```
select_firstn  THM

⊢  ∀as:T List, n:{0...||as||}, i:ℕn. firstn(n;as)[i] = as[i]
| by (Assert
|      (∀T:Type, n:ℕ, as:T List.
|       n≤||as|| ⇒ (∀i:ℕn. firstn(n;as)[i] = as[i])))
|    THEN
|    HypBackchain
|
.....assertion .....
⊢  ∀T:Type, n:ℕ, as:T List.
|  n≤||as|| ⇒ (∀i:ℕn. firstn(n;as)[i] = as[i])
| by (CDToVarThen ‘n’ NatInd) THEN (RecCaseSplit ‘firstn‘)
|    THEN
|    (Try (Complete Auto))
|
.....truecase .....
1. T : Type
2. n : ℤ
3. 0<n
4. ∀as:T List. n-1≤||as|| ⇒ (∀i:ℕ(n-1). firstn(n-1;as)[i] = as[i])
5. 0<n
⊢  ∀as:T List.
|  n≤||as||
|  ⇒
|  (∀i:ℕn.
|   (Case of as; nil → nil ; a.as’ → a.firstn(n-1;as’))[i] = as[i])
| by (Analyze 0) THEN (Analyze -1) THEN (Reduce 0) THEN RepD
|    THEN
|    (Try (Complete Auto))
|
6. T List
7. u : T
8. v : T List
9. n≤||v||+1
10. i : ℕn
⊢  (u.firstn(n-1;v))[i] = (u.v)[i]  by Decide (i = 0)
|
|\
| 11. i = 0
| ⊢  (u.firstn(n-1;v))[i] = (u.v)[i]
|   by RW0
|      Thm* ∀a:T, as:T List, i:ℤ. i≤0 ⇒ (a.as)[i] = a
|      {select_cons_hd}
|      0
|
.\
. 11. ¬i = 0
. ⊢  (u.firstn(n-1;v))[i] = (u.v)[i]
. | by RWH
. |    (LemmaC
. |     Thm* ∀a:T, as:T List, i:ℤ.
. |          0<i ⇒ i≤||as|| ⇒ (a.as)[i] = as[(i-1)]
. |     {select_cons_tl})
. |    0
```

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. |
. ⊢  firstn(n-1;v)[(i-1)] = v[(i-1)]  by BackThru 4
END
```