ X3\ X2\ X4)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. (v1\_xboole\_0\ X0) \Rightarrow (\forall X1. (m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\ & X0)) \Rightarrow (v1\_xboole\_0\ X1)) \end{aligned} \quad (9)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. (m1\_qc\_lang1\ X0) \Rightarrow (\forall X1. (\neg v1\_xboole\_0\ X1) \Rightarrow ( \\ & \forall X2. (m2\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow \\ & (\forall X3. (m2\_subset\_1\ X3\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow \\ & (\forall X4. (m2\_subset\_1\ X4\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \Rightarrow \\ & (\forall X5. (m1\_valuat\_1\ X5\ X0\ X1) \Rightarrow (r2\_valuat\_1\ X0\ X1\ X5\ (k8\_cqc\_lang \\ & X0\ (k8\_cqc\_lang\ X0\ X2\ X3)\ (k8\_cqc\_lang\ X0\ (k6\_cqc\_lang\ X0\ (k7\_cqc\_lang \\ & X0\ X3\ X4))\ (k6\_cqc\_lang\ X0\ (k7\_cqc\_lang\ X0\ X2\ X4)))))))))) \end{aligned}$$