

## t24\_projred2

(TMG2DzyugGH2i2EfPwWK7QxrqrA9f6EUppM)

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Let  $v6\_incsp\_1 : \iota \Rightarrow o$  be given. Let  $v1\_incproj : \iota \Rightarrow o$  be given. Let  $v2\_incproj : \iota \Rightarrow o$  be given. Let  $v3\_incproj : \iota \Rightarrow o$  be given. Let  $v4\_incproj : \iota \Rightarrow o$  be given. Let  $v5\_incproj : \iota \Rightarrow o$  be given. Let  $v9\_incproj : \iota \Rightarrow o$  be given. Let  $l1\_incsp\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_incsp\_1 : \iota \Rightarrow \iota$  be given. Let  $u2\_incsp\_1 : \iota \Rightarrow \iota$  be given. Let  $r1\_incsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_projred2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_projred1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_funct\_1 : \iota \Rightarrow \iota$  be given. Let  $v2\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v6\_incsp\_1 X0) \wedge ((v1\_incproj X0) \wedge ((v2\_incproj X0) \wedge \\ & ((v3\_incproj X0) \wedge ((v4\_incproj X0) \wedge ((v5\_incproj X0) \wedge ((v9\_incproj \\ & X0) \wedge (l1\_incsp\_1 X0)))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_incsp\_1 \\ & X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u2\_incsp\_1 X0)) \Rightarrow (\forall X3. \\ & (m1\_subset\_1 X3 (u2\_incsp\_1 X0)) \Rightarrow (\neg(\neg r1\_incsp\_1 X0 X1 X2) \wedge (\neg \\ & r1\_incsp\_1 X0 X1 X3) \wedge (k2\_funct\_1 (k1\_projred1 X0 X2 X3 X1) \neq k1\_projred1 \\ & X0 X3 X2 X1)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v6\_incsp\_1 X0) \wedge ((v1\_incproj X0) \wedge ((v2\_incproj X0) \wedge \\ & ((v3\_incproj X0) \wedge ((v4\_incproj X0) \wedge ((v5\_incproj X0) \wedge ((v9\_incproj \\ & X0) \wedge (l1\_incsp\_1 X0)))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_incsp\_1 \\ & X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u2\_incsp\_1 X0)) \Rightarrow (\forall X3. \\ & (m1\_subset\_1 X3 (u2\_incsp\_1 X0)) \Rightarrow (\neg(\neg r1\_incsp\_1 X0 X1 X2) \wedge (\neg \\ & r1\_incsp\_1 X0 X1 X3) \wedge (\neg v2\_funct\_1 (k1\_projred1 X0 X2 X3 X1)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge (v1\_funct\_1 X0)) \Rightarrow (\forall X1.(( \\ & v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (((v2\_funct\_1 X0) \wedge (v2\_funct\_1 \\ & X1)) \Rightarrow (k2\_funct\_1 (k3\_relat\_1 X0 X1) = k3\_relat\_1 (k2\_funct\_1 X1 \\ & (k2\_funct\_1 X0)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v6\_incsp\_1 X0) \wedge ((v1\_incproj X0) \wedge ((v2\_incproj X0) \wedge \\
& ((v3\_incproj X0) \wedge ((v4\_incproj X0) \wedge ((v5\_incproj X0) \wedge ((v9\_incproj \\
& X0) \wedge (l1\_incsp\_1 X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_incsp\_1 \\
& X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_incsp\_1 X0)) \Rightarrow (\forall X3. \\
& (m1\_subset\_1 X3 (u1\_incsp\_1 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 \\
& (u2\_incsp\_1 X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u2\_incsp\_1 X0)) \Rightarrow \\
& (\forall X6.(m1\_subset\_1 X6 (u2\_incsp\_1 X0)) \Rightarrow (\forall X7.(m1\_subset\_1 \\
& X7 (u2\_incsp\_1 X0)) \Rightarrow (\neg(\neg r1\_incsp\_1 X0 X1 X4) \wedge ((\neg r1\_incsp\_1 X0 \\
& X2 X5) \wedge ((\neg r1\_incsp\_1 X0 X1 X6) \wedge ((\neg r1\_incsp\_1 X0 X2 X6) \wedge ((X1 \neq X2) \wedge \\
& ((r1\_incsp\_1 X0 X1 X7) \wedge ((r1\_incsp\_1 X0 X2 X7) \wedge ((r1\_incsp\_1 X0 X3 \\
& X7) \wedge ((\neg r1\_incsp\_1 X0 X3 X4) \wedge ((X3 \neq X2) \wedge ((\neg r1\_projred2 X0 X4 X5 X6) \wedge \\
& (\forall X8.(m1\_subset\_1 X8 (u2\_incsp\_1 X0)) \Rightarrow (\neg(r1\_projred2 \\
& X0 X4 X6 X8) \wedge ((\neg r1\_incsp\_1 X0 X2 X8) \wedge ((\neg r1\_incsp\_1 X0 X3 X8) \wedge (k3\_relat\_1 \\
& (k1\_projred1 X0 X4 X6 X1) (k1\_projred1 X0 X6 X5 X2) = k3\_relat\_1 (k1\_projred1 \\
& X0 X4 X8 X3) (k1\_projred1 X0 X8 X5 X2))))))))))))))))) \\
& \hspace{15em} (4)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((v6\_incsp\_1 X0) \wedge \\
& ((v1\_incproj X0) \wedge ((v2\_incproj X0) \wedge ((v3\_incproj X0) \wedge ((v4\_incproj \\
& X0) \wedge ((v5\_incproj X0) \wedge ((v9\_incproj X0) \wedge (l1\_incsp\_1 X0)))))) \wedge \\
& ((m1\_subset\_1 X1 (u2\_incsp\_1 X0)) \wedge ((m1\_subset\_1 X2 (u2\_incsp\_1 \\
& X0)) \wedge (m1\_subset\_1 X3 (u1\_incsp\_1 X0)))) \Rightarrow ((v1\_funct\_1 (k1\_projred1 \\
& X0 X1 X2 X3)) \wedge (m1\_subset\_1 (k1\_projred1 X0 X1 X2 X3) (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 (u1\_incsp\_1 X0) (u1\_incsp\_1 X0)))))) \\
& \hspace{15em} (5)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v6\_incsp\_1 X0) \wedge ((v1\_incproj X0) \wedge ((v2\_incproj X0) \wedge \\
& ((v3\_incproj X0) \wedge ((v4\_incproj X0) \wedge (l1\_incsp\_1 X0)))))) \Rightarrow (\forall X1. \\
& (m1\_subset\_1 X1 (u2\_incsp\_1 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\
& (u2\_incsp\_1 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 (u2\_incsp\_1 X0)) \Rightarrow \\
& ((r1\_projred2 X0 X1 X2 X3) \Leftrightarrow (\exists X4.(m1\_subset\_1 X4 (u1\_incsp\_1 \\
& X0)) \wedge ((r1\_incsp\_1 X0 X4 X1) \wedge ((r1\_incsp\_1 X0 X4 X2) \wedge (r1\_incsp\_1 \\
& X0 X4 X3)))))) \\
& \hspace{15em} (6)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 X1)) \Rightarrow (v1\_relat\_1 X2)) \\
& \hspace{15em} (7)
\end{aligned}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((v6\_incsp\_1 X0) \wedge ((v1\_incproj X0) \wedge ((v2\_incproj X0) \wedge \\
& ((v3\_incproj X0) \wedge ((v4\_incproj X0) \wedge ((v5\_incproj X0) \wedge ((v9\_incproj \\
& X0) \wedge (l1\_incsp\_1 X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_incsp\_1 \\
& X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_incsp\_1 X0)) \Rightarrow (\forall X3. \\
& (m1\_subset\_1 X3 (u1\_incsp\_1 X0)) \Rightarrow (\forall X4.(m1\_subset\_1 X4 \\
& (u2\_incsp\_1 X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u2\_incsp\_1 X0)) \Rightarrow \\
& (\forall X6.(m1\_subset\_1 X6 (u2\_incsp\_1 X0)) \Rightarrow (\forall X7.(m1\_subset\_1 \\
& X7 (u2\_incsp\_1 X0)) \Rightarrow (\neg(\neg r1\_incsp\_1 X0 X1 X4) \wedge ((\neg r1\_incsp\_1 X0 \\
& X2 X5) \wedge ((\neg r1\_incsp\_1 X0 X1 X6) \wedge ((\neg r1\_incsp\_1 X0 X2 X6) \wedge ((X1 \neq X2) \wedge \\
& ((r1\_incsp\_1 X0 X1 X7) \wedge ((r1\_incsp\_1 X0 X2 X7) \wedge ((r1\_incsp\_1 X0 X3 \\
& X7) \wedge ((\neg r1\_incsp\_1 X0 X3 X5) \wedge ((X3 \neq X1) \wedge ((\neg r1\_projred2 X0 X4 X5 X6) \wedge \\
& (\forall X8.(m1\_subset\_1 X8 (u2\_incsp\_1 X0)) \Rightarrow (\neg(r1\_projred2 \\
& X0 X5 X6 X8) \wedge ((\neg r1\_incsp\_1 X0 X1 X8) \wedge ((\neg r1\_incsp\_1 X0 X3 X8) \wedge (k3\_relat\_1 \\
& (k1\_projred1 X0 X4 X6 X1) (k1\_projred1 X0 X6 X5 X2) = k3\_relat\_1 (k1\_projred1 \\
& X0 X4 X8 X1) (k1\_projred1 X0 X8 X5 X3))))))))))))))))))
\end{aligned}$$