

## t31\_rewrite2

(TMHdQBZaPjnuygKFtuBb5xsHXKigb6vcYrF)

October 27, 2020

Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_afinsq\_1 : \iota \Rightarrow \iota$  be given. Let  $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_rewrite2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_rewrite2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_catalan2 : \iota \Rightarrow \iota$  be given. Let  $k1\_domain\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (k8\_afinsq\_1 X0) (k8\_afinsq\_1 X0)))) \Rightarrow (\forall X2. (m1\_subset\_1 \\ & X2 (k8\_afinsq\_1 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (k8\_afinsq\_1 \\ & X0)) \Rightarrow ((r2\_rewrite2 X0 (k7\_rewrite2 X0 X1) X2 X3) \Rightarrow (r2\_rewrite2 \\ & X0 X1 X2 X3)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (k8\_afinsq\_1 X0) (k8\_afinsq\_1 X0)))) \Rightarrow (r1\_relset\_1 (k8\_afinsq\_1 \\ & X0) (k8\_afinsq\_1 X0) X1 (k7\_rewrite2 X0 X1)) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (k8\_afinsq\_1 X0) (k8\_afinsq\_1 X0)))) \Rightarrow (\forall X2. (m1\_subset\_1 \\ & X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k8\_afinsq\_1 X0) (k8\_afinsq\_1 X0)))) \Rightarrow \\ & (\forall X3. (m1\_subset\_1 X3 (k8\_afinsq\_1 X0)) \Rightarrow (\forall X4. (m1\_subset\_1 \\ & X4 (k8\_afinsq\_1 X0)) \Rightarrow (((r1\_relset\_1 (k8\_afinsq\_1 X0) (k8\_afinsq\_1 \\ & X0) X1 X2) \wedge (r2\_rewrite2 X0 X1 X3 X4)) \Rightarrow (r2\_rewrite2 X0 X2 X3 X4)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((m1\_subset\_1 X2 \\ & (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))) \Rightarrow ((r2\_relset\_1 X0 X1 X2 X3) \Leftrightarrow (X2 = X3)) \end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.k3\_catalan2\ X0 = k8\_afinsq\_1\ X0 \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1 \\ (k8\_afinsq\_1\ X0)\ (k8\_afinsq\_1\ X0)))) \Rightarrow (m1\_subset\_1\ (k7\_rewrite2 \\ X0\ X1)\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k8\_afinsq\_1\ X0)\ (k8\_afinsq\_1 \\ X0)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1 \\ (k8\_afinsq\_1\ X0)\ (k8\_afinsq\_1\ X0)))) \Rightarrow (\forall X2.(m1\_subset\_1 \\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k8\_afinsq\_1\ X0)\ (k8\_afinsq\_1\ X0)))) \Rightarrow \\ ((X2 = k7\_rewrite2\ X0\ X1) \Leftrightarrow (\forall X3.(m1\_subset\_1\ X3\ (k8\_afinsq\_1 \\ X0) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (k8\_afinsq\_1\ X0) \Rightarrow ((k1\_domain\_1 \\ (k8\_afinsq\_1\ X0)\ (k8\_afinsq\_1\ X0)\ X3\ X4 \in X2) \Leftrightarrow (r2\_rewrite2\ X0\ X1 \\ X3\ X4))))))) \end{aligned} \quad (7)$$

**Theorem 1**

$$\begin{aligned} \forall X0.\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1 \\ (k8\_afinsq\_1\ X0)\ (k8\_afinsq\_1\ X0)))) \Rightarrow (r2\_relset\_1\ (k8\_afinsq\_1 \\ X0)\ (k8\_afinsq\_1\ X0)\ (k7\_rewrite2\ X0\ (k7\_rewrite2\ X0\ X1))\ (k7\_rewrite2 \\ X0\ X1)) \end{aligned}$$