

# t9\_normform (TMcaDkg- gFzJ4xbbW6T7FXy7v1sMWarD9Tm4)

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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  $r1\_normform : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_normform : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k3\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_finsub\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.((r1\_tarski X0 X1)\wedge(r1\_tarski X2 X1))\Rightarrow(r1\_tarski (k2\_xboole\_0 X0 X2) X1) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.(k1\_xtuple\_0 (k4\_tarski X0 X1) = X0)\wedge(k2\_xtuple\_0 (k4\_tarski X0 X1) = X1) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge(m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1))))\Rightarrow(k3\_domain\_1 X0 X1 X2 = k2\_xtuple\_0 X2) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 X1)\wedge(m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1))))\Rightarrow(k2\_domain\_1 X0 X1 X2 = k1\_xtuple\_0 X2) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v1\_xboole\_0 X0)\wedge(v4\_finsub\_1 X0))\wedge((m1\_subset\_1 X1 X0)\wedge(m1\_subset\_1 X2 X0)))\Rightarrow(k1\_finsub\_1 X0 X1 X2 = k2\_xboole\_0 X1 X2) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0)\wedge \\ & ((\neg v1\_xboole\_0 X1)\wedge((m1\_subset\_1 X2 X0)\wedge(m1\_subset\_1 X3 X1))))\Rightarrow \\ & (k1\_domain\_1 X0 X1 X2 X3 = k4\_tarSKI X2 X3) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 \\ & X1)\wedge(m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1))))\Rightarrow(m1\_subset\_1 (k3\_domain\_1 \\ & X0 X1 X2) X1) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0 X0)\wedge((\neg v1\_xboole\_0 \\ & X1)\wedge(m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1))))\Rightarrow(m1\_subset\_1 (k2\_domain\_1 \\ & X0 X1 X2) X0) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v1\_xboole\_0 \\ & X0)\wedge(v4\_finsub\_1 X0))\wedge(((\neg v1\_xboole\_0 X1)\wedge(v4\_finsub\_1 X1))\wedge \\ & ((m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1))\wedge(m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1))))))\Rightarrow(m1\_subset\_1 (k1\_normform X0 X1 X2 X3) (k2\_zfmisc\_1 \\ & X0 X1)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v1\_xboole\_0 X0)\wedge(v4\_finsub\_1 \\ & X0))\wedge((m1\_subset\_1 X1 X0)\wedge(m1\_subset\_1 X2 X0)))\Rightarrow(m1\_subset\_1 \\ & (k1\_finsub\_1 X0 X1 X2) X0) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0)\wedge(v4\_finsub\_1 X0))\Rightarrow(\forall X1. \\ & ((\neg v1\_xboole\_0 X1)\wedge(v4\_finsub\_1 X1))\Rightarrow(\forall X2.(m1\_subset\_1 \\ & X2 (k2\_zfmisc\_1 X0 X1))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1))\Rightarrow(k1\_normform X0 X1 X2 X3 = k1\_domain\_1 X0 X1 (k1\_finsub\_1 \\ & X0 (k2\_domain\_1 X0 X1 X2) (k2\_domain\_1 X0 X1 X3)) (k1\_finsub\_1 X1 \\ & (k3\_domain\_1 X0 X1 X2) (k3\_domain\_1 X0 X1 X3)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1\_xboole\_0 X0)\wedge(v4\_finsub\_1 X0))\Rightarrow(\forall X1. \\ & ((\neg v1\_xboole\_0 X1)\wedge(v4\_finsub\_1 X1))\Rightarrow(\forall X2.(m1\_subset\_1 \\ & X2 (k2\_zfmisc\_1 X0 X1))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1))\Rightarrow((r1\_normform X0 X1 X2 X3)\Leftrightarrow((r1\_tarSKI (k2\_domain\_1 X0 \\ & X1 X2) (k2\_domain\_1 X0 X1 X3))\wedge(r1\_tarSKI (k3\_domain\_1 X0 X1 X2) \\ & (k3\_domain\_1 X0 X1 X3)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v1\_xboole\_0 \\ & X0) \wedge (v4\_finsub\_1 X0)) \wedge (((\neg v1\_xboole\_0 X1) \wedge (v4\_finsub\_1 X1)) \wedge \\ & ((m1\_subset\_1 X2 (k2\_zfmisc\_1 X0 X1)) \wedge (m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1)))))) \Rightarrow (k1\_normform X0 X1 X2 X3 = k1\_normform X0 X1 X3 X2) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v1\_xboole\_0 X0) \wedge (v4\_finsub\_1 \\ & X0)) \wedge ((m1\_subset\_1 X1 X0) \wedge (m1\_subset\_1 X2 X0))) \Rightarrow (k1\_finsub\_1 \\ & X0 X1 X2 = k1\_finsub\_1 X0 X2 X1) \end{aligned} \quad (14)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((\neg v1\_xboole\_0 X0) \wedge (v4\_finsub\_1 X0)) \Rightarrow (\forall X1. \\ & ((\neg v1\_xboole\_0 X1) \wedge (v4\_finsub\_1 X1)) \Rightarrow (\forall X2. (m1\_subset\_1 \\ & X2 (k2\_zfmisc\_1 X0 X1)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (k2\_zfmisc\_1 \\ & X0 X1)) \Rightarrow (\forall X4. (m1\_subset\_1 X4 (k2\_zfmisc\_1 X0 X1)) \Rightarrow (((r1\_normform \\ & X0 X1 X2 X3) \wedge (r1\_normform X0 X1 X4 X3)) \Rightarrow (r1\_normform X0 X1 (k1\_normform \\ & X0 X1 X2 X4) X3)))))) \end{aligned}$$