```
decid_is_comp  THM

⊢  ∀f:(T→Prop). (∀t:T. Dec(f(t))) ⇒ (∃g:(T→𝔹). ∀t:T. f(t) ⟺ g(t))
| by UnivCD
|
1. T : Type
2. f : T→Prop
3. ∀t:T. Dec(f(t))
⊢  ∃g:(T→𝔹). ∀t:T. f(t) ⟺ g(t)
| by Inst
|    Thm* ∀Q:(A→B→Prop).
|         (∀x:A. ∃y:B. Q(x,y)) ⇒ (∃f:(A→B). ∀x:A. Q(x,f(x)))
|    {ax_choice}
|    [T;𝔹;λ₂t,b. f(t) ⟺ b]
|
|\
| .....antecedent .....
| ⊢  ∀x:T. ∃y:𝔹. f(x) ⟺ y  by Analyze 0
| |
| 4. x : T
| ⊢  ∃y:𝔹. f(x) ⟺ y  by Witness3 x
| |
| 3. x : T
| 4. Dec(f(x))
| ⊢   by Analyze 4
| |
| |\
| | 4. f(x)
| | ⊢   by Witness true₂
| | |
| | 5. f(x)
| | ⊢  true₂  by Reduce 0
| |
| .\
| . 4. ¬f(x)
| . ⊢   by Witness false₂
| . |
| . 5. false₂
| . ⊢  f(x)  by Reduce 5
|
.\
. 4. ∃f@0:(T→𝔹). ∀x:T. f(x) ⟺ f@0(x)
. ⊢   by Auto
END
```