

t4\_intpro\_1  
(TMHXXLbzGPEmoH7iG9kyFFi5vsoKc4To3eS)

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Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_intpro\_1 : \iota$  be given. Let  $k3\_intpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_intpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_intpro\_1 : \iota \Rightarrow \iota$  be given. Let  $v8\_intpro\_1 : \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_intpro\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_intpro\_1 : \iota$  be given. Assume the following.

$$\forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 k1\_intpro\_1)) \Rightarrow (m1\_subset\_1 (k7\_intpro\_1 X0) (k1\_zfmisc\_1 k1\_intpro\_1)) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 k1\_intpro\_1) \wedge (m1\_subset\_1 X1 k1\_intpro\_1)) \Rightarrow (m1\_subset\_1 (k4\_intpro\_1 X0 X1) k1\_intpro\_1) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_subset\_1 X0 k1\_intpro\_1) \wedge (m1\_subset\_1 X1 k1\_intpro\_1)) \Rightarrow (m1\_subset\_1 (k3\_intpro\_1 X0 X1) k1\_intpro\_1) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 k1\_intpro\_1)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 k1\_intpro\_1)) \Rightarrow ((X1 = k7\_intpro\_1 \\ & X0) \Leftrightarrow (\forall X2.(m1\_subset\_1 X2 k1\_intpro\_1) \Rightarrow ((X2 \in X1) \Leftrightarrow (\forall X3. \\ & (m1\_subset\_1 X3 (k1\_zfmisc\_1 k1\_intpro\_1)) \Rightarrow (((v8\_intpro\_1 X3) \wedge \\ & (r1\_tarski X0 X3)) \Rightarrow (X2 \in X3)))))) \quad (4) \end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 k1\_intpro\_1)) \Rightarrow ((v8\_intpro\_1 \\
& X0) \Leftrightarrow (\forall X1.(m1\_subset\_1 X1 k1\_intpro\_1) \Rightarrow (\forall X2.(m1\_subset\_1 \\
& X2 k1\_intpro\_1) \Rightarrow (\forall X3.(m1\_subset\_1 X3 k1\_intpro\_1) \Rightarrow (( \\
& k3\_intpro\_1 X1 (k3\_intpro\_1 X2 X1) \in X0) \wedge ((k3\_intpro\_1 (k3\_intpro\_1 \\
& X1 (k3\_intpro\_1 X2 X3)) (k3\_intpro\_1 (k3\_intpro\_1 X1 X2) (k3\_intpro\_1 \\
& X1 X3)) \in X0) \wedge ((k3\_intpro\_1 (k4\_intpro\_1 X1 X2) X1 \in X0) \wedge ((k3\_intpro\_1 \\
& (k4\_intpro\_1 X1 X2) X2 \in X0) \wedge ((k3\_intpro\_1 X1 (k3\_intpro\_1 X2 (k4\_intpro\_1 \\
& X1 X2)) \in X0) \wedge ((k3\_intpro\_1 X1 (k5\_intpro\_1 X1 X2) \in X0) \wedge ((k3\_intpro\_1 \\
& X2 (k5\_intpro\_1 X1 X2) \in X0) \wedge ((k3\_intpro\_1 (k3\_intpro\_1 X1 X3) ( \\
& k3\_intpro\_1 (k3\_intpro\_1 X2 X3) (k3\_intpro\_1 (k5\_intpro\_1 X1 X2) \\
& X3)) \in X0) \wedge ((k3\_intpro\_1 k2\_intpro\_1 X1 \in X0) \wedge (((X1 \in X0) \wedge (k3\_intpro\_1 \\
& X1 X2 \in X0)) \Rightarrow (X2 \in X0))))))))))))) \\
& \tag{5}
\end{aligned}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 k1\_intpro\_1)) \Rightarrow (\forall X1. \\
& (m1\_subset\_1 X1 k1\_intpro\_1) \Rightarrow (\forall X2.(m1\_subset\_1 X2 k1\_intpro\_1) \Rightarrow \\
& (k3\_intpro\_1 (k4\_intpro\_1 X1 X2) X2 \in k7\_intpro\_1 X0)))
\end{aligned}$$