# t14_osafree (TMMeK2pfkXow2BbJyxpjQ6XSeBLsymqri5G)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v11\_struct\_0 : \iota \Rightarrow o$ be given. Let $v4\_osalg\_1 : \iota \Rightarrow o$ be given. Let $v5\_osalg\_1 : \iota \Rightarrow o$ be given. Let $l3\_osalg\_1 : \iota \Rightarrow o$ 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 $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_card\_3 : \iota \Rightarrow \iota$ be given. Let $u3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8\_osafree : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1\_dtconstr : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_osafree : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5\_trees\_3 : \iota \Rightarrow \iota$ be given. Let $k4\_dtconstr : \iota \Rightarrow \iota$ be given. Let $k3\_tarski : \iota \Rightarrow \iota$ be given. Let $k10\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k5\_osafree : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $m1\_trees\_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $l1\_msualg\_1 : \iota \Rightarrow o$ be given. Let $m2\_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $k6\_finseq\_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2\_msualg\_1 : \iota \Rightarrow \iota$ be given. Let $g3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v12\_osalg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $v1\_dtconstr : \iota \Rightarrow o$ be given. Let $v2\_dtconstr : \iota \Rightarrow o$ be given. Let $v3\_dtconstr : \iota \Rightarrow o$ be given. Let $l1\_lang1 : \iota \Rightarrow o$ be given. Let $v1\_lang1 : \iota \Rightarrow o$ be given. Let $l1\_osalg\_1 : \iota \Rightarrow o$ be given. Let $l2\_osalg\_1 : \iota \Rightarrow o$ be given. Let $l1\_orders\_2 : \iota \Rightarrow o$ be given. Let $l3\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7\_osafree : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v11\_osalg\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4\_msualg\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((\neg v11\_struct\_0\ X0) \wedge ((v4\_osalg\_1\ X0) \wedge ((v5\_osalg\_1\ X0) \wedge (l3\_osalg\_1\ X0))))) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge ((v2\_relat\_1\ X1) \wedge ((v4\_relat\_1\ X1\ (u1\_struct\_0\ X0)) \wedge ((v1\_funct\_1\ X1) \wedge (v1\_partfun1\ X1\ (u1\_struct\_0\ X0))))))) \Rightarrow (k3\_tarski\ (k10\_xtuple\_0\ (k5\_osafree\ X0\ X1)) = k4\_dtconstr\ (k2\_osafree\ X0\ X1))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0\ X0)\wedge(((\neg v1\_xboole\_0\ X1)\wedge(m1\_trees\_3\ X1\ X0))\wedge((\neg v1\_xboole\_0\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ X1)))))\Rightarrow(\forall X3.(m1\_dtconstr\ X3\ X0\ X1\ X2)\Leftrightarrow(m1\_subset\_1\ X3\ X2)) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\wedge(((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (u1\_struct\_0\ X0)))))\wedge(m2\_pboole\ X2\ (u4\_struct\_0\ X0)\ (k3\_relat\_1\ (u1\_msualg\_1\ X0)\ (k6\_finseq\_2\ (u1\_struct\_0\ X0)\ X1))\ (k3\_relat\_1\ (u2\_msualg\_1\ X0)\ X1))))\Rightarrow(\forall X3.\ \forall X4.\forall X5.(g3\_msualg\_1\ X0\ X1\ X2 = g3\_msualg\_1\ X3\ X4\ X5)\Rightarrow((X0 = X3)\wedge((X1 = X4)\wedge(X2 = X5)))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\wedge((v1\_relat\_1\ X1)\wedge((v2\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (u1\_struct\_0\ X0))))))\Rightarrow((v3\_msualg\_1\ (k8\_osafree\ X0\ X1)\ X0)\wedge((v4\_msualg\_1\ (k8\_osafree\ X0\ X1)\ X0)\wedge(v12\_osalg\_1\ (k8\_osafree\ X0\ X1)\ X0))) \tag{4}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_struct\_0\ X0))\Rightarrow(\neg v1\_xboole\_0\ (u1\_struct\_0\ X0)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\wedge((v1\_relat\_1\ X1)\wedge((v2\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (u1\_struct\_0\ X0))))))\Rightarrow((v1\_dtconstr\ (k2\_osafree\ X0\ X1))\wedge((v2\_dtconstr\ (k2\_osafree\ X0\ X1))\wedge(v3\_dtconstr\ (k2\_osafree\ X0\ X1)))) \tag{6}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v1\_dtconstr\ X0)\wedge(l1\_lang1\ X0)))\Rightarrow(\neg v1\_xboole\_0\ (k4\_dtconstr\ X0)) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\wedge((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (u1\_struct\_0\ X0))))))\Rightarrow((\neg v2\_struct\_0\ (k2\_osafree\ X0\ X1))\wedge(v1\_lang1\ (k2\_osafree\ X0\ X1))) \tag{8}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(\forall X1.(m1\_trees\_3\ X1\ X0)\Rightarrow(\neg v1\_xboole\_0\ X1)) \tag{9}$$

Assume the following.

$$\forall X0.(l3\_osalg\_1\ X0)\Rightarrow((l1\_osalg\_1\ X0)\wedge(l2\_osalg\_1\ X0)) \tag{10}$$

Assume the following.

$$\forall X0.(l2\_osalg\_1\ X0)\Rightarrow((l1\_msualg\_1\ X0)\wedge(l1\_orders\_2\ X0)) \tag{11}$$

Assume the following.

$$\forall X0.(l1\_lang1\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{12}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\wedge((v1\_relat\_1\ X1)\wedge((v2\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (u1\_struct\_0\ X0)))))))\Rightarrow((v12\_osalg\_1\ (k8\_osafree\ X0\ X1)\ X0)\wedge(l3\_msualg\_1\ (k8\_osafree\ X0\ X1)\ X0)) \tag{13}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\wedge((v1\_relat\_1\ X1)\wedge((v2\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (u1\_struct\_0\ X0)))))))\Rightarrow(m2\_pboole\ (k7\_osafree\ X0\ X1)\ (u4\_struct\_0\ X0)\ (k3\_relat\_1\ (u1\_msualg\_1\ X0)\ (k6\_finseq\_2\ (u1\_struct\_0\ X0)\ (k5\_osafree\ X0\ X1)))\ (k3\_relat\_1\ (u2\_msualg\_1\ X0)\ (k5\_osafree\ X0\ X1))) \tag{14}$$

Assume the following.

$$\forall X0.(\neg v1\_xboole\_0\ X0)\Rightarrow(m1\_trees\_3\ (k5\_trees\_3\ X0)\ X0) \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\wedge((v1\_relat\_1\ X1)\wedge((v2\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (u1\_struct\_0\ X0)))))))\Rightarrow((v1\_relat\_1\ (k5\_osafree\ X0\ X1))\wedge((v4\_relat\_1\ (k5\_osafree\ X0\ X1)\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ (k5\_osafree\ X0\ X1))\wedge((v1\_partfun1\ (k5\_osafree\ X0\ X1)\ (u1\_struct\_0\ X0))\wedge(v11\_osalg\_1\ (k5\_osafree\ X0\ X1)\ X0)))))) \tag{16}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge(l1\_lang1\ X0))\Rightarrow(m1\_subset\_1\ (k4\_dtconstr\ X0)\ (k1\_zfmisc\_1\ (k5\_trees\_3\ (u1\_struct\_0\ X0)))) \tag{17}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\wedge((v1\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (u1\_struct\_0\ X0))))))\Rightarrow(l1\_lang1\ (k2\_osafree\ X0\ X1)) \tag{18}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0)\wedge(v1\_funct\_1\ X0))\Rightarrow(k3\_card\_3\ X0 = k3\_tarski\ (k10\_xtuple\_0\ X0)) \tag{19}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\Rightarrow(\forall X1.((v1\_relat\_1\ X1)\wedge((v2\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (u1\_struct\_0\ X0)))))))\Rightarrow(k8\_osafree\ X0\ X1 = g3\_msualg\_1\ X0\ (k5\_osafree\ X0\ X1)\ (k7\_osafree\ X0\ X1))) \tag{20}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge(l1\_msualg\_1\ X0))\wedge(l3\_msualg\_1\ X1\ X0))\Rightarrow((v3\_msualg\_1\ X1\ X0)\Rightarrow(X1 = g3\_msualg\_1\ X0\ (u3\_msualg\_1\ X0\ X1)\ (u4\_msualg\_1\ X0\ X1))) \tag{21}$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((\neg v11\_struct\_0\ X0)\wedge((v4\_osalg\_1\ X0)\wedge((v5\_osalg\_1\ X0)\wedge(l3\_osalg\_1\ X0)))))\Rightarrow(\forall X1.((v1\_relat\_1\ X1)\wedge((v2\_relat\_1\ X1)\wedge((v4\_relat\_1\ X1\ (u1\_struct\_0\ X0))\wedge((v1\_funct\_1\ X1)\wedge(v1\_partfun1\ X1\ (u1\_struct\_0\ X0)))))))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k3\_card\_3\ (u3\_msualg\_1\ X0\ (k8\_osafree\ X0\ X1))))\Leftrightarrow(m1\_dtconstr\ X2\ (u1\_struct\_0\ (k2\_osafree\ X0\ X1))\ (k5\_trees\_3\ (u1\_struct\_0\ (k2\_osafree\ X0\ X1)))\ (k4\_dtconstr\ (k2\_osafree\ X0\ X1))))) $$