

t42_compos_1

(TMJ8ZZ7M2UTZrkmYnvm9WLRzPj1FWUNEnKQ)

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Let $l1_compos_1 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_compos_1 : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $k6_compos_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_compos_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k61_valued_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.(v7_ordinal1\ X0) \Rightarrow (\forall X1.(l1_compos_1\ X1) \Rightarrow (\forall X2. \\
& ((v1_relat_1\ X2) \wedge ((v4_relat_1\ X2\ k5_numbers) \wedge ((v5_relat_1\ X2 \\
& (u1_compos_1\ X1)) \wedge ((v1_funct_1\ X2) \wedge (v1_finset_1\ X2)))))) \Rightarrow (\forall X3. \\
& ((v1_relat_1\ X3) \wedge ((v4_relat_1\ X3\ k5_numbers) \wedge ((v5_relat_1\ X3 \\
& (u1_compos_1\ X1)) \wedge ((v1_funct_1\ X3) \wedge (v1_finset_1\ X3)))))) \Rightarrow (k5_compos_1 \\
& X1\ (k1_funct_4\ X2\ X3)\ X0 = k1_funct_4\ (k5_compos_1\ X1\ X2\ X0)\ (k5_compos_1 \\
& X1\ X3\ X0))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1_relat_1\ X0) \wedge (v1_funct_1\ X0)) \Rightarrow (\forall X1.((\\
& v1_relat_1\ X1) \wedge (v1_funct_1\ X1)) \Rightarrow (\forall X2.(v7_ordinal1\ X2) \Rightarrow \\
& (k61_valued_1\ (k1_funct_4\ X0\ X1)\ X2 = k1_funct_4\ (k61_valued_1 \\
& X0\ X2)\ (k61_valued_1\ X1\ X2))))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((v1_relat_1\ X1) \wedge ((v4_relat_1 \\
& X1\ X0) \wedge (v1_funct_1\ X1))) \wedge ((v1_relat_1\ X2) \wedge ((v4_relat_1\ X2\ X0) \wedge \\
& (v1_funct_1\ X2)))) \Rightarrow ((v1_relat_1\ (k1_funct_4\ X1\ X2)) \wedge ((v4_relat_1 \\
& (k1_funct_4\ X1\ X2)\ X0) \wedge (v1_funct_1\ (k1_funct_4\ X1\ X2))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(((v1_relat_1\ X0) \wedge ((v1_funct_1\ X0) \wedge (v1_finset_1 \\
& X0))) \wedge ((v1_relat_1\ X1) \wedge ((v1_funct_1\ X1) \wedge (v1_finset_1\ X1)))) \Rightarrow \\
& ((v1_relat_1\ (k1_funct_4\ X0\ X1)) \wedge ((v1_funct_1\ (k1_funct_4\ X0 \\
& X1)) \wedge (v1_finset_1\ (k1_funct_4\ X0\ X1))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1_relat_1 X1)\wedge((v5_relat_1 \\ & X1 X0)\wedge(v1_funct_1 X1)))\wedge((v1_relat_1 X2)\wedge((v5_relat_1 X2 X0)\wedge \\ & (v1_funct_1 X2))))\Rightarrow((v1_relat_1 (k1_funct_4 X1 X2))\wedge((v5_relat_1 \\ & (k1_funct_4 X1 X2) X0)\wedge(v1_funct_1 (k1_funct_4 X1 X2)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((l1_compos_1 X0)\wedge(((v1_relat_1 \\ & X1)\wedge((v4_relat_1 X1 k5_numbers)\wedge((v5_relat_1 X1 (u1_compos_1 \\ & X0))\wedge((v1_funct_1 X1)\wedge(v1_finset_1 X1))))))\wedge(v7_ordinal1 X2)))\Rightarrow \\ & ((v1_relat_1 (k5_compos_1 X0 X1 X2))\wedge((v4_relat_1 (k5_compos_1 \\ & X0 X1 X2) k5_numbers)\wedge((v5_relat_1 (k5_compos_1 X0 X1 X2) (u1_compos_1 \\ & X0))\wedge((v1_funct_1 (k5_compos_1 X0 X1 X2))\wedge(v1_finset_1 (k5_compos_1 \\ & X0 X1 X2)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1_relat_1 X0)\wedge(v1_funct_1 X0))\wedge((\\ & v1_relat_1 X1)\wedge(v1_funct_1 X1)))\Rightarrow((v1_relat_1 (k1_funct_4 X0 \\ & X1))\wedge(v1_funct_1 (k1_funct_4 X0 X1))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_compos_1 X0)\Rightarrow(\forall X1.((v1_relat_1 X1)\wedge((\\ & v4_relat_1 X1 k5_numbers)\wedge((v5_relat_1 X1 (u1_compos_1 X0))\wedge \\ & ((v1_funct_1 X1)\wedge(v1_finset_1 X1))))))\Rightarrow(\forall X2.(v7_ordinal1 \\ & X2)\Rightarrow(k6_compos_1 X0 X1 X2 = k61_valued_1 (k5_compos_1 X0 X1 X2) X2)) \end{aligned} \quad (8)$$

Theorem 1

$$\begin{aligned} & \forall X0.(l1_compos_1 X0)\Rightarrow(\forall X1.((v1_relat_1 X1)\wedge((\\ & v4_relat_1 X1 k5_numbers)\wedge((v5_relat_1 X1 (u1_compos_1 X0))\wedge \\ & ((v1_funct_1 X1)\wedge(v1_finset_1 X1))))))\Rightarrow(\forall X2.((v1_relat_1 \\ & X2)\wedge((v4_relat_1 X2 k5_numbers)\wedge((v5_relat_1 X2 (u1_compos_1 \\ & X0))\wedge((v1_funct_1 X2)\wedge(v1_finset_1 X2))))))\Rightarrow(\forall X3.(v7_ordinal1 \\ & X3)\Rightarrow(k6_compos_1 X0 (k1_funct_4 X1 X2) X3 = k1_funct_4 (k6_compos_1 \\ & X0 X1 X3) (k6_compos_1 X0 X2 X3)))) \end{aligned}$$