# t22_substut1 (TMXFC-gyPiyMFa12GMTKuHs6Xt7M4UEJfFcG)

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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 $k16\_substut1 : \iota \Rightarrow \iota$ be given. Let $v5\_substut1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_finseq\_1 : \iota \Rightarrow \iota$ be given. Let $k11\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k18\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k27\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k9\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k18\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k1\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k19\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_substut1 : \iota \Rightarrow \iota$ be given. Let $k20\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.(k1\_xtuple\_0\ (k4\_tarski\ X0\ X1) = X0) \wedge (k2\_xtuple\_0\ (k4\_tarski\ X0\ X1) = X1) \tag{1}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)) \Rightarrow (k18\_qc\_lang1\ X0\ (k13\_qc\_lang1\ X0\ X1) = X1)) \tag{2}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)) \Rightarrow (\neg(v3\_qc\_lang1\ X1\ X0) \wedge (r1\_xxreal\_0\ (k3\_finseq\_1\ (k11\_qc\_lang1\ X0\ X1))\ (k3\_finseq\_1\ (k11\_qc\_lang1\ X0\ (k18\_qc\_lang1\ X0\ X1)))))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0\ X0) \wedge ((\neg v1\_xboole\_0\ X1) \wedge ((m1\_subset\_1\ X2\ X0) \wedge (m1\_subset\_1\ X3\ X1)))) \Rightarrow (k1\_domain\_1\ X0\ X1\ X2\ X3 = k4\_tarski\ X2\ X3) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0) \wedge (m1\_subset\_1\ X1\ (k16\_substut1\ X0))) \Rightarrow (k18\_substut1\ X0\ X1 = k1\_xtuple\_0\ X1) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\neg v1\_xboole\_0\ (k4\_partfun1\ X0\ X1) \tag{6}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\neg v1\_xboole\_0\ (k9\_qc\_lang1\ X0)) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k16\_substut1\ X0)))\Rightarrow(m1\_subset\_1\ (k27\_substut1\ X0\ X1)\ (k16\_substut1\ X0)) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k16\_substut1\ X0)))\Rightarrow(m1\_subset\_1\ (k19\_substut1\ X0\ X1)\ (k1\_substut1\ X0)) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k16\_substut1\ X0)))\Rightarrow(m1\_subset\_1\ (k18\_substut1\ X0\ X1)\ (k9\_qc\_lang1\ X0)) \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)))\Rightarrow(m1\_subset\_1\ (k13\_qc\_lang1\ X0\ X1)\ (k9\_qc\_lang1\ X0)) \tag{11}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k16\_substut1\ X0))\Rightarrow((v5\_substut1\ X1\ X0)\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k16\_substut1\ X0))\Rightarrow((X2 = k27\_substut1\ X0\ X1)\Leftrightarrow(X1 = k20\_substut1\ X0\ X2))))) \tag{12}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k16\_substut1\ X0))\Rightarrow(k20\_substut1\ X0\ X1 = k1\_domain\_1\ (k9\_qc\_lang1\ X0)\ (k1\_substut1\ X0)\ (k13\_qc\_lang1\ X0\ (k18\_substut1\ X0\ X1))\ (k19\_substut1\ X0\ X1))) \tag{13}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(k1\_substut1\ X0 = k4\_partfun1\ (k3\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0)) \tag{14}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow((v3\_qc\_lang1\ X1\ X0)\Leftrightarrow(\exists X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0))\wedge(X1 = k13\_qc\_lang1\ X0\ X2)))) \tag{15}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow(k11\_qc\_lang1\ X0\ X1 = X1)) \tag{16}$$

**Theorem 1**

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k16\_substut1\ X0))\Rightarrow(\neg(v5\_substut1\ X1\ X0)\wedge(r1\_xxreal\_0\ (k3\_finseq\_1\ (k11\_qc\_lang1\ X0\ (k18\_substut1\ X0\ X1)))\ (k3\_finseq\_1\ (k11\_qc\_lang1\ X0\ (k18\_substut1\ X0\ (k27\_substut1\ X0\ X1)))))))$$