

## t43\_transgeo

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Let  $v7\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_analoaf : \iota \Rightarrow o$  be given. Let  $l1\_analoaf : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  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  $v4\_transgeo : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r3\_diraf : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_diraf : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v7\_struct\_0 X0) \wedge ((v2\_analoaf X0) \wedge (l1\_analoaf \\
 & X0))) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 (u1\_struct\_0 \\
 & X0) (u1\_struct\_0 X0)) \wedge ((v3\_funct\_2 X1 (u1\_struct\_0 X0) (u1\_struct\_0 \\
 & X0)) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\
 & X0) (u1\_struct\_0 X0)))))) \Rightarrow ((v4\_transgeo X1 X0) \Leftrightarrow (\forall X2. \\
 & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 \\
 & (u1\_struct\_0 X0)) \Rightarrow (r2\_diraf X0 X2 X3 (k3\_funct\_2 (u1\_struct\_0 \\
 & X0) (u1\_struct\_0 X0) X1 X2) (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 \\
 & X0) X1 X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v7\_struct\_0 X0) \wedge ((v2\_analoaf X0) \wedge (l1\_analoaf \\
 & X0))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
 & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r3\_diraf X0 X1 X1 X2) \wedge ((r3\_diraf \\
 & X0 X1 X2 X2) \wedge (r3\_diraf X0 X1 X2 X1))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v7\_struct\_0 X0) \wedge ((v2\_analoaf X0) \wedge (l1\_analoaf \\
& X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& (u1\_struct\_0 X0)) \Rightarrow ((r3\_diraf X0 X1 X2 X3) \Rightarrow ((r3\_diraf X0 X1 X3 X2) \wedge \\
& ((r3\_diraf X0 X2 X1 X3) \wedge ((r3\_diraf X0 X2 X3 X1) \wedge ((r3\_diraf X0 X3 X1 \\
& X2) \wedge (r3\_diraf X0 X3 X2 X1))))))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v7\_struct\_0 X0) \wedge ((v2\_analoaf X0) \wedge (l1\_analoaf \\
& X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (\forall X6.(m1\_subset\_1 \\
& X6 (u1\_struct\_0 X0)) \Rightarrow (\neg(X1 \neq X2) \wedge ((\neg(\neg(r2\_diraf X0 X1 X2 X3 X4) \wedge \\
& (r2\_diraf X0 X1 X2 X5 X6)) \wedge ((\neg(r2\_diraf X0 X1 X2 X3 X4) \wedge (r2\_diraf \\
& X0 X5 X6 X1 X2)) \wedge ((\neg(r2\_diraf X0 X3 X4 X1 X2) \wedge (r2\_diraf X0 X5 X6 X1 X2)) \wedge \\
& (\neg(r2\_diraf X0 X3 X4 X1 X2) \wedge (r2\_diraf X0 X1 X2 X5 X6)))))) \wedge (\neg r2\_diraf \\
& X0 X3 X4 X5 X6))))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v7\_struct\_0 X0) \wedge ((v2\_analoaf X0) \wedge (l1\_analoaf \\
& X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\
& (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow \\
& ((r2\_diraf X0 X1 X2 X3 X4) \Rightarrow ((r2\_diraf X0 X1 X2 X4 X3) \wedge ((r2\_diraf X0 \\
& X2 X1 X3 X4) \wedge ((r2\_diraf X0 X2 X1 X4 X3) \wedge ((r2\_diraf X0 X3 X4 X1 X2) \wedge \\
& (r2\_diraf X0 X3 X4 X2 X1) \wedge ((r2\_diraf X0 X4 X3 X1 X2) \wedge (r2\_diraf X0 X4 \\
& X3 X2 X1))))))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \tag{6}$$

Assume the following.

$$\forall X0.(l1\_analoaf X0) \Rightarrow (l1\_struct\_0 X0) \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1\_xboole\_0 X0) \wedge \\
& (((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 X1)))))) \wedge (m1\_subset\_1 X3 X0)) \Rightarrow (m1\_subset\_1 ( \\
& k3\_funct\_2 X0 X1 X2 X3) X1)
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_analoaf X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ & (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow \\ & ((r3\_diraf X0 X1 X2 X3) \Leftrightarrow (r2\_diraf X0 X1 X2 X1 X3)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0) \Rightarrow ((\neg v7\_struct\_0 X0) \Rightarrow (\neg v2\_struct\_0 X0)) \quad (10)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v7\_struct\_0 X0) \wedge ((v2\_analoaf X0) \wedge (l1\_analoaf \\ & X0))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.((v1\_funct\_1 X3) \wedge \\ & ((v1\_funct\_2 X3 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) \wedge ((v3\_funct\_2 \\ & X3 (u1\_struct\_0 X0) (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))))) \Rightarrow (((v4\_transgeo \\ & X3 X0) \wedge (r3\_diraf X0 X1 (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X0) X3 X1) X2)) \Rightarrow (r3\_diraf X0 X1 (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 \\ & X0) X3 X1) (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X0) X3 X2)))))) \end{aligned}$$