# t7_sublemma (TMZxttpDkdu7N2uRagk39oXFXUobB171TKS)

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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 $k5\_numbers : \iota$ be given. Let $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k8\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $v3\_card\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k1\_substut1 : \iota \Rightarrow \iota$ be given. Let $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k26\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k17\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4\_substut1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_finseq\_1 : \iota \Rightarrow o$ be given. Let $k16\_substut1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\wedge(m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1))))\Rightarrow(r2\_relset\_1\ X0\ X1\ X2\ X2) \tag{1}$$

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.

$$\forall X0.\forall X1.(m2\_finseq\_1\ X1\ X0)\Leftrightarrow(m1\_finseq\_1\ X1\ X0) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1\ X0\ k5\_numbers)\wedge(m1\_qc\_lang1\ X1))\Rightarrow(\neg v1\_xboole\_0\ (k8\_qc\_lang1\ X1\ X0)) \tag{4}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\neg v1\_xboole\_0\ (k6\_qc\_lang1\ X0)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((m1\_qc\_lang1\ X0)\wedge((m1\_subset\_1\ X1\ k5\_numbers)\wedge((m1\_subset\_1\ X2\ (k8\_qc\_lang1\ X0\ X1))\wedge(((v3\_card\_1\ X3\ X1)\wedge(m1\_finseq\_1\ X3\ (k2\_qc\_lang1\ X0)))\wedge(m1\_subset\_1\ X4\ (k1\_substut1\ X0))))))\Rightarrow(v4\_substut1\ (k17\_substut1\ X0\ X2\ X3\ X4)\ X0) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0)\wedge((\neg v1\_xboole\_0\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0))))\Rightarrow(\forall X2.(m2\_subset\_1\ X2\ X0\ X1)\Rightarrow(m1\_subset\_1\ X2\ X0)) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1\ X1\ X0)\Rightarrow((v1\_funct\_1\ X1)\wedge((v1\_finseq\_1\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ X0)))))) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ k5\_numbers))\Rightarrow(m1\_subset\_1\ (k8\_qc\_lang1\ X0\ X1)\ (k1\_zfmisc\_1\ (k6\_qc\_lang1\ X0))) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((m1\_qc\_lang1\ X0)\wedge((m1\_subset\_1\ X1\ (k6\_qc\_lang1\ X0))\wedge((m1\_finseq\_1\ X2\ (k2\_qc\_lang1\ X0))\wedge(m1\_subset\_1\ X3\ (k1\_substut1\ X0)))))\Rightarrow(m1\_subset\_1\ (k17\_substut1\ X0\ X1\ X2\ X3)\ (k16\_substut1\ X0)) \tag{10}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k16\_substut1\ X0))\Rightarrow((v4\_substut1\ X1\ X0)\Rightarrow(\forall X2.(m2\_finseq\_1\ X2\ (k2\_qc\_lang1\ X0))\Rightarrow((X2 = k26\_substut1\ X0\ X1)\Leftrightarrow(\exists X3.(m1\_subset\_1\ X3\ k5\_numbers)\wedge(\exists X4.(m2\_subset\_1\ X4\ (k6\_qc\_lang1\ X0)\ (k8\_qc\_lang1\ X0\ X3))\wedge(\exists X5.((v3\_card\_1\ X5\ X3)\wedge(m2\_finseq\_1\ X5\ (k2\_qc\_lang1\ X0)))\wedge(\exists X6.(m1\_subset\_1\ X6\ (k1\_substut1\ X0))\wedge((r2\_relset\_1\ k5\_numbers\ (k2\_qc\_lang1\ X0)\ X2\ X5)\wedge(X1 = k17\_substut1\ X0\ X4\ X5\ X6)))))))))) \tag{11}$$

**Theorem 1**

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ k5\_numbers)\Rightarrow (\forall X2.(m2\_subset\_1\ X2\ (k6\_qc\_lang1\ X0)\ (k8\_qc\_lang1\ X0\ X1))\Rightarrow (\forall X3.(m2\_subset\_1\ X3\ (k6\_qc\_lang1\ X0)\ (k8\_qc\_lang1\ X0\ X1))\Rightarrow (\forall X4.((v5\_relat\_1\ X4\ (k3\_qc\_lang1\ X0))\wedge((v3\_card\_1\ X4\ X1)\wedge(m2\_finseq\_1\ X4\ (k2\_qc\_lang1\ X0))))\Rightarrow(\forall X5.((v5\_relat\_1\ X5\ (k3\_qc\_lang1\ X0))\wedge((v3\_card\_1\ X5\ X1)\wedge(m2\_finseq\_1\ X5\ (k2\_qc\_lang1\ X0))))\Rightarrow(\forall X6.(m1\_subset\_1\ X6\ (k1\_substut1\ X0))\Rightarrow(\forall X7.\ (m1\_subset\_1\ X7\ (k1\_substut1\ X0))\Rightarrow((r2\_relset\_1\ k5\_numbers\ (k2\_qc\_lang1\ X0)\ (k26\_substut1\ X0\ (k17\_substut1\ X0\ X2\ X4\ X6))\ (k26\_substut1\ X0\ (k17\_substut1\ X0\ X3\ X5\ X7)))\Rightarrow(r2\_relset\_1\ k5\_numbers\ (k2\_qc\_lang1\ X0)\ X4\ X5)))))))))$$