

## t51\_orders\_2

(TMLeCbpUbPwv2cgVS6k8G2RCXwAx8csSaac)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v3\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v4\_orders\_2 : \iota \Rightarrow o$  be given. Let  $v5\_orders\_2 : \iota \Rightarrow o$  be given. Let  $l1\_orders\_2 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r7\_orders\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_orders\_2 : \iota \Rightarrow \iota$  be given. Let  $r2\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v8\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_relat\_1 : \iota \Rightarrow \iota$  be given. Let  $v2\_orders\_2 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $r1\_orders\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 X1) \Rightarrow ((v1\_xboole\_0 X1) \vee (X0 \in X1)) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_2 X1) \wedge ((v4\_relat\_2 X1) \wedge ((v8\_relat\_2 X1) \wedge ((v1\_partfun1 X1 X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0))))))) \Rightarrow (k1\_relat\_1 X1 = X0) \quad (3)$$

Assume the following.

$$\forall X0. ((v2\_orders\_2 X0) \wedge ((v4\_orders\_2 X0) \wedge (l1\_orders\_2 X0))) \Rightarrow (v8\_relat\_2 (u1\_orders\_2 X0)) \quad (4)$$

Assume the following.

$$\forall X0. ((v2\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge (l1\_orders\_2 X0))) \Rightarrow (v4\_relat\_2 (u1\_orders\_2 X0)) \quad (5)$$

Assume the following.

$$\forall X0.((v3\_orders\_2 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (v1\_relat\_2 (u1\_orders\_2 X0)) \quad (6)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_struct\_0 X0)) \Rightarrow (\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (7)$$

Assume the following.

$$\forall X0.((v2\_orders\_2 X0) \wedge (l1\_orders\_2 X0)) \Rightarrow (v1\_partfun1 (u1\_orders\_2 X0) (u1\_struct\_0 X0)) \quad (8)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow (m1\_subset\_1 (u1\_orders\_2 X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 X0) (u1\_struct\_0 X0)))) \quad (9)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow (l1\_struct\_0 X0) \quad (10)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r2\_orders\_2 X0 X1 X2) \Leftrightarrow ((r1\_orders\_2 X0 X1 X2) \wedge (X1 \neq X2)))))) \quad (11)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_orders\_2 X0 X1 X2) \Leftrightarrow (k4\_tarski X1 X2 \in u1\_orders\_2 X0)))) \quad (12)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(r7\_orders\_1 X0 X1) \Leftrightarrow ((X1 \in k1\_relat\_1 X0) \wedge (\forall X2. \neg (X2 \in k1\_relat\_1 X0) \wedge ((X2 \neq X1) \wedge (k4\_tarski X2 X1 \in X0)))))) \quad (13)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow (v1\_relat\_1 X2) \quad (14)$$

Assume the following.

$$\forall X0.(l1\_orders\_2 X0) \Rightarrow ((v3\_orders\_2 X0) \Rightarrow (v2\_orders\_2 X0)) \quad (15)$$

**Theorem 1**

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 X0) \wedge ((v5\_orders\_2 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow ((r7\_orders\_1 (u1\_orders\_2 X0) X1) \Leftrightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow (\neg r2\_orders\_2 X0 X2 X1))))))$$