

t3_midsp_2

(TMGNhj3UEHshTfATVgDL5FUpr2WgkMNcBqs)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ 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 $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $r1_midsp_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow \\ & (\forall X2.((\neg v2_struct_0 X2) \wedge ((v13_algstr_0 X2) \wedge ((v3_rlvect_1 \\ & X2) \wedge ((v4_rlvect_1 X2) \wedge (l2_algstr_0 X2)))))) \Rightarrow (\forall X3.((v1_funct_1 \\ & X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 X0 X0) (u1_struct_0 X2)) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) (u1_struct_0 \\ & X2)))))) \Rightarrow ((r1_midsp_2 X0 X2 X3) \Rightarrow (k2_binop_1 X0 X0 (u1_struct_0 \\ & X2) X3 X1 X1 = k4_struct_0 X2)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge \\ & (l2_algstr_0 X1)) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 \\ & X2 (k2_zfmisc_1 X0 X0) (u1_struct_0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) (u1_struct_0 X1)))))) \Rightarrow ((r1_midsp_2 \\ & X0 X1 X2) \Leftrightarrow ((\forall X3.(m1_subset_1 X3 X0) \Rightarrow (\forall X4.(m1_subset_1 \\ & X4 (u1_struct_0 X1)) \Rightarrow (\exists X5.(m1_subset_1 X5 X0) \wedge (k2_binop_1 \\ & X0 X0 (u1_struct_0 X1) X2 X3 X5 = X4)))))) \wedge ((\forall X3.(m1_subset_1 \\ & X3 X0) \Rightarrow (\forall X4.(m1_subset_1 X4 X0) \Rightarrow (\forall X5.(m1_subset_1 \\ & X5 X0) \Rightarrow ((k2_binop_1 X0 X0 (u1_struct_0 X1) X2 X3 X4 = k2_binop_1 X0 \\ & X0 (u1_struct_0 X1) X2 X3 X5) \Rightarrow (X4 = X5)))))) \wedge (\forall X3.(m1_subset_1 \\ & X3 X0) \Rightarrow (\forall X4.(m1_subset_1 X4 X0) \Rightarrow (\forall X5.(m1_subset_1 \\ & X5 X0) \Rightarrow (k1_algstr_0 X1 (k2_binop_1 X0 X0 (u1_struct_0 X1) X2 X3 X4) \\ & (k2_binop_1 X0 X0 (u1_struct_0 X1) X2 X4 X5) = k2_binop_1 X0 X0 (u1_struct_0 \\ & X1) X2 X3 X5))))))))) \end{aligned} \tag{2}$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow \\ & (\forall X2.(m1_subset_1 X2 X0) \Rightarrow (\forall X3.((\neg v2_struct_0 X3) \wedge \\ & ((v13_algstr_0 X3) \wedge (v3_rlvect_1 X3) \wedge (v4_rlvect_1 X3) \wedge (l2_algstr_0 \\ & X3)))))) \Rightarrow (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (k2_zfmisc_1 \\ & X0 X0) (u1_struct_0 X3)) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) (u1_struct_0 X3)))))) \Rightarrow (((r1_midsp_2 X0 X3 \\ & X4) \wedge (k2_binop_1 X0 X0 (u1_struct_0 X3) X4 X1 X2 = k4_struct_0 X3)) \Rightarrow \\ & (X1 = X2)))))) \end{aligned}$$