t19_projred2 (TMQCZ8sPTiropTP3ze8HyaCB9oy6YDEkPEF)

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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 $r4\_incsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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. Assume the following.

$$\forall X0.(l1\_incsp\_1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u2\_incsp\_1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_incsp\_1\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u1\_incsp\_1\ X0)) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (u1\_incsp\_1\ X0)) \Rightarrow ((r4\_incsp\_1\ X0\ (k8\_domain\_1\ (u1\_incsp\_1\ X0)\ X2\ X3\ X4)\ X1) \Leftrightarrow ((r1\_incsp\_1\ X0\ X2\ X1) \wedge ((r1\_incsp\_1\ X0\ X3\ X1) \wedge (r1\_incsp\_1\ X0\ X4\ X1)))))))) \tag{1}$$

Assume the following.

$$\forall X0.(l1\_incsp\_1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u2\_incsp\_1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_incsp\_1\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u1\_incsp\_1\ X0)) \Rightarrow ((r4\_incsp\_1\ X0\ (k7\_domain\_1\ (u1\_incsp\_1\ X0)\ X2\ X3)\ X1) \Leftrightarrow ((r1\_incsp\_1\ X0\ X2\ X1) \wedge (r1\_incsp\_1\ X0\ X3\ X1)))))) \tag{2}$$

Assume the following.

$$\forall X0.(l1\_incsp\_1\ X0) \Rightarrow ((v1\_incproj\ X0) \Leftrightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_incsp\_1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_incsp\_1\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (u2\_incsp\_1\ X0)) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (u2\_incsp\_1\ X0)) \Rightarrow (\neg(r1\_incsp\_1\ X0\ X1\ X3) \wedge ((r1\_incsp\_1\ X0\ X2\ X3) \wedge ((r1\_incsp\_1\ X0\ X1\ X4) \wedge ((r1\_incsp\_1\ X0\ X2\ X4) \wedge ((X1 \neq X2) \wedge (X3 \neq X4))))))))))) \tag{3}$$

Assume the following.

$$\begin{gathered}
\forall X0.((\mathit{v6\_incsp\_1}\ X0)\wedge((\mathit{v1\_incproj}\ X0)\wedge((\mathit{v2\_incproj}\ X0)\wedge \\
((\mathit{v3\_incproj}\ X0)\wedge((\mathit{v4\_incproj}\ X0)\wedge(\mathit{l1\_incsp\_1}\ X0))))))\Rightarrow(\forall X1. \\
(\mathit{m1\_subset\_1}\ X1\ (\mathit{u2\_incsp\_1}\ X0))\Rightarrow(\forall X2.(\mathit{m1\_subset\_1}\ X2 \\
(\mathit{u2\_incsp\_1}\ X0))\Rightarrow(\forall X3.(\mathit{m1\_subset\_1}\ X3\ (\mathit{u2\_incsp\_1}\ X0))\Rightarrow \\
((\mathit{r1\_projred2}\ X0\ X1\ X2\ X3)\Leftrightarrow(\exists X4.(\mathit{m1\_subset\_1}\ X4\ (\mathit{u1\_incsp\_1} \\
X0))\wedge((\mathit{r1\_incsp\_1}\ X0\ X4\ X1)\wedge((\mathit{r1\_incsp\_1}\ X0\ X4\ X2)\wedge(\mathit{r1\_incsp\_1} \\
X0\ X4\ X3))))))))
\end{gathered} \tag{4}$$

Theorem 1

$$\begin{gathered}
\forall X0.((\mathit{v6\_incsp\_1}\ X0)\wedge((\mathit{v1\_incproj}\ X0)\wedge((\mathit{v2\_incproj}\ X0)\wedge \\
((\mathit{v3\_incproj}\ X0)\wedge((\mathit{v4\_incproj}\ X0)\wedge((\mathit{v5\_incproj}\ X0)\wedge((\mathit{v9\_incproj} \\
X0)\wedge(\mathit{l1\_incsp\_1}\ X0))))))))\Rightarrow(\forall X1.(\mathit{m1\_subset\_1}\ X1\ (\mathit{u1\_incsp\_1} \\
X0))\Rightarrow(\forall X2.(\mathit{m1\_subset\_1}\ X2\ (\mathit{u1\_incsp\_1}\ X0))\Rightarrow(\forall X3. \\
(\mathit{m1\_subset\_1}\ X3\ (\mathit{u1\_incsp\_1}\ X0))\Rightarrow(\forall X4.(\mathit{m1\_subset\_1}\ X4 \\
(\mathit{u1\_incsp\_1}\ X0))\Rightarrow(\forall X5.(\mathit{m1\_subset\_1}\ X5\ (\mathit{u1\_incsp\_1}\ X0))\Rightarrow \\
(\forall X6.(\mathit{m1\_subset\_1}\ X6\ (\mathit{u1\_incsp\_1}\ X0))\Rightarrow(\forall X7.(\mathit{m1\_subset\_1} \\
X7\ (\mathit{u1\_incsp\_1}\ X0))\Rightarrow(\forall X8.(\mathit{m1\_subset\_1}\ X8\ (\mathit{u1\_incsp\_1}\ X0))\Rightarrow \\
(\forall X9.(\mathit{m1\_subset\_1}\ X9\ (\mathit{u1\_incsp\_1}\ X0))\Rightarrow(\forall X10.(\mathit{m1\_subset\_1} \\
X10\ (\mathit{u2\_incsp\_1}\ X0))\Rightarrow(\forall X11.(\mathit{m1\_subset\_1}\ X11\ (\mathit{u2\_incsp\_1} \\
X0))\Rightarrow(\forall X12.(\mathit{m1\_subset\_1}\ X12\ (\mathit{u2\_incsp\_1}\ X0))\Rightarrow(\forall X13. \\
(\mathit{m1\_subset\_1}\ X13\ (\mathit{u2\_incsp\_1}\ X0))\Rightarrow(\forall X14.(\mathit{m1\_subset\_1} \\
X14\ (\mathit{u2\_incsp\_1}\ X0))\Rightarrow(\forall X15.(\mathit{m1\_subset\_1}\ X15\ (\mathit{u2\_incsp\_1} \\
X0))\Rightarrow(\forall X16.(\mathit{m1\_subset\_1}\ X16\ (\mathit{u2\_incsp\_1}\ X0))\Rightarrow(\forall X17. \\
(\mathit{m1\_subset\_1}\ X17\ (\mathit{u2\_incsp\_1}\ X0))\Rightarrow(((\mathit{r4\_incsp\_1}\ X0\ (\mathit{k7\_domain\_1} \\
(\mathit{u1\_incsp\_1}\ X0)\ X4\ X5)\ X10)\wedge((\mathit{r4\_incsp\_1}\ X0\ (\mathit{k8\_domain\_1}\ (\mathit{u1\_incsp\_1} \\
X0)\ X5\ X6\ X7)\ X12)\wedge((\mathit{r4\_incsp\_1}\ X0\ (\mathit{k8\_domain\_1}\ (\mathit{u1\_incsp\_1}\ X0) \\
X4\ X7\ X8)\ X11)\wedge((\mathit{r4\_incsp\_1}\ X0\ (\mathit{k8\_domain\_1}\ (\mathit{u1\_incsp\_1}\ X0)\ X1\ X2 \\
X7)\ X13)\wedge((\mathit{r4\_incsp\_1}\ X0\ (\mathit{k7\_domain\_1}\ (\mathit{u1\_incsp\_1}\ X0)\ X4\ X9)\ X14)\wedge \\
((\mathit{r4\_incsp\_1}\ X0\ (\mathit{k8\_domain\_1}\ (\mathit{u1\_incsp\_1}\ X0)\ X1\ X5\ X8)\ X15)\wedge((\mathit{r4\_incsp\_1} \\
X0\ (\mathit{k8\_domain\_1}\ (\mathit{u1\_incsp\_1}\ X0)\ X2\ X8\ X9)\ X16)\wedge((\mathit{r4\_incsp\_1}\ X0\ (\\
\mathit{k8\_domain\_1}\ (\mathit{u1\_incsp\_1}\ X0)\ X5\ X9\ X3)\ X17)\wedge(\mathit{r1\_incsp\_1}\ X0\ X3\ X13)))))))))\Rightarrow \\
((\mathit{r1\_incsp\_1}\ X0\ X1\ X10)\vee((\mathit{r1\_incsp\_1}\ X0\ X1\ X11)\vee((\mathit{r1\_incsp\_1}\ X0 \\
X2\ X12)\vee((\mathit{r1\_incsp\_1}\ X0\ X2\ X11)\vee((\mathit{r1\_incsp\_1}\ X0\ X3\ X10)\vee((\mathit{r1\_projred2} \\
X0\ X10\ X12\ X11)\vee((X1=X2)\vee((X2=X3)\vee((\neg \mathit{r1\_incsp\_1}\ X0\ X2\ X14)\wedge((\\
\neg \mathit{r1\_incsp\_1}\ X0\ X3\ X14)\wedge(X10\neq X14))))))))))))))))))))))))))))))
\end{gathered}$$