```
sublist_iff_assert_sublist_2  THM

⊢  Discrete{T} ⇒ (∀eq:{T≡₂}, L,M:T List. L(⊆eq)M ⟺ (⊆₂eq)(L,M))
| by UnivCD
|
1. T : Type
2. Discrete{T}
3. eq : {T≡₂}
4. L : T List
5. M : T List
⊢  L(⊆eq)M ⟺ (⊆₂eq)(L,M)  by MoveToConcl 5 THEN ListInd -1
|
|\
| 4. T List
| ⊢  ∀M:T List. nil(⊆eq)M ⟺ (⊆₂eq)(nil,M)  by Reduce 0
|
.\
. 5. u : T
. 6. v : T List
. 7. ∀M:T List. v(⊆eq)M ⟺ (⊆₂eq)(v,M)
. ⊢  ∀M:T List. (u.v)(⊆eq)M ⟺ (⊆₂eq)(u.v,M)  by Analyze 0
. |
. 8. M : T List
. ⊢  (u.v)(⊆eq)M ⟺ (⊆₂eq)(u.v,M)  by Equivalence 3 THEN Reduce 0
. |
. 4. eq ∈ T→T→𝔹
. 5. ∀x:T. eq(x,x)
. 6. ∀x,y:T. eq(x,y) ⟺ eq(y,x)
. 7. ∀x,y,z:T. eq(x,y) ⇒ eq(y,z) ⇒ eq(x,z)
. 8. T List
. 9. u : T
. 10. v : T List
. 11. ∀M:T List. v(⊆eq)M ⟺ (⊆₂eq)(v,M)
. 12. M : T List
. ⊢  u(∈eq) M & v(⊆eq)M ⟺ (u(∈eq) M∧₂∀x∈₂v.x(∈eq) M)  by Auto
. |
. |\
. | 13. u(∈eq) M
. | 14. v(⊆eq)M
. | ⊢  u(∈eq) M∧₂∀x∈₂v.x(∈eq) M
. | | by RWH (LemmaC Thm* ∀p,q:𝔹. (p∧₂q) ⟺ p & q    {assert_of_band})
. | |    0
. | |    THEN
. | |    Analyze 0
. | |
. | |\
. | | ⊢  u(∈eq) M  by Auto
. | |
. | .\
. | . ⊢  ∀x∈₂v.x(∈eq) M  by With M (Analyze -4)
. | . |
. | . 11. M : T List
. | . 12. u(∈eq) M
. | . 13. v(⊆eq)M
. | . 14. v(⊆eq)M ⟺ (⊆₂eq)(v,M)
```

```
. | . ⊢  ∀x∈₂v.x(∈eq) M
. | .   by Unfold ‘sublist_2‘ -1 THEN Reduce -1 THEN HypBackchain
. |
. |\
. | 13. u(∈eq) M∧₂∀x∈₂v.x(∈eq) M
. | ⊢  u(∈eq) M
. |   by RWH (LemmaC Thm* ∀p,q:𝔹. (p∧₂q) ⟺ p & q    {assert_of_band})
. |      -1
. |
. .\
. . 13. u(∈eq) M∧₂∀x∈₂v.x(∈eq) M
. . ⊢  v(⊆eq)M
. . | by UnfoldTopAb 0
. . |    THEN
. . |    RWH (LemmaC Thm* ∀p,q:𝔹. (p∧₂q) ⟺ p & q    {assert_of_band})
. . |    -1
. . |
. . 13. u(∈eq) M
. . 14. ∀x∈₂v.x(∈eq) M
. . ⊢  ∀x∈v.x(∈eq) M
. .   by BackThru
. .      Thm* ∀L:T List, P:(T→𝔹). ∀x∈L.P(x) ⟺ ∀x∈₂L.P(x)
. .      {list_all_iff_assert_list_all_2}
END
```