

t12_fvsum_1 (TMGJk-
SJrt81ZEmCnpVuy4RRQwaYLM2FhYxB)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v5_vectsp_1 : \iota \Rightarrow o$ be given. Let $l6_algstr_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r7_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_fvsum_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $r6_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_partfun1 : \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $l1_algstr_0 : \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l5_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_algstr_0 : \iota \Rightarrow o$ be given. Let $l4_struct_0 : \iota \Rightarrow o$ be given. Let $l3_struct_0 : \iota \Rightarrow o$ be given. Let $l2_struct_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 X0) \Rightarrow \\
& (\forall X2. ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 \\
& X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& X0 X0) X0)))) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (\\
& k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 X0 X0) X0)))) \Rightarrow (\forall X4. ((v1_funct_1 X4) \wedge ((v1_funct_2 \\
& X4 X0 X0) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))) \Rightarrow \\
& (((r6_binop_1 X0 X2 X3) \wedge (r2_funct_2 X0 X0 X4 (k10_funcop_1 X0 X0 \\
& X2 X1 (k6_partfun1 X0)))) \Rightarrow (r7_binop_1 X0 X4 X3))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 X0))) \Rightarrow (r6_binop_1 (u1_struct_0 X0) (u2_algstr_0 X0) (u1_algstr_0 X0)) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X2)\wedge ((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))))\wedge((v1_funct_1 X3)\wedge((v1_funct_2 X3 X0 X1)\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))))))\Rightarrow(r2_funct_2 X0 X1 X2 X2) \quad (3)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_struct_0 X0))\Rightarrow(\neg v1_xboole_0 (u1_struct_0 X0)) \quad (4)$$

Assume the following.

$$\forall X0.(l3_algstr_0 X0)\Rightarrow((v1_funct_1 (u2_algstr_0 X0))\wedge ((v1_funct_2 (u2_algstr_0 X0) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0))\wedge(m1_subset_1 (u2_algstr_0 X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)))))) \quad (5)$$

Assume the following.

$$\forall X0.(l1_algstr_0 X0)\Rightarrow((v1_funct_1 (u1_algstr_0 X0))\wedge ((v1_funct_2 (u1_algstr_0 X0) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0))\wedge(m1_subset_1 (u1_algstr_0 X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)))))) \quad (6)$$

Assume the following.

$$\forall X0.(l6_algstr_0 X0)\Rightarrow((l2_algstr_0 X0)\wedge(l5_algstr_0 X0)) \quad (7)$$

Assume the following.

$$\forall X0.(l5_algstr_0 X0)\Rightarrow((l4_algstr_0 X0)\wedge(l4_struct_0 X0)) \quad (8)$$

Assume the following.

$$\forall X0.(l4_algstr_0 X0)\Rightarrow((l3_struct_0 X0)\wedge(l3_algstr_0 X0)) \quad (9)$$

Assume the following.

$$\forall X0.(l2_struct_0 X0)\Rightarrow(l1_struct_0 X0) \quad (10)$$

Assume the following.

$$\forall X0.(l2_algstr_0 X0)\Rightarrow((l2_struct_0 X0)\wedge(l1_algstr_0 X0)) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \wedge \\ & (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow ((v1_funct_1 (k1_fvsum_1 \\ & X0 X1)) \wedge ((v1_funct_2 (k1_fvsum_1 X0 X1) (u1_struct_0 X0) (u1_struct_0 \\ & X0)) \wedge (m1_subset_1 (k1_fvsum_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 \\ & (u1_struct_0 X0) (u1_struct_0 X0)))))) \end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k1_fvsum_1 X0 X1 = k10_funcop_1 \\ & (u1_struct_0 X0) (u1_struct_0 X0) (u2_algstr_0 X0) X1 (k6_partfun1 \\ & (u1_struct_0 X0)))) \end{aligned} \tag{13}$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v5_vectsp_1 X0) \wedge (l6_algstr_0 \\ & X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (r7_binop_1 \\ & (u1_struct_0 X0) (k1_fvsum_1 X0 X1) (u1_algstr_0 X0))) \end{aligned}$$