

t13_msaterm (TMNnSZM- CATEzyh2pWBr691xVi8EVhmfFNMp)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v2_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_msaterm : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_card_3 : \iota \Rightarrow \iota$ be given. Let $k8_msafree : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_tarski : \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k4_dtconstr : \iota \Rightarrow \iota$ be given. Let $k5_msafree : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_prob_2 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ X0))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 \\ X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 \\ X0)))))) \Rightarrow (k3_tarski (k10_xtuple_0 (k8_msafree X0 X1)) = k4_dtconstr \\ (k5_msafree X0 X1)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge \\ (l1_msualg_1 X0))) \wedge ((v1_relat_1 X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 \\ X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 \\ X0)))))) \Rightarrow ((v1_relat_1 (k8_msafree X0 X1)) \wedge ((v4_relat_1 (k8_msafree \\ X0 X1) (u1_struct_0 X0)) \wedge ((v1_funct_1 (k8_msafree X0 X1)) \wedge ((v1_partfun1 \\ (k8_msafree X0 X1) (u1_struct_0 X0)) \wedge (v1_prob_2 (k8_msafree X0 \\ X1)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. ((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow (k3_card_3 X0 = k3_tarski (k10_xtuple_0 X0)) \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ X0))) \Rightarrow (\forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 (u1_struct_0 \\ X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 X0)))))) \Rightarrow \\ (k1_msaterm X0 X1 = k4_dtconstr (k5_msafree X0 X1)) \end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 \\ & X0)))))) \Rightarrow (k1_msaterm X0 X1 = k3_card_3 (k8_msafree X0 X1))) \end{aligned}$$