```
THEOREM /\ Init => IInv
.....\\.IInv.\\.Next.;=>..IInv'
<1>1...Init...=>...IInv
BY PosIntAssump DEF Init, IInv, TypeOK
<1>2...IInv./\.Next.=>..IInv'
...<2>1...SUFFICES..ASSUME..IInv,..Next
PROVE ... IInv'
LILLI OBVIOUS
___<2>2., CASE, V., >, x
|x_{1}| = |x_{2}| < 3 > 1. |x_{1}| < 3 > 1. |x_{2}| < 3
| SimpleArithmetic | DEF | IInv , | TypeOK
. .. . . . . <3>2...QED
\Box \Box < 2 > 3 . \Box CASE_{\Box} x_{\Box} >_{\Box} v
|x| = |x| < 3 > 1. |x| = |
| BY | <2>1, | <2>3, | SimpleArithmetic | DEF | IInv, | TypeOK
|| || || || < 3 > 2. || GCD(y, || x - y)|| = || GCD(y, || x)|
| | | | | | | | <3>3 . | | QED
| | | | <2>4. | | QED
<1>3. LIInv => EuclidInv
BY GCD1 DEF IInv, EuclidInv, TypeOK
<1>4...QED
||BY|| < 1 > 1, ||< 1 > 2, ||< 1 > 3
```