

# t2\_transgeo (TM- SoD5hL3TuZZrMP15TsMJv7VjpFgcUXTD7)

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Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v2\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_funct\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $v2\_funct\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow ((( \\ v2\_funct\_1 X1) \wedge (X0 \in k10\_xtuple\_0 X1)) \Rightarrow ((X0 = k1\_funct\_1 X1 (k1\_funct\_1 \\ (k2\_funct\_1 X1) X0)) \wedge (X0 = k1\_funct\_1 (k3\_relat\_1 (k2\_funct\_1 \\ X1) X1) X0))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow ((( \\ v2\_funct\_1 X1) \wedge (X0 \in k9\_xtuple\_0 X1)) \Rightarrow ((X0 = k1\_funct\_1 (k2\_funct\_1 \\ X1) (k1\_funct\_1 X1 X0)) \wedge (X0 = k1\_funct\_1 (k3\_relat\_1 X1 (k2\_funct\_1 \\ X1)) X0))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1\_xboole\_0 X0) \wedge \\ (((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ (k2\_zfmisc\_1 X0 X1)))))) \wedge (m1\_subset\_1 X3 X0))) \Rightarrow (k3\_funct\_2 X0 \\ X1 X2 X3 = k1\_funct\_1 X2 X3) \end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v5\_relat\_1 X1 X0))\Rightarrow(k2\_relset\_1 X0 X1 = k10\_xtuple\_0 X1) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 X0 X0)\wedge((v3\_funct\_2 X1 X0 X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))))))\Rightarrow(k2\_funct\_2 X0 X1 = k2\_funct\_1 X1) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v4\_relat\_1 X1 X0))\Rightarrow(k1\_relset\_1 X0 X1 = k9\_xtuple\_0 X1) \quad (7)$$

Assume the following.

$$v1\_xboole\_0 k1\_xboole\_0 \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_funct\_1 X1)\wedge((v1\_funct\_2 X1 X0 X0)\wedge((v3\_funct\_2 X1 X0 X0)\wedge(m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))))))\Rightarrow((v1\_funct\_1 (k2\_funct\_2 X0 X1))\wedge((v1\_funct\_2 (k2\_funct\_2 X0 X1) X0 X0)\wedge((v3\_funct\_2 (k2\_funct\_2 X0 X1) X0 X0)\wedge(m1\_subset\_1 (k2\_funct\_2 X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v5\_relat\_1 X1 X0))\Rightarrow((v2\_funct\_2 X1 X0)\Leftrightarrow(k2\_relset\_1 X0 X1 = X0)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(((X1\neq k1\_xboole\_0)\Rightarrow((v1\_funct\_2 X2 X0 X1)\Leftrightarrow(X0 = k1\_relset\_1 X0 X2)))\wedge((X1 = k1\_xboole\_0)\Rightarrow((v1\_funct\_2 X2 X0 X1)\Leftrightarrow(X2 = k1\_xboole\_0)))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(((v1\_funct\_1 X2)\wedge(v3\_funct\_2 X2 X0 X1))\Rightarrow((v1\_funct\_1 X2)\wedge((v2\_funct\_1 X2)\wedge(v2\_funct\_2 X2 X1)))) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow((v4\_relat\_1 X2 X0)\wedge(v5\_relat\_1 X2 X1)) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(v1\_relat\_1 X2) \quad (14)$$

**Theorem 1**

$$\begin{aligned} &\forall X0.(\neg v1\_xboole\_0 X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 X0)\Rightarrow \\ &\quad (\forall X2.(m1\_subset\_1 X2 X0)\Rightarrow(\forall X3.((v1\_funct\_1 X3)\wedge \\ &\quad ((v1\_funct\_2 X3 X0 X0)\wedge(v3\_funct\_2 X3 X0 X0)\wedge(m1\_subset\_1 X3 ( \\ &\quad k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))))))\Rightarrow((k3\_funct\_2 X0 X0 X3 X1 = \\ &\quad X2)\Leftrightarrow(k3\_funct\_2 X0 X0 (k2\_funct\_2 X0 X3) X2 = X1)))) \end{aligned}$$