

t8\_normform  
(TMPYKDN1UBeyib6jxK4tvq4ykYi2AVZmkXW)

October 27, 2020

Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v4\_finsub\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_normform : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_normform : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v4\_finsub\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge (v4\_finsub\_1 X1)) \Rightarrow (\forall X2.(m1\_subset\_1 \\ & X2 (k2\_zfmisc\_1 X0 X1)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1)) \Rightarrow (k2\_normform X0 X1 X2 (k1\_normform X0 X1 X3 X2) = X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v4\_finsub\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge (v4\_finsub\_1 X1)) \Rightarrow (\forall X2.(m1\_subset\_1 \\ & X2 (k2\_zfmisc\_1 X0 X1)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1)) \Rightarrow (k1\_normform X0 X1 X2 (k2\_normform X0 X1 X3 X2) = X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v4\_finsub\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge (v4\_finsub\_1 X1)) \Rightarrow (\forall X2.(m1\_subset\_1 \\ & X2 (k2\_zfmisc\_1 X0 X1)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (k2\_zfmisc\_1 X0 X1)) \Rightarrow (k2\_normform \\ & X0 X1 X2 (k1\_normform X0 X1 X3 X4) = k1\_normform X0 X1 (k2\_normform \\ & X0 X1 X2 X3) (k2\_normform X0 X1 X2 X4)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v4\_finsub\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge (v4\_finsub\_1 X1)) \Rightarrow (\forall X2.(m1\_subset\_1 \\ & X2 (k2\_zfmisc\_1 X0 X1)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (k2\_zfmisc\_1 X0 X1)) \Rightarrow (k1\_normform \\ & X0 X1 (k1\_normform X0 X1 X2 X3) X4 = k1\_normform X0 X1 X2 (k1\_normform \\ & X0 X1 X3 X4)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v1\_xboole\_0 \\ & X0)\wedge(v4\_finsub\_1 X0))\wedge(((\neg v1\_xboole\_0 X1)\wedge(v4\_finsub\_1 X1))\wedge \\ & ((m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1))\wedge(m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1))))))\Rightarrow(m1\_subset\_1 (k2\_normform X0 X1 X2 X3) (k2\_zfmisc\_1 \\ & X0 X1)) \end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v1\_xboole\_0 \\ & X0)\wedge(v4\_finsub\_1 X0))\wedge(((\neg v1\_xboole\_0 X1)\wedge(v4\_finsub\_1 X1))\wedge \\ & ((m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1))\wedge(m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1))))))\Rightarrow(m1\_subset\_1 (k1\_normform X0 X1 X2 X3) (k2\_zfmisc\_1 \\ & X0 X1)) \end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v1\_xboole\_0 \\ & X0)\wedge(v4\_finsub\_1 X0))\wedge(((\neg v1\_xboole\_0 X1)\wedge(v4\_finsub\_1 X1))\wedge \\ & ((m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1))\wedge(m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1))))))\Rightarrow(k2\_normform X0 X1 X2 X3 = k2\_normform X0 X1 X3 X2) \end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v1\_xboole\_0 \\ & X0)\wedge(v4\_finsub\_1 X0))\wedge(((\neg v1\_xboole\_0 X1)\wedge(v4\_finsub\_1 X1))\wedge \\ & ((m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1))\wedge(m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1))))))\Rightarrow(k1\_normform X0 X1 X2 X3 = k1\_normform X0 X1 X3 X2) \end{aligned} \tag{8}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0)\wedge(v4\_finsub\_1 X0))\Rightarrow(\forall X1. \\ & ((\neg v1\_xboole\_0 X1)\wedge(v4\_finsub\_1 X1))\Rightarrow(\forall X2.(m1\_subset\_1 \\ & X2 (k2\_zfmisc\_1 X0 X1))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1))\Rightarrow(\forall X4.(m1\_subset\_1 X4 (k2\_zfmisc\_1 X0 X1))\Rightarrow(k1\_normform \\ & X0 X1 X2 (k2\_normform X0 X1 X3 X4) = k2\_normform X0 X1 (k1\_normform \\ & X0 X1 X2 X3) (k1\_normform X0 X1 X2 X4)))))) \end{aligned}$$