t30_sublemma (TMS8rehCfoaYtvkkUnUV585ZqMFkz5aTyBQ)

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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 $k2\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k3\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k16\_substut1 : \iota \Rightarrow \iota$ be given. Let $k38\_substut1 : \iota \Rightarrow \iota$ be given. Let $m1\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7\_sublemma : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3\_substut1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10\_sublemma : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9\_sublemma : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11\_sublemma : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k39\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_sublemma : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8\_sublemma : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k1\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_tarski : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.((v1\_sublemma\ X1\ X0) \wedge (m1\_subset\_1\ X1\ (k2\_zfmisc\_1\ (k16\_substut1\ X0)\ (k3\_qc\_lang1\ X0)))) \Rightarrow (\forall X2.(m1\_substut1\ X2\ X0\ X1) \Rightarrow ((v3\_substut1\ X1\ X0) \Rightarrow (k10\_sublemma\ X0\ (k9\_sublemma\ X0\ X1\ X2) = k8\_sublemma\ X0\ X1)))) \tag{1}$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0) \wedge ((v1\_sublemma\ X1\ X0) \wedge (m1\_subset\_1\ X1\ (k2\_zfmisc\_1\ (k16\_substut1\ X0)\ (k3\_qc\_lang1\ X0))))) \Rightarrow (k8\_sublemma\ X0\ X1 = k1\_xtuple\_0\ X1) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0) \wedge ((m1\_subset\_1\ X1\ (k38\_substut1\ X0)) \wedge (m1\_subset\_1\ X2\ (k3\_qc\_lang1\ X0)))) \Rightarrow (k7\_sublemma\ X0\ X1\ X2 = k4\_tarski\ X1\ X2) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.k1\_xtuple\_0\ (k4\_tarski\ X0\ X1) = X0 \tag{5}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\neg v1\_xboole\_0\ (k38\_substut1\ X0)) \tag{6}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\neg v1\_xboole\_0\ (k3\_qc\_lang1\ X0)) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0) \wedge ((m1\_subset\_1\ X1\ (k38\_substut1\ X0)) \wedge (m1\_subset\_1\ X2\ (k3\_qc\_lang1\ X0)))) \Rightarrow ((v1\_sublemma\ (k7\_sublemma\ X0\ X1\ X2)\ X0) \wedge (m1\_subset\_1\ (k7\_sublemma\ X0\ X1\ X2)\ (k2\_zfmisc\_1\ (k16\_substut1\ X0)\ (k3\_qc\_lang1\ X0)))) \tag{8}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (m1\_subset\_1\ (k3\_qc\_lang1\ X0)\ (k1\_zfmisc\_1\ (k2\_qc\_lang1\ X0))) \tag{9}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (m1\_subset\_1\ (k38\_substut1\ X0)\ (k1\_zfmisc\_1\ (k16\_substut1\ X0))) \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.k4\_tarski\ X0\ X1 = k2\_tarski\ (k2\_tarski\ X0\ X1)\ (k1\_tarski\ X0) \tag{11}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0)) \Rightarrow (v1\_xboole\_0\ X1)) \tag{12}$$

Theorem 1

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k16\_substut1\ X0)\ (k38\_substut1\ X0)) \Rightarrow (\forall X3.(m1\_substut1\ X3\ X0\ (k7\_sublemma\ X0\ X2\ X1)) \Rightarrow ((v3\_substut1\ (k7\_sublemma\ X0\ X2\ X1)\ X0) \Rightarrow ((k10\_sublemma\ X0\ (k9\_sublemma\ X0\ (k7\_sublemma\ X0\ X2\ X1)\ X3) = X2) \wedge (k11\_sublemma\ X0\ (k9\_sublemma\ X0\ (k7\_sublemma\ X0\ X2\ X1)\ X3)\ (k39\_substut1\ X0\ (k10\_sublemma\ X0\ (k9\_sublemma\ X0\ (k7\_sublemma\ X0\ X2\ X1)\ X3))) = k11\_sublemma\ X0\ (k9\_sublemma\ X0\ (k7\_sublemma\ X0\ X2\ X1)\ X3)\ (k39\_substut1\ X0\ X2)))))))$$