

## t20\_clopban1

(TMVy4MrEbisdo8dA7cssDQqXQZXRwUPAi1J)

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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  $v3\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $v4\_normsp\_0 : \iota \Rightarrow o$  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  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v13\_vectsp\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_clopban1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  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  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $v2\_clopban1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $r1\_xreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $k3\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k1\_normsp\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k8\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $l2\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $l1\_normsp\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_clvect\_1 : \iota \Rightarrow o$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (\neg(\neg r1\_xreal\_0 X0 X1) \wedge ((\neg v3\_xreal\_0 X1) \wedge (\neg v2\_xxreal\_0 X0)))) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_xcmplx\_0 X0) \Rightarrow (k3\_xcmplx\_0 np\_1 X0 = X0) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_normsp\_0 X0) \wedge \\ & ((v4\_normsp\_0 X0) \wedge ((v2\_clvect\_1 X0) \wedge ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 \\ & X0) \wedge ((v5\_clvect\_1 X0) \wedge ((v8\_clvect\_1 X0) \wedge (l2\_clvect\_1 X0)))))))))) \Rightarrow \\ & (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0) \Rightarrow (r1\_xxreal\_0 k6\_numbers \\ & (k1\_normsp\_0 X0 X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_normsp\_0 X0) \wedge \\ & ((v4\_normsp\_0 X0) \wedge ((v2\_clvect\_1 X0) \wedge ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 \\ & X0) \wedge ((v5\_clvect\_1 X0) \wedge ((v8\_clvect\_1 X0) \wedge (l2\_clvect\_1 X0)))))))))) \Rightarrow \\ & (k1\_normsp\_0 X0 (k4\_struct\_0 X0) = k6\_numbers) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_1) \wedge (m2\_subset\_1 np\_1 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_1 k5\_numbers) \wedge (m1\_subset\_1 np\_1 k1\_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((m1\_subset\_1 X0 k1\_numbers) \wedge (v1\_xreal\_0 \\ & X1)) \Rightarrow (k8\_real\_1 X0 X1 = k3\_xcmplx\_0 X0 X1) \end{aligned} \quad (6)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v4\_normsp\_0 X0) \wedge (l2\_normsp\_0 \\ & X0))) \Rightarrow (v1\_xboole\_0 (k1\_normsp\_0 X0 (k4\_struct\_0 X0))) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0. (l2\_normsp\_0 X0) \Rightarrow ((l1\_normsp\_0 X0) \wedge (l2\_struct\_0 X0)) \quad (9)$$

Assume the following.

$$\forall X0. (l2\_clvect\_1 X0) \Rightarrow ((l1\_clvect\_1 X0) \wedge (l2\_normsp\_0 X0)) \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l2\_struct\_0 X0) \Rightarrow (m1\_subset\_1 (k4\_struct\_0 X0) (u1\_struct\_0 \\ & X0)) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge(l1\_normsp\_0 X0))\wedge(m1\_subset\_1 X1 (u1\_struct\_0 X0)))\Rightarrow(m1\_subset\_1 (k1\_normsp\_0 X0 X1) k1\_numbers) \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0)\wedge((v13\_algstr\_0 X0)\wedge((v2\_rlvect\_1 X0)\wedge((v3\_rlvect\_1 X0)\wedge((v4\_rlvect\_1 X0)\wedge((v3\_normsp\_0 X0)\wedge((v4\_normsp\_0 X0)\wedge((v2\_clvect\_1 X0)\wedge((v3\_clvect\_1 X0)\wedge((v4\_clvect\_1 X0)\wedge((v5\_clvect\_1 X0)\wedge((v8\_clvect\_1 X0)\wedge(l2\_clvect\_1 X0))))))))))))))\Rightarrow \\ & (\forall X1.((\neg v2\_struct\_0 X1)\wedge((v13\_algstr\_0 X1)\wedge((v2\_rlvect\_1 X1)\wedge((v3\_rlvect\_1 X1)\wedge((v4\_rlvect\_1 X1)\wedge((v3\_normsp\_0 X1)\wedge((v4\_normsp\_0 X1)\wedge((v2\_clvect\_1 X1)\wedge((v3\_clvect\_1 X1)\wedge((v4\_clvect\_1 X1)\wedge((v5\_clvect\_1 X1)\wedge((v8\_clvect\_1 X1)\wedge(l2\_clvect\_1 X1))))))))))))))\Rightarrow \\ & (\forall X2.((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 X1))\wedge((v13\_vectsp\_1 X2 X0 X1)\wedge((v1\_clopban1 X2 X0 X1)\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1))))))))))\Rightarrow((v2\_clopban1 X2 X0 X1)\Leftrightarrow(\exists X3. \\ & (m1\_subset\_1 X3 k1\_numbers)\wedge((r1\_xxreal\_0 k6\_numbers X3)\wedge(\forall X4. \\ & (m1\_subset\_1 X4 (u1\_struct\_0 X0))\Rightarrow(r1\_xxreal\_0 (k1\_normsp\_0 X1 (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2 X4)) (k8\_real\_1 X3 (k1\_normsp\_0 X0 X4)))))))))) \quad (13) \end{aligned}$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0)\Rightarrow(v1\_xxreal\_0 X0) \quad (14)$$

Assume the following.

$$\forall X0.((v1\_xxreal\_0 X0)\wedge(v2\_xxreal\_0 X0))\Rightarrow((\neg v1\_xboole\_0 X0)\wedge((v1\_xxreal\_0 X0)\wedge(\neg v3\_xxreal\_0 X0))) \quad (15)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers)\Rightarrow(v1\_xreal\_0 X0) \quad (16)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers)\Rightarrow(v1\_xcmplx\_0 X0) \quad (17)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\ & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v3\_normsp\_0 X0) \wedge \\ & ((v4\_normsp\_0 X0) \wedge ((v2\_clvect\_1 X0) \wedge ((v3\_clvect\_1 X0) \wedge ((v4\_clvect\_1 \\ & X0) \wedge ((v5\_clvect\_1 X0) \wedge ((v8\_clvect\_1 X0) \wedge (l2\_clvect\_1 X0)))))))))) \Rightarrow \\ & (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v13\_algstr\_0 X1) \wedge ((v2\_rlvect\_1 \\ & X1) \wedge ((v3\_rlvect\_1 X1) \wedge ((v4\_rlvect\_1 X1) \wedge ((v3\_normsp\_0 X1) \wedge \\ & ((v4\_normsp\_0 X1) \wedge ((v2\_clvect\_1 X1) \wedge ((v3\_clvect\_1 X1) \wedge ((v4\_clvect\_1 \\ & X1) \wedge ((v5\_clvect\_1 X1) \wedge ((v8\_clvect\_1 X1) \wedge (l2\_clvect\_1 X1)))))))))) \Rightarrow \\ & (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X0) \\ & (u1\_struct\_0 X1)) \wedge ((v13\_vectsp\_1 X2 X0 X1) \wedge ((v1\_clopan1 X2 X0 \\ & X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) \\ & (u1\_struct\_0 X1)))))) \Rightarrow ((\forall X3.(m1\_subset\_1 X3 (u1\_struct\_0 \\ & X0)) \Rightarrow (k3\_funct\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2 X3 = k4\_struct\_0 \\ & X1)) \Rightarrow (v2\_clopan1 X2 X0 X1)))) \end{aligned}$$