t12_rfunct_1 (TMP9vM3V8gDK7ad7iw7j2k8EfSouFRmxAq1)

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Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v1\_valued\_0 : \iota \Rightarrow o$ be given. Let $v1\_xcmplx\_0 : \iota \Rightarrow o$ be given. Let $k24\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k18\_valued\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k3\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge (v1\_valued\_0\ X0))) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_valued\_0\ X1))) \Rightarrow (\forall X2.k1\_funct\_1\ (k18\_valued\_1\ X0\ X1)\ X2 = k3\_xcmplx\_0\ (k1\_funct\_1\ X0\ X2)\ (k1\_funct\_1\ X1\ X2))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((v1\_xcmplx\_0\ X0) \wedge ((v1\_xcmplx\_0\ X1) \wedge (v1\_xcmplx\_0\ X2))) \Rightarrow (k3\_xcmplx\_0\ (k3\_xcmplx\_0\ X0\ X1)\ X2 = k3\_xcmplx\_0\ X0\ (k3\_xcmplx\_0\ X1\ X2)) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge (v1\_valued\_0\ X0))) \Rightarrow (v1\_xcmplx\_0\ (k1\_funct\_1\ X0\ X1)) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge (v1\_valued\_0\ X0))) \wedge (v1\_xcmplx\_0\ X0\ X1)) \Rightarrow ((v1\_relat\_1\ (k24\_valued\_1\ X0\ X1)) \wedge ((v1\_funct\_1\ (k24\_valued\_1\ X0\ X1)) \wedge (v1\_valued\_0\ (k24\_valued\_1\ X0\ X1)))) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xcmplx\_0\ X0) \wedge (v1\_xcmplx\_0\ X1)) \Rightarrow (v1\_xcmplx\_0\ (k3\_xcmplx\_0\ X0\ X1)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_valued\_0\ X0)))\wedge((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_valued\_0\ X1))))\Rightarrow((v1\_relat\_1\ (k18\_valued\_1\ X0\ X1))\wedge((v1\_funct\_1\ (k18\_valued\_1\ X0\ X1))\wedge(v1\_valued\_0\ (k18\_valued\_1\ X0\ X1)))) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_valued\_0\ X0)))\wedge(v1\_xcmplx\_0\ X1))\Rightarrow((v1\_relat\_1\ (k24\_valued\_1\ X0\ X1))\wedge(v1\_funct\_1\ (k24\_valued\_1\ X0\ X1))) \tag{7}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_valued\_0\ X0)))\Rightarrow(\forall X1.(v1\_xcmplx\_0\ X1)\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge(v1\_funct\_1\ X2))\Rightarrow((X2 = k24\_valued\_1\ X0\ X1)\Leftrightarrow((k9\_xtuple\_0\ X2 = k9\_xtuple\_0\ X0)\wedge(\forall X3.(X3 \in k9\_xtuple\_0\ X2)\Rightarrow(k1\_funct\_1\ X2\ X3 = k3\_xcmplx\_0\ X1\ (k1\_funct\_1\ X0\ X3))))))) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(X2 = k3\_xboole\_0\ X0\ X1)\Leftrightarrow(\forall X3.(X3 \in X2)\Leftrightarrow((X3 \in X0)\wedge(X3 \in X1))) \tag{9}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_valued\_0\ X0)))\Rightarrow(\forall X1.((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_valued\_0\ X1)))\Rightarrow(\forall X2.((v1\_relat\_1\ X2)\wedge(v1\_funct\_1\ X2))\Rightarrow((X2 = k18\_valued\_1\ X0\ X1)\Leftrightarrow((k9\_xtuple\_0\ X2 = k3\_xboole\_0\ (k9\_xtuple\_0\ X0)\ (k9\_xtuple\_0\ X1))\wedge(\forall X3.(X3 \in k9\_xtuple\_0\ X2)\Rightarrow(k1\_funct\_1\ X2\ X3 = k3\_xcmplx\_0\ (k1\_funct\_1\ X0\ X3)\ (k1\_funct\_1\ X1\ X3))))))) \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xcmplx\_0\ X0)\wedge(v1\_xcmplx\_0\ X1))\Rightarrow(k3\_xcmplx\_0\ X0\ X1 = k3\_xcmplx\_0\ X1\ X0) \tag{11}$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_valued\_0\ X0)))\wedge((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_valued\_0\ X1))))\Rightarrow(k18\_valued\_1\ X0\ X1 = k18\_valued\_1\ X1\ X0) \tag{12}$$

Theorem 1

$$\forall X0.((v1\_relat\_1\ X0)\wedge((v1\_funct\_1\ X0)\wedge(v1\_valued\_0\ X0)))\Rightarrow(\forall X1.((v1\_relat\_1\ X1)\wedge((v1\_funct\_1\ X1)\wedge(v1\_valued\_0\ X1)))\Rightarrow(\forall X2.(v1\_xcmplx\_0\ X2)\Rightarrow(k24\_valued\_1\ (k18\_valued\_1\ X0\ X1)\ X2 = k18\_valued\_1\ (k24\_valued\_1\ X0\ X2)\ X1)))$$