

t13\_hessenbe

(TMR54SqHQ1y3X942n3aNDjEYs9UVcjoXyPh)

October 27, 2020

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  $l1\_collsp : \iota \Rightarrow o$  be given. Let  $m1\_subset.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct.0 : \iota \Rightarrow \iota$  be given. Let  $r1\_collsp : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct.0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\ & ((v4\_collsp X0) \wedge ((v2\_anproj.2 X0) \wedge ((v3\_anproj.2 X0) \wedge (l1\_collsp \\ & X0)))))) \Rightarrow (\forall X1.(m1\_subset.1 X1 (u1\_struct.0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset.1 X2 (u1\_struct.0 X0)) \Rightarrow (\forall X3.(m1\_subset.1 X3 \\ & (u1\_struct.0 X0)) \Rightarrow (\forall X4.(m1\_subset.1 X4 (u1\_struct.0 X0)) \Rightarrow \\ & (((r1\_collsp X0 X1 X2 X3) \wedge (r1\_collsp X0 X1 X2 X4)) \Rightarrow ((X1 = X2) \vee (r1\_collsp \\ & X0 X1 X3 X4)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct.0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\ & ((v4\_collsp X0) \wedge ((v2\_anproj.2 X0) \wedge ((v3\_anproj.2 X0) \wedge (l1\_collsp \\ & X0)))))) \Rightarrow (\forall X1.(m1\_subset.1 X1 (u1\_struct.0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset.1 X2 (u1\_struct.0 X0)) \Rightarrow (\forall X3.(m1\_subset.1 X3 \\ & (u1\_struct.0 X0)) \Rightarrow ((r1\_collsp X0 X1 X2 X3) \Rightarrow ((r1\_collsp X0 X2 X3 \\ & X1) \wedge ((r1\_collsp X0 X3 X1 X2) \wedge ((r1\_collsp X0 X2 X1 X3) \wedge ((r1\_collsp \\ & X0 X1 X3 X2) \wedge (r1\_collsp X0 X3 X2 X1)))))) \end{aligned} \tag{2}$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct.0 X0) \wedge ((v2\_collsp X0) \wedge ((v3\_collsp X0) \wedge \\ & ((v4\_collsp X0) \wedge ((v2\_anproj.2 X0) \wedge ((v3\_anproj.2 X0) \wedge (l1\_collsp \\ & X0)))))) \Rightarrow (\forall X1.(m1\_subset.1 X1 (u1\_struct.0 X0)) \Rightarrow (\forall X2. \\ & (m1\_subset.1 X2 (u1\_struct.0 X0)) \Rightarrow (\forall X3.(m1\_subset.1 X3 \\ & (u1\_struct.0 X0)) \Rightarrow (\forall X4.(m1\_subset.1 X4 (u1\_struct.0 X0)) \Rightarrow \\ & (\forall X5.(m1\_subset.1 X5 (u1\_struct.0 X0)) \Rightarrow (\neg(\neg r1\_collsp \\ & X0 X1 X2 X3) \wedge ((r1\_collsp X0 X1 X2 X4) \wedge ((r1\_collsp X0 X3 X5 X1) \wedge ((X1 \neq \\ & X4) \wedge ((X1 \neq X5) \wedge (r1\_collsp X0 X4 X1 X5)))))))))) \end{aligned}$$