

## l2\_scmfsa\_7

(TMYUQRhB6qGGJn9d7dos28GKHZV1U9YWfhm)

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Let  $v5\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. Let  $k1\_ordinal4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v5\_ordinal1 X0) \wedge ((v1\_funct\_1 \\ & X0) \wedge (v1\_finset\_1 X0)))) \Rightarrow (\forall X1.((v1\_relat\_1 X1) \wedge ((v5\_ordinal1 \\ & X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finset\_1 X1)))) \Rightarrow (\forall X2.((v1\_relat\_1 \\ & X2) \wedge ((v5\_ordinal1 X2) \wedge ((v1\_funct\_1 X2) \wedge (v1\_finset\_1 X2)))) \Rightarrow \\ & (k1\_ordinal4 (k1\_ordinal4 X0 X1) X2 = k1\_ordinal4 X0 (k1\_ordinal4 \\ & X1 X2)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v5\_ordinal1 X0) \wedge ((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 \\ & X0) \wedge (v1\_finset\_1 X0)))) \Rightarrow (\forall X1.((v5\_ordinal1 X1) \wedge ((v1\_relat\_1 \\ & X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finset\_1 X1)))) \Rightarrow (\forall X2.((v5\_ordinal1 \\ & X2) \wedge ((v1\_relat\_1 X2) \wedge ((v1\_funct\_1 X2) \wedge (v1\_finset\_1 X2)))) \Rightarrow \\ & (\forall X3.((v5\_ordinal1 X3) \wedge ((v1\_relat\_1 X3) \wedge ((v1\_funct\_1 \\ & X3) \wedge (v1\_finset\_1 X3)))) \Rightarrow ((k1\_ordinal4 (k1\_ordinal4 (k1\_ordinal4 \\ & X0 X1) X2) X3 = k1\_ordinal4 (k1\_ordinal4 X0 X1) (k1\_ordinal4 X2 X3)) \wedge \\ & ((k1\_ordinal4 (k1\_ordinal4 (k1\_ordinal4 X0 X1) X2) X3 = k1\_ordinal4 \\ & X0 (k1\_ordinal4 (k1\_ordinal4 X1 X2) X3)) \wedge ((k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 X0 X1) X2) X3 = k1\_ordinal4 X0 (k1\_ordinal4 X1 (k1\_ordinal4 \\ & X2 X3))) \wedge (k1\_ordinal4 (k1\_ordinal4 (k1\_ordinal4 X0 X1) X2) X3 = \\ & k1\_ordinal4 (k1\_ordinal4 X0 (k1\_ordinal4 X1 X2)) X3)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1\_relat\_1 X0) \wedge ((v5\_ordinal1 X0) \wedge ( \\ & (v1\_funct\_1 X0) \wedge (v1\_finset\_1 X0)))) \wedge ((v1\_relat\_1 X1) \wedge ((v5\_ordinal1 \\ & X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finset\_1 X1)))))) \Rightarrow ((v1\_relat\_1 (k1\_ordinal4 \\ & X0 X1)) \wedge ((v5\_ordinal1 (k1\_ordinal4 X0 X1)) \wedge ((v1\_funct\_1 (k1\_ordinal4 \\ & X0 X1)) \wedge (v1\_finset\_1 (k1\_ordinal4 X0 X1)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v1\_relat\_1 X0) \wedge ((v5\_ordinal1 X0) \wedge ( \\ & v1\_funct\_1 X0))) \wedge ((v1\_relat\_1 X1) \wedge ((v5\_ordinal1 X1) \wedge (v1\_funct\_1 \\ & X1)))) \Rightarrow ((v1\_relat\_1 (k1\_ordinal4 X0 X1) \wedge ((v5\_ordinal1 (k1\_ordinal4 \\ & X0 X1) \wedge (v1\_funct\_1 (k1\_ordinal4 X0 X1)))))) \end{aligned} \quad (4)$$

**Theorem 1**

$$\begin{aligned} & \forall X0. ((v5\_ordinal1 X0) \wedge ((v1\_relat\_1 X0) \wedge (v1\_funct\_1 \\ & X0) \wedge (v1\_finset\_1 X0))) \Rightarrow (\forall X1. ((v5\_ordinal1 X1) \wedge ((v1\_relat\_1 \\ & X1) \wedge (v1\_funct\_1 X1) \wedge (v1\_finset\_1 X1)))) \Rightarrow (\forall X2. ((v5\_ordinal1 \\ & X2) \wedge ((v1\_relat\_1 X2) \wedge (v1\_funct\_1 X2) \wedge (v1\_finset\_1 X2)))) \Rightarrow \\ & (\forall X3. ((v5\_ordinal1 X3) \wedge ((v1\_relat\_1 X3) \wedge (v1\_funct\_1 \\ & X3) \wedge (v1\_finset\_1 X3)))) \Rightarrow (\forall X4. ((v5\_ordinal1 X4) \wedge ((v1\_relat\_1 \\ & X4) \wedge (v1\_funct\_1 X4) \wedge (v1\_finset\_1 X4)))) \Rightarrow ((k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 (k1\_ordinal4 X0 X1) X2) X3) X4 = k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 X0 X1) X2) (k1\_ordinal4 X3 X4)) \wedge ((k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 (k1\_ordinal4 X0 X1) X2) X3) X4 = k1\_ordinal4 (k1\_ordinal4 \\ & X0 X1) (k1\_ordinal4 (k1\_ordinal4 X2 X3) X4)) \wedge ((k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 (k1\_ordinal4 X0 X1) X2) X3) X4 = k1\_ordinal4 (k1\_ordinal4 \\ & X0 X1) (k1\_ordinal4 X2 (k1\_ordinal4 X3 X4))) \wedge ((k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 (k1\_ordinal4 X0 X1) X2) X3) X4 = k1\_ordinal4 X0 (k1\_ordinal4 \\ & (k1\_ordinal4 (k1\_ordinal4 X1 X2) X3) X4)) \wedge ((k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 X1 X2) (k1\_ordinal4 X3 X4)) \wedge ((k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 X0 X1) X2) X3) X4 = k1\_ordinal4 X0 (k1\_ordinal4 \\ & X1 (k1\_ordinal4 (k1\_ordinal4 X2 X3) X4))) \wedge ((k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 (k1\_ordinal4 X0 X1) X2) X3) X4 = k1\_ordinal4 X0 (k1\_ordinal4 \\ & X1 (k1\_ordinal4 X2 (k1\_ordinal4 X3 X4)))) \wedge ((k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 (k1\_ordinal4 X0 X1) X2) X3) X4 = k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 X0 X1) (k1\_ordinal4 X2 X3)) X4) \wedge ((k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 (k1\_ordinal4 X0 X1) X2) X3) X4 = k1\_ordinal4 (k1\_ordinal4 \\ & X0 (k1\_ordinal4 (k1\_ordinal4 X1 X2) X3)) X4) \wedge ((k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 (k1\_ordinal4 X0 X1) X2) X3) X4 = k1\_ordinal4 (k1\_ordinal4 \\ & X0 (k1\_ordinal4 X1 (k1\_ordinal4 X2 X3))) X4) \wedge (k1\_ordinal4 (k1\_ordinal4 \\ & (k1\_ordinal4 (k1\_ordinal4 X0 X1) X2) X3) X4 = k1\_ordinal4 X0 (k1\_ordinal4 \\ & (k1\_ordinal4 X1 (k1\_ordinal4 X2 X3)) X4)))))))))) \end{aligned}$$