

## t3\_chord

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Let  $v1\_int\_1 : \iota \Rightarrow o$  be given. Let  $v1\_abian : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v3\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $k3\_real\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np\_1 : \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k2\_xcmplx\_0 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_int\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xcmplx\_0 : \iota \Rightarrow o$  be given. Let  $k4\_xcmplx\_0 : \iota \Rightarrow \iota$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $np\_0 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k19\_binop\_2 : \iota \Rightarrow \iota$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (\forall X2. \\ & (v1\_xreal\_0 X2) \Rightarrow ((r1\_xxreal\_0 X0 X1) \Leftrightarrow (r1\_xxreal\_0 (k6\_xcmplx\_0 \\ & X0 X2) (k6\_xcmplx\_0 X1 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (\neg(\neg \\ & r1\_xxreal\_0 X0 X1) \wedge ((\neg v2\_xxreal\_0 X0) \wedge (\neg v3\_xxreal\_0 X1)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_int\_1 X0) \Rightarrow (\forall X1.(v1\_int\_1 X1) \Rightarrow ((\neg r1\_xxreal\_0 \\ & X1 X0) \Rightarrow (r1\_xxreal\_0 (k3\_real\_1 X0 np\_1) X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (X0 = k1\_xboole\_0) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (\neg(r1\_xxreal\_0 \\ & X0 X1) \wedge ((\neg v3\_xxreal\_0 X0) \wedge (v3\_xxreal\_0 X1)))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (\neg(\neg r1\_xxreal\_0 X0 k6\_numbers) \wedge (r1\_xxreal\_0 (k2\_xcmplx\_0 X1 X0) X1))) \quad (6)$$

Assume the following.

$$\forall X0.(v1\_int\_1 X0) \Rightarrow (\forall X1.(v1\_int\_1 X1) \Rightarrow ((r1\_int\_1 X1 X0) \Rightarrow ((r1\_xxreal\_0 X0 k6\_numbers) \vee (r1\_xxreal\_0 X1 X0)))) \quad (7)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (\forall X1.(v1\_xreal\_0 X1) \Rightarrow (\forall X2.(v1\_xreal\_0 X2) \Rightarrow ((r1\_xxreal\_0 (k2\_xcmplx\_0 X0 X1) X2) \Leftrightarrow (r1\_xxreal\_0 X0 (k6\_xcmplx\_0 X2 X1)))))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xcmplx\_0 X0) \wedge (v1\_xcmplx\_0 X1)) \Rightarrow (k6\_xcmplx\_0 (k4\_xcmplx\_0 X0) (k4\_xcmplx\_0 X1) = k6\_xcmplx\_0 X1 X0) \quad (9)$$

Assume the following.

$$((v2\_xxreal\_0 np\_2) \wedge (m2\_subset\_1 np\_2 k1\_numbers k5\_numbers)) \wedge ((m1\_subset\_1 np\_2 k5\_numbers) \wedge (m1\_subset\_1 np\_2 k1\_numbers)) \quad (10)$$

Assume the following.

$$((v2\_xxreal\_0 np\_1) \wedge (m2\_subset\_1 np\_1 k1\_numbers k5\_numbers)) \wedge ((m1\_subset\_1 np\_1 k5\_numbers) \wedge (m1\_subset\_1 np\_1 k1\_numbers)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xcmplx\_0 X0) \wedge (v1\_xcmplx\_0 X1)) \Rightarrow (k2\_xcmplx\_0 X0 (k4\_xcmplx\_0 X1) = k6\_xcmplx\_0 X0 X1) \quad (12)$$

Assume the following.

$$v1\_xboole\_0 np\_0 \quad (13)$$

Assume the following.

$$k4\_xcmplx\_0 (k4\_xcmplx\_0 np\_1) = np\_1 \quad (14)$$

Assume the following.

$$k4\_xcmplx\_0 np\_0 = np\_0 \quad (15)$$

Assume the following.

$$k6\_xcmplx\_0 np\_0 np\_1 = k4\_xcmplx\_0 np\_1 \quad (16)$$

Assume the following.

$$k2\_xcmplx\_0 \ np\_0 \ np\_1 = np\_1 \quad (17)$$

Assume the following.

$$\neg r1\_xreal\_0 \ np\_1 \ np\_0 \quad (18)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (19)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (20)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_xreal\_0 \ X0) \wedge (m1\_subset\_1 \ X1 \ k1\_numbers)) \Rightarrow (k3\_real\_1 \ X0 \ X1 = k2\_xcmplx\_0 \ X0 \ X1) \quad (21)$$

Assume the following.

$$\forall X0. (v1\_int\_1 \ X0) \Rightarrow (k19\_binop\_2 \ X0 = k4\_xcmplx\_0 \ X0) \quad (22)$$

Assume the following.

$$\exists X0. (v1\_xboole\_0 \ X0) \wedge ((v1\_xcmplx\_0 \ X0) \wedge ((v1\_xreal\_0 \ X0) \wedge (v1\_xreal\_0 \ X0))) \quad (23)$$

Assume the following.

$$\forall X0. (v1\_xcmplx\_0 \ X0) \Rightarrow (k4\_xcmplx\_0 \ (k4\_xcmplx\_0 \ X0) = X0) \quad (24)$$

Assume the following.

$$\forall X0. (v1\_int\_1 \ X0) \Rightarrow (k19\_binop\_2 \ (k19\_binop\_2 \ X0) = X0) \quad (25)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_xreal\_0 \ X0) \wedge (v1\_xreal\_0 \ X1)) \Rightarrow (v1\_xreal\_0 \ (k6\_xcmplx\_0 \ X0 \ X1)) \quad (26)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_int\_1 \ X0) \wedge (v1\_int\_1 \ X1)) \Rightarrow (v1\_int\_1 \ (k6\_xcmplx\_0 \ X0 \ X1)) \quad (27)$$

Assume the following.

$$\forall X0. (v1\_xreal\_0 \ X0) \Rightarrow ((v1\_xcmplx\_0 \ (k4\_xcmplx\_0 \ X0)) \wedge (v1\_xreal\_0 \ (k4\_xcmplx\_0 \ X0))) \quad (28)$$

Assume the following.

$$\forall X0.(v1\_int\_1 X0) \Rightarrow ((v1\_xcmplx\_0 (k4\_xcmplx\_0 X0)) \wedge (v1\_int\_1 (k4\_xcmplx\_0 X0))) \quad (29)$$

Assume the following.

$$\forall X0.((\neg v3\_xxreal\_0 X0) \wedge (v1\_xreal\_0 X0)) \Rightarrow ((v1\_xcmplx\_0 (k4\_xcmplx\_0 X0)) \wedge (\neg v2\_xxreal\_0 (k4\_xcmplx\_0 X0))) \quad (30)$$

Assume the following.

$$\forall X0.((\neg v2\_xxreal\_0 X0) \wedge (v1\_xreal\_0 X0)) \Rightarrow ((v1\_xcmplx\_0 (k4\_xcmplx\_0 X0)) \wedge (\neg v3\_xxreal\_0 (k4\_xcmplx\_0 X0))) \quad (31)$$

Assume the following.

$$\forall X0.\forall X1.(((v1\_int\_1 X0) \wedge (\neg v1\_abian X0)) \wedge ((v1\_int\_1 X1) \wedge (\neg v1\_abian X1))) \Rightarrow (v1\_abian (k6\_xcmplx\_0 X0 X1)) \quad (32)$$

Assume the following.

$$\forall X0.(v1\_int\_1 X0) \Rightarrow ((v1\_abian X0) \Leftrightarrow (r1\_int\_1 np\_2 X0)) \quad (33)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_xcmplx\_0 X0) \wedge (v1\_xcmplx\_0 X1)) \Rightarrow (k2\_xcmplx\_0 X0 X1 = k2\_xcmplx\_0 X1 X0) \quad (34)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \quad (35)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (v7\_ordinal1 X0) \quad (36)$$

Assume the following.

$$\forall X0.(v1\_xreal\_0 X0) \Rightarrow (v1\_xcmplx\_0 X0) \quad (37)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow ((v7\_ordinal1 X0) \wedge (\neg v3\_xxreal\_0 X0)) \quad (38)$$

Assume the following.

$$\forall X0.(v1\_int\_1 X0) \Rightarrow (v1\_xreal\_0 X0) \quad (39)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (v1\_xreal\_0 X0) \quad (40)$$

Assume the following.

$$\forall X0.(v7\_ordinal1 X0) \Rightarrow (v1\_int\_1 X0) \quad (41)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (v1\_xreal\_0 X0) \quad (42)$$

**Theorem 1**

$$\forall X0.((v1\_int\_1 X0) \wedge (\neg v1\_abian X0)) \Rightarrow (\forall X1.((v1\_int\_1 X1) \wedge (\neg v1\_abian X1)) \Rightarrow ((\neg r1\_xxreal\_0 X1 X0) \Rightarrow (r1\_xxreal\_0 X0 (k6\_xcmplx\_0 X1 np\_2))))$$