

t19\_nagata\_1  
(TML29PY35jbdJy1zSGoYQCko1SJeUPBZewL)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v2\_pre\_topc : \iota \Rightarrow o$  be given. Let  $l1\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v9\_pre\_topc : \iota \Rightarrow o$  be given. Let  $v1\_funct\_1 : \iota \Rightarrow o$  be given. Let  $v1\_funct\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_tops\_2 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_nagata\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_cantor\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v3\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. ((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc\ X0)) \Rightarrow (\forall X1. \\ & ((v1\_tops\_2\ X1\ X0) \wedge ((v1\_cantor\_1\ X1\ X0) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\ & (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))))) \Rightarrow (\forall X2. (m1\_subset\_1 \\ & X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow ((v3\_pre\_topc\ X2\ X0) \Leftrightarrow (\forall X3. \\ & (m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \Rightarrow (\neg(X3 \in X2) \wedge (\forall X4. (m1\_subset\_1 \\ & X4\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\neg(X4 \in X1) \wedge ((X3 \in X4) \wedge (r1\_tarski \\ & X4\ X2)))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0\ X0) \wedge ((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc \\ & X0))) \Rightarrow ((v9\_pre\_topc\ X0) \Leftrightarrow (\forall X1. ((v3\_pre\_topc\ X1\ X0) \wedge (m1\_subset\_1 \\ & X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))) \Rightarrow (\forall X2. (m1\_subset\_1 \\ & X2\ (u1\_struct\_0\ X0)) \Rightarrow (\neg(X2 \in X1) \wedge (\forall X3. ((v3\_pre\_topc\ X3 \\ & X0) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow (\neg(X2 \in \\ & X3) \wedge (r1\_tarski\ (k2\_pre\_topc\ X0\ X3)\ X1))))))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1\_tarski\ X0\ X1) \wedge (r1\_tarski\ X1\ X2)) \Rightarrow (r1\_tarski\ X0\ X2) \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0.(l1\_pre\_topc\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1 \\ (u1\_struct\_0\ X0))) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1 \\ (u1\_struct\_0\ X0))) \Rightarrow ((r1\_tarski\ X1\ X2) \Rightarrow (r1\_tarski\ (k2\_pre\_topc \\ X0\ X1)\ (k2\_pre\_topc\ X0\ X2)))))) \end{aligned} \quad (4)$$

**Theorem 1**

$$\begin{aligned} \forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v2\_pre\_topc\ X0) \wedge (l1\_pre\_topc \\ X0))) \Rightarrow ((v9\_pre\_topc\ X0) \Rightarrow (\forall X1.((v1\_funct\_1\ X1) \wedge ((v1\_funct\_2 \\ X1\ k5\_numbers\ (k1\_zfmisc\_1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))) \wedge \\ (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers\ (k1\_zfmisc\_1 \\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))))) \Rightarrow (((v1\_tops\_2\ (k2\_nagata\_1 \\ X0\ X1)\ X0) \wedge ((v1\_cantor\_1\ (k2\_nagata\_1\ X0\ X1)\ X0) \wedge (m1\_subset\_1 \\ (k2\_nagata\_1\ X0\ X1)\ (k1\_zfmisc\_1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))))) \Rightarrow \\ (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))) \Rightarrow \\ (\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)) \Rightarrow (\neg (v3\_pre\_topc \\ X2\ X0) \wedge ((X3 \in X2) \wedge (\forall X4.(m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (u1\_struct\_0 \\ X0))) \Rightarrow (\neg (X3 \in X4) \wedge ((r1\_tarski\ (k2\_pre\_topc\ X0\ X4)\ X2) \wedge (X4 \in k2\_nagata\_1 \\ X0\ X1)))))))))) \end{aligned}$$