

t8_midsp_2

(TMG56Qs7CCqan4gPht6VJCph1pwCX7NJZ7G)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_midsp_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $r1_midsp_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_midsp_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_midsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k2_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 X0) \Rightarrow \\ & (\forall X2. (m1_subset_1 X2 X0) \Rightarrow (\forall X3. ((\neg v2_struct_0 X3) \wedge \\ & ((v13_algstr_0 X3) \wedge ((v3_rlvect_1 X3) \wedge ((v4_rlvect_1 X3) \wedge (l2_algstr_0 \\ & X3)))))) \Rightarrow (\forall X4. ((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (k2_zfmisc_1 \\ & X0 X0) (u1_struct_0 X3)) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) (u1_struct_0 X3)))))) \Rightarrow ((r1_midsp_2 X0 X3 X4) \Rightarrow \\ & (k2_binop_1 X0 X0 (u1_struct_0 X3) X4 X1 X2 = k4_algstr_0 X3 (k2_binop_1 \\ & X0 X0 (u1_struct_0 X3) X4 X2 X1)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \tag{2}$$

Assume the following.

$$\forall X0. (l1_midsp_1 X0) \Rightarrow (l1_struct_0 X0) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge (l1_midsp_1 \\ & X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 \\ & X0)))) \Rightarrow (m1_subset_1 (k1_midsp_1 X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_midsp_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2_struct_0 X1) \wedge (l2_algstr_0 X1)) \Rightarrow (\forall X2.((v1_funct_1 \\
& X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 \\
& X0)) (u1_struct_0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 \\
& X1)))))) \Rightarrow ((v1_midsp_2 X2 X0 X1) \Leftrightarrow (\forall X3.(m1_subset_1 X3 (\\
& u1_struct_0 X0)) \Rightarrow (\forall X4.(m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\
& (\forall X5.(m1_subset_1 X5 (u1_struct_0 X0)) \Rightarrow ((k1_midsp_1 X0 \\
& X3 X4 = X5) \Leftrightarrow (k2_binop_1 (u1_struct_0 X0) (u1_struct_0 X0) (u1_struct_0 \\
& X1) X2 X3 X5 = k2_binop_1 (u1_struct_0 X0) (u1_struct_0 X0) (u1_struct_0 \\
& X1) X2 X5 X4)))))))))) \\
& \tag{5}
\end{aligned}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_midsp_1 X0)) \Rightarrow (\forall X1. \\
& (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\
& (u1_struct_0 X0)) \Rightarrow (\forall X3.((\neg v2_struct_0 X3) \wedge ((v13_algstr_0 \\
& X3) \wedge ((v3_rlvect_1 X3) \wedge (v4_rlvect_1 X3) \wedge (l2_algstr_0 X3)))))) \Rightarrow \\
& (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (k2_zfmisc_1 (u1_struct_0 \\
& X0) (u1_struct_0 X0)) (u1_struct_0 X3)) \wedge (m1_subset_1 X4 (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) \\
& (u1_struct_0 X3)))))) \Rightarrow (((r1_midsp_2 (u1_struct_0 X0) X3 X4) \wedge \\
& (v1_midsp_2 X4 X0 X3)) \Rightarrow (k1_midsp_1 X0 X1 X2 = k1_midsp_1 X0 X2 X1))))))
\end{aligned}$$