

t23\_extpro\_1  
(TMb2FTJH4VvRTryHiS9hFLzekRF3bE3nSn2)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. 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  $v3\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_compos\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  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  $r1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_compos\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.(m2\_subset\_1 X0 k1\_numbers k5\_numbers) \Rightarrow (\forall X1. \\
& (m2\_subset\_1 X1 k1\_numbers k5\_numbers) \Rightarrow ((r1\_xxreal\_0 X0 X1) \Rightarrow \\
& (\forall X2. ((\neg v1\_xboole\_0 X2) \wedge (\neg v1\_setfam\_1 X2)) \Rightarrow (\forall X3. \\
& ((\neg v2\_struct\_0 X3) \wedge ((v2\_memstr\_0 X3 X2) \wedge ((v3\_memstr\_0 X3 X2) \wedge \\
& ((v3\_extpro\_1 X3 X2) \wedge (l1\_extpro\_1 X3 X2)))))) \Rightarrow (\forall X4. ((v1\_relat\_1 \\
& X4) \wedge ((v4\_relat\_1 X4 k5\_numbers) \wedge ((v5\_relat\_1 X4 (u1\_compos\_1 \\
& X3)) \wedge (v1\_funct\_1 X4)))) \Rightarrow (\forall X5. ((v1\_relat\_1 X5) \wedge ((v4\_relat\_1 \\
& X5 (u1\_struct\_0 X3)) \wedge ((v1\_funct\_1 X5) \wedge ((v5\_funct\_1 X5 (k2\_memstr\_0 \\
& X2 X3)) \wedge (v1\_partfun1 X5 (u1\_struct\_0 X3)))))) \Rightarrow ((k3\_extpro\_1 \\
& X2 X3 X4 (k5\_extpro\_1 X2 X3 X4 X5 X0) = k2\_compos\_1 X3) \Rightarrow (k5\_extpro\_1 \\
& X2 X3 X4 X5 X1 = k5\_extpro\_1 X2 X3 X4 X5 X0))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v1\_xboole\_0 \\
& X0)\wedge(\neg v1\_setfam\_1 X0))\wedge(((\neg v2\_struct\_0 X1)\wedge((v2\_memstr\_0 X1 \\
& X0)\wedge((v3\_memstr\_0 X1 X0)\wedge((v3\_extpro\_1 X1 X0)\wedge(l1\_extpro\_1 X1 \\
& X0))))))\wedge(((v1\_relat\_1 X2)\wedge((v4\_relat\_1 X2 k5\_numbers)\wedge((v5\_relat\_1 \\
& X2 (u1\_compos\_1 X1))\wedge(v1\_funct\_1 X2)))))\wedge((v1\_relat\_1 X3)\wedge(( \\
& v4\_relat\_1 X3 (u1\_struct\_0 X1))\wedge((v1\_funct\_1 X3)\wedge((v5\_funct\_1 \\
& X3 (k2\_memstr\_0 X0 X1))\wedge(v1\_partfun1 X3 (u1\_struct\_0 X1))))))\Rightarrow \\
& (m2\_subset\_1 (k8\_extpro\_1 X0 X1 X2 X3) k1\_numbers k5\_numbers)
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v1\_xboole\_0 \\
& X0)\wedge(\neg v1\_setfam\_1 X0))\wedge(((\neg v2\_struct\_0 X1)\wedge((v2\_memstr\_0 X1 \\
& X0)\wedge((v3\_memstr\_0 X1 X0)\wedge((v3\_extpro\_1 X1 X0)\wedge(l1\_extpro\_1 X1 \\
& X0))))))\wedge(((v1\_relat\_1 X2)\wedge((v4\_relat\_1 X2 k5\_numbers)\wedge((v5\_relat\_1 \\
& X2 (u1\_compos\_1 X1))\wedge(v1\_funct\_1 X2)))))\wedge((v1\_relat\_1 X3)\wedge(( \\
& v4\_relat\_1 X3 (u1\_struct\_0 X1))\wedge((v1\_funct\_1 X3)\wedge((v5\_funct\_1 \\
& X3 (k2\_memstr\_0 X0 X1))\wedge(v1\_partfun1 X3 (u1\_struct\_0 X1))))))\Rightarrow \\
& ((v1\_relat\_1 (k6\_extpro\_1 X0 X1 X2 X3))\wedge((v4\_relat\_1 (k6\_extpro\_1 \\
& X0 X1 X2 X3) (u1\_struct\_0 X1))\wedge((v1\_funct\_1 (k6\_extpro\_1 X0 X1 X2 \\
& X3))\wedge((v5\_funct\_1 (k6\_extpro\_1 X0 X1 X2 X3) (k2\_memstr\_0 X0 X1))\wedge \\
& (v1\_partfun1 (k6\_extpro\_1 X0 X1 X2 X3) (u1\_struct\_0 X1))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0)\wedge(\neg v1\_setfam\_1 X0))\Rightarrow(\forall X1. \\
& ((\neg v2\_struct\_0 X1)\wedge((v2\_memstr\_0 X1 X0)\wedge((v3\_memstr\_0 X1 X0)\wedge \\
& ((v3\_extpro\_1 X1 X0)\wedge(l1\_extpro\_1 X1 X0))))\Rightarrow(\forall X2.((v1\_relat\_1 \\
& X2)\wedge((v4\_relat\_1 X2 k5\_numbers)\wedge((v5\_relat\_1 X2 (u1\_compos\_1 \\
& X1))\wedge(v1\_funct\_1 X2))))\Rightarrow(\forall X3.((v1\_relat\_1 X3)\wedge((v4\_relat\_1 \\
& X3 (u1\_struct\_0 X1))\wedge((v1\_funct\_1 X3)\wedge((v5\_funct\_1 X3 (k2\_memstr\_0 \\
& X0 X1))\wedge(v1\_partfun1 X3 (u1\_struct\_0 X1))))))\Rightarrow((r1\_extpro\_1 \\
& X0 X1 X2 X3)\Rightarrow(\forall X4.((v1\_relat\_1 X4)\wedge((v4\_relat\_1 X4 (u1\_struct\_0 \\
& X1))\wedge((v1\_funct\_1 X4)\wedge((v5\_funct\_1 X4 (k2\_memstr\_0 X0 X1))\wedge \\
& v1\_partfun1 X4 (u1\_struct\_0 X1))))))\Rightarrow((X4 = k6\_extpro\_1 X0 X1 X2 \\
& X3)\Leftrightarrow(\exists X5.(m2\_subset\_1 X5 k1\_numbers k5\_numbers)\wedge((X4 = \\
& k5\_extpro\_1 X0 X1 X2 X3 X5)\wedge(k3\_extpro\_1 X0 X1 X2 X4 = k2\_compos\_1 \\
& X1))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (\neg v1\_setfam\_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge \\
& ((v3\_extpro\_1 X1 X0) \wedge (l1\_extpro\_1 X1 X0)))))) \Rightarrow (\forall X2.((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& X1)) \wedge (v1\_funct\_1 X2)))))) \Rightarrow (\forall X3.((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 \\
& X3 (u1\_struct\_0 X1)) \wedge ((v1\_funct\_1 X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 \\
& X0 X1)) \wedge (v1\_partfun1 X3 (u1\_struct\_0 X1)))))) \Rightarrow ((r1\_extpro\_1 \\
& X0 X1 X2 X3) \Rightarrow (\forall X4.(m2\_subset\_1 X4 k1\_numbers k5\_numbers) \Rightarrow \\
& ((X4 = k8\_extpro\_1 X0 X1 X2 X3) \Leftrightarrow ((k3\_extpro\_1 X0 X1 X2 (k5\_extpro\_1 \\
& X0 X1 X2 X3 X4) = k2\_compos\_1 X1) \wedge (\forall X5.(m2\_subset\_1 X5 k1\_numbers \\
& k5\_numbers) \Rightarrow ((k3\_extpro\_1 X0 X1 X2 (k5\_extpro\_1 X0 X1 X2 X3 X5) = \\
& k2\_compos\_1 X1) \Rightarrow (r1\_xreal\_0 X4 X5))))))))))
\end{aligned} \tag{5}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (\neg v1\_setfam\_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge \\
& ((v3\_extpro\_1 X1 X0) \wedge (l1\_extpro\_1 X1 X0)))))) \Rightarrow (\forall X2.((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& X1)) \wedge (v1\_funct\_1 X2)))))) \Rightarrow (\forall X3.((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 \\
& X3 (u1\_struct\_0 X1)) \wedge ((v1\_funct\_1 X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 \\
& X0 X1)) \wedge (v1\_partfun1 X3 (u1\_struct\_0 X1)))))) \Rightarrow ((r1\_extpro\_1 \\
& X0 X1 X2 X3) \Rightarrow (k6\_extpro\_1 X0 X1 X2 X3 = k5\_extpro\_1 X0 X1 X2 X3 (k8\_extpro\_1 \\
& X0 X1 X2 X3))))))
\end{aligned}$$