

# t9\_incproj

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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  $l1\_collsp : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_incsp\_1 : \iota \Rightarrow \iota$  be given. Let  $k3\_incproj : \iota \Rightarrow \iota$  be given. Let  $u2\_incsp\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_incsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_incproj : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m2\_collsp : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2\_struct\_0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\ &((v4\_collsp X0) \wedge (l1\_collsp X0)))))) \Rightarrow (\exists X1. (m1\_subset\_1 \\ X1 (u1\_struct\_0 X0)) \wedge (\exists X2. (m1\_subset\_1 X2 (u1\_struct\_0 \\ X0)) \wedge (\exists X3. (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \wedge ((X1 \neq X2) \wedge \\ ((X2 \neq X3) \wedge (X3 \neq X1))))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2\_struct\_0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\ &((v4\_collsp X0) \wedge (l1\_collsp X0)))))) \Rightarrow (\forall X1. (m1\_subset\_1 \\ X1 (u1\_incsp\_1 (k3\_incproj X0))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 \\ (u2\_incsp\_1 (k3\_incproj X0))) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (u1\_struct\_0 \\ X0)) \Rightarrow (\forall X4. (m1\_incproj X4 X0) \Rightarrow (((X1 = X3) \wedge (X2 = X4)) \Rightarrow ((r1\_incsp\_1 \\ (k3\_incproj X0) X1 X2) \Leftrightarrow (X3 \in X4)))))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2\_struct\_0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\ &((v4\_collsp X0) \wedge (l1\_collsp X0)))))) \Rightarrow (\forall X1. (m1\_incproj \\ X1 X0) \Leftrightarrow (m1\_subset\_1 X1 (u2\_incsp\_1 (k3\_incproj X0)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2\_struct\_0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\ &((v4\_collsp X0) \wedge (l1\_collsp X0)))))) \Rightarrow (\forall X1. (m1\_subset\_1 \\ X1 (u1\_struct\_0 X0)) \Leftrightarrow (m1\_subset\_1 X1 (u1\_incsp\_1 (k3\_incproj \\ X0)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\ ((v4\_collsp X0) \wedge (l1\_collsp X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 \\ X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ X0)) \Rightarrow (\neg(X1 \neq X2) \wedge (\forall X3.(m2\_collsp X3 X0) \Rightarrow (\neg(X1 \in X3) \wedge (X2 \in \\ X3))))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\ ((v4\_collsp X0) \wedge (l1\_collsp X0)))))) \Rightarrow (\forall X1.(m1\_incproj \\ X1 X0) \Leftrightarrow (m2\_collsp X1 X0)) \end{aligned} \quad (6)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\ ((v4\_collsp X0) \wedge (l1\_collsp X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 \\ X1 (u1\_incsp\_1 (k3\_incproj X0))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ (u1\_incsp\_1 (k3\_incproj X0))) \Rightarrow (\exists X3.(m1\_subset\_1 X3 (u2\_incsp\_1 \\ (k3\_incproj X0))) \wedge ((r1\_incsp\_1 (k3\_incproj X0) X1 X3) \wedge (r1\_incsp\_1 \\ (k3\_incproj X0) X2 X3)))))) \end{aligned}$$