

t5_monoid_0

(TMHMu2YwPRNBQKg1ZW1kXvLXoDUQXauZENq)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l3_algstr_0 : \iota \Rightarrow o$ be given. Let $v1_group_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k6_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_algstr_0 : \iota \Rightarrow \iota$ be given. Let $k1_group_1 : \iota \Rightarrow \iota$ 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. Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v1_group_1 X0) \wedge (l3_algstr_0 X0))) \Rightarrow (k4_binop_1 (u1_struct_0 X0) (u2_algstr_0 X0) = k1_group_1 X0) \quad (1)$$

Assume the following.

$$\forall X0. (l3_algstr_0 X0) \Rightarrow ((v1_funct_1 (u2_algstr_0 X0)) \wedge ((v1_funct_2 (u2_algstr_0 X0) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u2_algstr_0 X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)))))) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (m1_subset_1 (k4_binop_1 X0 X1) X0) \quad (3)$$

Assume the following.

$$\forall X0. (l3_algstr_0 X0) \Rightarrow ((v1_group_1 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((X1 = k1_group_1 X0) \Leftrightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((k6_algstr_0 X0 X2 X1 = X2) \wedge (k6_algstr_0 X0 X1 X2 = X2)))))) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.(l3_algstr_0 X0) \Rightarrow ((v1_group_1 X0) \Leftrightarrow (\exists X1.(m1_subset_1 \\ X1 (u1_struct_0 X0)) \wedge (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ X0)) \Rightarrow ((k6_algstr_0 X0 X2 X1 = X2) \wedge (k6_algstr_0 X0 X1 X2 = X2)))))) \end{aligned} \quad (5)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l3_algstr_0 X0)) \Rightarrow ((v1_group_1 \\ X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((k6_algstr_0 \\ X0 (k4_binop_1 (u1_struct_0 X0) (u2_algstr_0 X0)) X1 = X1) \wedge (k6_algstr_0 \\ X0 X1 (k4_binop_1 (u1_struct_0 X0) (u2_algstr_0 X0)) = X1)))) \end{aligned}$$