

t34\_orders\_1 (TMMC-  
VAh47hUdzh91Q3aYqDSRSLBnFhZ7vMa)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v2\_orders\_1 : \iota \Rightarrow o$  be given. Let  $r2\_orders\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relat\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_relat\_2 : \iota \Rightarrow o$  be given. Let  $r1\_relat\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r8\_relat\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r4\_relat\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v8\_relat\_2 : \iota \Rightarrow o$  be given. Let  $v4\_relat\_2 : \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow ((v1\_relat\_2 X0) \Leftrightarrow (r1\_relat\_2 X0 (k1\_relat\_1 X0))) \quad (1)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow (\forall X1.(r2\_orders\_1 X0 X1) \Leftrightarrow ((r1\_relat\_2 X0 X1) \wedge ((r8\_relat\_2 X0 X1) \wedge (r4\_relat\_2 X0 X1)))) \quad (2)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow ((v2\_orders\_1 X0) \Leftrightarrow ((v1\_relat\_2 X0) \wedge ((v8\_relat\_2 X0) \wedge (v4\_relat\_2 X0)))) \quad (3)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow ((v8\_relat\_2 X0) \Leftrightarrow (r8\_relat\_2 X0 (k1\_relat\_1 X0))) \quad (4)$$

Assume the following.

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow ((v4\_relat\_2 X0) \Leftrightarrow (r4\_relat\_2 X0 (k1\_relat\_1 X0))) \quad (5)$$

**Theorem 1**

$$\forall X0.(v1\_relat\_1 X0) \Rightarrow ((v2\_orders\_1 X0) \Rightarrow (r2\_orders\_1 X0 (k1\_relat\_1 X0)))$$