

t31_bilinear

(TMVcERdSt2B5TshRFhr7YwBcrGm3ZGaAbCD)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $l1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ 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 $v4_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_vectsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_hahnban1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (l1_vectsp_1 X1 X0)) \Rightarrow (\forall X2. ((\neg v2_struct_0 \\
& X2) \wedge (l1_vectsp_1 X2 X0)) \Rightarrow (\forall X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 \\
& X3 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 \\
& X0)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0)))))) \Rightarrow (\forall X4. \\
& (m1_subset_1 X4 (u1_struct_0 X2)) \Rightarrow ((k1_relset_1 (u1_struct_0 \\
& X1) (k8_bilinear X0 X1 X2 X3 X4) = u1_struct_0 X1) \wedge ((r1_tarski (k2_relset_1 \\
& (u1_struct_0 X0) (k8_bilinear X0 X1 X2 X3 X4)) (u1_struct_0 X0)) \wedge \\
& (\forall X5. (m1_subset_1 X5 (u1_struct_0 X1)) \Rightarrow (k3_funct_2 (u1_struct_0 \\
& X1) (u1_struct_0 X0) (k8_bilinear X0 X1 X2 X3 X4) X5 = k2_binop_1 (\\
& u1_struct_0 X1) (u1_struct_0 X2) (u1_struct_0 X0) X3 X5 X4))))))))) \\
& \tag{1}
\end{aligned}$$

Assume the following.

$$\forall X0. (l3_algstr_0 X0) \Rightarrow (l1_struct_0 X0) \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((\neg v2_struct_0 \\
& X0)\wedge(l1_struct_0 X0))\wedge(((\neg v2_struct_0 X1)\wedge(l1_vectsp_1 X1 X0))\wedge \\
& (((\neg v2_struct_0 X2)\wedge(l1_vectsp_1 X2 X0))\wedge((v1_funct_1 X3)\wedge \\
& ((v1_funct_2 X3 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) \\
& (u1_struct_0 X0))\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 \\
& X0))))))\wedge(m1_subset_1 X4 (u1_struct_0 X2))))))\Rightarrow((v1_funct_1 \\
& (k8_bilinear X0 X1 X2 X3 X4))\wedge((v1_funct_2 (k8_bilinear X0 X1 X2 \\
& X3 X4) (u1_struct_0 X1) (u1_struct_0 X0))\wedge(m1_subset_1 (k8_bilinear \\
& X0 X1 X2 X3 X4) (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 \\
& X0))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\
& X0)\wedge(l1_struct_0 X0))\wedge(((\neg v2_struct_0 X1)\wedge(l1_vectsp_1 X1 X0))\wedge \\
& ((m1_subset_1 X2 (u1_struct_0 X0))\wedge(m1_subset_1 X3 (u1_struct_0 \\
& X1))))))\Rightarrow(m1_subset_1 (k4_vectsp_1 X0 X1 X2 X3) (u1_struct_0 X1))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge(l3_algstr_0 X0))\Rightarrow(\forall X1. \\
& ((\neg v2_struct_0 X1)\wedge(l1_vectsp_1 X1 X0))\Rightarrow(\forall X2.((v1_funct_1 \\
& X2)\wedge((v1_funct_2 X2 (u1_struct_0 X1) (u1_struct_0 X0))\wedge(m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X0))))))\Rightarrow \\
& ((v1_hahnban1 X2 X0 X1)\Leftrightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 \\
& X1))\Rightarrow(\forall X4.(m1_subset_1 X4 (u1_struct_0 X0))\Rightarrow(k3_funct_2 \\
& (u1_struct_0 X1) (u1_struct_0 X0) X2 (k4_vectsp_1 X0 X1 X4 X3) = k6_algstr_0 \\
& X0 X4 (k3_funct_2 (u1_struct_0 X1) (u1_struct_0 X0) X2 X3))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge(l3_algstr_0 X0))\Rightarrow(\forall X1. \\
& ((\neg v2_struct_0 X1)\wedge(l1_vectsp_1 X1 X0))\Rightarrow(\forall X2.((\neg v2_struct_0 \\
& X2)\wedge(l1_vectsp_1 X2 X0))\Rightarrow(\forall X3.((v1_funct_1 X3)\wedge((v1_funct_2 \\
& X3 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 \\
& X0))\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0))))))\Rightarrow((v4_bilinear \\
& X3 X0 X1 X2)\Leftrightarrow(\forall X4.(m1_subset_1 X4 (u1_struct_0 X2))\Rightarrow(v1_hahnban1 \\
& (k8_bilinear X0 X1 X2 X3 X4) X0 X1))))))
\end{aligned} \tag{6}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_vectsp_1 X1 X0)) \Rightarrow (\forall X2.((\neg v2_struct_0 \\ & X2) \wedge (l1_vectsp_1 X2 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ & X1)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X2)) \Rightarrow (\forall X5. \\ & (m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow (\forall X6.((v1_funct_1 X6) \wedge \\ & ((v1_funct_2 X6 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) \\ & (u1_struct_0 X0)) \wedge (m1_subset_1 X6 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 \\ & X0)))))) \Rightarrow ((v4_bilinear X6 X0 X1 X2) \Rightarrow (k2_binop_1 (u1_struct_0 \\ & X1) (u1_struct_0 X2) (u1_struct_0 X0) X6 (k4_vectsp_1 X0 X1 X5 X3) \\ & X4 = k6_algstr_0 X0 X5 (k2_binop_1 (u1_struct_0 X1) (u1_struct_0 \\ & X2) (u1_struct_0 X0) X6 X3 X4)))))))))) \end{aligned}$$