

# t28\_sublemma (TMNbKshqRx- PyzAnea1up1oP8HKmVcQpbeCN)

October 27, 2020

Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k16\_subst1 : \iota \Rightarrow \iota$  be given. Let  $k38\_subst1 : \iota \Rightarrow \iota$  be given. Let  $v7\_subst1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k39\_subst1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_sublemma : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_sublemma : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k37\_subst1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k36\_subst1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k31\_subst1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k9\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $k3\_qc\_lang : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k16\_subst1 \\ X0)) \Rightarrow ((v7\_subst1 X1 X0) \Rightarrow (k37\_subst1 X0 X1 = k36\_subst1 X0 \\ X1 (k37\_subst1 X0 (k31\_subst1 X0 X1)))))) \end{aligned} \quad (1)$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1 X0) \wedge (m1\_subset\_1 X1 (k38\_subst1 X0))) \Rightarrow (k39\_subst1 X0 X1 = k37\_subst1 X0 X1) \quad (3)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\neg v1\_xboole\_0 (k38\_subst1 X0)) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\ (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2.(m2\_subset\_1 \\ X2 X0 X1) \Rightarrow (m1\_subset\_1 X2 X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k38\_subst1\ X0)))\Rightarrow(m2\_subset\_1\ (k39\_subst1\ X0\ X1)\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \quad (6)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(m1\_subset\_1\ (k38\_subst1\ X0)\ (k1\_zfmisc\_1\ (k16\_subst1\ X0))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k38\_subst1\ X0)))\Rightarrow(m2\_subset\_1\ (k10\_sublemma\ X0\ X1)\ (k16\_subst1\ X0)\ (k38\_subst1\ X0)) \quad (8)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m2\_subset\_1\ X1\ (k16\_subst1\ X0)\ (k38\_subst1\ X0))\Rightarrow(\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0))\Rightarrow(((v7\_subst1\ X1\ X0)\wedge(X2 = k39\_subst1\ X0\ (k10\_sublemma\ X0\ X1)))\Rightarrow(k11\_sublemma\ X0\ X1\ X2 = k36\_subst1\ X0\ X1\ X2)))) \quad (9)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m2\_subset\_1\ X1\ (k16\_subst1\ X0)\ (k38\_subst1\ X0))\Rightarrow((v7\_subst1\ X1\ X0)\Rightarrow(k10\_sublemma\ X0\ X1 = k31\_subst1\ X0\ X1))) \quad (10)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\Rightarrow(v1\_xboole\_0\ X1)) \quad (11)$$

**Theorem 1**

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m2\_subset\_1\ X1\ (k16\_subst1\ X0)\ (k38\_subst1\ X0))\Rightarrow((v7\_subst1\ X1\ X0)\Rightarrow(k39\_subst1\ X0\ X1 = k11\_sublemma\ X0\ X1\ (k39\_subst1\ X0\ (k10\_sublemma\ X0\ X1))))))$$