l4_rewrite1 (TMZ67AToVjA3ESvLVa7zCWnphDZVnDN3mg1)

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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 $v7\_ordinal1 : \iota \Rightarrow o$ be given. Let $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_finseq\_1 : \iota \Rightarrow \iota$ be given. Let $np\_\_1 : \iota$ be given. Let $k6\_numbers : \iota$ be given. Let $k4\_finseq\_1 : \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_finseq\_1 : \iota \Rightarrow \iota$ be given. Let $k5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_numbers : \iota$ be given. Let $k2\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $k1\_nat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\neg(X0 \in X1) \wedge (v1\_xboole\_0\ X1) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v1\_xboole\_0\ X0) \wedge ((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge (v1\_finseq\_1\ X0)))) \Rightarrow ((np\_\_1 \in k4\_finseq\_1\ X0) \wedge (k3\_finseq\_1\ X0 \in k4\_finseq\_1\ X0)) \tag{2}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge (v1\_finseq\_1\ X0))) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_finseq\_1\ X1))) \Rightarrow ((r1\_tarski\ X0\ X1) \Rightarrow (r1\_xxreal\_0\ (k3\_finseq\_1\ X0)\ (k3\_finseq\_1\ X1)))) \tag{3}$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0) \Rightarrow (\forall X1.(v7\_ordinal1\ X1) \Rightarrow ((r1\_xxreal\_0\ X0\ X1) \Leftrightarrow (r1\_tarski\ (k2\_finseq\_1\ X0)\ (k2\_finseq\_1\ X1)))) \tag{4}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge (v1\_finseq\_1\ X0))) \Rightarrow (\forall X1.(v7\_ordinal1\ X1) \Rightarrow ((k5\_relat\_1\ X0\ (k2\_finseq\_1\ X1) = X0) \Leftrightarrow (r1\_xxreal\_0\ (k3\_finseq\_1\ X0)\ X1))) \tag{5}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))\Rightarrow(\forall X1.((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_finseq\_1\ X1)))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge((v1\_funct\_1\ X2)\wedge(v1\_finseq\_1\ X2)))\Rightarrow(\forall X3.((v1\_relat\_1\ X3)\wedge((v1\_funct\_1\ X3)\wedge(v1\_finseq\_1\ X3)))\Rightarrow(\neg(k7\_finseq\_1\ X0\ X1 = k7\_finseq\_1\ X2\ X3)\wedge((r1\_xxreal\_0\ (k3\_finseq\_1\ X0)\ (k3\_finseq\_1\ X2))\wedge(\forall X4.((v1\_relat\_1\ X4)\wedge((v1\_funct\_1\ X4)\wedge(v1\_finseq\_1\ X4)))\Rightarrow(k7\_finseq\_1\ X0\ X4\neq X2)))))))) \tag{6}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))\Rightarrow(\forall X1.((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_finseq\_1\ X1)))\Rightarrow((r1\_xxreal\_0\ (k3\_finseq\_1\ X0)\ (k3\_finseq\_1\ X1))\Leftrightarrow(r1\_tarski\ (k1\_relset\_1\ k5\_numbers\ X0)\ (k1\_relset\_1\ k5\_numbers\ X1)))) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_finseq\_1\ X1)))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge((v1\_funct\_1\ X2)\wedge(v1\_finseq\_1\ X2)))\Rightarrow(\neg(X0\in k4\_finseq\_1\ X1)\wedge(\forall X3.(v7\_ordinal1\ X3)\Rightarrow(\neg(X3 = X0)\wedge(k2\_nat\_1\ (k3\_finseq\_1\ X2)\ X3\in k4\_finseq\_1\ (k7\_finseq\_1\ X2\ X1)))))) \tag{8}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))\Rightarrow((X0\neq k1\_xboole\_0)\Leftrightarrow(r1\_xxreal\_0\ np\_\_1\ (k3\_finseq\_1\ X0))) \tag{9}$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow(\forall X1.(v7\_ordinal1\ X1)\Rightarrow((X0\in k2\_finseq\_1\ X1)\Leftrightarrow((r1\_xxreal\_0\ np\_\_1\ X0)\wedge(r1\_xxreal\_0\ X0\ X1)))) \tag{10}$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow(\forall X1.((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_finseq\_1\ X1)))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge((v1\_funct\_1\ X2)\wedge(v1\_finseq\_1\ X2)))\Rightarrow(((r1\_xxreal\_0\ X0\ (k3\_finseq\_1\ X1))\wedge(X2 = k5\_relat\_1\ X1\ (k2\_finseq\_1\ X0)))\Rightarrow((k3\_finseq\_1\ X2 = X0)\wedge(k4\_finseq\_1\ X2 = k2\_finseq\_1\ X0))))) \tag{11}$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow((\neg r1\_xxreal\_0\ np\_\_1\ X0)\Rightarrow(X0 = k6\_numbers)) \tag{12}$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow(\forall X1.(v7\_ordinal1\ X1)\Rightarrow((\neg r1\_xxreal\_0\ (k1\_nat\_1\ X1\ np\_\_1)\ X0)\Leftrightarrow(r1\_xxreal\_0\ X0\ X1))) \tag{13}$$

Assume the following.

$$\forall X0.(v7\_ordinal1\ X0)\Rightarrow(\forall X1.((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_finseq\_1\ X1)))\Rightarrow((((r1\_xxreal\_0\ np\_\_1\ X0)\wedge (r1\_xxreal\_0\ (k1\_nat\_1\ X0\ np\_\_1)\ (k3\_finseq\_1\ X1)))\Rightarrow((X0\in k4\_finseq\_1\ X1)\wedge(k1\_nat\_1\ X0\ np\_\_1\in k4\_finseq\_1\ X1)))\wedge(((X0\in k4\_finseq\_1\ X1)\wedge(k1\_nat\_1\ X0\ np\_\_1\in k4\_finseq\_1\ X1))\Rightarrow((r1\_xxreal\_0\ np\_\_1\ X0)\wedge(r1\_xxreal\_0\ (k1\_nat\_1\ X0\ np\_\_1)\ (k3\_finseq\_1\ X1)))))) \tag{14}$$

Assume the following.

$$\forall X0:\iota\Rightarrow\iota.\forall X1.\exists X2.((v1\_relat\_1\ X2)\wedge((v1\_funct\_1\ X2)\wedge(v1\_finseq\_1\ X2)))\wedge((k3\_finseq\_1\ X2=X1)\wedge(\forall X3. (v7\_ordinal1\ X3)\Rightarrow((X3\in k4\_finseq\_1\ X2)\Rightarrow(k1\_funct\_1\ X2\ X3=X0\ X3)))) \tag{15}$$

Assume the following.

$$\forall X0:\iota\Rightarrow\iota\Rightarrow o.\forall X1.(\forall X2.(v7\_ordinal1\ X2)\Rightarrow(\neg(X2\in k2\_finseq\_1\ X1)\wedge(\forall X3.\neg X0\ X2\ X3)))\Rightarrow(\exists X2. ((v1\_relat\_1\ X2)\wedge((v1\_funct\_1\ X2)\wedge(v1\_finseq\_1\ X2)))\wedge((k4\_finseq\_1\ X2=k2\_finseq\_1\ X1)\wedge(\forall X3.(v7\_ordinal1\ X3)\Rightarrow((X3\in k2\_finseq\_1\ X1)\Rightarrow(X0\ X3\ (k1\_funct\_1\ X2\ X3)))))) \tag{16}$$

Assume the following.

$$k6\_numbers=k1\_xboole\_0 \tag{17}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))\Rightarrow (\forall X1.(v7\_ordinal1\ X1)\Rightarrow((X1\in k4\_finseq\_1\ X0)\Rightarrow((r1\_xxreal\_0\ X1\ (k3\_finseq\_1\ X0))\wedge((r1\_xxreal\_0\ (k2\_nat\_1\ k6\_numbers\ np\_\_1)\ X1)\wedge(\neg r1\_xxreal\_0\ X1\ k6\_numbers))))) \tag{18}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))\Rightarrow ((v1\_relat\_1\ (k16\_finseq\_1\ k6\_numbers\ X0))\wedge((v1\_funct\_1\ (k16\_finseq\_1\ k6\_numbers\ X0))\wedge((v1\_xboole\_0\ (k16\_finseq\_1\ k6\_numbers\ X0))\wedge (v1\_finseq\_1\ (k16\_finseq\_1\ k6\_numbers\ X0))))) \tag{19}$$

Assume the following.

$$\forall X0.\forall X1.(r1\_tarski\ X0\ X1)\Leftrightarrow(\forall X2.(X2\in X0)\Rightarrow (X2\in X1)) \tag{20}$$

Theorem 1

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_finseq\_1\ X0)))\Rightarrow (\forall X1.(v7\_ordinal1\ X1)\Rightarrow(\neg(\neg(\neg r1\_xxreal\_0\ X1\ (k3\_finseq\_1\ X0))\wedge(r1\_xxreal\_0\ (k3\_finseq\_1\ X0)\ X1))\wedge((\neg(\neg r1\_xxreal\_0\ np\_\_1\ X1)\wedge(r1\_xxreal\_0\ X1\ k6\_numbers))\wedge(\neg X1\in k4\_finseq\_1\ X0))))$$