

## t11\_jordan24

(TMdQLk2CYVdKMRX4Xcbg4tjKWQLhUiKw5iA)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_pre\_topc : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  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  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_tops\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v2\_funct\_1 : \iota \Rightarrow o$  be given. Let  $k8\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_relat\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k10\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $v2\_connsp\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k8\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v5\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $k2\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k2\_tops\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow (((r1\_tarski X0 (k9\_xtuple\_0 X1)) \wedge (v2\_funct\_1 X1)) \Rightarrow (k8\_relat\_1 X1 (k7\_relat\_1 X1 X0) = X0)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v1\_funct\_1 X1)) \Rightarrow ((r1\_tarski X0 (k10\_xtuple\_0 X1)) \Rightarrow (k7\_relat\_1 X1 (k8\_relat\_1 X1 X0) = X0)) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc X0))) \Rightarrow (\forall X1. ((\neg v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc X1)))) \Rightarrow (\forall X2. ((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X1)) \Rightarrow (((v3\_tops\_2 X2 X0 X1) \wedge (v2\_connsp\_1 X3 X1)) \Rightarrow (v2\_connsp\_1 (k8\_relset\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2 X3) X0)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v2\_pre\_topc X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow (\forall X1.((\neg v2\_struct\_0 X1) \wedge ((v2\_pre\_topc X1) \wedge (l1\_pre\_topc \\ & X1))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (u1\_struct\_0 \\ & X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (u1\_struct\_0 X0) (u1\_struct\_0 X1)))))) \Rightarrow (\forall X3.(m1\_subset\_1 \\ & X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow (((v5\_pre\_topc X2 X0 X1) \wedge \\ & v2\_connsp\_1 X3 X0) \Rightarrow (v2\_connsp\_1 (k7\_relset\_1 (u1\_struct\_0 X0) \\ & (u1\_struct\_0 X1) X2 X3) X1)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \quad (5)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (v1\_relat\_1 X2) \Rightarrow ((r1\_tarski X0 X1) \Rightarrow (r1\_tarski (k8\_relat\_1 X2 X0) (k8\_relat\_1 X2 X1))) \quad (6)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (k8\_relset\_1 X0 X1 X2 X3 = k8\_relat\_1 X2 X3) \quad (7)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (k7\_relset\_1 X0 X1 X2 X3 = k7\_relat\_1 X2 X3) \quad (8)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v5\_relat\_1 X1 X0)) \Rightarrow (k2\_relset\_1 X0 X1 = k10\_xtuple\_0 X1) \quad (9)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v4\_relat\_1 X1 X0)) \Rightarrow (k1\_relset\_1 X0 X1 = k9\_xtuple\_0 X1) \quad (10)$$

Assume the following.

$$\forall X0. (l1\_pre\_topc X0) \Rightarrow (l1\_struct\_0 X0) \quad (11)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (m1\_subset\_1 (k8\_relset\_1 X0 X1 X2 X3) (k1\_zfmisc\_1 X0)) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(m1\_subset\_1 (k7\_relset\_1 X0 X1 X2 X3) (k1\_zfmisc\_1 X1)) \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_pre\_topc X0)\Rightarrow(\forall X1.(l1\_pre\_topc X1)\Rightarrow(\forall X2. \\ ((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 (u1\_struct\_0 X0) (u1\_struct\_0 \\ X1))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 \\ X0) (u1\_struct\_0 X1))))))\Rightarrow((v3\_tops\_2 X2 X0 X1)\Leftrightarrow((k1\_relset\_1 \\ (u1\_struct\_0 X0) X2 = k2\_struct\_0 X0)\wedge((k2\_relset\_1 (u1\_struct\_0 \\ X1) X2 = k2\_struct\_0 X1)\wedge((v2\_funct\_1 X2)\wedge((v5\_pre\_topc X2 X0 X1)\wedge \\ (v5\_pre\_topc (k2\_tops\_2 (u1\_struct\_0 X0) (u1\_struct\_0 X1) X2) \\ X1 X0)))))))) \quad (14) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_pre\_topc X0)\Rightarrow(\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ (u1\_struct\_0 X0)))\Rightarrow((v3\_connsp\_1 X1 X0)\Leftrightarrow((v2\_connsp\_1 X1 X0)\wedge \\ (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow \\ (((v2\_connsp\_1 X2 X0)\wedge(r1\_tarski X1 X2))\Rightarrow(X1 = X2)))))) \quad (15) \end{aligned}$$

Assume the following.

$$\forall X0.(l1\_struct\_0 X0)\Rightarrow(k2\_struct\_0 X0 = u1\_struct\_0 X0) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow((v4\_relat\_1 X2 X0)\wedge(v5\_relat\_1 X2 X1)) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(v1\_relat\_1 X2) \quad (18)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0 X0)\wedge((v2\_pre\_topc X0)\wedge(l1\_pre\_topc \\ X0)))\Rightarrow(\forall X1.((\neg v2\_struct\_0 X1)\wedge((v2\_pre\_topc X1)\wedge(l1\_pre\_topc \\ X1)))\Rightarrow(\forall X2.((v1\_funct\_1 X2)\wedge((v1\_funct\_2 X2 (u1\_struct\_0 \\ X0) (u1\_struct\_0 X1))\wedge(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ (u1\_struct\_0 X0) (u1\_struct\_0 X1))))))\Rightarrow((v3\_tops\_2 X2 X0 X1)\Rightarrow \\ (\forall X3.(m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))\Rightarrow \\ ((v3\_connsp\_1 X3 X0)\Rightarrow(v3\_connsp\_1 (k7\_relset\_1 (u1\_struct\_0 \\ X0) (u1\_struct\_0 X1) X2 X3) X1)))))) \end{aligned}$$