

t58\_armstrng (TM-  
Soc2JCRErsmPUpnyuhUPpEC3aSjUAa74G)

October 27, 2020

Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $v1\_finset\_1 : \iota \Rightarrow o$  be given. 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  $k9\_setfam\_1 : \iota \Rightarrow \iota$  be given. Let  $k14\_armstrng : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k12\_armstrng : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k6\_armstrng : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_armstrng : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_relset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k10\_armstrng : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_armstrng : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v6\_armstrng : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_armstrng : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_finsub\_1 : \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v1\_xboole\_0 X0) \wedge (v1\_finset\_1 X0)) \Rightarrow (\forall X1. \\
 & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 \\
 & X0)))) \Rightarrow ((\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 X0)) \Rightarrow (\forall X3. \\
 & (m1\_subset\_1 X3 (k1\_zfmisc\_1 X0)) \Rightarrow ((k6\_armstrng X0 X2 X3 \in k12\_armstrng \\
 & X0 X1) \Leftrightarrow (\forall X4. (m1\_subset\_1 X4 (k1\_zfmisc\_1 X0)) \Rightarrow ((r1\_tarski \\
 & X2 X4) \Rightarrow ((r1\_tarski X3 X4) \vee (X4 \in k14\_armstrng X0 X1)))))) \wedge (k9\_armstrng \\
 & X0 (k12\_armstrng X0 X1) = k7\_subset\_1 (k1\_zfmisc\_1 X0) (k9\_setfam\_1 \\
 & X0) (k14\_armstrng X0 X1))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset\_1 X0 (k1\_zfmisc\_1 X1)) \Leftrightarrow (r1\_tarski X0 X1) \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_finset\_1 X0)) \Rightarrow (\forall X1. \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 \\
& X0)))) \Rightarrow ((r1\_relset\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 X0) X1 (k10\_armstrng \\
& X0 (k11\_armstrng X0 X1))) \wedge (\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 X0)))) \Rightarrow (((r1\_relset\_1 \\
& (k9\_setfam\_1 X0) (k9\_setfam\_1 X0) X1 X2) \wedge (v6\_armstrng X2 X0)) \Rightarrow \\
& (r1\_relset\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 X0) (k10\_armstrng \\
& X0 (k11\_armstrng X0 X1) X2))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_finset\_1 X0)) \Rightarrow (\forall X1. \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 \\
& X0)))) \Rightarrow ((v1\_armstrng (k11\_armstrng X0 X1) X0) \wedge (v2\_finsub\_1 ( \\
& k11\_armstrng X0 X1))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1\_xboole\_0 X0) \wedge (v1\_finset\_1 X0)) \Rightarrow (\forall X1. \\
& (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0))) \Rightarrow (((v1\_armstrng \\
& X1 X0) \wedge (v2\_finsub\_1 X1)) \Rightarrow ((X1 = k9\_armstrng X0 (k10\_armstrng X0 \\
& X1)) \wedge (\forall X2.((v6\_armstrng X2 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 X0)))))) \Rightarrow ((X1 = k9\_armstrng \\
& X0 X2) \Rightarrow (r2\_relset\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 X0) X2 (k10\_armstrng \\
& X0 X1))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. ((m1\_subset\_1 X2 \\
& (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 \\
& (k2\_zfmisc\_1 X0 X1)))) \Rightarrow (r2\_relset\_1 X0 X1 X2 X2)
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (m1\_subset\_1 X2 ( \\
& k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1))) \Rightarrow ((r1\_relset\_1 X0 X1 X2 X3) \Leftrightarrow ( \\
& r1\_tarski X2 X3))
\end{aligned} \tag{7}$$

Assume the following.

$$\forall X0. k9\_setfam\_1 X0 = k1\_zfmisc\_1 X0 \tag{8}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v1\_xboole\_0 X0) \wedge (v1\_finset\_1 X0)) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 \\ & X0)))) \Rightarrow ((v6\_armstrng (k12\_armstrng X0 X1) X0) \wedge (m1\_subset\_1 \\ & (k12\_armstrng X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_setfam\_1 X0) \\ & (k9\_setfam\_1 X0)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (k9\_setfam\_1 X0) (k9\_setfam\_1 X0))) \Rightarrow (m1\_subset\_1 (k11\_armstrng \\ & X0 X1) (k1\_zfmisc\_1 (k1\_zfmisc\_1 X0)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. m1\_subset\_1 (k10\_armstrng X0 X1) (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 X0))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v1\_xboole\_0 X0) \wedge (v1\_finset\_1 X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 \\ & X0)))) \Rightarrow (\forall X2. ((v6\_armstrng X2 X0) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 X0)))) \Rightarrow ((X2 = k12\_armstrng \\ & X0 X1) \Leftrightarrow ((r1\_relset\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 X0) X1 X2) \wedge \\ & (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_setfam\_1 \\ & X0) (k9\_setfam\_1 X0)))) \Rightarrow ((r1\_relset\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 \\ & X0) X1 X3) \wedge (v6\_armstrng X3 X0) \Rightarrow (r1\_relset\_1 (k9\_setfam\_1 X0) \\ & (k9\_setfam\_1 X0) X2 X3)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0. \forall X1. (X0 = X1) \Leftrightarrow ((r1\_tarski X0 X1) \wedge (r1\_tarski X1 X0)) \quad (13)$$

### Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v1\_xboole\_0 X0) \wedge (v1\_finset\_1 X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 \\ & X0)))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & (k9\_setfam\_1 X0) (k9\_setfam\_1 X0)))) \Rightarrow ((k14\_armstrng X0 X1 = k14\_armstrng \\ & X0 X2) \Rightarrow (r2\_relset\_1 (k9\_setfam\_1 X0) (k9\_setfam\_1 X0) (k12\_armstrng \\ & X0 X1) (k12\_armstrng X0 X2)))))) \end{aligned}$$