

t20\_ncfcont2

(TMT8Lka779ptzfv43UZwVj66BVRqHTYZyV4)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v2\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v5\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v6\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v7\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v8\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $v4\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $v2\_normsp\_1 : \iota \Rightarrow o$  be given. Let  $l1\_normsp\_1 : \iota \Rightarrow o$  be given. Let  $v2\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $v5\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $v8\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $l2\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r2\_ncfcont2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r8\_ncfcont1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k1\_normsp\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_algstr\_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be

given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_normsp\_0 X0) \wedge \\
& ((v4\_normsp\_0 X0) \wedge ((v2\_clvect\_1 X0) \wedge ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 \\
& X0) \wedge ((v5\_clvect\_1 X0) \wedge ((v8\_clvect\_1 X0) \wedge (l2\_clvect\_1 X0)))))))))) \Rightarrow \\
& (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\
& X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v5\_rlvect\_1 X1) \wedge \\
& ((v6\_rlvect\_1 X1) \wedge ((v7\_rlvect\_1 X1) \wedge ((v8\_rlvect\_1 X1) \wedge ((v3\_normsp\_0 \\
& X1) \wedge ((v4\_normsp\_0 X1) \wedge ((v2\_normsp\_1 X1) \wedge (l1\_normsp\_1 X1)))))))))) \Rightarrow \\
& (\forall X2. \forall X3. ((v1\_funct\_1 X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow ((r8\_ncfcont1 \\
& X0 X1 X3 X2) \Leftrightarrow ((r1\_tarski X2 (k1\_relset\_1 (u1\_struct\_0 X0) X3)) \wedge \\
& (\forall X4. (m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow (\forall X5. (m1\_subset\_1 \\
& X5 k1\_numbers) \Rightarrow (\neg (X4 \in X2) \wedge ((\neg r1\_xxreal\_0 X5 k6\_numbers) \wedge (\forall X6. \\
& (m1\_subset\_1 X6 k1\_numbers) \Rightarrow (\neg (\neg r1\_xxreal\_0 X6 k6\_numbers) \wedge \\
& (\forall X7. (m1\_subset\_1 X7 (u1\_struct\_0 X0)) \Rightarrow (\neg (X7 \in X2) \wedge ((\neg \\
& r1\_xxreal\_0 X6 (k1\_normsp\_0 X0 (k5\_algstr\_0 X0 X7 X4)) \wedge (r1\_xxreal\_0 \\
& X5 (k1\_normsp\_0 X1 (k5\_algstr\_0 X1 (k7\_partfun1 (u1\_struct\_0 X1) \\
& X3 X7) (k7\_partfun1 (u1\_struct\_0 X1) X3 X4))))))))))))))))) \\
& \tag{1}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge \\
& ((v2\_rlvect\_1 X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v5\_rlvect\_1 \\
& X1) \wedge ((v6\_rlvect\_1 X1) \wedge ((v7\_rlvect\_1 X1) \wedge ((v8\_rlvect\_1 X1) \wedge \\
& ((v3\_normsp\_0 X1) \wedge ((v4\_normsp\_0 X1) \wedge ((v2\_normsp\_1 X1) \wedge (l1\_normsp\_1 \\
& X1)))))))))) \Rightarrow (\forall X2. ((\neg v2\_struct\_0 X2) \wedge ((v13\_algstr\_0 \\
& X2) \wedge ((v2\_rlvect\_1 X2) \wedge ((v3\_rlvect\_1 X2) \wedge ((v4\_rlvect\_1 X2) \wedge \\
& ((v3\_normsp\_0 X2) \wedge ((v4\_normsp\_0 X2) \wedge ((v2\_clvect\_1 X2) \wedge ((v3\_clvect\_1 \\
& X2) \wedge ((v4\_clvect\_1 X2) \wedge ((v5\_clvect\_1 X2) \wedge ((v8\_clvect\_1 X2) \wedge \\
& (l2\_clvect\_1 X2)))))))))) \Rightarrow (\forall X3. ((v1\_funct\_1 X3) \wedge \\
& (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X2) (u1\_struct\_0 \\
& X1)))))) \Rightarrow ((r2\_ncfcont2 X0 X1 X2 X3) \Leftrightarrow ((r1\_tarski X0 (k1\_relset\_1 \\
& (u1\_struct\_0 X2) X3)) \wedge (\forall X4. (m1\_subset\_1 X4 k1\_numbers) \Rightarrow \\
& (\neg (\neg r1\_xxreal\_0 X4 k6\_numbers) \wedge (\forall X5. (m1\_subset\_1 X5 k1\_numbers) \Rightarrow \\
& (\neg (\neg r1\_xxreal\_0 X5 k6\_numbers) \wedge (\forall X6. (m1\_subset\_1 X6 ( \\
& u1\_struct\_0 X2)) \Rightarrow (\forall X7. (m1\_subset\_1 X7 (u1\_struct\_0 X2)) \Rightarrow \\
& (\neg (X6 \in X0) \wedge ((X7 \in X0) \wedge ((\neg r1\_xxreal\_0 X5 (k1\_normsp\_0 X2 (k5\_algstr\_0 \\
& X2 X6 X7)) \wedge (r1\_xxreal\_0 X4 (k1\_normsp\_0 X1 (k5\_algstr\_0 X1 (k7\_partfun1 \\
& (u1\_struct\_0 X1) X3 X6) (k7\_partfun1 (u1\_struct\_0 X1) X3 X7))))))))))))))))) \\
& \tag{2}
\end{aligned}$$

**Theorem 1**

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2\_struct\_0 X1) \wedge (v13\_algstr\_0 X1) \wedge \\ & ((v2\_rlvect\_1 X1) \wedge (v3\_rlvect\_1 X1) \wedge (v4\_rlvect\_1 X1) \wedge (v5\_rlvect\_1 \\ & X1) \wedge (v6\_rlvect\_1 X1) \wedge (v7\_rlvect\_1 X1) \wedge (v8\_rlvect\_1 X1) \wedge \\ & ((v3\_normsp\_0 X1) \wedge (v4\_normsp\_0 X1) \wedge (v2\_normsp\_1 X1) \wedge (l1\_normsp\_1 \\ & X1)))))) \Rightarrow (\forall X2. ((\neg v2\_struct\_0 X2) \wedge (v13\_algstr\_0 \\ & X2) \wedge (v2\_rlvect\_1 X2) \wedge (v3\_rlvect\_1 X2) \wedge (v4\_rlvect\_1 X2) \wedge \\ & ((v3\_normsp\_0 X2) \wedge (v4\_normsp\_0 X2) \wedge (v2\_clvect\_1 X2) \wedge (v3\_clvect\_1 \\ & X2) \wedge (v4\_clvect\_1 X2) \wedge (v5\_clvect\_1 X2) \wedge (v8\_clvect\_1 X2) \wedge \\ & (l2\_clvect\_1 X2)))))) \Rightarrow (\forall X3. ((v1\_funct\_1 X3) \wedge \\ & (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X2) (u1\_struct\_0 \\ & X1)))))) \Rightarrow (r2\_ncfcont2 X0 X1 X2 X3) \Rightarrow (r8\_ncfcont1 X2 X1 X3 X0))) \end{aligned}$$