

t9\_hessenbe

(TMM5ZBmmMLZKDnNGjotj8MAt2z4MqBc8Ue2)

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**

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