```
length_nth_tl  THM

⊢  ∀as:A List, n:{0...||as||}. ||nth_tl(n;as)|| = ||as||-n
| by CDToVarThen ‘as’ ListInd
|
|\
| 1. A : Type
| 2. A List
| ⊢  ∀n:{0...||nil||}. ||nth_tl(n;nil)|| = ||nil||-n
| | by (Reduce 0) THEN (Analyze 0) THEN (RecCaseSplit ‘nth_tl‘)
| |
| |\
| | 3. n : {0...0}
| | 4. n≤0
| | ⊢  0 = 0-n  by Auto
| |
| .\
| . 3. n : {0...0}
| . 4. 0<n
| . ⊢  ||nth_tl(n-1;nil)|| = 0-n  by Auto
|
.\
. 1. A : Type
. 2. A List
. 3. u : A
. 4. v : A List
. 5. ∀n:{0...||v||}. ||nth_tl(n;v)|| = ||v||-n
. ⊢  ∀n:{0...||u.v||}. ||nth_tl(n;u.v)|| = ||u.v||-n
. | by Reduce 0 THEN ((Analyze 0) THEN (RecCaseSplit ‘nth_tl‘))
. |
. |\
. | 6. n : {0...||v||+1}
. | 7. n≤0
. | ⊢  ||v||+1 = ||v||+1-n  by Auto
. |
. .\
. . 6. n : {0...||v||+1}
. . 7. 0<n
. . ⊢  ||nth_tl(n-1;v)|| = ||v||+1-n  by RWO "5" 0
END
```