

t16\_memstr\_0 (TM-  
RWp2ak4xmFUztQ7kFnqWPhZ7KJUxJAGkT)

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Let  $v1\_setfam\_1 : \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  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  $v5\_funct\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k5\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k16\_funcop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. k1\_funct\_1 (k16\_funcop\_1 X0 X1) X0 = X1 \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_setfam\_1 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge \\ & ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge (l1\_memstr\_0 X1 X0)))) \Rightarrow \\ & (\forall X2. (v7\_ordinal1 X2) \Rightarrow (k4\_struct\_0 X1 \in k9\_xtuple\_0 (k7\_memstr\_0 \\ & X0 X1 X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (\forall X2. \\ & ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2)) \Rightarrow ((X0 \in k9\_xtuple\_0 X1) \Rightarrow (k1\_funct\_1 \\ & (k1\_funct\_4 X2 X1) X0 = k1\_funct\_1 X1 X0))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 \\ & X1 X0) \wedge (v1\_funct\_1 X1))) \wedge ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 X0) \wedge \\ & (v1\_funct\_1 X2)))) \Rightarrow ((v1\_relat\_1 (k1\_funct\_4 X1 X2)) \wedge ((v4\_relat\_1 \\ & (k1\_funct\_4 X1 X2) X0) \wedge (v1\_funct\_1 (k1\_funct\_4 X1 X2)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1\_relat\_1 X0)\wedge(v1\_funct\_1 \\ & X0))\wedge(((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v5\_funct\_1 X1 X0)))\wedge \\ & ((v1\_relat\_1 X2)\wedge((v1\_funct\_1 X2)\wedge(v5\_funct\_1 X2 X0))))\Rightarrow((v1\_relat\_1 (k1\_funct\_4 X1 X2))\wedge \\ & (v5\_funct\_1 (k1\_funct\_4 X1 X2) X0))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_setfam\_1 X0)\wedge(((\neg v2\_struct\_0 \\ & X1)\wedge((v2\_memstr\_0 X1 X0)\wedge((v3\_memstr\_0 X1 X0)\wedge(l1\_memstr\_0 X1 \\ & X0))))\wedge(v7\_ordinal1 X2)))\Rightarrow((v1\_relat\_1 (k7\_memstr\_0 X0 X1 X2))\wedge \\ & ((v4\_relat\_1 (k7\_memstr\_0 X0 X1 X2) (u1\_struct\_0 X1))\wedge((v1\_funct\_1 \\ & (k7\_memstr\_0 X0 X1 X2))\wedge(v5\_funct\_1 (k7\_memstr\_0 X0 X1 X2) (k2\_memstr\_0 \\ & X0 X1)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1\_setfam\_1 X0)\wedge(l1\_memstr\_0 X1 X0))\Rightarrow \\ & ((v1\_relat\_1 (k2\_memstr\_0 X0 X1))\wedge((v4\_relat\_1 (k2\_memstr\_0 \\ & X0 X1) (u1\_struct\_0 X1))\wedge((v1\_funct\_1 (k2\_memstr\_0 X0 X1))\wedge(v1\_partfun1 \\ & (k2\_memstr\_0 X0 X1) (u1\_struct\_0 X1)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\wedge(( \\ & v1\_relat\_1 X1)\wedge(v1\_funct\_1 X1)))\Rightarrow((v1\_relat\_1 (k1\_funct\_4 X0 \\ & X1))\wedge(v1\_funct\_1 (k1\_funct\_4 X0 X1))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_setfam\_1 X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0 X1)\wedge \\ & ((v2\_memstr\_0 X1 X0)\wedge((v3\_memstr\_0 X1 X0)\wedge(l1\_memstr\_0 X1 X0))))\Rightarrow \\ & (\forall X2.((v1\_relat\_1 X2)\wedge((v4\_relat\_1 X2 (u1\_struct\_0 X1))\wedge \\ & ((v1\_funct\_1 X2)\wedge(v5\_funct\_1 X2 (k2\_memstr\_0 X0 X1))))))\Rightarrow(k5\_memstr\_0 \\ & X0 X1 X2 = k1\_funct\_1 X2 (k4\_struct\_0 X1))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_setfam\_1 X0)\Rightarrow(\forall X1.((\neg v2\_struct\_0 X1)\wedge \\ & ((v2\_memstr\_0 X1 X0)\wedge((v3\_memstr\_0 X1 X0)\wedge(l1\_memstr\_0 X1 X0))))\Rightarrow \\ & (\forall X2.(v7\_ordinal1 X2)\Rightarrow(k7\_memstr\_0 X0 X1 X2 = k16\_funcop\_1 \\ & (k4\_struct\_0 X1) X2))) \end{aligned} \quad (10)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(\neg v1\_setfam\_1 X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge \\ & ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge (l1\_memstr\_0 X1 X0)))) \Rightarrow \\ & (\forall X2.((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 (u1\_struct\_0 X1)) \wedge \\ & ((v1\_funct\_1 X2) \wedge (v5\_funct\_1 X2 (k2\_memstr\_0 X0 X1)))))) \Rightarrow (\forall X3. \\ & (v7\_ordinal1 X3) \Rightarrow (k5\_memstr\_0 X0 X1 (k1\_funct\_4 X2 (k7\_memstr\_0 \\ & X0 X1 X3)) = X3))) \end{aligned}$$