

## t19\_setwop\_2

(TMYE3EK3JEXEEHDmzLLwUoMb12vwnq1pjBV)

October 27, 2020

Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_finsub\_1 : \iota \Rightarrow \iota$  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. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $v1\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_binop\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_setwiseo : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_finseqop : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k3\_funct\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_finseqop : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r7\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_binop\_1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge \\ & (v1\_funct\_2 X1 (k2\_zfmisc\_1 X0 X0) X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0)))) \Rightarrow (((v1\_setwiseo X1 X0) \wedge \\ & ((v2\_binop\_1 X1 X0) \wedge ((v1\_binop\_1 X1 X0) \wedge (v1\_finseqop X1 X0)))) \Rightarrow \\ & (r7\_binop\_1 X0 (k5\_finseqop X0 X1) X1))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_funct\_1 X1) \wedge \\ & (v1\_funct\_2 X1 (k2\_zfmisc\_1 X0 X0) X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0)))) \Rightarrow (((v1\_setwiseo X1 X0) \wedge \\ & ((v2\_binop\_1 X1 X0) \wedge (v1\_finseqop X1 X0))) \Rightarrow (k3\_funct\_2 X0 X0 (k5\_finseqop \\ & X0 X1) (k4\_binop\_1 X0 X1) = k4\_binop\_1 X0 X1))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0 X1) \Rightarrow \\
& \quad (\forall X2.(m1\_subset\_1 X2 (k5\_finsub\_1 X0) \Rightarrow (\forall X3.(( \\
& \quad v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 (k2\_zfmisc\_1 X1 X1) X1) \wedge (m1\_subset\_1 \\
& \quad X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X1 X1) X1)))))) \Rightarrow (\forall X4. \\
& \quad ((v1\_funct\_1 X4) \wedge ((v1\_funct\_2 X4 X1 X1) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 \\
& \quad (k2\_zfmisc\_1 X1 X1)))))) \Rightarrow (\forall X5.((v1\_funct\_1 X5) \wedge ((v1\_funct\_2 \\
& \quad X5 X0 X1) \wedge (m1\_subset\_1 X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow \\
& \quad (((v1\_binop\_1 X3 X1) \wedge ((v2\_binop\_1 X3 X1) \wedge ((v1\_setwiseo X3 X1) \wedge \\
& \quad ((k3\_funct\_2 X1 X1 X4 (k4\_binop\_1 X1 X3) = k4\_binop\_1 X1 X3) \wedge (r7\_binop\_1 \\
& \quad X1 X4 X3)))))) \Rightarrow (k3\_funct\_2 X1 X1 X4 (k7\_setwiseo X0 X1 X3 X2 X5) = k7\_setwiseo \\
& \quad X0 X1 X3 X2 (k1\_partfun1 X0 X1 X1 X1 X5 X4))))))))) \\
& \hspace{15em} (3)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge ((v1\_funct\_1 X1) \wedge ( \\
& \quad (v1\_funct\_2 X1 (k2\_zfmisc\_1 X0 X0) X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 \\
& \quad (k2\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0) X0)))))) \Rightarrow ((v1\_funct\_1 (k5\_finseqop \\
& \quad X0 X1)) \wedge ((v1\_funct\_2 (k5\_finseqop X0 X1) X0 X0) \wedge (m1\_subset\_1 ( \\
& \quad k5\_finseqop X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X0)))))) \\
& \hspace{15em} (4)
\end{aligned}$$

**Theorem 1**

$$\begin{aligned}
& \forall X0.(\neg v1\_xboole\_0 X0) \Rightarrow (\forall X1.(\neg v1\_xboole\_0 X1) \Rightarrow \\
& \quad (\forall X2.(m1\_subset\_1 X2 (k5\_finsub\_1 X0) \Rightarrow (\forall X3.(( \\
& \quad v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 (k2\_zfmisc\_1 X1 X1) X1) \wedge (m1\_subset\_1 \\
& \quad X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k2\_zfmisc\_1 X1 X1) X1)))))) \Rightarrow (\forall X4. \\
& \quad ((v1\_funct\_1 X4) \wedge ((v1\_funct\_2 X4 X0 X1) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 \\
& \quad (k2\_zfmisc\_1 X0 X1)))))) \Rightarrow (((v1\_binop\_1 X3 X1) \wedge ((v2\_binop\_1 X3 \\
& \quad X1) \wedge ((v1\_setwiseo X3 X1) \wedge (v1\_finseqop X3 X1)))) \Rightarrow (k3\_funct\_2 \\
& \quad X1 X1 (k5\_finseqop X1 X3) (k7\_setwiseo X0 X1 X3 X2 X4) = k7\_setwiseo \\
& \quad X0 X1 X3 X2 (k1\_partfun1 X0 X1 X1 X1 X4 (k5\_finseqop X1 X3))))))))) \\
& \hspace{15em} (5)
\end{aligned}$$