

## t30\_morph\_01

(TMcHrPo4578eugN53vyjyU9uE3WRzCSmJnL)

October 27, 2020

Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v2\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v5\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v6\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v7\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v8\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $l1\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_setfam\_1 : \iota \Rightarrow \iota$  be given. Let  $k4\_morph\_01 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_morph\_01 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
 & X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
 & ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\
 & X0)))))))))) \Rightarrow (\forall X1. ((\neg v1\_xboole\_0 X1) \wedge (m1\_subset\_1 X1 \\
 & (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (\forall X2. ((\neg v1\_xboole\_0 \\
 & X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (\forall X3. \\
 & ((\neg v1\_xboole\_0 X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 \\
 & X0)))) \Rightarrow ((r1\_tarski X1 X2) \Rightarrow (r1\_tarski (k1\_morph\_01 X0 X1 X3) (k1\_morph\_01 \\
 & X0 X2 X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1. (((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge \\
 & ((v2\_rlvect\_1 X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 \\
 & X0) \wedge ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge \\
 & (l1\_rlvect\_1 X0)))))))))) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\
 & X0)))) \Rightarrow ((v1\_funct\_1 (k4\_morph\_01 X0 X1)) \wedge ((v1\_funct\_2 (k4\_morph\_01 \\
 & X0 X1) (k9\_setfam\_1 (u1\_struct\_0 X0)) (k9\_setfam\_1 (u1\_struct\_0 \\
 & X0))) \wedge (m1\_subset\_1 (k4\_morph\_01 X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\
 & (k9\_setfam\_1 (u1\_struct\_0 X0)) (k9\_setfam\_1 (u1\_struct\_0 X0))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\
& X0)))))))))) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 \\
& X0))) \Rightarrow (\forall X2.((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 (k9\_setfam\_1 \\
& (u1\_struct\_0 X0)) (k9\_setfam\_1 (u1\_struct\_0 X0))) \wedge (m1\_subset\_1 \\
& X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k9\_setfam\_1 (u1\_struct\_0 X0)) ( \\
& k9\_setfam\_1 (u1\_struct\_0 X0)))))) \Rightarrow ((X2 = k4\_morph\_01 X0 X1) \Leftrightarrow \\
& (\forall X3.(m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \Rightarrow \\
& (k3\_funct\_2 (k1\_zfmisc\_1 (u1\_struct\_0 X0)) (k9\_setfam\_1 (u1\_struct\_0 \\
& X0)) X2 X3 = k1\_morph\_01 X0 X3 X1))))))
\end{aligned} \tag{3}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v13\_algstr\_0 X0) \wedge ((v2\_rlvect\_1 \\
& X0) \wedge ((v3\_rlvect\_1 X0) \wedge ((v4\_rlvect\_1 X0) \wedge ((v5\_rlvect\_1 X0) \wedge \\
& ((v6\_rlvect\_1 X0) \wedge ((v7\_rlvect\_1 X0) \wedge ((v8\_rlvect\_1 X0) \wedge (l1\_rlvect\_1 \\
& X0)))))))))) \Rightarrow (\forall X1.((\neg v1\_xboole\_0 X1) \wedge (m1\_subset\_1 X1 \\
& (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (\forall X2.((\neg v1\_xboole\_0 \\
& X2) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (\forall X3. \\
& ((\neg v1\_xboole\_0 X3) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 \\
& X0)))) \Rightarrow ((r1\_tarski X1 X2) \Rightarrow (r1\_tarski (k3\_funct\_2 (k1\_zfmisc\_1 \\
& (u1\_struct\_0 X0)) (k9\_setfam\_1 (u1\_struct\_0 X0)) (k4\_morph\_01 \\
& X0 X3) X1) (k3\_funct\_2 (k1\_zfmisc\_1 (u1\_struct\_0 X0)) (k9\_setfam\_1 \\
& (u1\_struct\_0 X0)) (k4\_morph\_01 X0 X3) X2))))))
\end{aligned}$$