

# t41\_geomtrap

(TML29WzzPt8cewYoWgfgghAyzSFnxAqhQod)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v2\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v5\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v6\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v7\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v8\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_analmetr : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_geomtrap : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r3\_analmetr : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_geomtrap : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_analoaf : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_analmetr X0 X1 X2) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (\forall X6.(m1\_subset\_1 X6 (u1\_struct\_0 X0)) \Rightarrow (\forall X7.(m1\_subset\_1 X7 (u1\_struct\_0 X0)) \Rightarrow (\forall X8.(m1\_subset\_1 X8 (u1\_struct\_0 X0)) \Rightarrow (\forall X9.(m1\_subset\_1 X9 (u1\_struct\_0 X0)) \Rightarrow (\forall X10.(m1\_subset\_1 X10 (u1\_struct\_0 X0)) \Rightarrow (\forall X11.(m1\_subset\_1 X11 (u1\_struct\_0 X0)) \Rightarrow (\forall X12.(m1\_subset\_1 X12 (u1\_struct\_0 X0)) \Rightarrow (((r2\_geomtrap X0 X1 X2 X3 X4 X5 X9) \wedge ((r2\_geomtrap X0 X1 X2 X3 X4 X6 X10) \wedge ((r2\_geomtrap X0 X1 X2 X3 X4 X7 X11) \wedge ((r2\_geomtrap X0 X1 X2 X3 X4 X8 X12) \wedge (r3\_analmetr X0 X5 X6 X7 X8 X1 X2)))))) \Rightarrow ((X3 = X4) \vee (r3\_analmetr X0 X9 X10 X11 X12 X1 X2))))))))))))))
\end{aligned}$$

(1)

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\
& X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_analmetr \\
& X0 X1 X2) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4. \\
& (m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X6.(m1\_subset\_1 X6 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X7.(m1\_subset\_1 X7 (u1\_struct\_0 X0)) \Rightarrow (\forall X8.(m1\_subset\_1 \\
& X8 (u1\_struct\_0 X0)) \Rightarrow (((r2\_geomtrap X0 X1 X2 X3 X4 X5 X7) \wedge (r2\_geomtrap \\
& X0 X1 X2 X3 X4 X6 X8)) \Rightarrow ((X3 = X4) \vee (r2\_geomtrap X0 X1 X2 X3 X4 (k1\_geomtrap \\
& X0 X5 X6) (k1\_geomtrap X0 X7 X8))))))))))))) \tag{2}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\
& X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_analmetr \\
& X0 X1 X2) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4. \\
& (m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X6.(m1\_subset\_1 X6 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X7.(m1\_subset\_1 X7 (u1\_struct\_0 X0)) \Rightarrow (\forall X8.(m1\_subset\_1 \\
& X8 (u1\_struct\_0 X0)) \Rightarrow (\forall X9.(m1\_subset\_1 X9 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X10.(m1\_subset\_1 X10 (u1\_struct\_0 X0)) \Rightarrow (\forall X11. \\
& (m1\_subset\_1 X11 (u1\_struct\_0 X0)) \Rightarrow (\forall X12.(m1\_subset\_1 \\
& X12 (u1\_struct\_0 X0)) \Rightarrow (((r2\_geomtrap X0 X1 X2 X3 X4 X5 X9) \wedge ((r2\_geomtrap \\
& X0 X1 X2 X3 X4 X6 X10) \wedge ((r2\_geomtrap X0 X1 X2 X3 X4 X7 X11) \wedge ((r2\_geomtrap \\
& X0 X1 X2 X3 X4 X8 X12) \wedge (r1\_analoaf X0 X5 X6 X7 X8)))))) \Rightarrow ((X3 = X4) \vee (r1\_analoaf \\
& X0 X9 X10 X11 X12))))))))))))) \tag{3}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 \\
& X0) \wedge ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge \\
& ((v5\_rlvect\_1 X0) \wedge ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 \\
& X0) \wedge (l1\_rlvect\_1 X0)))))))))) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 \\
& X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 (k1\_geomtrap \\
& X0 X1 X2) (u1\_struct\_0 X0)) \tag{4}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\
& X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 \\
& X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (\forall X6. \\
& (m1\_subset\_1 X6 (u1\_struct\_0 X0)) \Rightarrow ((r2\_geomtrap X0 X1 X2 X3 X4 X5 \\
& X6) \Leftrightarrow ((r1\_analoaf X0 X3 X4 X5 X6) \wedge ((r3\_analmetr X0 X3 X4 (k1\_geomtrap \\
& X0 X3 X4) (k1\_geomtrap X0 X5 X6) X1 X2) \wedge (r3\_analmetr X0 X5 X6 (k1\_geomtrap \\
& X0 X3 X4) (k1\_geomtrap X0 X5 X6) X1 X2))))))))))
\end{aligned} \tag{5}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\
& X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 \\
& X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (\forall X6. \\
& (m1\_subset\_1 X6 (u1\_struct\_0 X0)) \Rightarrow (\forall X7.(m1\_subset\_1 X7 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X8.(m1\_subset\_1 X8 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X9.(m1\_subset\_1 X9 (u1\_struct\_0 X0)) \Rightarrow (\forall X10.( \\
& m1\_subset\_1 X10 (u1\_struct\_0 X0)) \Rightarrow (\forall X11.(m1\_subset\_1 \\
& X11 (u1\_struct\_0 X0)) \Rightarrow (\forall X12.(m1\_subset\_1 X12 (u1\_struct\_0 \\
& X0)) \Rightarrow (((r1\_analmetr X0 X1 X2) \wedge ((r2\_geomtrap X0 X1 X2 X3 X4 X5 X9) \wedge \\
& ((r2\_geomtrap X0 X1 X2 X3 X4 X6 X10) \wedge ((r2\_geomtrap X0 X1 X2 X3 X4 X7 \\
& X11) \wedge ((r2\_geomtrap X0 X1 X2 X3 X4 X8 X12) \wedge (r2\_geomtrap X0 X1 X2 X5 \\
& X6 X7 X8)))))) \Rightarrow ((X3 = X4) \vee (r2\_geomtrap X0 X1 X2 X9 X10 X11 X12))))))))))
\end{aligned}$$