

# t21\_projdes1

## (TMKgdnpne4TVBtTne9vyjoZvTLAUV5TuUDL)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_collsp : \iota \Rightarrow o$  be given. Let  $v3\_collsp : \iota \Rightarrow o$  be given. Let  $v4\_collsp : \iota \Rightarrow o$  be given. Let  $v2\_anproj\_2 : \iota \Rightarrow o$  be given. Let  $v3\_anproj\_2 : \iota \Rightarrow o$  be given. Let  $v7\_anproj\_2 : \iota \Rightarrow o$  be given. Let  $l1\_collsp : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_collsp : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r2\_projdes1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\
& ((v4\_collsp X0) \wedge ((v2\_anproj\_2 X0) \wedge ((v3\_anproj\_2 X0) \wedge ((\neg v7\_anproj\_2 \\
& X0) \wedge (l1\_collsp X0)))))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. \\
& (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow ((r1\_collsp X0 X1 X2 X3) \Rightarrow ((r1\_collsp \\
& X0 X2 X3 X1) \wedge ((r1\_collsp X0 X3 X1 X2) \wedge ((r1\_collsp X0 X2 X1 X3) \wedge ((r1\_collsp \\
& X0 X1 X3 X2) \wedge (r1\_collsp X0 X3 X2 X1)))))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\
& ((v4\_collsp X0) \wedge ((v2\_anproj\_2 X0) \wedge ((v3\_anproj\_2 X0) \wedge ((\neg v7\_anproj\_2 \\
& X0) \wedge (l1\_collsp X0)))))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. \\
& (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4. (m1\_subset\_1 X4 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X5. (m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X6. (m1\_subset\_1 X6 (u1\_struct\_0 X0)) \Rightarrow (\forall X7. (m1\_subset\_1 \\
& X7 (u1\_struct\_0 X0)) \Rightarrow (\forall X8. (m1\_subset\_1 X8 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X9. (m1\_subset\_1 X9 (u1\_struct\_0 X0)) \Rightarrow (\forall X10. \\
& (m1\_subset\_1 X10 (u1\_struct\_0 X0)) \Rightarrow (((r2\_projdes1 X0 X1 X5 X6 X7) \wedge \\
& ((r1\_collsp X0 X1 X5 X2) \wedge ((r1\_collsp X0 X1 X6 X3) \wedge ((r1\_collsp X0 \\
& X1 X7 X4) \wedge ((r1\_collsp X0 X5 X6 X8) \wedge ((r1\_collsp X0 X2 X3 X8) \wedge ((r1\_collsp \\
& X0 X6 X7 X9) \wedge ((r1\_collsp X0 X3 X4 X9) \wedge ((r1\_collsp X0 X5 X7 X10) \wedge (r1\_collsp \\
& X0 X2 X4 X10)))))) \Rightarrow ((X1 = X2) \vee ((X1 = X3) \vee ((X1 = X4) \vee ((X5 = X2) \vee \\
& ((X6 = X3) \vee (r1\_collsp X0 X8 X9 X10)))))))))))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\exists X1.m1\_subset\_1 X1 X0 \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_collsp X0))\Rightarrow((v3\_collsp X0)\Leftrightarrow \\ (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 \\ X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\ X0))\Rightarrow(\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0))\Rightarrow(\forall X5. \\ (m1\_subset\_1 X5 (u1\_struct\_0 X0))\Rightarrow(((r1\_collsp X0 X1 X2 X3)\wedge(( \\ r1\_collsp X0 X1 X2 X4)\wedge(r1\_collsp X0 X1 X2 X5))))\Rightarrow((X1 = X2)\vee(r1\_collsp \\ X0 X3 X4 X5)))))))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_collsp X0))\Rightarrow((v2\_collsp X0)\Leftrightarrow \\ (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0))\Rightarrow(\forall X2.(m1\_subset\_1 \\ X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\ X0))\Rightarrow((r1\_collsp X0 X1 X2 X1)\wedge((r1\_collsp X0 X1 X1 X2)\wedge(r1\_collsp \\ X0 X1 X2 X2)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_collsp X0)\wedge((v3\_collsp X0)\wedge \\ ((v4\_collsp X0)\wedge((v2\_anproj\_2 X0)\wedge((v3\_anproj\_2 X0)\wedge((\neg v7\_anproj\_2 \\ X0)\wedge(l1\_collsp X0))))))))\Rightarrow(\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\ X0))\Rightarrow(\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0))\Rightarrow(\forall X3. \\ (m1\_subset\_1 X3 (u1\_struct\_0 X0))\Rightarrow(\forall X4.(m1\_subset\_1 X4 \\ (u1\_struct\_0 X0))\Rightarrow((r2\_projdes1 X0 X1 X2 X3 X4)\Leftrightarrow((\neg r1\_collsp X0 \\ X2 X3 X4)\wedge((\neg r1\_collsp X0 X1 X2 X3)\wedge((\neg r1\_collsp X0 X1 X3 X4)\wedge(\neg r1\_collsp \\ X0 X1 X4 X2)))))))))) \end{aligned} \quad (6)$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\
& ((v4\_collsp X0) \wedge ((v2\_anproj\_2 X0) \wedge ((v3\_anproj\_2 X0) \wedge ((\neg v7\_anproj\_2 \\
& X0) \wedge (l1\_collsp X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\forall X3. \\
& (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 \\
& (u1\_struct\_0 X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow \\
& (\forall X6.(m1\_subset\_1 X6 (u1\_struct\_0 X0)) \Rightarrow (\forall X7.(m1\_subset\_1 \\
& X7 (u1\_struct\_0 X0)) \Rightarrow (\forall X8.(m1\_subset\_1 X8 (u1\_struct\_0 \\
& X0)) \Rightarrow (\forall X9.(m1\_subset\_1 X9 (u1\_struct\_0 X0)) \Rightarrow (\forall X10. \\
& (m1\_subset\_1 X10 (u1\_struct\_0 X0)) \Rightarrow (((r1\_collsp X0 X1 X2 X5) \wedge ( \\
& (r1\_collsp X0 X1 X3 X6) \wedge ((r1\_collsp X0 X1 X4 X7) \wedge ((r1\_collsp X0 X2 \\
& X3 X8) \wedge ((r1\_collsp X0 X5 X6 X8) \wedge ((r1\_collsp X0 X3 X4 X9) \wedge ((r1\_collsp \\
& X0 X6 X7 X9) \wedge ((r1\_collsp X0 X2 X4 X10) \wedge (r1\_collsp X0 X5 X7 X10)))))) \Rightarrow \\
& ((r1\_collsp X0 X1 X2 X3) \vee ((r1\_collsp X0 X1 X3 X4) \vee ((r1\_collsp X0 \\
& X1 X2 X4) \vee ((X2 = X5) \vee ((X3 = X6) \vee ((X1 = X5) \vee ((X1 = X6) \vee ((X1 = X7) \vee (r1\_collsp \\
& X0 X9 X10 X8))))))))))
\end{aligned}$$