

# t28\_extpro\_1 (TMZnPbimjJE- HqWq qwvbwW9y3W3DVANBz54u)

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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  $l1\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_compos\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $l1\_compos\_1 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $l1\_memstr\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k3\_extpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0 X1) \Rightarrow \\ & (\forall X2.((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 X0) \wedge ((v5\_relat\_1 \\ & X2 X1) \wedge ((v1\_funct\_1 X2) \wedge (v1\_partfun1 X2 X0)))))) \Rightarrow (\forall X3. \\ & (m1\_subset\_1 X3 X0) \Rightarrow (k1\_funct\_1 X2 X3 = k7\_partfun1 X1 X2 X3))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2. (m2\_subset\_1 \\ & X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1)) \end{aligned} \quad (2)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((l1\_compos\_1 X0) \wedge (((v1\_relat\_1 \\ & X1) \wedge ((v4\_relat\_1 X1 k5\_numbers) \wedge ((v5\_relat\_1 X1 (u1\_compos\_1 \\ & X0)) \wedge ((v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 k5\_numbers)))))) \wedge (v7\_ordinal1 \\ & X2))) \Rightarrow (k3\_compos\_1 X0 X1 X2 = k1\_funct\_1 X1 X2) \end{aligned} \quad (4)$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1) \wedge (v3\_ordinal1 k4\_ordinal1) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. (l1\_extpro\_1 X1 X0) \Rightarrow ((l1\_memstr\_0 X1 X0) \wedge (l1\_compos\_1 X1)) \quad (6)$$

Assume the following.

$$m1\_subset\_1 k5\_numbers (k1\_zfmisc\_1 k1\_numbers) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v1\_setfam\_1 X0) \wedge (((\neg v2\_struct\_0 \\ & X1) \wedge ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge (l1\_memstr\_0 X1 \\ & X0)))))) \wedge ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 (u1\_struct\_0 X1)) \wedge \\ & (v1\_funct\_1 X2) \wedge (v5\_funct\_1 X2 (k2\_memstr\_0 X0 X1)))))) \Rightarrow (m2\_subset\_1 \\ & (k5\_memstr\_0 X0 X1 X2) k1\_numbers k5\_numbers) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v1\_setfam\_1 X0) \wedge \\ & (((\neg v2\_struct\_0 X1) \wedge ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge \\ & (l1\_extpro\_1 X1 X0)))))) \wedge (((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 (u1\_struct\_0 \\ & X1)) \wedge ((v1\_funct\_1 X2) \wedge ((v5\_funct\_1 X2 (k2\_memstr\_0 X0 X1)) \wedge \\ & v1\_partfun1 X2 (u1\_struct\_0 X1)))))) \wedge ((v1\_relat\_1 X3) \wedge ((v5\_relat\_1 \\ & X3 (u1\_compos\_1 X1)) \wedge (v1\_funct\_1 X3)))))) \Rightarrow ((v1\_relat\_1 (k4\_extpro\_1 \\ & X0 X1 X2 X3) \wedge ((v4\_relat\_1 (k4\_extpro\_1 X0 X1 X2 X3) (u1\_struct\_0 \\ & X1)) \wedge ((v1\_funct\_1 (k4\_extpro\_1 X0 X1 X2 X3) \wedge ((v5\_funct\_1 (k4\_extpro\_1 \\ & X0 X1 X2 X3) (k2\_memstr\_0 X0 X1)) \wedge (v1\_partfun1 (k4\_extpro\_1 X0 X1 \\ & X2 X3) (u1\_struct\_0 X1)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_setfam\_1 X0) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge \\ & ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge (l1\_memstr\_0 X1 X0)))) \Rightarrow \\ & (\forall X2. ((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 (u1\_struct\_0 X1)) \wedge \\ & ((v1\_funct\_1 X2) \wedge (v5\_funct\_1 X2 (k2\_memstr\_0 X0 X1)))))) \Rightarrow (k5\_memstr\_0 \\ & X0 X1 X2 = k1\_funct\_1 X2 (k4\_struct\_0 X1))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_setfam\_1 X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge \\
& ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge (l1\_extpro\_1 X1 X0)))) \Rightarrow \\
& (\forall X2.((v1\_relat\_1 X2) \wedge ((v4\_relat\_1 X2 (u1\_struct\_0 X1)) \wedge \\
& ((v1\_funct\_1 X2) \wedge ((v5\_funct\_1 X2 (k2\_memstr\_0 X0 X1)) \wedge (v1\_partfun1 \\
& X2 (u1\_struct\_0 X1)))))) \Rightarrow (\forall X3.((v1\_relat\_1 X3) \wedge ((v5\_relat\_1 \\
& X3 (u1\_compos\_1 X1)) \wedge (v1\_funct\_1 X3))) \Rightarrow (k4\_extpro\_1 X0 X1 X2 X3 = \\
& k2\_extpro\_1 X0 X1 (k3\_extpro\_1 X0 X1 X3 X2) X2)))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_setfam\_1 X0) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge \\
& ((v2\_memstr\_0 X1 X0) \wedge ((v3\_memstr\_0 X1 X0) \wedge (l1\_extpro\_1 X1 X0)))) \Rightarrow \\
& (\forall X2.((v1\_relat\_1 X2) \wedge ((v5\_relat\_1 X2 (u1\_compos\_1 X1)) \wedge \\
& (v1\_funct\_1 X2))) \Rightarrow (\forall X3.((v1\_relat\_1 X3) \wedge ((v4\_relat\_1 \\
& X3 (u1\_struct\_0 X1)) \wedge ((v1\_funct\_1 X3) \wedge ((v5\_funct\_1 X3 (k2\_memstr\_0 \\
& X0 X1)) \wedge (v1\_partfun1 X3 (u1\_struct\_0 X1)))))) \Rightarrow (k3\_extpro\_1 X0 \\
& X1 X2 X3 = k7\_partfun1 (u1\_compos\_1 X1) X2 (k5\_memstr\_0 X0 X1 X3))))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge (v5\_relat\_1 \\
& X1 X0)) \Rightarrow ((v1\_xboole\_0 X1) \wedge ((v1\_relat\_1 X1) \wedge (v5\_relat\_1 X1 X0))))
\end{aligned} \tag{13}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ( \\
& (v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 X1) \wedge (v1\_partfun1 X1 X0)))) \Rightarrow ( \\
& (\neg v1\_xboole\_0 X1) \wedge ((v1\_relat\_1 X1) \wedge ((v4\_relat\_1 X1 X0) \wedge ((v1\_funct\_1 \\
& X1) \wedge (v1\_partfun1 X1 X0))))))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\
& X0)) \Rightarrow (v1\_xboole\_0 X1))
\end{aligned} \tag{16}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (\neg v1\_setfam\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v2\_struct\_0 X1) \wedge (v2\_memstr\_0 X1 X0) \wedge (v3\_memstr\_0 X1 X0) \wedge \\ & (l1\_extpro\_1 X1 X0))) \Rightarrow (\forall X2.((v1\_relat\_1 X2) \wedge (v4\_relat\_1 \\ & X2 k5\_numbers) \wedge (v5\_relat\_1 X2 (u1\_compos\_1 X1)) \wedge (v1\_funct\_1 \\ & X2) \wedge (v1\_partfun1 X2 k5\_numbers)))) \Rightarrow (\forall X3.((v1\_relat\_1 \\ & X3) \wedge (v4\_relat\_1 X3 (u1\_struct\_0 X1)) \wedge (v1\_funct\_1 X3) \wedge (v5\_funct\_1 \\ & X3 (k2\_memstr\_0 X0 X1)) \wedge (v1\_partfun1 X3 (u1\_struct\_0 X1)))) \Rightarrow \\ & (\forall X4.(m1\_subset\_1 X4 (u1\_compos\_1 X1)) \Rightarrow (k1\_funct\_1 (k2\_extpro\_1 \\ & X0 X1 (k3\_compos\_1 X1 X2 (k5\_memstr\_0 X0 X1 X3)) X3) (k4\_struct\_0 \\ & X1) = k5\_memstr\_0 X0 X1 (k4\_extpro\_1 X0 X1 X3 X2)))) \end{aligned}$$