

# t35\_extpro\_1 (TM- NYc8wUbYBroUhh1mWTYQM3q9pPVE2eE9s)

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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  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  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  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $r1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_compos\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

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

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (\neg v1\_setfam\_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge \\
& ((v3\_extpro\_1 X1 X0) \wedge (l1\_extpro\_1 X1 X0)))))) \Rightarrow (\forall X2.((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& X1)) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 k5\_numbers)))))) \Rightarrow (\forall X3. \\
& ((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 X3 (u1\_struct\_0 X1)) \wedge ((v1\_funct\_1 \\
& X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 X0 X1)) \wedge (v1\_partfun1 X3 (u1\_struct\_0 \\
& X1)))))) \Rightarrow ((\exists X4.(m2\_subset\_1 X4 k1\_numbers k5\_numbers) \wedge \\
& (r1\_compos\_1 X1 X2 (k5\_memstr\_0 X0 X1 (k5\_extpro\_1 X0 X1 X2 X3 X4)))) \Rightarrow \\
& (\forall X4.(m2\_subset\_1 X4 k1\_numbers k5\_numbers) \Rightarrow (k6\_extpro\_1 \\
& X0 X1 X2 X3 = k6\_extpro\_1 X0 X1 X2 (k5\_extpro\_1 X0 X1 X2 X3 X4)))))) \Rightarrow \\
& (2)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (\neg v1\_setfam\_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge \\
& ((v3\_extpro\_1 X1 X0) \wedge (l1\_extpro\_1 X1 X0)))))) \Rightarrow (\forall X2.((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& X1)) \wedge (v1\_funct\_1 X2)))))) \Rightarrow (\forall X3.((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 \\
& X3 (u1\_struct\_0 X1)) \wedge ((v1\_funct\_1 X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 \\
& X0 X1)) \wedge (v1\_partfun1 X3 (u1\_struct\_0 X1)))))) \Rightarrow ((r1\_extpro\_1 \\
& X0 X1 X2 X3) \Leftrightarrow (\exists X4.(m2\_subset\_1 X4 k1\_numbers k5\_numbers) \wedge \\
& (r1\_compos\_1 X1 X2 (k5\_memstr\_0 X0 X1 (k5\_extpro\_1 X0 X1 X2 X3 X4)))))) \Rightarrow \\
& (3)
\end{aligned}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (\neg v1\_setfam\_1 X0)) \Rightarrow (\forall X1. \\
& ((\neg v2\_struct\_0 X1) \wedge ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge \\
& ((v3\_extpro\_1 X1 X0) \wedge (l1\_extpro\_1 X1 X0)))))) \Rightarrow (\forall X2.((v1\_relat\_1 \\
& X2) \wedge ((v4\_relat\_1 X2 k5\_numbers) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 \\
& X1)) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 k5\_numbers)))))) \Rightarrow (\forall X3. \\
& ((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 X3 (u1\_struct\_0 X1)) \wedge ((v1\_funct\_1 \\
& X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 X0 X1)) \wedge (v1\_partfun1 X3 (u1\_struct\_0 \\
& X1)))))) \Rightarrow (\forall X4.(m2\_subset\_1 X4 k1\_numbers k5\_numbers) \Rightarrow \\
& ((r1\_extpro\_1 X0 X1 X2 (k5\_extpro\_1 X0 X1 X2 X3 X4)) \Rightarrow (k6\_extpro\_1 \\
& X0 X1 X2 (k5\_extpro\_1 X0 X1 X2 X3 X4) = k6\_extpro\_1 X0 X1 X2 X3)))))) \Rightarrow \\
& (3)
\end{aligned}$$