

# l5\_groeb\_1

(TMRv5FkNijLzbikUNR2nKjRAP7D8dBePJL6)

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  $v7\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v13\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v33\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $v3\_group\_1 : \iota \Rightarrow o$  be given. Let  $v5\_group\_1 : \iota \Rightarrow o$  be given. Let  $v4\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $v5\_vectsp\_1 : \iota \Rightarrow o$  be given. Let  $v3\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $v4\_rlvect\_1 : \iota \Rightarrow o$  be given. Let  $l6\_algstr\_0 : \iota \Rightarrow o$  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  $r6\_polyred : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k7\_polynom1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r4\_polyred : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v4\_polynom7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $l2\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l5\_algstr\_0 : \iota \Rightarrow o$  be given. Let  $l1\_struct\_0 : \iota \Rightarrow o$  be given. Let  $l1\_algstr\_0 : \iota \Rightarrow o$

be given. Let  $v3\_polynom7 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned}
& \forall X0.(v3\_ordinal1 X0) \Rightarrow (\forall X1.((v1\_partfun1 X1 (k15\_pre\_poly \\
& \quad X0)) \wedge ((v1\_relat\_2 X1) \wedge ((v4\_relat\_2 X1) \wedge ((v6\_relat\_2 X1) \wedge (( \\
& \quad v8\_relat\_2 X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k15\_pre\_poly \\
& \quad X0) (k15\_pre\_poly X0)))))))))) \Rightarrow (\forall X2.((\neg v7\_struct\_0 X2) \wedge \\
& \quad ((v13\_algstr\_0 X2) \wedge ((v33\_algstr\_0 X2) \wedge ((v3\_group\_1 X2) \wedge ((v5\_group\_1 \\
& \quad X2) \wedge ((v4\_vectsp\_1 X2) \wedge ((v5\_vectsp\_1 X2) \wedge ((v3\_rlvect\_1 X2) \wedge \\
& \quad ((v4\_rlvect\_1 X2) \wedge (l6\_algstr\_0 X2)))))))))) \Rightarrow (\forall X3.(( \\
& \quad v1\_funct\_1 X3) \wedge ((v1\_funct\_2 X3 (k15\_pre\_poly X0) (u1\_struct\_0 \\
& \quad X2)) \wedge ((v1\_polynom1 X3 (k15\_pre\_poly X0) X2) \wedge (m1\_subset\_1 X3 ( \\
& \quad k1\_zfmisc\_1 (k2\_zfmisc\_1 (k15\_pre\_poly X0) (u1\_struct\_0 X2)))))) \Rightarrow \\
& \quad (\forall X4.((v1\_funct\_1 X4) \wedge ((v1\_funct\_2 X4 (k15\_pre\_poly X0) \\
& \quad (u1\_struct\_0 X2)) \wedge ((v1\_polynom1 X4 (k15\_pre\_poly X0) X2) \wedge (m1\_subset\_1 \\
& \quad X4 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k15\_pre\_poly X0) (u1\_struct\_0 X2)))))) \Rightarrow \\
& \quad (\forall X5.((v1\_funct\_1 X5) \wedge ((v1\_funct\_2 X5 (k15\_pre\_poly X0) \\
& \quad (u1\_struct\_0 X2)) \wedge ((v1\_polynom1 X5 (k15\_pre\_poly X0) X2) \wedge (m1\_subset\_1 \\
& \quad X5 (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k15\_pre\_poly X0) (u1\_struct\_0 X2)))))) \Rightarrow \\
& \quad ((r4\_polyred X0 X1 X2 X3 X5 X4) \Rightarrow ((X3 \neq k7\_polynom1 X0 X2) \wedge (X5 \neq k7\_polynom1 \\
& \quad X0 X2))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v2\_struct\_0 X1) \wedge (l2\_struct\_0 X1)) \Rightarrow \\
& \quad ((v1\_funct\_1 (k7\_polynom1 X0 X1)) \wedge ((v1\_funct\_2 (k7\_polynom1 \\
& \quad X0 X1) (k15\_pre\_poly X0) (u1\_struct\_0 X1)) \wedge (v4\_polynom7 (k7\_polynom1 \\
& \quad X0 X1) X0 X1)))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.(l6\_algstr\_0 X0) \Rightarrow ((l2\_algstr\_0 X0) \wedge (l5\_algstr\_0 X0)) \tag{3}$$

Assume the following.

$$\forall X0.(l2\_struct\_0 X0) \Rightarrow (l1\_struct\_0 X0) \tag{4}$$

Assume the following.

$$\forall X0.(l2\_algstr\_0 X0) \Rightarrow ((l2\_struct\_0 X0) \wedge (l1\_algstr\_0 X0)) \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v2\_struct\_0 X1) \wedge (l2\_struct\_0 X1)) \Rightarrow \\
& \quad ((v1\_funct\_1 (k7\_polynom1 X0 X1)) \wedge ((v1\_funct\_2 (k7\_polynom1 \\
& \quad X0 X1) (k15\_pre\_poly X0) (u1\_struct\_0 X1)) \wedge (m1\_subset\_1 (k7\_polynom1 \\
& \quad X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (k15\_pre\_poly X0) (u1\_struct\_0 \\
& \quad X1))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v3\_ordinal1\ X0) \Rightarrow (\forall X1.((v1\_partfun1\ X1\ (k15\_pre\_poly \\
& \quad X0)) \wedge ((v1\_relat\_2\ X1) \wedge ((v4\_relat\_2\ X1) \wedge ((v6\_relat\_2\ X1) \wedge (( \\
& v8\_relat\_2\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly \\
& \quad X0)\ (k15\_pre\_poly\ X0)))))))))) \Rightarrow (\forall X2.((\neg v7\_struct\_0\ X2) \wedge \\
& ((v13\_algstr\_0\ X2) \wedge ((v33\_algstr\_0\ X2) \wedge ((v3\_group\_1\ X2) \wedge ((v5\_group\_1 \\
& \quad X2) \wedge ((v4\_vectsp\_1\ X2) \wedge ((v5\_vectsp\_1\ X2) \wedge ((v3\_rlvect\_1\ X2) \wedge \\
& \quad ((v4\_rlvect\_1\ X2) \wedge (l6\_algstr\_0\ X2)))))))))) \Rightarrow (\forall X3.(( \\
& \quad v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0 \\
& \quad X2)) \wedge ((v1\_polynom1\ X3\ (k15\_pre\_poly\ X0)\ X2) \wedge (m1\_subset\_1\ X3\ ( \\
& \quad k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0\ X2)))))) \Rightarrow \\
& \quad (\forall X4.((v1\_funct\_1\ X4) \wedge ((v1\_funct\_2\ X4\ (k15\_pre\_poly\ X0) \\
& (u1\_struct\_0\ X2)) \wedge ((v1\_polynom1\ X4\ (k15\_pre\_poly\ X0)\ X2) \wedge (m1\_subset\_1 \\
& \quad X4\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0\ X2)))))) \Rightarrow \\
& \quad ((r6\_polyred\ X0\ X1\ X2\ X3\ X4) \Leftrightarrow (\exists X5.((v1\_funct\_1\ X5) \wedge ((v1\_funct\_2 \\
& \quad X5\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0\ X2)) \wedge ((v1\_polynom1\ X5\ (k15\_pre\_poly \\
& \quad X0)\ X2) \wedge (m1\_subset\_1\ X5\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly \\
& \quad X0)\ (u1\_struct\_0\ X2)))))) \wedge (r4\_polyred\ X0\ X1\ X2\ X3\ X4\ X5))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v2\_struct\_0\ X1) \wedge (l2\_struct\_0\ X1)) \Rightarrow \\
& \quad (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly \\
& \quad X0)\ (u1\_struct\_0\ X1)))) \Rightarrow (((v1\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ (k15\_pre\_poly \\
& \quad X0)\ (u1\_struct\_0\ X1)) \wedge (v4\_polynom7\ X2\ X0\ X1))) \Rightarrow ((v1\_funct\_1\ X2) \wedge \\
& \quad ((v1\_funct\_2\ X2\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0\ X1)) \wedge (v3\_polynom7 \\
& \quad \quad X2\ X0\ X1))))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v2\_struct\_0\ X1) \wedge (l2\_struct\_0\ X1)) \Rightarrow \\
& \quad (\forall X2.(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly \\
& \quad X0)\ (u1\_struct\_0\ X1)))) \Rightarrow (((v1\_funct\_1\ X2) \wedge ((v1\_funct\_2\ X2\ (k15\_pre\_poly \\
& \quad X0)\ (u1\_struct\_0\ X1)) \wedge (v3\_polynom7\ X2\ X0\ X1))) \Rightarrow ((v1\_funct\_1\ X2) \wedge \\
& \quad ((v1\_funct\_2\ X2\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0\ X1)) \wedge (v1\_polynom1 \\
& \quad \quad X2\ (k15\_pre\_poly\ X0)\ X1))))
\end{aligned} \tag{9}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0) \Rightarrow ((v2\_struct\_0\ X0) \Rightarrow (v7\_struct\_0\ X0)) \tag{10}$$

**Theorem 1**

$$\begin{aligned} \forall X0.(v3\_ordinal1\ X0) \Rightarrow (\forall X1.((v1\_partfun1\ X1\ (k15\_pre\_poly \\ X0)) \wedge ((v1\_relat\_2\ X1) \wedge ((v4\_relat\_2\ X1) \wedge ((v6\_relat\_2\ X1) \wedge (( \\ v8\_relat\_2\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly \\ X0)\ (k15\_pre\_poly\ X0)))))))))) \Rightarrow (\forall X2.((\neg v7\_struct\_0\ X2) \wedge \\ ((v13\_algstr\_0\ X2) \wedge ((v33\_algstr\_0\ X2) \wedge ((v3\_group\_1\ X2) \wedge ((v5\_group\_1 \\ X2) \wedge ((v4\_vectsp\_1\ X2) \wedge ((v5\_vectsp\_1\ X2) \wedge ((v3\_rlvect\_1\ X2) \wedge \\ ((v4\_rlvect\_1\ X2) \wedge (l6\_algstr\_0\ X2)))))))))) \Rightarrow (\forall X3.(( \\ v1\_funct\_1\ X3) \wedge ((v1\_funct\_2\ X3\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0 \\ X2)) \wedge ((v1\_polynom1\ X3\ (k15\_pre\_poly\ X0)\ X2) \wedge (m1\_subset\_1\ X3\ ( \\ k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k15\_pre\_poly\ X0)\ (u1\_struct\_0\ X2)))))) \Rightarrow \\ (\neg r6\_polyred\ X0\ X1\ X2\ X3\ (k7\_polynom1\ X0\ X2)))) \end{aligned}$$