```
divides_nchar  THM

⊢  ∀a,b:ℕ+. a | b ⟺ (∃c:ℕ+. b = a·c ∈ ℕ+)
| by Unfold `divides` 0 THEN GenRepD
|
|\
| 1. a : ℕ+
| 2. b : ℕ+
| 3. ∃c:ℤ. b = a·c
| ⊢  ∃c:ℕ+. b = a·c  by (Analyze 3) THEN Witness c
| |
| |\
| | .....set predicate .....
| | 3. c : ℤ
| | 4. b = a·c
| | ⊢  0<c  by Assert (a·c>0)
| | |
| | 5. a·c>0
| | ⊢  0<c
| |   by (FwdThru
| |       Thm* ∀a,b:ℤ. a·b>0 ⟺ a>0 & b>0 ∨ a<0 & b<0
| |       {pos_mul_arg_bounds}
| |       [-1])
| |      THEN
| |      GenExRepD
| |
| |\
| | 3. c : ℤ
| | 4. b = a·c
| | ⊢  b = a·c  by Analyze
| |
| .\
| . .....set predicate .....
| . 3. c : ℤ
| . 4. b = a·c
| . 5. c1 : ℕ+
| . ⊢  0<a·c1  by BackThru Thm* ∀a,b:ℕ+. 0<a·b    {mul_bounds_1b}
|
|\
| 1. a : ℕ+
| 2. b : ℕ+
| 3. ∃c:ℕ+. b = a·c
| ⊢  ∃c:ℤ. b = a·c  by (Analyze 3) THEN Witness c
|
.\
. .....set predicate .....
. 1. a : ℕ+
. 2. ℕ+
. 3. c : ℕ+
. ⊢  0<a·c  by BackThru Thm* ∀a,b:ℕ+. 0<a·b    {mul_bounds_1b}
END
```