t22_gcd_1 (TMX8CVmxFzTWUzgsgBVCRSSiw76mk4EEBna)

October 27, 2020

Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v3\_group\_1 : \iota \Rightarrow o$ be given. Let $v4\_vectsp\_1 : \iota \Rightarrow o$ be given. Let $l4\_algstr\_0 : \iota \Rightarrow o$ be given. Let $m2\_gcd\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r4\_gcd\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3\_gcd\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $m1\_gcd\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v3\_group\_1\ X0) \wedge ((v4\_vectsp\_1\ X0) \wedge (l4\_algstr\_0\ X0)))) \Rightarrow (\forall X1.(m2\_gcd\_1\ X1\ X0) \Rightarrow ((\neg v1\_xboole\_0\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v3\_group\_1\ X0) \wedge ((v4\_vectsp\_1\ X0) \wedge (l4\_algstr\_0\ X0)))) \Rightarrow (\forall X1.((\neg v1\_xboole\_0\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))) \Rightarrow ((m2\_gcd\_1\ X1\ X0) \Leftrightarrow ((m1\_gcd\_1\ X1\ X0) \wedge (k5\_struct\_0\ X0 \in X1)))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v3\_group\_1\ X0) \wedge ((v4\_vectsp\_1\ X0) \wedge (l4\_algstr\_0\ X0)))) \Rightarrow (\forall X1.((\neg v1\_xboole\_0\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))) \Rightarrow ((m1\_gcd\_1\ X1\ X0) \Leftrightarrow ((\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\exists X3.(m2\_subset\_1\ X3\ (u1\_struct\_0\ X0)\ X1) \wedge (r4\_gcd\_1\ X0\ X3\ X2))) \wedge (\forall X2.(m2\_subset\_1\ X2\ (u1\_struct\_0\ X0)\ X1) \Rightarrow (\forall X3.(m2\_subset\_1\ X3\ (u1\_struct\_0\ X0)\ X1) \Rightarrow (\neg(X2 \neq X3) \wedge (r3\_gcd\_1\ X0\ X2\ X3))))))) \tag{3}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v3\_group\_1\ X0) \wedge ((v4\_vectsp\_1\ X0) \wedge (l4\_algstr\_0\ X0)))) \Rightarrow (\forall X1.(m2\_gcd\_1\ X1\ X0) \Rightarrow ((k5\_struct\_0\ X0 \in X1) \wedge ((\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\exists X3.(m2\_subset\_1\ X3\ (u1\_struct\_0\ X0)\ X1) \wedge (r4\_gcd\_1\ X0\ X3\ X2))) \wedge (\forall X2.(m2\_subset\_1\ X2\ (u1\_struct\_0\ X0)\ X1) \Rightarrow (\forall X3.(m2\_subset\_1\ X3\ (u1\_struct\_0\ X0)\ X1) \Rightarrow (\neg(X2 \neq X3) \wedge (r3\_gcd\_1\ X0\ X2\ X3))))))))$$