

# t2\_msafree (TMb- wZT4QbJVk3Vk53LvwUuVoqiFvL6unfXY)

October 27, 2020

Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k3\_msafree : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_tarski : \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_msafree : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (1)$$

Assume the following.

$$v1\_xboole\_0 k1\_xboole\_0 \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow ((v1\_relat\_1 (k3\_msafree X0 X1)) \wedge (v1\_funct\_1 (k3\_msafree X0 X1))) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.k4\_tarski X0 X1 = k2\_tarski (k2\_tarski X0 X1) (k1\_tarski X0) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (\forall X2.((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((X2 = k3\_msafree X0 X1) \Leftrightarrow ((k9\_xtuple\_0 X2 = X0) \wedge (\forall X3.(X3 \in X0) \Rightarrow (k1\_funct\_1 X2 X3 = k2\_msafree X0 X1 X3)))))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (\forall X2.(X2 \in X0) \Rightarrow (\forall X3.(X3 = k2\_msafree X0 X1 X2) \Leftrightarrow (\forall X4.(X4 \in X3) \Leftrightarrow (\exists X5.(X5 \in k1\_funct\_1 X1 X2) \wedge (X4 = k4\_tarski X5 X2)))))) \quad (6)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Leftrightarrow (\forall X1. \neg X1 \in X0) \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. k2\_tarSKI X0 X1 = k2\_tarSKI X1 X0 \quad (8)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge \\ & (v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0))) \Rightarrow (\forall X2. (X2 \in X0) \Rightarrow \\ & ((\neg(k1\_funct\_1 X1 X2 \neq k1\_xboole\_0) \wedge (k1\_funct\_1 (k3\_msafree X0 \\ X1) X2 = k1\_xboole\_0)) \wedge (\neg(k1\_funct\_1 (k3\_msafree X0 X1) X2 \neq k1\_xboole\_0) \wedge \\ & (k1\_funct\_1 X1 X2 = k1\_xboole\_0)))) \end{aligned}$$