```
coprime_bezout_id2  THM

⊢  ∀a,b:ℤ. (∃x,y:ℤ. a·x+b·y = 1) ⇒ CoPrime(a,b)  by UnivCD
|
1. a : ℤ
2. b : ℤ
3. ∃x,y:ℤ. a·x+b·y = 1
⊢  CoPrime(a,b)  by Analyze 3 THEN Analyze 4
|
3. x : ℤ
4. y : ℤ
5. a·x+b·y = 1
⊢  CoPrime(a,b)  by Unfold ‘coprime‘ 0 THEN Unfold ‘gcd_p‘ 0
|
|\
| ⊢  1 | a  by BackThru Thm* ∀a:ℤ. 1 | a    {one_divs_any}
|
|\
| ⊢  1 | b  by BackThru Thm* ∀a:ℤ. 1 | a    {one_divs_any}
|
.\
. 6. z : ℤ
. 7. z | a
. 8. z | b
. ⊢  z | 1
. | by (Using [‘c’,x]
. |     (FwdThru Thm* ∀a,b,c:ℤ. a | b ⇒ a | b·c    {divisor_of_mul}
. |      [7]))
. |    THEN
. |    (Using [‘c’,y]
. |     (FwdThru Thm* ∀a,b,c:ℤ. a | b ⇒ a | b·c    {divisor_of_mul}
. |      [8]))
. |
. 9. z | a·x
. 10. z | b·y
. ⊢  z | 1
. | by FwdThru
. |    Thm* ∀a,b1,b2:ℤ. a | b1 ⇒ a | b2 ⇒ a | b1+b2
. |    {divisor_of_sum}
. |    [9;10]
. |
. 11. z | a·x+b·y
. ⊢  z | 1  by HypSubst 5 11
. |
. 11. z | 1
. ⊢  z | 1  by Trivial
END
```