

# t3\_rewrite1

## (TMaxM8jceopnvYxbsrJ6bVvUtp8wqfq2cPm)

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Let  $v1\_relat\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $k1\_rewrite1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_finseq\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_xboole\_0 : \iota$  be given. Let  $k5\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ & \quad (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 \\ & \quad X1))) \Rightarrow (\forall X2.((v1\_relat\_1 X2) \wedge ((v1\_funct\_1 X2) \wedge (v1\_finseq\_1 \\ & \quad X2)))) \Rightarrow (k7\_finseq\_1 (k7\_finseq\_1 X0 X1) X2 = k7\_finseq\_1 X0 (k7\_finseq\_1 \\ & \quad X1 X2)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ & \quad (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 \\ & \quad X1))) \Rightarrow (\forall X2.(X0 \neq k1\_xboole\_0) \Rightarrow (k1\_rewrite1 (k7\_finseq\_1 \\ & \quad X1 (k9\_finseq\_1 X2)) X0 = k7\_finseq\_1 X1 X0))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.k9\_finseq\_1 X0 = k5\_finseq\_1 X0 \tag{3}$$

Assume the following.

$$\forall X0.v1\_finseq\_1 (k5\_finseq\_1 X0) \tag{4}$$

Assume the following.

$$\forall X0.(v1\_relat\_1 (k5\_finseq\_1 X0)) \wedge (v1\_funct\_1 (k5\_finseq\_1 X0)) \tag{5}$$

Assume the following.

$$v1\_xboole\_0 k1\_xboole\_0 \tag{6}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_finseq\_1 \\ X0)))\wedge((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(\neg v1\_xboole\_0 X1)\wedge \\ (v1\_finseq\_1 X1))))\Rightarrow((v1\_relat\_1 (k7\_finseq\_1 X1 X0))\wedge((v1\_funct\_1 \\ (k7\_finseq\_1 X1 X0))\wedge(\neg v1\_xboole\_0 (k7\_finseq\_1 X1 X0))\wedge(v1\_finseq\_1 \\ (k7\_finseq\_1 X1 X0)))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\neg v1\_xboole\_0 (k5\_finseq\_1 X0) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_finseq\_1 \\ X0)))\wedge((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_finseq\_1 X1))))\Rightarrow \\ ((v1\_relat\_1 (k7\_finseq\_1 X0 X1))\wedge((v1\_funct\_1 (k7\_finseq\_1 \\ X0 X1))\wedge(v1\_finseq\_1 (k7\_finseq\_1 X0 X1)))) \end{aligned} \quad (9)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((v1\_relat\_1 X0)\wedge((v1\_funct\_1 X0)\wedge(v1\_finseq\_1 X0)))\Rightarrow \\ (\forall X1.((v1\_relat\_1 X1)\wedge((v1\_funct\_1 X1)\wedge(v1\_finseq\_1 \\ X1)))\Rightarrow(\forall X2.\forall X3.k1\_rewrite1 (k7\_finseq\_1 X0 (k9\_finseq\_1 \\ X2)) (k7\_finseq\_1 (k9\_finseq\_1 X3) X1) = k7\_finseq\_1 (k7\_finseq\_1 \\ X0 (k9\_finseq\_1 X3)) X1)) \end{aligned}$$