t31_sublemma (TMQfXSq3Pu5bbPzCbc91mkUdJNVgYK9hbwT)

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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 $k11\_sublemma : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9\_sublemma : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k39\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11\_cqc\_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k35\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k32\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10\_sublemma : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v7\_substut1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k24\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k3\_cqc\_lang : \iota \Rightarrow \iota$ be given. Let $k15\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_sublemma : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k1\_substut1 : \iota \Rightarrow \iota$ be given. Let $k36\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k16\_substut1\ X0)\ (k38\_substut1\ X0)) \Rightarrow (\forall X3.(m1\_substut1\ X3\ X0\ (k7\_sublemma\ X0\ X2\ X1)) \Rightarrow ((v3\_substut1\ (k7\_sublemma\ X0\ X2\ X1)\ X0) \Rightarrow ((k10\_sublemma\ X0\ (k9\_sublemma\ X0\ (k7\_sublemma\ X0\ X2\ X1)\ X3) = X2) \wedge (k11\_sublemma\ X0\ (k9\_sublemma\ X0\ (k7\_sublemma\ X0\ X2\ X1)\ X3)\ (k39\_substut1\ X0\ (k10\_sublemma\ X0\ (k9\_sublemma\ X0\ (k7\_sublemma\ X0\ X2\ X1)\ X3))) = k11\_sublemma\ X0\ (k9\_sublemma\ X0\ (k7\_sublemma\ X0\ X2\ X1)\ X3)\ (k39\_substut1\ X0\ X2)))))))) \tag{1}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k2\_zfmisc\_1\ (k16\_substut1\ X0)\ (k3\_qc\_lang1\ X0))) \Rightarrow (\forall X2.(m1\_substut1\ X2\ X0\ X1) \Rightarrow ((v3\_substut1\ X1\ X0) \Rightarrow (v7\_substut1\ (k24\_substut1\ X0\ X1\ X2)\ X0)))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((\neg v1\_xboole\_0\ X1)\wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))))\Rightarrow(\forall X2.(m2\_subset\_1\ X2\ X0\ X1)\Leftrightarrow(m1\_subset\_1\ X2\ X1)) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0)\wedge((m1\_subset\_1\ X1\ (k3\_qc\_lang1\ X0))\wedge(m1\_subset\_1\ X2\ (k3\_cqc\_lang\ X0))))\Rightarrow(k11\_cqc\_lang\ X0\ X1\ X2 = k15\_qc\_lang1\ X0\ X1\ X2) \tag{4}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\neg v1\_xboole\_0\ (k38\_substut1\ X0)) \tag{5}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\neg v1\_xboole\_0\ (k3\_qc\_lang1\ X0)) \tag{6}$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((\neg v1\_xboole\_0\ X1)\wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))))\Rightarrow(\forall X2.(m2\_subset\_1\ X2\ X0\ X1)\Rightarrow(m1\_subset\_1\ X2\ X0)) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0)\wedge(((v1\_sublemma\ X1\ X0)\wedge(m1\_subset\_1\ X1\ (k2\_zfmisc\_1\ (k16\_substut1\ X0)\ (k3\_qc\_lang1\ X0))))\wedge(m1\_substut1\ X2\ X0\ X1)))\Rightarrow(m2\_subset\_1\ (k9\_sublemma\ X0\ X1\ X2)\ (k16\_substut1\ X0)\ (k38\_substut1\ X0)) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0)\wedge((m1\_subset\_1\ X1\ (k38\_substut1\ X0))\wedge(m1\_subset\_1\ X2\ (k3\_qc\_lang1\ X0))))\Rightarrow((v1\_sublemma\ (k7\_sublemma\ X0\ X1\ X2)\ X0)\wedge(m1\_subset\_1\ (k7\_sublemma\ X0\ X1\ X2)\ (k2\_zfmisc\_1\ (k16\_substut1\ X0)\ (k3\_qc\_lang1\ X0)))) \tag{10}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(m1\_subset\_1\ (k3\_qc\_lang1\ X0)\ (k1\_zfmisc\_1\ (k2\_qc\_lang1\ X0))) \tag{11}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(m1\_subset\_1\ (k3\_cqc\_lang\ X0)\ (k1\_zfmisc\_1\ (k9\_qc\_lang1\ X0))) \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k38\_substut1\ X0)))\Rightarrow(m2\_subset\_1\ (k39\_substut1\ X0\ X1)\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \tag{13}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(m1\_subset\_1\ (k38\_substut1\ X0)\ (k1\_zfmisc\_1\ (k16\_substut1\ X0))) \tag{14}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k2\_zfmisc\_1\ (k9\_qc\_lang1\ X0)\ (k1\_substut1\ X0))))\Rightarrow(m2\_subset\_1\ (k35\_substut1\ X0\ X1)\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0)) \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k16\_substut1\ X0)))\Rightarrow(m1\_subset\_1\ (k32\_substut1\ X0\ X1)\ (k2\_zfmisc\_1\ (k9\_qc\_lang1\ X0)\ (k1\_substut1\ X0))) \tag{16}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m2\_subset\_1\ X1\ (k16\_substut1\ X0)\ (k38\_substut1\ X0))\Rightarrow(\forall X2.(m2\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0))\Rightarrow(((v7\_substut1\ X1\ X0)\wedge(X2 = k39\_substut1\ X0\ (k10\_sublemma\ X0\ X1)))\Rightarrow(k11\_sublemma\ X0\ X1\ X2 = k36\_substut1\ X0\ X1\ X2)))) \tag{17}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.((v1\_sublemma\ X1\ X0)\wedge(m1\_subset\_1\ X1\ (k2\_zfmisc\_1\ (k16\_substut1\ X0)\ (k3\_qc\_lang1\ X0))))\Rightarrow(\forall X2.(m1\_substut1\ X2\ X0\ X1)\Rightarrow((v3\_substut1\ X1\ X0)\Rightarrow(k9\_sublemma\ X0\ X1\ X2 = k24\_substut1\ X0\ X1\ X2)))) \tag{18}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k16\_substut1\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0))\Rightarrow(k36\_substut1\ X0\ X1\ X2 = k15\_qc\_lang1\ X0\ (k35\_substut1\ X0\ (k32\_substut1\ X0\ X1))\ X2))) \tag{19}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\Rightarrow(v1\_xboole\_0\ X1)) \tag{20}$$

Theorem 1

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m2\_subset\_1\ X1\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0))\Rightarrow(\forall X2.(m2\_subset\_1\ X2\ (k16\_substut1\ X0)\ (k38\_substut1\ X0))\Rightarrow(\forall X3.(m1\_substut1\ X3\ X0\ (k7\_sublemma\ X0\ X2\ X1))\Rightarrow((v3\_substut1\ (k7\_sublemma\ X0\ X2\ X1)\ X0)\Rightarrow(k11\_sublemma\ X0\ (k9\_sublemma\ X0\ (k7\_sublemma\ X0\ X2\ X1)\ X3)\ (k39\_substut1\ X0\ X2) = k11\_cqc\_lang\ X0\ (k35\_substut1\ X0\ (k32\_substut1\ X0\ (k9\_sublemma\ X0\ (k7\_sublemma\ X0\ X2\ X1)\ X3)))\ (k39\_substut1\ X0\ X2))))))$$