t10_sublemma (TMLPM2AsGyLzo85M7eXr8RBgk3qz32ZcTKH)

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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 $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $k3\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_finseq\_1 : \iota \Rightarrow o$ be given. Let $k3\_finseq\_1 : \iota \Rightarrow \iota$ be given. Let $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np\_\_1 : \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ k5\_numbers) \Rightarrow (\forall X2.((v1\_relat\_1\ X2) \wedge ((v1\_funct\_1\ X2) \wedge (v1\_finseq\_1\ X2))) \Rightarrow (((v5\_relat\_1\ X2\ (k3\_qc\_lang1\ X0)) \wedge ((v3\_card\_1\ X2\ X1) \wedge (m2\_finseq\_1\ X2\ (k2\_qc\_lang1\ X0)))) \Leftrightarrow ((m2\_finseq\_1\ X2\ (k3\_qc\_lang1\ X0)) \wedge (k3\_finseq\_1\ X2 = X1))))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1\ X1\ X0) \Leftrightarrow (m1\_finseq\_1\ X1\ X0) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(m2\_finseq\_1\ X1\ X0) \Rightarrow ((v1\_funct\_1\ X1) \wedge ((v1\_finseq\_1\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ X0))))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(m1\_finseq\_1\ X1\ X0) \Rightarrow ((v1\_relat\_1\ X1) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_finseq\_1\ X1))) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0)\wedge((m1\_finseq\_1\ X1\ (k3\_qc\_lang1\ X0))\wedge(m1\_subset\_1\ X2\ (k1\_substut1\ X0))))\Rightarrow(m2\_finseq\_1\ (k5\_substut1\ X0\ X1\ X2)\ (k3\_qc\_lang1\ X0)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1\_qc\_lang1\ X0)\wedge((m1\_finseq\_1\ X1\ (k2\_qc\_lang1\ X0))\wedge(m1\_subset\_1\ X2\ (k1\_substut1\ X0))))\Rightarrow(m2\_finseq\_1\ (k3\_substut1\ X0\ X1\ X2)\ (k2\_qc\_lang1\ X0)) \tag{6}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m2\_finseq\_1\ X1\ (k3\_qc\_lang1\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_substut1\ X0))\Rightarrow(k5\_substut1\ X0\ X1\ X2 = k3\_substut1\ X0\ (k4\_substut1\ X0\ X1)\ X2))) \tag{7}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m2\_finseq\_1\ X1\ (k3\_qc\_lang1\ X0))\Rightarrow(k4\_substut1\ X0\ X1 = X1)) \tag{8}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m2\_finseq\_1\ X1\ (k2\_qc\_lang1\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k1\_substut1\ X0))\Rightarrow(\forall X3.(m2\_finseq\_1\ X3\ (k2\_qc\_lang1\ X0))\Rightarrow((X3 = k3\_substut1\ X0\ X1\ X2)\Leftrightarrow((k3\_finseq\_1\ X3 = k3\_finseq\_1\ X1)\wedge(\forall X4.(m1\_subset\_1\ X4\ k5\_numbers)\Rightarrow(((r1\_xxreal\_0\ np\_\_1\ X4)\wedge(r1\_xxreal\_0\ X4\ (k3\_finseq\_1\ X1)))\Rightarrow(((k1\_funct\_1\ X1\ X4\in k9\_xtuple\_0\ X2)\Rightarrow(k1\_funct\_1\ X3\ X4 = k1\_funct\_1\ X2\ (k1\_funct\_1\ X1\ X4)))\wedge((\neg k1\_funct\_1\ X1\ X4\in k9\_xtuple\_0\ X2)\Rightarrow(k1\_funct\_1\ X3\ X4 = k1\_funct\_1\ X1\ X4)))))))))) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X1)))\Rightarrow((v4\_relat\_1\ X2\ X0)\wedge(v5\_relat\_1\ X2\ X1)) \tag{10}$$

Theorem 1

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ k5\_numbers)\Rightarrow(\forall X2.((v5\_relat\_1\ X2\ (k3\_qc\_lang1\ X0))\wedge((v3\_card\_1\ X2\ X1)\wedge(m2\_finseq\_1\ X2\ (k2\_qc\_lang1\ X0))))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (k1\_substut1\ X0))\Rightarrow((v5\_relat\_1\ (k3\_substut1\ X0\ X2\ X3)\ (k3\_qc\_lang1\ X0))\wedge((v3\_card\_1\ (k3\_substut1\ X0\ X2\ X3)\ X1)\wedge(m2\_finseq\_1\ (k3\_substut1\ X0\ X2\ X3)\ (k2\_qc\_lang1\ X0)))))))$$