

t41_bilinear
(TMKJLuSk9CUmHPVkJWeRffkASZ8SZLjDtwSF)

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Let $l2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_vectsp_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_bilinear : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (r1_tarski\ X0\ X1) \Leftrightarrow (\forall X2. (X2 \in X0) \Rightarrow (X2 \in X1)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l2_struct_0\ X0) \Rightarrow (\forall X1. ((\neg v2_struct_0\ X1) \wedge \\ & (l1_vectsp_1\ X1\ X0)) \Rightarrow (\forall X2. ((v1_funct_1\ X2) \wedge ((v1_funct_2 \\ & X2\ (k2_zfmisc_1\ (u1_struct_0\ X1)\ (u1_struct_0\ X1))\ (u1_struct_0 \\ & X0)) \wedge (m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k2_zfmisc_1 \\ & (u1_struct_0\ X1)\ (u1_struct_0\ X1))\ (u1_struct_0\ X0)))))) \Rightarrow (k12_bilinear \\ & X0\ X1\ X2 = ReplSep\ (toSet\ (\lambda X3 : \iota. m1_subset_1\ X3\ (u1_struct_0 \\ & X1)))\ (\lambda X3 : \iota. k2_binop_1\ (u1_struct_0\ X1)\ (u1_struct_0\ X1) \\ & (u1_struct_0\ X0)\ X2\ X3\ X3 = k4_struct_0\ X0)\ (\lambda X3 : \iota. X3))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l2_struct_0 X0) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge \\
& (l1_vectsp_1 X1 X0)) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge (l1_vectsp_1 \\
& X2 X0)) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0)) \wedge (m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 \\
& X2)) (u1_struct_0 X0)))))) \Rightarrow (k11_bilinear X0 X1 X2 X3 = ReplSep (\\
& \text{toset } (\lambda X4 : \iota.m1_subset_1 X4 (u1_struct_0 X2)) (\lambda X4 : \\
& \iota.\forall X5.(m1_subset_1 X5 (u1_struct_0 X1)) \Rightarrow (k2_binop_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2) (u1_struct_0 X0) X3 X5 X4 = k4_struct_0 \\
& X0)) (\lambda X4 : \iota.X4))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l2_struct_0 X0) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge \\
& (l1_vectsp_1 X1 X0)) \Rightarrow (\forall X2.((\neg v2_struct_0 X2) \wedge (l1_vectsp_1 \\
& X2 X0)) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2)) (u1_struct_0 X0)) \wedge (m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 \\
& X2)) (u1_struct_0 X0)))))) \Rightarrow (k10_bilinear X0 X1 X2 X3 = ReplSep (\\
& \text{toset } (\lambda X4 : \iota.m1_subset_1 X4 (u1_struct_0 X1)) (\lambda X4 : \\
& \iota.\forall X5.(m1_subset_1 X5 (u1_struct_0 X2)) \Rightarrow (k2_binop_1 \\
& (u1_struct_0 X1) (u1_struct_0 X2) (u1_struct_0 X0) X3 X4 X5 = k4_struct_0 \\
& X0)) (\lambda X4 : \iota.X4))))))
\end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(l2_struct_0 X0) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge \\
& (l1_vectsp_1 X1 X0)) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 \\
& X2 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X1)) (u1_struct_0 \\
& X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X1)) (u1_struct_0 X0)))))) \Rightarrow ((r1_tarski \\
& (k10_bilinear X0 X1 X1 X2) (k12_bilinear X0 X1 X2)) \wedge (r1_tarski (\\
& k11_bilinear X0 X1 X1 X2) (k12_bilinear X0 X1 X2))))))
\end{aligned}$$