

## t2\_jordan22

(TMWN9wPtMPx1oRJgFrNYeQqL6PMDwDL9ZDD)

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Let  $v1\_topreal2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k15\_euclid : \iota \Rightarrow \iota$  be given. Let  $np\_2 : \iota$  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  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_setfam\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_jordan19 : \iota \Rightarrow \iota$  be given. Let  $k2\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_goboard9 : \iota \Rightarrow \iota$  be given. Let  $k1\_jordan9 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_numbers : \iota$  be given. Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v2\_xxreal\_0 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k9\_jordan6 : \iota \Rightarrow \iota$  be given. Let  $k8\_jordan6 : \iota \Rightarrow \iota$  be given. Let  $v2\_compts\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_sppol\_1 : \iota \Rightarrow o$  be given. Let  $v2\_sppol\_1 : \iota \Rightarrow o$  be given. Let  $v2\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_topreal1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $m2\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $m1\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow o$  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  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v3\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_6 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_topreal1 : \iota \Rightarrow o$  be given. Let  $v2\_topreal1 : \iota \Rightarrow o$  be given. Let  $v1\_goboard5 : \iota \Rightarrow o$  be given. Let  $v2\_goboard5 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_sprect\_2 : \iota \Rightarrow o$  be given. Let  $v3\_membered : \iota \Rightarrow o$  be given. Let  $v2\_membered : \iota \Rightarrow o$  be given. Let  $v1\_xxreal\_0 : \iota \Rightarrow o$  be given. Assume the following.

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

Assume the following.

$$\forall X0.((\neg v1\_xboole\_0 X0) \wedge ((v1\_topreal2 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 (k15\_euclid np\_2)))))) \Rightarrow ((r1\_tarski (k9\_jordan6 X0) X0) \wedge (r1\_tarski (k8\_jordan6 X0) X0)) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m2\_subset\_1 X0 k1\_numbers k5\_numbers) \Rightarrow (\forall X1. \\ & (m2\_subset\_1 X1 k1\_numbers k5\_numbers) \Rightarrow (\forall X2. ((v2\_compts\_1 \\ & X2 (k15\_euclid np\_2)) \wedge ((\neg v1\_sppol\_1 X2) \wedge ((\neg v2\_sppol\_1 X2) \wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 (k15\_euclid np\_2)))))) \Rightarrow (3) \\ & (((v2\_connsp\_1 X2 (k15\_euclid np\_2)) \wedge (r1\_xxreal\_0 X0 X1)) \Rightarrow ( \\ & r1\_tarski (k3\_topreal1 np\_2 (k1\_jordan9 X2 X1)) (k2\_pre\_topc \\ & (k15\_euclid np\_2) (k3\_goboard9 (k1\_jordan9 X2 X0)))))) \end{aligned}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1\_tarski X0 X1) \wedge (r1\_tarski X1 X2)) \Rightarrow (r1\_tarski X0 X2) \quad (4)$$

Assume the following.

$$m1\_subset\_1 k1\_xboole\_0 k4\_ordinal1 \quad (5)$$

Assume the following.

$$\begin{aligned} & ((v2\_xxreal\_0 np\_2) \wedge (m2\_subset\_1 np\_2 k1\_numbers k5\_numbers)) \wedge \\ & ((m1\_subset\_1 np\_2 k5\_numbers) \wedge (m1\_subset\_1 np\_2 k1\_numbers)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole\_0 X0) \wedge ((\neg v1\_xboole\_0 X1) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)))) \Rightarrow (\forall X2. (m2\_subset\_1 \\ & X2 X0 X1) \Leftrightarrow (m1\_subset\_1 X2 X1)) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. (m2\_finseq\_1 X1 X0) \Leftrightarrow (m1\_finseq\_1 X1 X0) \quad (8)$$

Assume the following.

$$\forall X0. k9\_setfam\_1 X0 = k1\_zfmisc\_1 X0 \quad (9)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (10)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1\_xboole\_0 X0) \wedge \\ & (((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))))) \wedge (m1\_subset\_1 X3 X0))) \Rightarrow (k3\_funct\_2 X0 \\ & X1 X2 X3 = k1\_funct\_1 X2 X3) \end{aligned} \quad (12)$$

Assume the following.

$$(\neg v1\_xboole\_0\ k4\_ordinal1) \wedge (v3\_ordinal1\ k4\_ordinal1) \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v1\_xboole\_0\ X0) \wedge ((\neg v3\_funct\_1\ X0) \wedge ((v1\_finseq\_6 \\ &X0\ (u1\_struct\_0\ (k15\_euclid\ np\_2)))) \wedge ((v1\_topreal1\ X0) \wedge ((v2\_topreal1 \\ &X0) \wedge ((v1\_goboard5\ X0) \wedge ((v2\_goboard5\ X0) \wedge (m1\_finseq\_1\ X0\ (u1\_struct\_0 \\ &(k15\_euclid\ np\_2)))))))))) \Rightarrow (v1\_topreal2\ (k3\_topreal1\ np\_2 \\ &X0)) \end{aligned} \quad (14)$$

Assume the following.

$$v1\_xboole\_0\ k1\_xboole\_0 \quad (15)$$

Assume the following.

$$\neg v1\_xboole\_0\ k1\_numbers \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (&(\neg v1\_xboole\_0\ X0) \wedge ((\neg v1\_xboole\_0\ X1) \wedge \\ &(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ X0)))) \Rightarrow (\forall X2. (m2\_subset\_1 \\ &X2\ X0\ X1) \Rightarrow (m1\_subset\_1\ X2\ X0)) \end{aligned} \quad (17)$$

Assume the following.

$$m2\_subset\_1\ k6\_numbers\ k1\_numbers\ k5\_numbers \quad (18)$$

Assume the following.

$$m1\_subset\_1\ k5\_numbers\ (k1\_zfmisc\_1\ k1\_numbers) \quad (19)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (&(v7\_ordinal1\ X0) \wedge (m1\_finseq\_1\ X1\ (u1\_struct\_0 \\ &(k15\_euclid\ X0)))) \Rightarrow (m1\_subset\_1\ (k3\_topreal1\ X0\ X1)\ (k1\_zfmisc\_1 \\ &(u1\_struct\_0\ (k15\_euclid\ X0)))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(v1\_topreal2\ X0) \wedge (m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (u1\_struct\_0 \\ &(k15\_euclid\ np\_2)))))) \Rightarrow ((v1\_funct\_1\ (k2\_jordan19\ X0)) \wedge ((v1\_funct\_2 \\ &(k2\_jordan19\ X0)\ k5\_numbers\ (k9\_setfam\_1\ (u1\_struct\_0\ (k15\_euclid \\ &np\_2)))) \wedge (m1\_subset\_1\ (k2\_jordan19\ X0)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1 \\ &k5\_numbers\ (k9\_setfam\_1\ (u1\_struct\_0\ (k15\_euclid\ np\_2)))))))))) \end{aligned} \quad (21)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v1\_xboole\_0 X0)\wedge((v2\_compts\_1 X0 ( \\ k15\_euclid np\_2))\wedge((\neg v1\_sppol\_1 X0)\wedge((\neg v2\_sppol\_1 X0)\wedge(m1\_subset\_1 \\ X0 (k1\_zfmisc\_1 (u1\_struct\_0 (k15\_euclid np\_2))))))))\wedge(v7\_ordinal1 \\ X1))\Rightarrow((\neg v1\_xboole\_0 (k1\_jordan9 X0 X1))\wedge((\neg v3\_funct\_1 (k1\_jordan9 \\ X0 X1))\wedge((v1\_finseq\_6 (k1\_jordan9 X0 X1) (u1\_struct\_0 (k15\_euclid \\ np\_2)))\wedge((v1\_topreal1 (k1\_jordan9 X0 X1))\wedge((v2\_topreal1 (k1\_jordan9 \\ X0 X1))\wedge((v1\_goboard5 (k1\_jordan9 X0 X1))\wedge((v2\_goboard5 (k1\_jordan9 \\ X0 X1))\wedge((v1\_sprect\_2 (k1\_jordan9 X0 X1))\wedge(m2\_finseq\_1 (k1\_jordan9 \\ X0 X1) (u1\_struct\_0 (k15\_euclid np\_2)))))))))))))) \\ (22) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall X0.((v1\_topreal2 X0)\wedge(m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 \\ (k15\_euclid np\_2))))\Rightarrow(\forall X1.((v1\_funct\_1 X1)\wedge((v1\_funct\_2 \\ X1 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 (k15\_euclid np\_2))))\wedge \\ (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (k9\_setfam\_1 \\ (u1\_struct\_0 (k15\_euclid np\_2))))))))\Rightarrow((X1 = k2\_jordan19 X0)\Leftrightarrow \\ (\forall X2.(m1\_subset\_1 X2 k5\_numbers)\Rightarrow(k1\_funct\_1 X1 X2 = k9\_jordan6 \\ (k3\_topreal1 np\_2 (k1\_jordan9 X0 X2)))))) \\ (23) \end{aligned}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 (k15\_euclid \\ np\_2))))\Rightarrow((v1\_topreal2 X0)\Rightarrow(v2\_connsp\_1 X0 (k15\_euclid np\_2))) \quad (24)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1)\Rightarrow(v7\_ordinal1 X0) \quad (25)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 k1\_numbers))\Rightarrow(v3\_membered \\ X0) \quad (26)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 (k15\_euclid \\ np\_2))))\Rightarrow((v1\_xboole\_0 X0)\Rightarrow(v2\_sppol\_1 X0)) \quad (27)$$

Assume the following.

$$\forall X0.(v3\_membered X0)\Rightarrow(v2\_membered X0) \quad (28)$$

Assume the following.

$$\forall X0.((v1\_xxreal\_0 X0)\wedge(v2\_xxreal\_0 X0))\Rightarrow((\neg v1\_xboole\_0 \\ X0)\wedge((v1\_xxreal\_0 X0)\wedge(\neg v3\_xxreal\_0 X0))) \quad (29)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k5\_numbers) \Rightarrow (\neg v3\_xreal\_0 X0) \quad (30)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k1\_numbers) \Rightarrow (v1\_xreal\_0 X0) \quad (31)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 (k15\_euclid np\_2)))) \Rightarrow ((v1\_topreal2 X0) \Rightarrow ((v1\_topreal2 X0) \wedge (\neg v1\_sppol\_1 X0) \wedge (\neg v2\_sppol\_1 X0))) \quad (32)$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 (k15\_euclid np\_2)))) \Rightarrow ((v1\_topreal2 X0) \Rightarrow ((\neg v1\_xboole\_0 X0) \wedge (v2\_compts\_1 X0 (k15\_euclid np\_2)))) \quad (33)$$

Assume the following.

$$\forall X0.(v3\_membered X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow (v1\_xreal\_0 X1)) \quad (34)$$

Assume the following.

$$\forall X0.(v2\_membered X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 X0) \Rightarrow (v1\_xreal\_0 X1)) \quad (35)$$

**Theorem 1**

$$\forall X0.((v1\_topreal2 X0) \wedge (m1\_subset\_1 X0 (k1\_zfmisc\_1 (u1\_struct\_0 (k15\_euclid np\_2)))) \Rightarrow (\forall X1.(m2\_subset\_1 X1 k1\_numbers k5\_numbers) \Rightarrow (r1\_tarski (k3\_funct\_2 k5\_numbers (k9\_setfam\_1 (u1\_struct\_0 (k15\_euclid np\_2))) (k2\_jordan19 X0) X1) (k2\_pre\_topc (k15\_euclid np\_2) (k3\_goboard9 (k1\_jordan9 X0 k6\_numbers)))))$$