

# t18\_qc\_lang4 (TMbBvJkdgUHuaeDmd- KQqyjTMX9PwEhu6d2k)

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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  $k9\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $m1\_trees\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_qc\_lang4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_trees\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1 \\ X0)) \Rightarrow (\forall X2.(m1\_trees\_1\ X2\ (k9\_xtuple\_0\ (k2\_qc\_lang4\ X0 \\ X1))) \Rightarrow (\forall X3.(m1\_trees\_1\ X3\ (k9\_xtuple\_0\ (k2\_qc\_lang4\ X0 \\ X1)))) \Rightarrow (\neg(r2\_xboole\_0\ X2\ X3) \wedge (k3\_trees\_2\ (k9\_qc\_lang1\ X0)\ (k2\_qc\_lang4 \\ X0\ X1)\ X3 = k3\_trees\_2\ (k9\_qc\_lang1\ X0)\ (k2\_qc\_lang4\ X0\ X1)\ X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.(\neg(\neg r2\_xboole\_0\ X0\ X1) \wedge ((X0 \neq X1) \wedge (\neg r2\_xboole\_0\ X1\ X0))) \Leftrightarrow (r3\_xboole\_0\ X0\ X1) \quad (2)$$

## Theorem 1

$$\begin{aligned} \forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1 \\ X0)) \Rightarrow (\forall X2.(m1\_trees\_1\ X2\ (k9\_xtuple\_0\ (k2\_qc\_lang4\ X0 \\ X1))) \Rightarrow (\forall X3.(m1\_trees\_1\ X3\ (k9\_xtuple\_0\ (k2\_qc\_lang4\ X0 \\ X1)))) \Rightarrow (\neg(X2 \neq X3) \wedge ((k3\_trees\_2\ (k9\_qc\_lang1\ X0)\ (k2\_qc\_lang4 \\ X0\ X1)\ X2 = k3\_trees\_2\ (k9\_qc\_lang1\ X0)\ (k2\_qc\_lang4\ X0\ X1)\ X3) \wedge ( \\ r3\_xboole\_0\ X2\ X3)))))) \end{aligned}$$