

# t27\_polyred

## (TMHshGAkDofyFhQjqihFshSJSe4X5EhuVn)

October 27, 2020

Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v1\_partfun1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k15\_pre\_poly : \iota \Rightarrow \iota$  be given. Let  $v1\_relat.2 : \iota \Rightarrow o$  be given. Let  $v4\_relat.2 : \iota \Rightarrow o$  be given. Let  $v6\_relat.2 : \iota \Rightarrow o$  be given. Let  $v8\_relat.2 : \iota \Rightarrow o$  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  $v2\_struct.0 : \iota \Rightarrow o$  be given. Let  $l2\_algstr.0 : \iota \Rightarrow o$  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  $u1\_struct.0 : \iota \Rightarrow \iota$  be given. Let  $v1\_polynom1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $r1\_polyred : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k4\_tarski : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $l2\_struct.0 : \iota \Rightarrow o$  be given. Let  $v1\_relat.1 : \iota \Rightarrow o$  be given. Let  $v4\_relat.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_relat.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole.0 : \iota \Rightarrow o$  be given. Let  $k2\_polynom1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k5\_finsub.1 : \iota \Rightarrow \iota$  be given. Let  $g1\_orders.2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_orders.2 : \iota \Rightarrow o$  be given. Let  $v5\_orders.2 : \iota \Rightarrow o$  be given. Let  $v4\_orders.2 : \iota \Rightarrow o$  be given. Let  $v3\_orders.2 : \iota \Rightarrow o$  be given. Let  $v16\_waybel.0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr.0 : \iota \Rightarrow o$  be given. Let  $l1\_orders.2 : \iota \Rightarrow o$  be given. Let  $k13\_bagorder : \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((v1\_relat.2 \\ & X4) \wedge ((v4\_relat.2 X4) \wedge ((v8\_relat.2 X4) \wedge ((v1\_partfun1 X4 X0) \wedge \\ & (m1\_subset.1 X4 (k1\_zfmisc.1 (k2\_zfmisc.1 X0 X0)))))) \Rightarrow (((X1 \in \\ & X0) \wedge ((X2 \in X0) \wedge ((X3 \in X0) \wedge ((k4\_tarski X1 X2 \in X4) \wedge (k4\_tarski X2 X3 \in \\ & X4)))))) \Rightarrow (k4\_tarski X1 X3 \in X4) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2\_struct.0 X1) \wedge (l2\_struct.0 X1)) \Rightarrow \\ & (\exists X2. (m1\_subset.1 X2 (k1\_zfmisc.1 (k2\_zfmisc.1 (k15\_pre\_poly \\ & X0) (u1\_struct.0 X1)))) \wedge ((v1\_relat.1 X2) \wedge ((v4\_relat.1 X2 (k15\_pre\_poly \\ & X0)) \wedge ((v5\_relat.1 X2 (u1\_struct.0 X1)) \wedge ((v1\_funct.1 X2) \wedge ((\neg \\ & v1\_xboole.0 X2) \wedge ((v1\_partfun1 X2 (k15\_pre\_poly X0)) \wedge ((v1\_funct.2 \\ & X2 (k15\_pre\_poly X0) (u1\_struct.0 X1)) \wedge (v1\_polynom1 X2 (k15\_pre\_poly \\ & X0) X1))))))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.(v3\_ordinal1\ X0) \Rightarrow (\forall X1.((v1\_partfun1\ X1\ (k15\_pre\_poly\ X0)) \wedge ((v1\_relat\_2\ X1) \wedge ((v4\_relat\_2\ X1) \wedge ((v6\_relat\_2\ X1) \wedge ((v8\_relat\_2\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly\ X0)\ (k15\_pre\_poly\ X0)))))))))) \Rightarrow (\forall X2.((\neg v2\_struct\_0\ X2) \wedge (l2\_struct\_0\ X2)) \Rightarrow (\forall X3.((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0\ X2)) \wedge ((v1\_polynom1\ X3\ (k15\_pre\_poly\ X0)\ X2) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0\ X2)))))) \Rightarrow (k2\_polynom1\ (k15\_pre\_poly\ X0)\ X2\ X3 \in k5\_finsub\_1\ (u1\_struct\_0\ (g1\_orders\_2\ (k15\_pre\_poly\ X0)\ X1)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((v4\_relat\_2\ X1) \wedge ((v1\_partfun1\ X1\ X0) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)))))) \Rightarrow ((v1\_orders\_2\ (g1\_orders\_2\ X0\ X1)) \wedge (v5\_orders\_2\ (g1\_orders\_2\ X0\ X1))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v8\_relat\_2\ X1) \wedge ((v1\_partfun1\ X1\ X0) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)))))) \Rightarrow ((v1\_orders\_2\ (g1\_orders\_2\ X0\ X1)) \wedge (v4\_orders\_2\ (g1\_orders\_2\ X0\ X1))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_2\ X1) \wedge ((v1\_partfun1\ X1\ X0) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)))))) \Rightarrow ((v1\_orders\_2\ (g1\_orders\_2\ X0\ X1)) \wedge (v3\_orders\_2\ (g1\_orders\_2\ X0\ X1))) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((v3\_ordinal1\ X0) \wedge ((v1\_partfun1\ X1\ (k15\_pre\_poly\ X0)) \wedge ((v1\_relat\_2\ X1) \wedge ((v4\_relat\_2\ X1) \wedge ((v6\_relat\_2\ X1) \wedge ((v8\_relat\_2\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly\ X0)\ (k15\_pre\_poly\ X0)))))))))) \Rightarrow ((v1\_orders\_2\ (g1\_orders\_2\ (k15\_pre\_poly\ X0)\ X1)) \wedge (v16\_waybel\_0\ (g1\_orders\_2\ (k15\_pre\_poly\ X0)\ X1))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1\_xboole\_0\ X0) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ X0\ X0)))) \Rightarrow ((\neg v2\_struct\_0\ (g1\_orders\_2\ X0\ X1)) \wedge (v1\_orders\_2\ (g1\_orders\_2\ X0\ X1))) \quad (8)$$

Assume the following.

$$\forall X0.(l2\_algstr\_0\ X0) \Rightarrow ((l2\_struct\_0\ X0) \wedge (l1\_algstr\_0\ X0)) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v3\_orders\_2 X0) \wedge ((v4\_orders\_2 \\ & X0) \wedge ((v5\_orders\_2 X0) \wedge ((v16\_waybel\_0 X0) \wedge (l1\_orders\_2 X0)))))) \Rightarrow \\ & ((v1\_partfun1 (k13\_bagorder X0) (k5\_finsub\_1 (u1\_struct\_0 X0))) \wedge \\ & ((v1\_relat\_2 (k13\_bagorder X0)) \wedge ((v4\_relat\_2 (k13\_bagorder \\ & X0)) \wedge ((v8\_relat\_2 (k13\_bagorder X0)) \wedge (m1\_subset\_1 (k13\_bagorder \\ & X0) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k5\_finsub\_1 (u1\_struct\_0 X0)) \\ & (k5\_finsub\_1 (u1\_struct\_0 X0)))))))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 \\ & X0 X0))) \Rightarrow ((v1\_orders\_2 (g1\_orders\_2 X0 X1)) \wedge (l1\_orders\_2 (g1\_orders\_2 \\ & X0 X1))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. (v3\_ordinal1 X0) \Rightarrow (\forall X1. ((v1\_partfun1 X1 (k15\_pre\_poly \\ & X0)) \wedge ((v1\_relat\_2 X1) \wedge ((v4\_relat\_2 X1) \wedge ((v6\_relat\_2 X1) \wedge (( \\ & v8\_relat\_2 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k15\_pre\_poly \\ & X0) (k15\_pre\_poly X0)))))))))) \Rightarrow (\forall X2. ((\neg v2\_struct\_0 X2) \wedge \\ & (l2\_struct\_0 X2)) \Rightarrow (\forall X3. ((v1\_funct\_1 X3) \wedge ((v1\_funct\_2 \\ & X3 (k15\_pre\_poly X0) (u1\_struct\_0 X2)) \wedge ((v1\_polynom1 X3 (k15\_pre\_poly \\ & X0) X2) \wedge (m1\_subset\_1 X3 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k15\_pre\_poly \\ & X0) (u1\_struct\_0 X2)))))) \Rightarrow (\forall X4. ((v1\_funct\_1 X4) \wedge ((v1\_funct\_2 \\ & X4 (k15\_pre\_poly X0) (u1\_struct\_0 X2)) \wedge ((v1\_polynom1 X4 (k15\_pre\_poly \\ & X0) X2) \wedge (m1\_subset\_1 X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k15\_pre\_poly \\ & X0) (u1\_struct\_0 X2)))))) \Rightarrow ((r1\_polyred X0 X1 X2 X3 X4) \Leftrightarrow (k4\_tarski \\ & (k2\_polynom1 (k15\_pre\_poly X0) X2 X3) (k2\_polynom1 (k15\_pre\_poly \\ & X0) X2 X4) \in k13\_bagorder (g1\_orders\_2 (k15\_pre\_poly X0) X1)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. (v1\_xboole\_0 X0) \Rightarrow (\forall X1. ((v1\_relat\_1 X1) \wedge (v4\_relat\_1 \\ & X1 X0)) \Rightarrow ((v1\_xboole\_0 X1) \wedge ((v1\_relat\_1 X1) \wedge (v4\_relat\_1 X1 X0)))) \end{aligned} \quad (13)$$

**Theorem 1**

$$\begin{aligned} \forall X0.(v3\_ordinal1\ X0) \Rightarrow & (\forall X1.((v1\_partfun1\ X1\ (k15\_pre\_poly \\ & X0)) \wedge ((v1\_relat\_2\ X1) \wedge ((v4\_relat\_2\ X1) \wedge ((v6\_relat\_2\ X1) \wedge (( \\ & v8\_relat\_2\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly \\ & X0)\ (k15\_pre\_poly\ X0)))))))))) \Rightarrow (\forall X2.((\neg v2\_struct\_0\ X2) \wedge \\ & (l2\_algstr\_0\ X2)) \Rightarrow (\forall X3.((v1\_funct\_1\ X3) \wedge ((v1\_funct\_2 \\ & X3\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0\ X2)) \wedge ((v1\_polynom1\ X3\ (k15\_pre\_poly \\ & X0)\ X2) \wedge (m1\_subset\_1\ X3\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly \\ & X0)\ (u1\_struct\_0\ X2))))))) \Rightarrow (\forall X4.((v1\_funct\_1\ X4) \wedge ((v1\_funct\_2 \\ & X4\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0\ X2)) \wedge ((v1\_polynom1\ X4\ (k15\_pre\_poly \\ & X0)\ X2) \wedge (m1\_subset\_1\ X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly \\ & X0)\ (u1\_struct\_0\ X2))))))) \Rightarrow (\forall X5.((v1\_funct\_1\ X5) \wedge ((v1\_funct\_2 \\ & X5\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0\ X2)) \wedge ((v1\_polynom1\ X5\ (k15\_pre\_poly \\ & X0)\ X2) \wedge (m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly \\ & X0)\ (u1\_struct\_0\ X2))))))) \Rightarrow (((r1\_polyred\ X0\ X1\ X2\ X3\ X4) \wedge (r1\_polyred \\ & X0\ X1\ X2\ X4\ X5)) \Rightarrow (r1\_polyred\ X0\ X1\ X2\ X3\ X5)))))) \end{aligned}$$