t8_substut2 (TMJSx6FAgaactmgPTTGk3Fy3rJgjCr1tkcv)

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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 $k9\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k3\_cqc\_lang : \iota \Rightarrow \iota$ be given. Let $k2\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k3\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_substut1 : \iota \Rightarrow \iota$ be given. Let $k10\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k7\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k1\_substut2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k21\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k15\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k22\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k34\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k33\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_qc\_lang3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m2\_subset\_1\ X1\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow ((k21\_qc\_lang1\ X0\ (k15\_qc\_lang1\ X0\ X1\ X2) = X1) \wedge (k22\_qc\_lang1\ X0\ (k15\_qc\_lang1\ X0\ X1\ X2) = X2))))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.(k1\_xtuple\_0\ (k4\_tarski\ X0\ X1) = X0) \wedge (k2\_xtuple\_0\ (k4\_tarski\ X0\ X1) = X1) \tag{2}$$

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.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0) \wedge (m1\_subset\_1\ X1\ (k2\_zfmisc\_1\ (k9\_qc\_lang1\ X0)\ (k1\_substut1\ X0)))) \Rightarrow (k34\_substut1\ X0\ X1 = k2\_xtuple\_0\ X1) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k2\_zfmisc\_1\ (k9\_qc\_lang1\ X0)\ (k1\_substut1\ X0))))\Rightarrow(k33\_substut1\ X0\ X1 = k1\_xtuple\_0\ X1) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0)\wedge((m1\_subset\_1\ X1\ (k3\_cqc\_lang\ X0))\wedge(m1\_subset\_1\ X2\ (k1\_substut1\ X0))))\Rightarrow(k1\_substut2\ X0\ X1\ X2 = k4\_tarski\ X1\ X2) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0)\wedge((m1\_subset\_1\ X1\ (k3\_qc\_lang1\ X0))\wedge(m1\_subset\_1\ X2\ (k3\_cqc\_lang\ X0))))\Rightarrow(k11\_cqc\_lang\ X0\ X1\ X2 = k15\_qc\_lang1\ X0\ X1\ X2) \tag{7}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\neg v1\_xboole\_0\ (k3\_qc\_lang1\ X0)) \tag{8}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\neg v1\_xboole\_0\ (k3\_cqc\_lang\ X0)) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((\neg v1\_xboole\_0\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))))\Rightarrow(\forall X2.(m2\_subset\_1\ X2\ X0\ X1)\Rightarrow(m1\_subset\_1\ X2\ X0)) \tag{10}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\neg v1\_xboole\_0\ (k9\_qc\_lang1\ X0)) \tag{11}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(m1\_subset\_1\ (k3\_qc\_lang1\ X0)\ (k1\_zfmisc\_1\ (k2\_qc\_lang1\ X0))) \tag{12}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(m1\_subset\_1\ (k3\_cqc\_lang\ X0)\ (k1\_zfmisc\_1\ (k9\_qc\_lang1\ X0))) \tag{13}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0)\wedge((m1\_subset\_1\ X1\ (k3\_cqc\_lang\ X0))\wedge(m1\_subset\_1\ X2\ (k1\_substut1\ X0))))\Rightarrow(m1\_subset\_1\ (k1\_substut2\ X0\ X1\ X2)\ (k2\_zfmisc\_1\ (k9\_qc\_lang1\ X0)\ (k1\_substut1\ X0))) \tag{14}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0)\wedge((m1\_subset\_1\ X1\ (k3\_qc\_lang1\ X0))\wedge(m1\_subset\_1\ X2\ (k3\_cqc\_lang\ X0))))\Rightarrow(m2\_subset\_1\ (k11\_cqc\_lang\ X0\ X1\ X2)\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0)) \tag{15}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k2\_zfmisc\_1\ (k9\_qc\_lang1\ X0)\ (k1\_substut1\ X0)))\Rightarrow(((k21\_qc\_lang1\ X0\ (k33\_substut1\ X0\ X1)\in k10\_xtuple\_0\ (k7\_substut1\ X0\ (k21\_qc\_lang1\ X0\ (k33\_substut1\ X0\ X1))\ (k33\_substut1\ X0\ X1)\ (k34\_substut1\ X0\ X1)))\Rightarrow(k35\_substut1\ X0\ X1 = k2\_qc\_lang3\ X0\ (k13\_substut1\ X0\ (k7\_substut1\ X0\ (k21\_qc\_lang1\ X0\ (k33\_substut1\ X0\ X1))\ (k33\_substut1\ X0\ X1)\ (k34\_substut1\ X0\ X1))\ (k22\_qc\_lang1\ X0\ (k33\_substut1\ X0\ X1)))))\wedge((\neg k21\_qc\_lang1\ X0\ (k33\_substut1\ X0\ X1)\in k10\_xtuple\_0\ (k7\_substut1\ X0\ (k21\_qc\_lang1\ X0\ (k33\_substut1\ X0\ X1))\ (k33\_substut1\ X0\ X1)\ (k34\_substut1\ X0\ X1)))\Rightarrow(k35\_substut1\ X0\ X1 = k21\_qc\_lang1\ X0\ (k33\_substut1\ X0\ X1)))))) \tag{16}$$

Assume the following.

$$\forall X0.(v1\_xboole\_0\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))\Rightarrow(v1\_xboole\_0\ X1)) \tag{17}$$

Theorem 1

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m2\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)\ (k3\_cqc\_lang\ X0))\Rightarrow(\forall X2.(m2\_subset\_1\ X2\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k1\_substut1\ X0))\Rightarrow((\neg X2\in k10\_xtuple\_0\ (k7\_substut1\ X0\ X2\ (k11\_cqc\_lang\ X0\ X2\ X1)\ X3))\Rightarrow(k35\_substut1\ X0\ (k1\_substut2\ X0\ (k11\_cqc\_lang\ X0\ X2\ X1)\ X3) = X2)))))$$