

## t2\_amistd\_4

(TMKgfFyssq9fg1k7akwf1V5QfoWojDxPA5o9)

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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  $v3\_amistd\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_compos\_1 : \iota \Rightarrow \iota$  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  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_amistd\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k5\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_amistd\_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_funct\_7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_compos\_1 : \iota \Rightarrow o$  be given. Let  $k1\_ordinal1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1. \forall X2. \\ & \forall X3.(X2 \neq X3) \Rightarrow (k1\_funct\_1 (k2\_funct\_7 X0 X2 X1) X3 = k1\_funct\_1 \\ & \quad X0 X3)) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((\neg v1\_setfam\_1 \\ & X0) \wedge (((\neg v2\_struct\_0 X1) \wedge (v2\_memstr\_0 X1 X0) \wedge (v3\_memstr\_0 \\ & X1 X0) \wedge (l1\_extpro\_1 X1 X0)))) \wedge (((v1\_relat\_1 X2) \wedge (v4\_relat\_1 \\ & X2 (u1\_struct\_0 X1)) \wedge (v1\_funct\_1 X2) \wedge (v5\_funct\_1 X2 (k2\_memstr\_0 \\ & X0 X1)) \wedge (v1\_partfun1 X2 (u1\_struct\_0 X1)))))) \wedge ((m1\_subset\_1 \\ & X3 (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 X4 (k4\_memstr\_0 X0 X1 X3)))) \Rightarrow \\ & (k1\_amistd\_4 X0 X1 X2 X3 X4 = k2\_funct\_7 X2 X3 X4) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. (l1\_extpro\_1 X1 X0) \Rightarrow ((l1\_memstr\_0 X1 X0) \wedge (l1\_compos\_1 X1)) \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1\_setfam\_1 X0) \wedge \\
& (((v2\_memstr\_0 X1 X0) \wedge (l1\_extpro\_1 X1 X0)) \wedge ((m1\_subset\_1 X2 ( \\
& u1\_compos\_1 X1)) \wedge ((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 X3 (u1\_struct\_0 \\
& X1)) \wedge ((v1\_funct\_1 X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 X0 X1)) \wedge ( \\
& v1\_partfun1 X3 (u1\_struct\_0 X1)))))))) \Rightarrow ((v1\_relat\_1 (k2\_extpro\_1 \\
& X0 X1 X2 X3)) \wedge ((v4\_relat\_1 (k2\_extpro\_1 X0 X1 X2 X3) (u1\_struct\_0 \\
& X1)) \wedge ((v1\_funct\_1 (k2\_extpro\_1 X0 X1 X2 X3)) \wedge ((v5\_funct\_1 (k2\_extpro\_1 \\
& X0 X1 X2 X3) (k2\_memstr\_0 X0 X1)) \wedge (v1\_partfun1 (k2\_extpro\_1 X0 X1 \\
& X2 X3) (u1\_struct\_0 X1))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((\neg v1\_setfam\_1 \\
& X0) \wedge (((\neg v2\_struct\_0 X1) \wedge ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 \\
& X1 X0) \wedge (l1\_extpro\_1 X1 X0)))) \wedge (((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 \\
& X2 (u1\_struct\_0 X1)) \wedge ((v1\_funct\_1 X2) \wedge ((v5\_funct\_1 X2 (k2\_memstr\_0 \\
& X0 X1)) \wedge (v1\_partfun1 X2 (u1\_struct\_0 X1)))))) \wedge ((m1\_subset\_1 \\
& X3 (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 X4 (k4\_memstr\_0 X0 X1 X3)))))) \Rightarrow \\
& ((v1\_relat\_1 (k1\_amistd\_4 X0 X1 X2 X3 X4)) \wedge ((v4\_relat\_1 (k1\_amistd\_4 \\
& X0 X1 X2 X3 X4) (u1\_struct\_0 X1)) \wedge ((v1\_funct\_1 (k1\_amistd\_4 X0 X1 \\
& X2 X3 X4)) \wedge ((v5\_funct\_1 (k1\_amistd\_4 X0 X1 X2 X3 X4) (k2\_memstr\_0 \\
& X0 X1)) \wedge (v1\_partfun1 (k1\_amistd\_4 X0 X1 X2 X3 X4) (u1\_struct\_0 X1))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. (\neg v1\_setfam\_1 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge \\
& ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge (l1\_extpro\_1 X1 X0)))) \Rightarrow \\
& (\forall X2. (m1\_subset\_1 X2 (u1\_compos\_1 X1)) \Rightarrow ((v4\_amistd\_1 \\
& X2 X0 X1) \Leftrightarrow (\forall X3. ((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 X3 (u1\_struct\_0 \\
& X1)) \wedge ((v1\_funct\_1 X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 X0 X1)) \wedge ( \\
& v1\_partfun1 X3 (u1\_struct\_0 X1)))))) \Rightarrow (k1\_funct\_1 (k2\_extpro\_1 \\
& X0 X1 X2 X3) (k4\_struct\_0 X1) = k1\_ordinal1 (k5\_memstr\_0 X0 X1 X3))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. (\neg v1\_setfam\_1 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge \\
& ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge (l1\_memstr\_0 X1 X0)))) \Rightarrow \\
& (\forall X2. ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 (u1\_struct\_0 X1)) \wedge \\
& ((v1\_funct\_1 X2) \wedge ((v5\_funct\_1 X2 (k2\_memstr\_0 X0 X1))))) \Rightarrow (k5\_memstr\_0 \\
& X0 X1 X2 = k1\_funct\_1 X2 (k4\_struct\_0 X1)))
\end{aligned} \tag{7}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.(\neg v1\_setfam\_1 X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge \\ & ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge ((v3\_amistd\_1 X1 X0) \wedge \\ & (l1\_extpro\_1 X1 X0)))))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_compos\_1 \\ & X1)) \Rightarrow (\forall X3.((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 X3 (u1\_struct\_0 \\ & X1)) \wedge ((v1\_funct\_1 X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 X0 X1)) \wedge ( \\ & v1\_partfun1 X3 (u1\_struct\_0 X1)))))) \Rightarrow (\forall X4.(m1\_subset\_1 \\ & X4 (u1\_struct\_0 X1)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (k4\_memstr\_0 \\ & X0 X1 X4)) \Rightarrow ((v4\_amistd\_1 X2 X0 X1) \Rightarrow ((X4 = k4\_struct\_0 X1) \vee (k5\_memstr\_0 \\ & X0 X1 (k2\_extpro\_1 X0 X1 X2 (k1\_amistd\_4 X0 X1 X3 X4 X5)) = k5\_memstr\_0 \\ & X0 X1 (k1\_amistd\_4 X0 X1 (k2\_extpro\_1 X0 X1 X2 X3) X4 X5)))))))))) \end{aligned}$$