t14_hilbert3 (TMbKdPG-nAWGHUQAC5wvWDPzidjNjLAnmrdG)

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Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $k9\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((v1\_relat\_1\ X4) \wedge (v1\_funct\_1\ X4)) \Rightarrow (((k9\_xtuple\_0\ X4 = k2\_tarski\ X0\ X1) \wedge ((k1\_funct\_1\ X4\ X0 = X2) \wedge (k1\_funct\_1\ X4\ X1 = X3))) \Rightarrow (X4 = k4\_funct\_4\ X0\ X1\ X2\ X3)) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((X0 \neq X1) \Rightarrow (k1\_funct\_1\ (k4\_funct\_4\ X0\ X1\ X2\ X3)\ X0 = X2)) \wedge (k1\_funct\_1\ (k4\_funct\_4\ X0\ X1\ X2\ X3)\ X1 = X3) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(k9\_xtuple\_0\ (k4\_funct\_4\ X0\ X1\ X2\ X3) = k2\_tarski\ X0\ X1) \wedge (r1\_tarski\ (k10\_xtuple\_0\ (k4\_funct\_4\ X0\ X1\ X2\ X3))\ (k2\_tarski\ X2\ X3)) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(r1\_tarski\ (k2\_tarski\ X0\ X1)\ X2) \Leftrightarrow ((X0 \in X2) \wedge (X1 \in X2)) \tag{4}$$

Assume the following.

$$\forall X0.(v1\_relat\_1\ X0) \Rightarrow (\forall X1.(v1\_relat\_1\ X1) \Rightarrow ((r1\_tarski\ (k10\_xtuple\_0\ X0)\ (k9\_xtuple\_0\ X1)) \Rightarrow (k9\_xtuple\_0\ (k3\_relat\_1\ X0\ X1) = k9\_xtuple\_0\ X0))) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((r1\_tarski\ X0\ X1) \wedge (r1\_tarski\ X1\ X2)) \Rightarrow (r1\_tarski\ X0\ X2) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X1)\wedge(v1\_funct\_1\ X1))\Rightarrow(\forall X2.\ ((v1\_relat\_1\ X2)\wedge(v1\_funct\_1\ X2))\Rightarrow((X0\in k9\_xtuple\_0\ X1)\Rightarrow(k1\_funct\_1\ (k3\_relat\_1\ X1\ X2)\ X0 = k1\_funct\_1\ X2\ (k1\_funct\_1\ X1\ X0)))) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.r1\_tarski\ X0\ X0 \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1\ X0)\wedge(v1\_funct\_1\ X0))\wedge((v1\_relat\_1\ X1)\wedge(v1\_funct\_1\ X1)))\Rightarrow((v1\_relat\_1\ (k3\_relat\_1\ X0\ X1))\wedge(v1\_funct\_1\ (k3\_relat\_1\ X0\ X1))) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(v1\_relat\_1\ (k4\_funct\_4\ X0\ X1\ X2\ X3))\wedge(v1\_funct\_1\ (k4\_funct\_4\ X0\ X1\ X2\ X3)) \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.v1\_relat\_1\ (k3\_relat\_1\ X0\ X1) \tag{11}$$

Theorem 1

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((v1\_relat\_1\ X4)\wedge(v1\_funct\_1\ X4))\Rightarrow(((X2\in k9\_xtuple\_0\ X4)\wedge(X3\in k9\_xtuple\_0\ X4))\Rightarrow((X0 = X1)\vee(k3\_relat\_1\ (k4\_funct\_4\ X0\ X1\ X2\ X3)\ X4 = k4\_funct\_4\ X0\ X1\ (k1\_funct\_1\ X4\ X2)\ (k1\_funct\_1\ X4\ X3))))$$