```
finite_decidable_subset  THM

⊢  ∀B:(T→Prop). Fin(T) & (∀t:T. Dec(B(t))) ⇒ Fin({t:T| B(t) })
| by GenRepD
|
1. T : Type
2. B : T→Prop
3. Fin(T)
4. ∀t:T. Dec(B(t))
⊢  Fin({t:T| B(t) })  by Analyze 3
|
3. n : ℕ
4. ∃f:(ℕn→T). Bij(ℕn; T; f)
5. ∀t:T. Dec(B(t))
⊢
| by Inst
|    Thm* ∀n:ℕ, T:Type, B:(T→Prop).
|         (ℕn ∼ T) & (∀t:T. Dec(B(t))) ⇒ (∃m:ℕ. ℕm ∼ {t:T| B(t) })
|    {fin_dec_fin}
|    [n;T;B]
|
|\
| ⊢  ℕn ∼ T
|   by BackThru
|      Thm* (∃f:(A→B). Bij(A; B; f)) ⟺ (A ∼ B)
|      {bij_iff_1_1_corr}
|
.\
. 6. ∃m:ℕ. ℕm ∼ {t:T| B(t) }
. ⊢   by Unfold ‘finite‘ 0
. |
. ⊢  ∃n:ℕ, f:(ℕn→{t:T| B(t) }). Bij(ℕn; {t:T| B(t) }; f)
.   by RWO "bij_iff_1_1_corr<" 6
END
```