```
discrete_vs_bool  THM

⊢  (A Discrete) ⟺ (∃e:(A→A→𝔹). ∀x,y:A. (x e y) ⟺ x = y)
| by Analyze
|
1. A : Type
⊢  (A Discrete) ⟺ (∃e:(A→A→𝔹). ∀x,y:A. (x e y) ⟺ x = y)
| by Use:[A | λx,y. x = y ∈ A]
|    Inst:
|    Thm*  ∀E:(T→T→Prop).
|          (∀x,y:T. Dec(E(x,y)))
|          ⟺
|          (∃f:(T→T→𝔹). ∀x,y:T. (x f y) ⟺ E(x,y))
|    {dec_iff_ex_bvfun}
|    THEN
|    ReduceSOAps Hyp:-1
|
2. (∀x,y:A. Dec(x = y)) ⟺ (∃f:(A→A→𝔹). ∀x,y:A. (x f y) ⟺ x = y)
⊢  (A Discrete) ⟺ (∃e:(A→A→𝔹). ∀x,y:A. (x e y) ⟺ x = y)
  by Def of <type> Discrete
END
```