

# t5\_rewrite2 (TMTToMnDPMD- pYEUUa57uKd8kMuvLPZGPLmyG)

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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  $v1\_finseq\_1 : \iota \Rightarrow o$  be given. Let  $v1\_rewrite2 : \iota \Rightarrow o$  be given. Let  $k3\_finseq\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_rewrite2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_rewrite2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $v4\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_xtuple\_0 : \iota \Rightarrow \iota$  be given. Let  $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_ordinal4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0.((v1\_relat\_1 X0) \wedge ((v1\_funct\_1 X0) \wedge (v1\_finseq\_1 X0))) \Rightarrow \\ & (\forall X1.((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 X1) \wedge (v1\_finseq\_1 \\ & X1))) \Rightarrow ((k3\_finseq\_1 X0 = k3\_finseq\_1 X1) \Leftrightarrow (k1\_relset\_1 k5\_numbers \\ & X0 = k1\_relset\_1 k5\_numbers X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. ((v1\_relat\_1 X1) \wedge (v4\_relat\_1 X1 X0)) \Rightarrow (k1\_relset\_1 X0 X1 = k9\_xtuple\_0 X1) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v5\_ordinal1 X0) \wedge ((v1\_relat\_1 X0) \wedge \\ & (v1\_funct\_1 X0) \wedge (v1\_finset\_1 X0)))) \wedge ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 \\ & X1) \wedge ((v1\_finseq\_1 X1) \wedge (v1\_rewrite2 X1)))) \Rightarrow ((v1\_relat\_1 (k2\_rewrite2 \\ & X0 X1)) \wedge ((v1\_funct\_1 (k2\_rewrite2 X0 X1)) \wedge ((v1\_finseq\_1 (k2\_rewrite2 \\ & X0 X1)) \wedge (v1\_rewrite2 (k2\_rewrite2 X0 X1)))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((v5\_ordinal1 X0) \wedge ((v1\_relat\_1 X0) \wedge \\ & (v1\_funct\_1 X0) \wedge (v1\_finset\_1 X0)))) \wedge ((v1\_relat\_1 X1) \wedge ((v1\_funct\_1 \\ & X1) \wedge ((v1\_finseq\_1 X1) \wedge (v1\_rewrite2 X1)))) \Rightarrow ((v1\_relat\_1 (k1\_rewrite2 \\ & X0 X1)) \wedge ((v1\_funct\_1 (k1\_rewrite2 X0 X1)) \wedge ((v1\_finseq\_1 (k1\_rewrite2 \\ & X0 X1)) \wedge (v1\_rewrite2 (k1\_rewrite2 X0 X1)))) \end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v5\_ordinal1\ X0) \wedge ((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1 \\
& X0) \wedge (v1\_finset\_1\ X0)))) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge ((v1\_funct\_1 \\
& X1) \wedge (v1\_rewrite2\ X1))) \Rightarrow (\forall X2.((v1\_relat\_1\ X2) \wedge ((v1\_funct\_1 \\
& X2) \wedge (v1\_rewrite2\ X2)))) \Rightarrow ((X2 = k2\_rewrite2\ X0\ X1) \Leftrightarrow ((k9\_xtuple\_0 \\
& X2 = k9\_xtuple\_0\ X1) \wedge (\forall X3.(X3 \in k9\_xtuple\_0\ X1) \Rightarrow (k1\_funct\_1 \\
& X2\ X3 = k1\_ordinal4\ (k1\_funct\_1\ X1\ X3)\ X0))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v5\_ordinal1\ X0) \wedge ((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1 \\
& X0) \wedge (v1\_finset\_1\ X0)))) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge ((v1\_funct\_1 \\
& X1) \wedge (v1\_rewrite2\ X1))) \Rightarrow (\forall X2.((v1\_relat\_1\ X2) \wedge ((v1\_funct\_1 \\
& X2) \wedge (v1\_rewrite2\ X2)))) \Rightarrow ((X2 = k1\_rewrite2\ X0\ X1) \Leftrightarrow ((k9\_xtuple\_0 \\
& X2 = k9\_xtuple\_0\ X1) \wedge (\forall X3.(X3 \in k9\_xtuple\_0\ X1) \Rightarrow (k1\_funct\_1 \\
& X2\ X3 = k1\_ordinal4\ X0\ (k1\_funct\_1\ X1\ X3))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge (v1\_finseq\_1\ X0))) \Rightarrow \\
& ((v1\_relat\_1\ X0) \wedge ((v4\_relat\_1\ X0\ k5\_numbers) \wedge ((v1\_funct\_1\ X0) \wedge \\
& (v1\_finseq\_1\ X0))))
\end{aligned} \tag{7}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((v5\_ordinal1\ X0) \wedge ((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1 \\
& X0) \wedge (v1\_finset\_1\ X0)))) \Rightarrow (\forall X1.((v1\_relat\_1\ X1) \wedge ((v1\_funct\_1 \\
& X1) \wedge ((v1\_finseq\_1\ X1) \wedge (v1\_rewrite2\ X1)))) \Rightarrow ((k3\_finseq\_1\ (k1\_rewrite2 \\
& X0\ X1) = k3\_finseq\_1\ X1) \wedge (k3\_finseq\_1\ (k2\_rewrite2\ X0\ X1) = k3\_finseq\_1 \\
& X1)))
\end{aligned}$$